**AN INTEGRATED APPROACH TO REDISTRIBUTION:
ISSUES OF POLICY, ECONOMICS AND INFORMATION**

by

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A Thesis

submitted to the Victoria University of Wellington
in fulfilment of the
requirements for the degree of
Doctor of Philosophy
in Public Policy

Victoria University of Wellington
1990

ABSTRACT

This thesis considers how best to administer redistribution policies. It focuses particularly on the information needed to assess relative circumstances, the implications of the government collecting such information, and processes by which the appropriate information may be assembled and assessed.

In New Zealand, as with many other OECD nations, the Government's redistribution policies are administered through a range of different agencies, with duplication in some areas and gaps in others. An integrated approach to redistribution systems may offer a means to improve equity and efficiency.

Part One discusses the assessment of relative well-being, and adopts the choice set as the intellectual device for this purpose. The time period for the assessment of income is examined in detail, with the conclusion that a long period should be used except where the individual is constrained to operate under a short time horizon. A new concept of "bankability" is developed as a means of identifying those operating under such constraints.

Part Two uses the philosophical foundations of the value of privacy to develop a new statement of the right to privacy, such that everyone should be protected against the requirement to divulge information, unless that information is the "business" of another party. A view on the business of the state depends on one's ideology of the state. Since it is generally accepted in New Zealand in the late twentieth century that the state has a role in redistribution, the state has some right to collect information for that purpose. However, the rights of the state are moderated by the existence of a common law tradition of respect for individuals.

A set of criteria for evaluating redistribution systems is devised in Part Three. These criteria, which include consideration of the information to be collected, individual control over personal information, and administrative simplicity, are then used to identify significant weaknesses in the systems currently used in New Zealand. The main problems identified are the collection of inadequate information, duplication, and complex institutional structures; the main virtue of the current systems is that information provided is only used for the purpose for which it was provided. An alternative approach is outlined which would address the problems while retaining the current protection of privacy interests.

This thesis is a mix of inter-disciplinary academic enquiry and policy development. Part One is an amalgam of economic and philosophical approaches, Part Two involves philosophy and politics, and Part Three applies the theoretical considerations to issues of public administration.

TO LESLEY
WITH MY LOVE

PREFACE

The origin of my interest in this area is a concern to protect the continued viability of welfare support in New Zealand. Even after a period of significantly increased tax collections, the fiscal deficit remains high and it seems inevitable that substantial cuts must be made in Government expenditure. Since welfare spending of various sorts accounts for a very large percentage of total Government spending, any significant cuts in overall spending could be achieved only at the cost of major reductions in welfare spending.

Across the board cuts in social spending could place extreme pressure on those people who are particularly impoverished. It seems more fair that those who are relatively well off should bear more of the burden, and the Treasury has argued that the preferred solution is to introduce more targeting in social spending, in order that the funds are channelled more closely to those in the greatest need. As a policy manager responsible for developing the Treasury's social policy position, it became clear to me that there were large areas that needed to be explored in order to be more sure of the possibilities and limits of targeted assistance.

One major area of concern is the question of incentives. Investigating this area requires the measurement of replacement rates and effective marginal tax rates, and the calculation of likely responses to such rates. This has proceeded over the last 18 months, as a separate project in Treasury under my management, and will be reported elsewhere.

The other area involves the identification and handling of the information necessary to carry on an effective targeting policy. This is the area that I have focused on, and which is reported here. The initial questions, and the required solutions, are intensely practical matters of public administration. However, the process of refining, clarifying and solving the question has involved an abstruse and academic inquiry into a series of areas.

Since this work is policy-driven, it does not emerge as an application of any one paradigm or approach, but it is instead unashamedly inter-disciplinary. My own academic background was predominantly in economics, and my later experience as a trade unionist and policy adviser has given me an understanding of politics and public administration. In the last five years, as I have worked in social policy, I have read in moral philosophy in order to improve my grasp on the issues in this area. This work reflects these different backgrounds, and represents an attempt to bring the different threads together to provide a workable approach.

There is commonly some wariness about inter-disciplinary work. Though there may be an acceptance that complete answers to real world issues cannot be found from any one perspective, there may be a concern that an inter-disciplinary approach is an excuse for a lack of rigour. Alternatively, there may be a feeling that the results of such exercises are less elegant and more confused than could be achieved through the careful application of a single paradigm. I hope that I have avoided the first sin, and that the issues have been explored to an appropriate depth using each of the approaches that are deployed. As to the second, I agree that a single discipline approach would have been simpler, but it would not have addressed the question I was determined to answer. The answers that I present are not simple, and depend on fine judgements; I do

not develop one solution, but a series of considerations that must be weighed. If there are any who are disappointed by this outcome, I refer them to the words of Amartya Sen, who said recently in a interview reported in *Economic Perspective*;

"Most of modern economics tends to concentrate too heavily on very narrow things, leaving out enormous areas of what are seen as political and sociological factors on one side, and philosophical issues on the other. But these issues are often central to economic problems themselves ... An economic analyst has to juggle many balls, even if a little clumsily, rather than giving a superb display of virtuosity with one ball." Quoted by Kramer, A in "A Conversation with Amartya Sen", *Journal of Economic Perspectives*, 1989, 3, page 141.

I am quite certain that I have dropped more balls than Professor Sen does, but I take comfort from his counsel that we will never achieve useful answers unless we attempt to juggle several balls at once.

One problem of an inter-disciplinary approach is that it has made it difficult to stick with a standard presentation of theory, data and results. The range of theoretical considerations has obliged me to devote virtually all of the first two parts to theoretical discussion, and Part Three presents a melding of these considerations, and an application of them to the policy issues. However, though this may appear to be classic informationless opening, there has been extensive enquiry into administrative systems and practices. In order to avoid any interruption to the overall flow, the results of these enquiries are presented as appendices. Those with a particular interest in whether I have dropped too many balls are asked to examine these appendices because they represent a substantial part of the overall work. I should note here that Appendix Three, on tax compliance, has been published in the June issue of the *Australian Tax Forum*.

There are a large number of people and institutions who have assisted in this project in various ways. The first contribution was from the Treasury, which has allowed me the time and funding to complete this study. In addition, Treasury has given me full clerical support. In particular, David Smyth (my manager at the time the work began) was very helpful in defining and setting up the programme, and he also served on my project committee.

The Department of Social Welfare (in particular, David Preston, who served on my project committee), the Inland Revenue Department and the Housing Corporation were the other departments participating in the project. They were all very helpful in allowing me access to their staff and records, which has assisted me both in describing existing approaches and also in discussing alternatives. In addition, the staff of a large number of agencies from many countries were consulted during my work. The names of everyone interviewed are recorded in the references section. I am grateful to everyone listed, and their employers, for the time they gave and the information they supplied.

As well as these fact-finding interviews, I have had many very useful discussions with academics who have criticised various aspects of my work. In particular I would like to acknowledge the contributions of Andrew Dilnot, Julian Le Grand, Nicholas Barr, Jonathon Kesselman, Alice Rivlin, Gary Burtless, Paula Rebstock, Bob Stevens, Fraser Jackson and David Flaherty. I have presented seminar papers at the New Zealand Planning Council, the Welfare State Programme of the London School of

Economics, the Institute of Fiscal Studies (London), both the Economics Group and the Master of Public Policy seminar series at Victoria University, and on three occasions for the Institute of Policy Studies (Victoria University). I am grateful to all those institutions for the opportunity to present the papers, and to the participants for the feedback received.

During the period that I have been working on this project I have been a Visiting Fellow at the Institute of Policy Studies, at Victoria University, and for three months I was an Academic Visitor at the Welfare State Programme of the Toyota Suntory International Centre for Economics and Related Disciplines, at the London School of Economics. I am grateful to both of these institutions for their hospitality.

The main personal debt for contributions to this study is to Gary Hawke, who is both Director of the Institute of Policy Studies and also my thesis supervisor. I have found our regular scheduled hour-long meetings (which never lasted less than ninety minutes) to be an intellectual and social high point of the week. Gary's regular criticisms, advice and continuing encouragement were a very valuable source of support, and I doubt if the project would have been completed without that support.

I would like also to record my thanks to my wife, Lesley Bagnall, and our children, Joe, Sam, Jessie and Meg. They have all had to put up with absences (physical and intellectual) as well as occasional long discussions of arcane matters of privacy rights or the administration of benefits. Lesley has also made the supreme effort of reading through the whole manuscript.

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INTRODUCTION

CHAPTER ONE: INTRODUCTION

The Problem

In New Zealand, as with many other developed countries, there is currently a range of redistribution policies administered by different agencies using a variety of criteria. The existence of a range of services has the effect of treating different people in different ways, and also treating the same person in a series of different ways all at the same time. The result can be to face the individual with a difficult administrative and information problem in accessing redistribution systems and sometimes with negative incentives as a result of the cumulative effect of different redistribution policies.

A simple example of the problem may be seen in the case of the sole parent. This person (usually a woman) needs to approach the Social Welfare Department to apply for a Domestic Purposes Benefit. Part of the requirements for that benefit include the annual provision of information about income received, including information on maintenance payments from the father. In addition, if she has had a job during the year the woman is likely to need to make an annual return of income to the Inland Revenue Department for income tax assessment purposes, and in order to assess her eligibility for Family Support payments. It is likely that the family will be living in rental property supplied by the Housing Corporation or possibly in owner occupied accommodation with a mortgage from the Housing Corporation. Recipients of Housing Corporation assistance are also required to supply income information to the Housing Corporation annually in order to qualify for reduced rent or mortgage repayment rates. Many sole parents would be affected by all three of these forms of income assessment by these different state agencies. In addition, some sole parents might be using child care services for which they can apply to the Department of Social Welfare for an income targeted subsidy which requires a different income test. Alternatively, a member of the family might be eligible for income-tested youth income support, in which case verified information on the family income must be supplied to the Department of Social Welfare or the Education Department.

The case of sole parent is not unique. Similar complications may occur in the lives of superannuitants and other beneficiaries, or any low income family occupying state rental accommodation and receiving Family Support. For those on Sickness or Unemployment Benefits the reporting requirements are even more frequent.

There are several elements of this scenario that are cause for some concern. The first problem is the cumulative effect of the various policies on the family's purchasing power. If income rises then taxes may increase, rents (or mortgage payments) will rise and benefits, Youth Income Support, Family Support and child care subsidies will all drop. Once these series of adjustments have all taken place the woman may find that an increase in wages can lead to a reduction in effective purchasing power, or at least very little rise compared to the rise in the gross wage. Various proposals for integrated systems of redistribution, such as negative income taxes, credit income taxes and tax credits, have attempted to produce schemes with a smoothly tapered rate of assistance and consistent incentives to earn extra income. An exploration of the issues in this area requires a study of effective marginal tax rates, replacement rates, and elasticities of labour supply, savings and household formation. Though these issues are critically important to the design of tax and benefit scales, they are outside the scope of this thesis, which is concerned with the next set of issues.

The second major area of concern is that the cumulative effect of a series of well intentioned social policies is to tangle the sole parent (or other beneficiary) into a web of bureaucratic intrusion. Not only must she make repeated application for various social services, but she must continually submit to a re-examination of her financial and personal circumstances by a series of different agencies and individuals in those agencies. This is time consuming and intrusive. The focus of interest here is administrative systems and information management. In particular the concern is to define the information needed to identify who should receive assistance, to clarify the privacy interests that might be affected by collecting such information, and to develop a means of providing assistance which is appropriately sensitive both to redistribution and privacy needs.

The basic aim of this thesis is to explore whether there are better methods of achieving the redistribution goals that are set by the Government. In particular, given that many of the apparent problems with existing systems seem to relate to the existence of a range of agencies attending to different aspects of the redistribution process, possible alternative approaches that involve greater integration of redistribution systems will be explored.

The thesis is not about the whole sweep of social policy. The focus is specifically on redistribution. For the purpose of this discussion redistribution involves the process by which the Government takes resources from one person or group who are regarded as being capable of absorbing the cost, and provides resources to others who are seen to be in greater need.

Because of the focus on redistribution there is no discussion of the provision of public goods. In addition, questions of merit goods or other arguments over in-kind distribution are also largely outside the scope of this project as redistribution may be provided either in cash or in kind.

Within the field of redistribution some areas are excluded. One exclusion is questions of direct or indirect tax funding. It is assumed that part of the tax that is raised to fund redistribution policies (or raised as part of the Government's redistribution strategy) will take the form of direct personal taxes. This is sufficient to raise the question of the best method of administering direct taxes and their effectiveness in meeting redistribution goals, without needing to go into the debate on what proportion of taxes should be raised in this manner.

The other major exclusion is any discussion of the advantages and disadvantages of redistribution. The possible range of scope for redistribution policies is enormous; they may be the sop offered by a minimalist government in the hope of avoiding popular uprising, or they can be a radical and forcible removal of income and wealth from the rich and its disbursement among collectives or individuals from poorer classes in society. The thesis generally assumes that the state will continue to offer a substantial degree of redistribution within a private property owning capitalist society.

Having narrowed the discussion to the information requirements and privacy aspects of distribution, there is still a large area covering all those questions that are concerned with how the state decides that a given individual ought to pay or receive a given level of resources and how this links to tax liabilities. This involves the basis and method of assessing the position of different individuals in relationship to each other and the best

means of collecting taxes and providing assistance. Discussion of these issues raises profound theoretical concerns as well as complex administrative issues. Most academic work tends to focus on theoretical concerns while the work of government departments often addresses administrative concerns to the exclusion of basic theoretical issues. This thesis attempts to bridge that gap.

One theme of the study is the central role that information plays in the Government's redistribution policies. In attempting to take from one and give to another, the state needs information to allow it to assess who should give and who should get, and how much of what should be given. The information is difficult to assemble and manage. It involves the state in recording sensitive facts about individuals in order that it may discriminate appropriately between people.

The central place of information can be seen if we envisage a world of perfect information in which all knowledge is freely available to all. In this context a government which has identified its distributional goals could readily identify those who are well off and those in need. It could easily tell the most effective means of levying individuals and of paying to others. However, in a world of imperfect information we must expect that opportunistic individuals will not always offer honest information on their means or the choices they face. It is in the nature of the state's role as a coercive organisation that it may compel individuals to participate in the redistribution process, but it is also inherent in the state's obligation in a democracy that it carry out its redistribution policies in ways which will maximise the freedom and choice of its citizens. A central theme of redistribution policy is, therefore, how to develop an effective and efficient redistribution system in the absence of full information; alternatively, this may be seen as an issue of how to use the available information as efficiently as possible, remembering that part of the value of the information relates to its sensitivity to the individuals concerned.

The problem which this thesis addresses is a subset of the question of the best way to administer redistribution policies. In particular it asks:

What is the preferred way to manage the personal information needed to run a successful redistribution system?

The Approach

The prior issues that must be addressed in any problem of how to manage information include what information do we need to assemble, and what are the implications of using such information?

The issue of the information that must be assembled for redistribution purposes can only be addressed in the light of an understanding of the nature of well-being and the usefulness of various measures as proxies for relevant aspects of well-being. The concept of well-being is itself a complex philosophical idea, and the question of how to measure it is fraught with theoretical and practical problems. At a policy level the issue becomes one of the "base" to use for assessing personal circumstances.

The definition of a base for assessment for tax or assistance purposes requires decisions on many aspects including the nature of the item to be assessed (such as income, expenditure or wealth) and the unit to be assessed (the individual, the nuclear family, the whanau). A full analysis of all these aspects would be an enormous undertaking. For the purposes of this thesis the focus is on those issues that are directly

affected by any likely process of integrating assessments. On that criterion the issue of the unit of assessment is set to one side since generally integration would have little implication for this aspect of assessment. It is conceded that decisions on the unit of assessment could have some implications for the process of collecting and processing data in an integrated system, but these are not likely to be as significant as issues of measuring stocks and flows that are included in the base for assessment.

Though later chapters include a review of the bases that might be considered for measuring relative well-being, the central focus of interest is on the period to be used in assessing circumstances. There are two reasons for this emphasis on time periods. The first is that there is very little literature on this area, and therefore little received wisdom for policy analysts to draw on in designing redistribution systems. The second is that the differences between periods of assessment that currently characterise tax and benefit systems demand some rationalisation before any integrated approach could be considered. Income Tax is based on an annual assessment of income which takes account of all income received through the year. Housing Corporation assistance and various long-term benefits (including the Domestic Purposes Benefit) are based on assessments which are made annually, but which use part year data. Other benefits, including the Unemployment Benefit and the Sickness Benefit, are assessed more frequently, using data for a few weeks income. The period of assessment is the area with the most significant and commonly observed difference between tax and assessment agencies, and therefore it is a priority for analysis before any integration could be designed.

The question of the implications of information being used for redistribution policy is related to issues of the relationship between the individual and the state. Information about people can only be acquired by the state and its agents at a cost in terms of lost privacy for individuals. Any process of integration of systems and processes for assessment would seem to imply the use of information for purposes other than that for which it was initially supplied, and that is generally seen as a breach of privacy interests. Whether that loss of privacy is significant enough to outweigh any gains from improved redistribution can only be determined in the light of an analysis of the value of privacy and the privacy rights that people ought to enjoy.

The literature on privacy issues falls largely into two sets. The first may be characterised as philosophical, and it generally has little direct reference to policy applications. The second set, which could be termed official, tends to discuss the implications of a range of privacy principles which are themselves asserted to be of value with little reference to any analysis of the basis of this value. This thesis attempts to bridge the gap between philosophy and policy by deriving a statement of the right to privacy, and applying that to issues of redistribution.

Having examined the questions of what information is needed, and the implications of collecting it, the problem is to devise an efficient administration system which strikes an appropriate balance between the competing priorities of fair and efficient redistribution on one hand, and personal liberties on the other. That is, we use the results of the discussion of the assessment of well-being and of privacy issues as inputs to the process of answering the major question of the preferred method of managing personal information in a successful redistribution system. To answer this question fully would need a detailed analysis of the costs and benefits for those supplying and using information. This means thorough studies of compliance costs and administrative

options, including modern information technologies. However, it is not the aim of this thesis to develop a precise blueprint for policy, or to lay out detailed proposals. Rather, it is intended to explore the major issues in order to arrive at an indicative set of proposals, and identify the matters that would need to be addressed before a decision can be made on the preferred administration system.

The overall aim of this thesis is therefore to answer three questions:

What is the nature of the information needed to run an effective and efficient redistribution system?

Should the government have access to that information or should privacy interests moderate the government's data collection and use?

What systems for the collection and processing of data will establish an appropriate balance of redistribution and privacy interests?

The Structure

The issues to be addressed in this thesis may be presented in a stylised dialectic form. The **thesis** is that for redistribution purposes the government must know the information it needs to discriminate accurately between providers and recipients of transfers. The **antithesis** is that in order to protect individual privacy rights the government must not know too much of the affairs of any person. The **synthesis** is found in the choice of information to be collected and the administrative methods of processing the information which arrive at reasonable assessments while maintaining adequate protection. The parts that follow are presented roughly in terms of this dialectic.

Part One analyses the means of measuring well-being. It turns first to philosophical issues, and is heavily reliant on the work of Sen (1984, 1985 and Sen et al, 1987) and Le Grand (1984 and 1987). It reviews different approaches to the items that could be included in the base, including expenditure, income, income plus wealth, and potential income. On balance it is found that income (combined in some cases with wealth) is the preferred base to be used for redistribution purposes, partly for the practical reason that it is the base most commonly used. The critical issue then is to determine the period over which income should be measured, whether there should be only one period for all purposes, and the equity and efficiency consequences of different approaches. The conclusion is that it is important to identify which people are constrained to operate under high discount rates, and the paper therefore examines the personal information that could be used to identify such constraints.

Part Two is concerned with the definition of rights to privacy and is particularly influenced by the work of Gavison (1980) and the OECD (1980). It opens with a review of the nature and value of privacy. This is used to derive a statement of the rights to privacy in the areas of solitude, anonymity and secrecy. These rights are compared with internationally accepted statements of privacy principles to confirm that they pass the test of common sense acceptability. Because it is asserted that in any given context privacy rights depend on a view of the accepted ideology of the state, there is also a discussion of the generally accepted view of the role of the state in redistribution in New Zealand.

Part Three brings together the work on the information needed to assess circumstances and on the right to privacy into a set of criteria for the evaluation of the information systems used for redistribution. These criteria are applied to the present range of systems used in New Zealand in income tax, social welfare benefits and housing assistance. Three major problems are identified; the first is the collection of inappropriate information, and the omission of some necessary items, the second is a large degree of duplication, and the third is that all of the institutions involved in redistribution have complex organisational structures and multiple goals. The major strength of the current approach is that data which is supplied for a given purpose is generally only used for that purpose; this is an essential requirement if individual control of personal information is to be defended. The final chapter in Part Three contains an indicative outline of an alternative approach, based on one major information assessment agency, and the use of integrated circuit cards (IC, or "smart" cards) to transfer information to other uses under the control of the individual.

Though the earlier parts are substantially theoretical, Part Three is concerned with practical administrative and technical matters. There is little literature in this area, but Dilnot, Kay and Morris (1983) has been an influential source in this work. The main source has been informal information in official files and manuals, official reports, and interviews with practitioners in New Zealand and around the world. The background information to support the assessments arrived at in Part Three are contained in a series of appendices. The first of these includes descriptions of the systems used in the redistribution agencies in New Zealand and the second describes some of the information management approaches used in some other countries. The third concerns the question of the possible tax compliance effects of transfers of information from tax agencies to other redistribution agencies. The fourth describes the experience and potential of IC cards.

Clearly the three parts do not represent a true dialectic process, and the analysis contained in each section is not solely concerned with the separate arguments of thesis, antithesis and synthesis. However, as a broad approach the overall work can be understood as an exploration of the tensions between the centralising effects of government run redistribution on the one hand and the importance of liberty and freedom for individuals on the other, and of the potential for administrative processes to strike a happy medium which supports both redistribution and democracy.

PART ONE

INFORMATION FOR REDISTRIBUTION

Thesis: Redistribution, the State Needs Information

CHAPTER TWO: THE UNDERSTANDING AND ASSESSMENT OF WELL-BEING

Introduction

Part One is concerned with the information needs of a system of redistribution. It is inherent in any personal redistribution system that information be collected and analysed on the relevant aspects of the conditions of members of society. The Government needs to know who is well off and therefore in a position to contribute, and who is poor and therefore in need of support.

In this part we are not looking at administrative issues of how to collect information or to store it. Implicitly we assume that the state is a single institution which may adapt its form to meet our needs. This does not, however, mean that the real costs of collecting information are to be ignored. We may not assume that we live in a world of perfect information. The whole need for this discussion arises from the fact that information is not costless and therefore we need to establish its value before deciding how to go about collecting it efficiently.

This part is also not focusing on privacy issues, which will be handled in Part Two, except for the general point that it is assumed that excessive information gathering is to be avoided. That is, this part takes as a starting point that privacy is of value and intrusive information gathering should be minimised.

The information needs of the redistribution system are derived from the policy approach that is adopted. The central policy issue is to determine the basis for redistribution; this means we are concerned with the basis for establishing tax liability and for assessing eligibility for assistance. The prior policy question of whether redistribution ought to be pursued at all is not the subject of this thesis. My views on this topic have been laid out in the annex to *Government Management*, (NZ Treasury, 1987).

Part One is arranged in three chapters. Chapter Two is a largely abstract discussion of the nature of well-being and its measurement. Chapter Three discusses issues of assessing well-being in the context of an integrated system, with particular emphasis on time issues. We are concerned to select the most appropriate period that should be used to assess circumstances. The outcome of these timing issues is potentially very significant for information requirements of an effective and efficient redistribution system; these requirements are explored in Chapter Four.

From Philosophy to Bureaucracy

The aim of this chapter is to bridge the gap between the philosophical and the operational. Notions of well-being are inherently complex and abstract. They are grounded in concepts of people, interactions between people and the structure of society. Systems of redistribution, on the other hand, are at best sophisticated accounting structures and always involve very practical sets of rules and decisions about who gets what and who pays what. There is always a risk that rules and manuals may exist in a philosophical vacuum. A system that is designed simply with pragmatic considerations in mind may work in the sense that taxes are collected and payments are made, but they may bear little relation to any meaningful identification of well-being, or of any socially just system of redistribution.

Many operating systems of benefits or taxes appear to be ad hoc with little underlying rationale. In New Zealand there is a wide range of different measures that are used in different parts of the redistribution system. These measures include:

- a age - for Guaranteed Retirement Income (or National Superannuation, now modified by taking account of income under the National Superannuation surcharge);
- b number of children - for Family Benefit;
- c income - for income tax;
- d expenditure on particular goods - for housing (now modified by taking account of income) and for pharmaceuticals;
- e income combined with employment or health status - various income tested benefits;
- f property holdings - rates, land tax and estate duty.

The purpose of this chapter is to enquire whether these measures bear any useful relationship to well-being. This chapter is divided into two sections. The first looks at concepts of welfare and standards of living to derive a general approach to the area, and the second examines various attempts to measure different concepts of well-being and to assess the sensitivity of different approaches.

Welfare and Standards of Living

Discussions about standards of living or measures of welfare are commonly incoherent because many different concepts are used by different participants in the debate and terminology may vary. The standard of living is often expressed in terms of the ownership or use of particular goods. Measures therefore tend to focus on things like the number of fridges per household, houses with hot water or houses with earth floors. A second approach is to focus on levels of income. Income may be seen as being good in itself or as an index of control over resources. Attempts to base international comparison on GDP per capita fall within this tradition.

A third type of focus is on the degree of enjoyment associated with one's life-style. This is sometimes associated with cultural measures such as literacy, theatre performances and art galleries or it may be concerned with the degree of freedom in society and the ability that people have to make their own choices and run their own lives.

Even among people who think they are discussing closely related concepts there can be problems of terminology. Some of the terms used include welfare, well-being, utility, standard of living, income and control over resources. Sometimes the use of different terms reflect different meaning but other times it is simply a result of confusion. This confusion is not surprising given the shades of different meaning. In the following extract Sen itemises some of the different concepts that are often found in the literature.

"There are many fundamentally different ways of seeing the quality of living, and quite a few of them have some immediate plausibility. You could be *well-off* without being *well*. You could be *well*, without being able to lead the life you *wanted*. You could have got the life you *wanted*, without being *happy*. You could be *happy* without having much freedom. You could have a good deal of *freedom* without *achieving* much. We can go on." (Sen, 1987, page 1, emphasis in original.)

Having identified this range of conflicting concepts, Sen has also performed a valuable service in developing an analysis of the area which permits a clearer understanding of the issues involved. Much of the discussion in this part of the chapter is drawn from Sen's various works and the terms used are generally used in the way that Sen has defined. The following subsections include a brief exploration of utility and of commodity or resource concepts of well-being before discussing Sen's approach to capabilities. Then, in order to give some more tractability to the concept of capabilities, the discussion introduces the notion of control over resources, and concludes that Le Grand's concept of choice sets as the preferred means of identifying relative well-being.

- Utility

The concept of utility permeates economic analysis. For much of economic theory it is assumed that the goal is to maximise utility. However, though welfare theory has found utility functions to be analytically tractable, much of the discussion is not clear about the notion that the term "utility" is supposed to cover.

For the purpose of this discussion the critical dimension of utility is that it is a subjective mental state. Utility is something which is felt and enjoyed by an individual. There may be various objective factors which can contribute to it, such as income and leisure which are commonly found in utility functions, and these may be able to be measured. However, utility is itself a personal concept which is generally regarded as immeasurable. In order to develop a more assessable understanding of a rather arcane area, various writers have suggested different concepts to cover utility. These have included happiness, pleasure, absence of pain, and satisfaction. However, though these terms might each have a more intuitively obvious and common understanding than utility, and they have all (even satisfaction!) moved songwriters and poets which is more than could be said for "utility", none of them is any easier to measure.

On top of the intrinsic difficulty in measuring utility, a central point in the use of a concept as a basis for redistribution is its ability to be used as a basis of comparison. We don't need simply to measure an individual's utility, we need to be able to compare it with someone else's. Here we appear to hit a brick wall.

"Neither economics nor, as far as I know social science in general can contrive a measure of satisfaction that would make us comfortable about asserting that Mr A, with very aristocratic tastes and only two Picassos, does not feel more deprivation from want of a third than does Mr B, who has not been able to buy shoes for the last three years." (Watts, 1968, page 25.)

The message from this example is that not only is utility hard to measure but we might be reluctant to follow it if we were able to establish relative utility. This is because utility may be a learnt response. A rich person might derive very little utility from basic necessities and it takes a BMW and a ski holiday to titillate Alex the yuppie's jaded pallet. A battered wife, on the other hand, might derive some pathetic pleasure from a day when the punches do not fly. Sen has also addressed this issue.

"A person's relative desires for various objects may prima facie provide a sensible basis for valuing these objectives from his or her point of view. But in interpersonal comparisons the same procedure can produce arbitrariness of various sorts. The social underdog who has been taught - by bitter experience - to expect little from life may have learnt to have easily fulfilable desires and may take pleasures in small blessings. But it is hard to think that the person for that reason has a lot of well-being, or that he or she is having an excellent deal if those disciplined desires get fulfilled." (Sen, 1984, page 34.)

Utility is a concept which can be very useful in understanding and analysing behaviour but it is of very limited use in the area of social justice. Again, Sen has summed up the point.

"'He that desires but little has no need of much' may well be good advice for contentment and for coming to terms with a harsh reality. But it is not a formula for judging well-being. Nor is it a recipe for social justice." (Sen, 1984, page 34.)

- Commodities

An alternative, and more objective approach is to focus on the commodities that people have. The resources, goods and services, that people own or use may be counted in order to get a relative idea of their positions. Generally Sen describes these approaches as reflecting a concern with "opulence". He acknowledges that this has the advantage of being relatively easy to measure but warns against the dangers of falling into "commodity fetishism", which is a term he attributes to Marx.

Part of the problem relates to trying to determine which commodities matter. One person might have a different bundle of resources composed of different items to that held by another; how are we to know without reference to some common index which bundle is to be preferred?

In his notion of "primary goods" Rawls has suggested an ordering of commodities. Using this approach one must analyse which goods contribute most to most people most of the time. Those which matter are then identified as primary goods and the well-being of individuals can be measured by their access to primary goods. Though this approach would not seem to be very useful in discriminating between individuals who both have complete access to all primary goods, it appears attractive in the area of measuring the well-being of the poor which is Rawls' primary interest. However, even here there are difficulties. The basic point is that individuals are not homogeneous and different primary goods may be more or less significant for various individuals. Even at a physiological level individuals' abilities to use different goods will vary and therefore the contribution of those goods to well-being must vary between individuals. Once we also take into account different values which may derive either from culture or from personal taste it becomes less easy to accept primary goods as a measure of well-being. Basically the problem is that it is not clear what the goods are valuable for.

If our basic understanding of the nature of the good is derived from the value of individual people it seems necessary to build a bridge between people and their lives and the goods that they use. "The value of the living standard lies in the living, and not in the possession of commodities, which has a derivative and varying relevance" (Sen, 1987, page 25.)

- Capabilities

Sen suggests that the basic elements of life that may be used as a guide for policy and social justice are "doing and being". The central elements that policy may concern itself with are not the level of happiness or possession of goods but the ability of individuals to do or be what they want.

"The constituent part of the standard of living is not the good, nor its characteristics, but the ability to do various things by using that good or these characteristics, and it is that ability rather than the mental reaction to that ability in the form of happiness that, in this view, reflects the standard of living". (Sen, 1983a, page 334.)

The central question then is whether we have the capability to function as we might wish or, in the redistributive context, as social justice might demand for us.

Functioning can occur at many levels. At the most basic it is to do with the beating of the heart and the maintenance of brain activity. At various higher levels it can include the enjoyment of a range of foods, participation in social and economic activities, and the enjoyment of cultural and intellectual pursuits. Some of the simplest examples by which capabilities may be distinguished from utility and commodities relate to more basic functions but the concept does not need to be limited simply to basic functions.

A fundamental capability is the ability to be well nourished. That means that we do not simply value the commodity "food", nor do we simply value the utility to be derived from the enjoyment of its taste, but we value the functions which are enabled by the nourishment food may offer. That is not simply a matter of the nutrition table that appears on the packet of breakfast cereals. It also relates to many other personal, environmental and social factors. Sen (1983b, page 511) lists such other factors as age and sex; metabolism; activity level; medical condition (eg presence or absence of stomach parasites); climate; social obligations; education and knowledge of nutrition; and access to medical services. If we are to concern ourselves with the nourishment received by an individual we cannot simply count the calories consumed but must be fully aware of all the factors which contribute to the capabilities of that individual to be well nourished.

Nourishment is not the only capability that matters, there are many others. An obvious example is the capability to learn and deploy knowledge. This relates to education, literacy, cultural diversity, and sexual stereo-typing. Similarly we need the ability to live a life without fear. This requires consideration of security, crime levels and threats to body and property.

Some capabilities are communal public good issues and are not in the realm of redistribution. Others, such as nutrition and housing, are clearly identifiable at a personal and household level and are potentially among the factors to be considered within a redistribution policy.

At a theoretical level capabilities are an attractive idea in the identification of well being. In referring to capabilities, rather than functions, the concept takes account of choice and control. The significance of choice is sometimes questioned, and is often assumed to relate to analytical methods and rationality assumptions adopted by economists. For example, in a review of the nature of poverty, Watts states:

"It is, of course, a value judgement on the part of economists that the diversity of taste and values reflected in different allocations of consumption of the same level of general command of resources ought to be respected". (Watts, 1968, page 25.)

It seems, however, that there is more than simply a prejudice behind this notion. So long as we base our analysis on the value judgement that all people are important, it is straight-forward to arrive at the position that their choices ought to be respected (see the Annex to *Government Management*, NZ Treasury 1987). We may note that, in spite of his doubts, Watts arrives at the same conclusion, and identifies poverty as "restraint on choice". The issue of choice is explored further in the section below on the choice set.

The second attraction in capabilities is that it relates to the living of lives not solely to material things. It is a conceptually flexible idea which not only can but must include culture and environment within its ambit.

A third attraction in the concept of capabilities is that it provides a link into commodities. Rather than simply having to value commodities because they exist we have a relatively straight-forward means of identifying why the commodities are important, and why they are important to people.

The usefulness of capabilities can be seen in terms of the relationship between goods, capabilities, and utility that Muellbauer (1987) has outlined. He suggests that goods, when combined with environmental matters such as the climate and social conditions, contribute to the material characteristics that an individual enjoys. These material characteristics when combined with the personal characteristics define the capabilities of a person to function. These capabilities once combined with the individual's choices lead to functionings, and functionings combined with the individual's psychic state give us utility. The ultimate value is still the welfare or utility derived by individuals. However we no longer have a naive one to one relationship between utility and goods. Instead we understand that the ability to enjoy is itself related to the wider physical and social environment, and capabilities are a critical link in the chain.

However, though we might be prepared to accept that capabilities are the conceptual notion that policy should aim to promote, we still need to explore whether the concept is measurable or whether some proxy will be necessary.

- From Capabilities to Control Over Resources

A close consideration of the concept of capabilities quickly suggests that we will have severe problems in measuring and comparing capabilities. Williams (1987) points out the problems that are involved in simply trying to count capabilities. He suggests that if a new washing powder, "Bloppo", should be put on the market, that could be hailed as an increase in capabilities. We would now have the capability of selecting this new product. On the other hand he points out we would now have lost the capability of choosing from only the previously existing Bloppo-less range of washing powder products. In any case, unless Bloppo does something quite extraordinary in the way of disease eradication or odour prevention it seems likely that both of the capabilities mentioned are trivial. We find that we must focus on basic or important capabilities. Alternatively, we need a general index of capabilities which can include many if not all capabilities.

If we simply regard each capability as being separately significant and refuse any attempt to force them into commensurability, we will inevitably face volumes of different capabilities that the imagination of policy makers and academics will generate. Some, such as the ability to receive sufficient nourishment to stay alive, will be near the top of everyone's list. Others, however, will be much more debatable. How the capability of having sufficient personal space will relate to the capability of keeping food from going bad by refrigeration is not at all clear.

An index which can act as an indicator of the presence of many capabilities would seem to be attractive. An index of command over resources would seem to be useful proxy for many capabilities. This might appear to be returning to a commodities approach to well being. The distinction lies in the understanding of the purpose of the commodities. Their value lies not in their existence but in the capacities they offer to people. For many purposes therefore a general measure of command over resources which might include cash holdings, income or maybe a measure of expenditure could be a useful proxy for personal or household capabilities.

It is important to understand the limitations of such an approach. Income or cash does not necessarily buy everything. According to the Beatles "Money can't buy me love". At a less esoteric level it also may not be able to buy health care, housing or education. "If there is no hospital in the neighbourhood or school within easy reach - or if there are hospitals and schools but with highly limited capacity - the income of the would-be purchaser may not give much of an idea as to whether the person can or can not acquire these commodities" (Sen, 1983b, page 520). On the other hand in the same article Sen suggests that for most people, most of the time, income is a good measure of ability to acquire food and other everyday necessities.

In effect we may accept that income, or some other general measure of command over resources, is a good first approximation of capabilities. The use of income, or control over resources, offers a solution to the Bloppo problem. If Bloppo offers no new capability, the gains generated by it will be offset by losses elsewhere. If, however, it is a real advance, with improved laundry efficiency or hygiene, much or all of the gain it offers will be reflected in an increase in control over resources. However, in using any such measure we must be aware that there is a strong implicit assumption about the market conditions within which various capabilities are to be achieved. For the particular capabilities that are of concern, the market situation must be explored; if it is apparent that income will not be sufficient to necessarily ensure that the particular capability can be achieved, then particular measures such as health status, availability of medical practitioners and existence of hospital beds may also need to be counted. Similarly, this capabilities approach explains why usually cash will be the preferred medium of redistribution but sometimes in-kind transfers are to be preferred.

For the purposes of this paper it is sufficient to acknowledge that in various contexts specific measures of particular capabilities are necessary, but for most purposes a general measure of command over resources is a satisfactory indicator of capabilities.

Before leaving this general discussion two further aspects need to be addressed. These are the question of whether well-being needs to be understood in an absolute or relative context, and how to take into account uncertainty.

- Absolute or Relative Approaches to Well-Being

Though this paper is not strictly concerned with levels of benefits, and therefore whether they should be defined in absolute or relative terms is an issue to one side, it is worth briefly examining the issue because it casts some light on the robustness of Sen's capabilities approach and its ability to assist in real policy areas. In effect it gives us an explanation of why a relative approach is appropriate, and when it is inappropriate.

The debate about whether standards of living or well-being, and more particularly poverty, should be understood as an absolute or relative concept is both a celebrated theoretical issue and an important policy problem. When Beveridge set up the British social insurance system he presumed that the supplementary benefit system would soon become irrelevant as real standards of living improved and the absolute level of the supplementary benefit would be quickly left behind. The political reality, however, was that support levels rose in line with the increase in average real incomes. This has tended to be a world wide phenomenon and in some places, for example in New Zealand in the mid 1980s, benefit levels have risen faster than real average incomes.

For the first half of this century an absolute concept of poverty tended to dominate the thinking. This was largely inspired by Rowntree's studies in York. He established particular quantities of food, clothing and other basics which were seen to be necessary for life. He then assessed the number of people who achieved these necessary living standards. When considering poverty as a life and death issue, and when viewing it in an international perspective in the late 20th century, an absolute concept of well being is clearly a useful approach. However, as a guide to policy in western nations since the 1950s, relative views have been more important.

In his influential discussions of poverty, Townsend has concluded that the only way to understand continued suffering in a world of increasing real incomes is to relate concepts of sufficiency to the average rise in real incomes. This approach has been reflected in other studies of poverty. For example Fiegehan et al (1977) state that "interest in poverty stemmed to a considerable degree from a recognition that it is incumbent on society to assist the **relatively deprived**" (page 329, emphasis in original). In terms of the problems that face Governments in western countries today this relative approach is attractive as it automatically relates to the ability of citizens to live life in a way which they consider to be reasonable in the 1980s and 90s.

The problem, however, with a purely relative approach to poverty is that by definition each time we make progress in real incomes we appear to redefine the problem so that problems are never solved. If relative concepts are carried to their full extent, we find that poverty is never recognised as a separate issue, simply that inequality is a problem. Inequality can never be eradicated without achieving a complete equality of incomes and material possessions for all people. This seems an extreme goal and a long way away from the notions of living standards that Rowntree was examining. The silliness of relative concepts carried to their full extent can be seen in the following example "It would be absurd to call someone poor just because he had the means to buy only one cadillac a day when others in that community could buy two of these cars each day". (Sen, 1983a, page 333.)

Sen's concept of capabilities offers a means of linking relative approaches to an absolute base. Capabilities relate to human functions and these are absolute. It is insufficient to know that someone has 25% of the nutrition that the average receives; the

only relevant question is whether they have enough. However, many of the concepts of functions relate to functioning in society. For example, Adam Smith discussed the resources necessary to appear in public without shame. Two thousand years ago a citizen of Rome needed only a toga to accomplish this feat. Nowadays any self respecting Roman would require a rather more elaborate costume. The appearance in public without shame is absolute; the resources necessary to achieve that function are defined by reference to those which others use; that is, they are relative. In Sen's words "poverty is an absolute notion in the space of capabilities, but very often it would take a relative form in the space of commodities or characteristics". (Sen, 1983a, page 335).

In effect Sen has put a theoretical framework around a concept which has dominated New Zealand policy for 25 years. The Royal Commission on Social Security in 1972 used a concept of "belonging and participating in society" as the basis for setting benefit levels. The ability to belong and participate is absolute. The resources, in terms of benefit levels, required to achieve that function, are relative. The Royal Commission initially defined them in relation to prevailing wage rates.

- **Uncertainty**

Having discussed various approaches to well-being, and established the role that the concept of capability may play in understanding well-being, we now need to review these concepts in an uncertain world. If we regard capabilities as being the measure that we are working towards, we need to establish how secure the capabilities must be. Is it sufficient to be capable of earning an income, if only one could find a job? Is it enough to have the income necessary to rent a house, if only one could find a landlord prepared to let to black tenants? Or may we decide that a farmer is capable of earning a living if only the weather is fine, and an investor can earn a good income if only she or he makes wise investment decisions?

In each of these examples the standards of living enjoyed by the individual may be very different depending on the outcome of the conditional circumstance. Ex ante it would appear in every case that the relevant capability exists. However, ex post we may discover in many cases that the individual has not succeeded in performing the relevant function; that is, the conditions necessary for the contingent capability were not achieved.

Clearly the time at which an assessment is made, and the period which it relates to are critical in arriving at an assessment of capabilities or well-being. One common, and minimalist, position is summed up in the "fair race" analogy. It is deemed sufficient to ensure that everyone has a fair start, and then so long as the rules are followed the outcome is fair. Dworkin (1981) has pointed out the weakness in this argument. A fair start in an economic race must imply some initially fair distribution. The difficulty is to establish why, if it is possible to concern ourselves with the fairness of the distribution at the beginning, it is no longer possible to concern ourselves with the fairness of the distribution at the end. This is of important practical significance because society does not pursue economic exchange in discrete time periods. Although the Inland Revenue and the accountancy profession might measure by financial years, and the National Bureau for Economic Research might measure by economic cycles, and race horses are all notionally born on the same day, people will persist in shambling through life at their own time. Even if we try to think of each individual life as its own "race" it is still difficult

to pick the appropriate starting date since every day is "the first day of the rest of your life". The only way to make sense of the fair race analogy is through Nozick's justice in acquisition approach which repudiates all redistribution, and is therefore totally unhelpful for this analysis.

Another way to consider uncertainty is in terms of the right (or capability) to participate in lotteries. In a world with imperfect prescience we are continually making decisions which will have an uncertain effect in the future. Some may choose to adopt a life-style with a chance of a higher future income, but also the risk of a reduced future income. Friedman (1962) suggests that because those decisions are taken with the expectation and intention of generating an unequal distribution, there is no reason to disturb the result after the event. Though he would be concerned about a case where an individual was deprived of the opportunity to choose a preferred life course, such as because of discrimination in the labour or housing markets, Friedman would normally assume that individuals are quite capable of making their own decisions and understanding the consequences.

Kanbur (1987) suggests that it is precisely in the area of understanding future consequences that Friedman's approach falls down. He suggests that it is impossible for anybody to fully comprehend the emotional reactions that they might suffer in the future as a result of today's decisions. Quoting Shackle he says "I do not think, in human terms, knowledge can be so perfect that tomorrow's hunger can be felt today" (Kanbur, 1987, page 65). The result of this view is that Kanbur considers that all outcomes should be regarded as unanticipatable, and therefore we should always be prepared to reimburse individuals on an ex-post basis.

"The appropriate focus of attention is what [people] in fact end up being - not what they could end up being. Outcome, not opportunity, is what is relevant if choice is based on inaccurate perception." (Kanbur, 1987, page 68.)

For any caring egalitarian there is a great deal of attraction in Kanbur's position. However, his view on the limits of human comprehension is so extreme that it threatens any argument for redistribution. If we accept that human imagination is so limited that we cannot form a reasonable understanding of our own future suffering, it seems improbable that any of us could understand another person's suffering sufficiently to be moved to do anything about it. It seems reasonable to assume at least a modest degree of imaginative capacity on the part of human decision-makers and therefore there could be justice in allowing some consequences of past decisions to be felt by those who made the earlier mistakes.

Dworkin (1981) has suggested a framework which may be used to find a way through these difficulties. He suggests we should distinguish between "option luck" and "brute luck". Option luck indicates an area where possible future outcomes have been considered and the individual has chosen the degree of risk that suits his or her interests. Brute luck involves unavoidable mischance, such as being struck by a meteorite. Ideally we want to encourage individuals to take the risks necessary to improve their position. We want them to work hard in the fields even though the weather might not always grant a good harvest; we want them to study hard even though a prosperous career cannot be guaranteed; and we want them to make productive investments even though future market sales may be uncertain. We want these risks to

be taken because they are the basis of future increases in production which can help both that individual's, and our own, future income and well-being. If we want individuals to pursue an ambitious approach we cannot decline to reward the result of that ambition. Where, however, a variation in outcome is a result of unavoidable luck, such as native ability, we may be more prepared to equalise the outcome.

"On the one hand we must, on pain of violating equality, allow the distribution of resources at any moment to be (as we might say) ambition/sensitive ... Those who chose to invest rather than consume, or to consume less expensively rather than more, or to work in more rather than less profitable ways, must be permitted to retain the gains that flow from these decisions ... But on the other hand, we must not allow the distribution of resources at any moment to be endowment/sensitive, that is, to be affected by differences in ability of a sort that produce income differences in a laissez faire economy among people with the same ambition." (Dworkin, 1981, page 311.)

The outcome of this discussion is that neither a pure ex ante or a solely ex post approach is suitable. The problem for policy is to distinguish when an outcome is a result of unavoidable chance or a calculated gamble. The following sections on different means of measuring well-being outline a series of approaches which can be largely distinguished by how they approach this issue. All of the measures are a form of generalised command over resources, and so are consistent with the approach that was derived using the capabilities analysis. Much of the differences between them relates to how investment or leisure decisions are understood. The more we regard the individual's current position as the result of his or her own actions then the more we will be prepared to impute a value to leisure and "realise" the value of assets. If, however, we see these as being substantially the result of fortune we are more likely to accept current cash flows as a reasonable indicator of command over resources.

- The Choice Set

The discussion in the previous sections has not uncovered any totally convincing concept of well-being or even standards of living that could be used as a basis for redistribution. All concepts seem to be subjective, or to suffer from difficulties of aggregation and summary. The concept of capabilities appears to offer some help, but it too provides only a guide towards the kind of proxies that should be looked for. For most purposes the analysis suggests that a proxy which measures control over resources is likely to be correlated with a large number of the capabilities that we would be interested in, and therefore with well-being.

Before going on to explore different measures of control over resources it is useful to pause to check whether this concept is in line with concepts of poverty and equity that commonly appear in the literature. The use of the term "resources" conveys an understanding that access to commodities is likely to be important in well-being. It also is broad enough to cover the informal and less tangible resources that come from native wit, family bonds and community support.

The reference to resources seems to be fairly in line with a general understanding of poverty. A test of this is the striking obviousness of the following:

"Poor people, while they share many other problems with the non-poor, are unique in having a relative shortage of goods and services at their disposal."
(Watts, 1968, page 22.)

The reference to control makes it clear that well-being cannot be achieved simply by attending to material things but it is intrinsically linked to choice. Watts, in continuing from his starting point of poverty as a shortage of goods and services goes on to assert that the central aspect of poverty is "restraint on choice". This suggests that relative poverty may be understood to be a state in which there are relatively few options, and less chance to exercise option luck. This identification of choice as being at the heart of control over resources (and of well-being) has been clarified by Le Grand (1984) who regards choice as the central aspect of equity.

"Our judgement as to the degree of inequity inherent in a given situation depends on the degree to which we see that situation as the outcome of individual choice."
(Le Grand, 1984, page 46.)

In more formal terms Le Grand says we may define factors that are beyond the individual's control as constraints. Those matters that lie within those constraints are within the range of possibilities that the individual may aspire to and are therefore the "choice set". Inequity relates to differences in choice sets rather than differences in outcomes. "A situation is equitable if it is the outcome of individuals' choosing over equal choice sets." (Le Grand, 1984, page 47.) The implicit test of inequality is the difference in choice sets, and the empirical issue relates to how to define and measure choice sets.

This concept of choice sets links closely to the discussion of uncertainty in the previous section. Those issues which are totally unpredictable may lead to inequity because they affect the choice set. However, in cases where the outcome is the result of a conscious selection of a risky option there has been no alteration to the choice set and the differences in outcome are not inequitable.

At an abstract level the goal of redistribution policy is to reduce the inequality in well-being. The means of comparing well-being is in terms of capabilities. The proxy measure that we may use to assess the general level of capabilities is some measure of control over resources. Because capabilities (and control over resources) as measured at any given time may be substantially the outcome of the individual's own past decisions and actions (option luck), the assessment of relative well-being is best understood as the measurement of choice sets. Similarly the goal of redistribution is to reduce the differences between choice sets. The use of the concept of choice sets does not solve all assessment problems as they are not easy to measure. In particular it is difficult to decide which factors should be considered to be part of the choice set, and which are beyond the control of the individual and so may be regarded as constraints which define the choice set.

Different Approaches to the Assessment of Well-Being

Having explored the concept of well-being, and settled on the notion of the choice set as the philosophical measure of relative positions, the problem remains to assess relative situations in a real-life context. The issue is to identify measures which are practical, and which provide an adequate picture of control over resources.

The following sections will discuss some of the concepts of well-being and control over resources that have appeared in the literature. Some have been implemented as a basis for assessment for taxation or benefit purposes. Some have been promoted for that purpose and others have been investigated as a more abstract inquiry without means of

implementation being inquired into. However, all cast some light on issues of timing of assessments and measurement of choice sets. Several of the studies indicate that the ordering of individuals is very sensitive to the selection of different bases for assessment.

The discussion will move progressively from the narrowest base to the broadest. This may be seen as shifting from the outcome of choice towards the underlying choice set. Each expansion of the base may be understood as an attempt to get nearer to the real choice set. In terms of the uncertainty discussion the shift is from a focus on ex post outcomes towards ex ante options and the hope is to separate option luck (a selection within a choice set) from brute luck (which affects the choice set).

- Expenditure

One of the clearest forms of evidence of the existence of control is the exercise of control. The process of spending involves the diversion of resources to an individual's own use. As such expenditure is a measure of the exercise of control and is closely linked to consumption.

The main attractions in using expenditure as a base for assessing control over resources is its relative ease of measurement and its close link to the use of goods and services and therefore their enjoyment.

This link between the use of resources and the benefit or enjoyment that can be derived from that was brought out by Fisher. Unfortunately Fisher confused the discussion by equating income with consumption. Following writers have universally pointed out that this was an unhelpful contribution to the terminology as, if income equals consumption, we would still need another word to cover the concept of consumption plus savings. However, rather than dwelling on this problem of taxonomy, the important point to focus on is Fisher's link between the enjoyment of goods and services (in his terms that is real income) and personal well-being. Fisher equated objective or real income with "living". He suggested that living (income) consisted of "a series of events" the significance of which needs to be understood at a psychic level.

"Real wages, and indeed real income in general, consist of those final events in the *outer* world which give us our *inner* enjoyments. This real income includes the shelter of a house, the music of a Victrola or radio, the use of clothes, the eating of food, the reading of the newspaper and all those other innumerable events by which we make the world about us contribute to our enjoyments." (Fisher, 1930, pages 46-47, emphasis in original.)

If we set aside Fisher's terminology and focus instead on the basic point, there is some real attraction in his message. He is pointing out that what matters in comparing the well-being of individuals is what they take out of society, what they use; that is, what they consume.

Though a personal expenditure tax has only ever been implemented (briefly) in India and Sri Lanka, the idea has a strong following among scholars of public finance. Kaldor (1955) is generally acknowledged as the person responsible for developing the concept. Since that time several other authors have championed the idea. The US Treasury

(1977) proposed a shift to a personal expenditure tax, as did the influential Meade Committee in the UK (1977). There has been a lively discussion of these issues since the late 1970s. See, for example, Aaron and Pechman (1980), Kay and King (1984) and for a useful review Bascand (1988).

The main difficulty of using any measure of consumption as a base for assessment is that within any finite period (say a year) the level of consumption may be a discretionary matter for the individual. If consumption levels are controllable then we are not measuring choice sets but the outcome of choices.

The question of whether consumption is controllable is an empirical issue. Some interpretations of the permanent or life-cycle income hypotheses might support this. The observation that spending may fluctuate less than income might be evidence that our consumption is a result of long-term commitments and deeply embedded tastes, and effectively beyond our short-term control. However, especially if we are talking of periods as short as a year, this would seem to be an extreme view. Most consumers have some opportunity to re-adjust spending, especially to defer various large consumer items or to borrow and bring forward substantial life-cycle purchases. Far from being evidence that consumption is uncontrollable, the apparent smoothness of consumption expenditure may be evidence that it is firmly controlled by the individual. This uncertainty about the controllability of spending within particular short time periods has stark implications for policy. There would seem to be little case for reducing the tax burden on an individual simply because she or he chooses to spend very little out of a large income or wealth base; even more strongly there seems little case to pay cash support to such people simply to subsidise their miserly habits.

In response to this timing difficulty, the proponents of expenditure taxes commonly support a lifetime concept of expenditure tax. In effect, they point out that if we accept that we come into life with nothing and die with nothing, then everything we purchase must have come from our lifetime income. The argument then is not so much that expenditure in any given year is a good measure of well-being, but that expenditure as a tax base is hard to avoid and shifting from one year to the next need not trouble us as we know we will eventually tax the individuals' activity if they are to attempt to enjoy their resources. Early writers on expenditure tax were dismissed because it was assumed their proposals were administratively unworkable. However, the work of Andrews (1974) demonstrated that the ongoing operation of an expenditure tax could be straightforward and probably simpler than the personal taxes we are familiar with. In terms of the issues about choice, the protagonists of expenditure taxes are in effect arguing that any tax base is liable to be manipulated and the advantage of an expenditure tax is that over the period of a lifetime all activities may be more easily and equitably assessed.

The appraisal of this lifetime approach depends on how significant the shifting of tax liability is seen to be. As with any other tax base, if the expenditure tax is assessed as a progressive tax then shifting may be significant. Secondly, since savings are not taxed until they are spent, the taxation of estates may become a more significant issue in comparing the tax treatment of individuals. If estates are not taxed at the same rate as expenditure, those who place a high value on their bequests may reduce their lifetime spending, and increase their estates, while paying a lower overall rate of tax.

A further technical concern is whether the expenditure base would properly measure consumption. This raises the imputed consumption of services from assets. However, the supporters of expenditure taxes would point out that there is nothing new in these

technical problems, and expenditure taxes solve many of the technical difficulties involved in assessing income while introducing no new technical problems.

The final major issue is the question of how to switch to an expenditure base. It would not seem equitable to tax consumption funded by the realisation of assets which were purchased out of post-tax income. However, expenditure which is funded from inherited wealth might be regarded as a more fair basis for tax assessment. The problems of identifying the different origins of pre-existing wealth following the introduction of an expenditure tax would seem to be very difficult. In addition, any small country introducing an expenditure tax base might have considerable problems handling the international transactions of its taxpayers, including international companies.

In summary, an expenditure tax base would offer considerable administrative advantages, in particular in assessing the tax liability of people with business earnings. It has an immediate link to the use of resources and therefore bears some relationship to the control over resources. The main problem is that expenditure is evidence of the outcome of control choices rather than a measure of the choice sets that individuals face. In particular, if it is wished to assess taxes to achieve redistribution on a shorter than a lifetime basis the expenditure tax loses some of its apparent attractiveness. Finally, there are substantial transition problems to be addressed.

- Income

The most commonly used base for assessing both tax liabilities and benefit entitlements is income. The idea that income is a fair measure of relative well-being appears to have considerable popular acceptance. In addition it is commonly endorsed in the literature specifically in terms of its value as a measure of control over resources. "Personal income promotes, broadly, the exercise of control over the use of society's scarce resources." (Simons, 1938, page 96.) In addition, income is often seen as being peculiarly well attuned to differentiating between the positions of different individuals and achieving "a more equitable apportionment of tax burdens." (Simons, 1938, page 91.) However, though income is a much used concept and there is a substantial literature about the measures needed to implement a comprehensive income tax base, there has been relatively little discussion about the precise meaning of the concept. The fact that an economist as distinguished as Fisher was able to muddy the waters so comprehensively with his definition of income as consumption, is perhaps illustrative of a lack of rigorous debate before that time. In fact, there had been a substantial debate in German language literature but this was little reported in English writing until the time of Haig and Simons. These two authors drew directly on the German literature in establishing what has become regarded as the definitive outline of income. In Simons' words income involves:

"a) the amount by which the value of a person's store of property rights would have increased, as between the beginning and end of the period, if he had consumed (destroyed) nothing or b) the value of rights which he might have exercised in consumption without altering the value of his store of rights" (Simons, 1938, page 96).

This definition of income is much more complex than the popular understanding of wages plus returns on investments. However, any approach which attempts to measure income simply in terms of cash receipts inevitably must confuse payments which involve

either the increase or running down of wealth. The notion that income is consumption plus net saving is now firmly entrenched in tax administration and the central goal of tax laws is to accurately identify these factors.

However, Hicks, and later Kaldor, have raised serious theoretical problems about the valuation of income. Hicks says that income is at best a vague concept which can be only a "rough approximation". In elaborating the problems he adds the concept of expectations to Simons' definition to say "we ought to define a man's income as the maximum value which he can consume during a week, and still expect to be as well off at the end of the week as at the beginning" (Hicks, 1946, page 103). The basic point that Hicks is concerned with is how to evaluate whether the individual is as well off at the end of the period as at the beginning, and how to understand that in terms of the individual's perceptions and expectations.

The context within which Hicks was considering income was the development of an understanding of a dynamic economy. He was therefore particularly interested in the behavioural effects of income. From this point of view the concept which is most important is the income which people expect to get during the period within which they are making decisions. This expectation is largely coloured by the anticipated change in the value of capital from the beginning of the period to the end. After the period is completed it is possible to get a form of measure of the change in capital, but Hicks had two problems with this. The first is that as an *ex post* measure it was irrelevant to assessing behaviour. The second is that the change in value which is significant for behavioural purposes is only the change which may be calculated in terms of the expectations prevailing at either the beginning or the end of the period, but not both. At the end of the period, as a result of windfall gains or losses, the owner of capital has a different set of information and therefore different expectations. Hicks accepted that a possible objective definition of income would be "the value of the individual's consumption *plus* the increment in the money value of his prospect which has accrued during the week; it equals consumption *plus* capital accumulation". (Hicks, page 109, emphasis in original.) However, this measure includes windfalls. Ideally he would suggest that any estimation should then remove those parts of income which "look as if they have had the character of windfall", but the best result that could then be achieved is "a statistical estimate" (Hicks, page 110). His overall conclusion was that "we shall be well advised to eschew *income* and *saving* in economic dynamics. They are bad tools, which break in our hands" (Hicks, page 107, emphasis in original). We may note, however, that Hicks continued to use these tools throughout his work.

Kaldor (1955) reiterated and expanded Hicks' criticism of income. However, he did not focus solely on income as an analytical device for understanding dynamic conditions. He was also concerned with income as a measure of taxable capacity which was the main subject of his paper. At one level it could be validly argued that the concepts and definitions of income should be sufficiently robust to be equally useful in any area of economic analysis. Certainly it would seem extreme to attempt to completely divorce the two approaches. In the words of Weisbrod and Hanson "any measure of economic position would seem to imply a theory of behaviour, or vice versa" (1969, page 48). However, our discussion of uncertainty, and whether to assess well-being as an *ex ante* or *ex post* concept, is of some interest here. In effect Hicks' argument is that for his dynamic economic analysis purposes he needed an *ex ante* concept. In our context we would probably wish to be less purist, and in particular would not wish to exclude windfall gains which would here be regarded as an example of brute luck.

Taking these issues into account Kaldor suggested a different definition of income.

"The ideal definition of income, as a measure of taxable capacity, is to be thought of, not as consumption plus actual capital accumulation (a la Haig) nor as consumption plus capital accumulation excluding windfalls (the accountancy ideal) [and also the Hicks concept] but as consumption plus *real* capital accumulation, where the term "real capital accumulation" is to be understood as actual capital accumulation subjected to a double series of corrections: first for the change in the general level of prices (of consumers' goods), and second for the change in the general level of interest rate." (Kaldor, 1955, page 125, emphasis in original.)

Though the correction for the change in the general level of prices is no more difficult than a standard index number problem, the change in the level of interest rates is more difficult. In this context interest means all forms of return on capital including the change in the value of capital. Since it is not possible to assess how much the change in the value of capital represents increased expectations of profits, and how much it represents a change in the discount rate as a result of a shift in confidence levels, Kaldor concluded that the problem of defining individual income "appears in principle insoluble." (Kaldor, 1955, page 126.)

In summary, though income appears to relate to the concept of control over resources, and though the Haig Simons definition has attracted considerable practical endorsement, a precise theoretical definition turns out to be a will-o-the-wisp. For many people with relatively constant income expectations there is little problem. However, for those with business incomes, especially those involved in risky ventures, the expectation problems are significant. As compared to expenditure as a base, one point of comparison is whether the broadening of the base and therefore the capturing of a further element of choice is sufficient to outweigh the increased technical problems in defining and measuring income.

A further major issue in connection with incomes has not yet been touched on. This is the fact that incomes do not measure control of resources, but simply the change in control of resources. In order to capture the full dimensions of control we need also to include some concepts of wealth. These might be tangible and financial wealth or include human capital. The following section describes attempts to incorporate wealth considerations in the analysis.

- **Broader Approaches to Assessing Control over Resources**

Several different approaches have been suggested as means of better assessing the ability of individuals or households to achieve a desired life style. Each approach tends to start with incomes and then move beyond that to incorporate further aspects.

In each case the aim is to get a better idea of the person or household's long run prospects and so form a better understanding their choice sets. The first approach which focuses on the concept of continuing or permanent income may involve a narrowing or broadening of actual income, depending on the circumstances. The other approaches all involve attempts to measure extra factors which may be regarded as different aspects of wealth.

a *Permanent Income*

One way of approaching the issue of uncertainty or risk is to try to assess which part of income may be seen as sustainable long run income which is likely to be maintained. For any significant purposes of assessing the position of an individual or household, we may assume that the long run income is a better indicator of control over resources than actual income in any given period.

The analysis of long run income concepts has been very significant in consumption theory. Freidman (1957) developed his permanent income hypothesis as part of his work to explain the consumption function. In effect he concluded that spending decisions are based on the consumer's understanding of long run expected income rather than on temporary windfalls. This idea was elaborated by Modigliani and his colleagues as they developed the life cycle hypothesis (see Ando and Modigliani, 1963). In essence the life cycle approach suggests that income will be maintained at a more steady level in line with continuing consumption needs and will be consciously spread across the predictable peaks and troughs of a life time earnings.

These approaches have been very influential in the development of thinking about consumption and savings, and there is a very large literature in the area. There is a clear link between this concept and the wealth issues that will be explored in later paragraphs. A life cycle consumption theory clearly implies a life cycle savings theory. The savings may be used both to sustain permanent income (from interest) and to maintain expenditure during periods when income is low.

"Savings (net worth accumulation) is in large part motivated by a desire to smooth out patterns of normal life time consumption and to build up reserves to take account of unanticipated needs arriving from, for example, medical expenditures" (Weisbrod and Hansen, 1968, page 36).

This long term approach to income explains why we may be relatively untroubled about the low income of a student and regard that individual as being in a better position than a low income sole parent on a higher weekly cash income. The theory is also consistent with young families taking on substantial mortgage commitments in the expectation of discharging them over time. More generally the theory explains why the position of a low skilled unemployed person from a poor family is more desperate than that of a highly educated person who is between jobs but who owns a mortgage free house and whose wider family is comfortably off, even though both are on the same short term cash income.

However, though the theory is very useful, it is based on strong assumptions about the ability of consumers to fund their long term aspirations. It is not always correct to assume that funding will be forthcoming to match an individual's life style expectations.

"It would be a mistake to take the life cycle hypothesis *too seriously*. Its central message - that the life time pattern of consumption is independent of the life time pattern of earnings - cannot be literally true in a world where there is uncertainty, where working and consuming are competing uses of time, and where the ability to borrow against future earnings is severely limited" (Blinder, 1976, page 87, emphasis in original).

In the long term these issues of availability of funds to meet uncertainty, and the value of time, are closely linked to various concepts of wealth. Wealth in the form of physical and financial assets, human capital and family resources will each be explored in later sections. However, in a rather shorter time period the focus on permanent income allows a distinction to be drawn between unpredictable fluctuations in income and a steady stream of receipts. We may expect that some variations in income are unexpected. From the point of view of the identification of choice sets, and therefore to compare people in similar positions, it may be valuable to assess the significance of unpredicted variations in income and so identify permanent income.

Mirer (1974) has explored the issue of variations in income. He suggests there are three types of causes of shifts in the income level of any given family. These include economy wide factors (including inflation), changes in family income prospects (such as completing a work related qualification), and random unpredicted variations. Mirer developed a model to demonstrate the position of the i th family.

$$y_i(t) = x_i (1 + g_i)^t e^{u_i}.$$

$y_i(t)$ is income received by the i th family in period t , x_i is the income base for that family (this is never observed), and g_i is the real rate of growth. u is a random variable with a mean of zero. e^{u_i} is the transitory component of the household income, and the other elements in the right hand side of the equation are the permanent income of the household which is growing at g_i .

We may express the equation in the log form and then rewrite as follows:

$$\log y_i = a_i + b_i t + u_i$$

Where $a_i = \log x_i =$ permanent income (when $t = 0$)

$b_i = \log (1 + g_i) =$ income trend

$u_i =$ random factor

This equation represents income as a trend line and aims to measure income variability as the standard deviation of the random variable.

Mirer tested his approach using data from the Michigan study on income dynamics from 1967/69. For each family there were three observations. The equation was fitted separately for each family using ordinary least squares. For each family the estimated permanent income for the middle year is the mid point of the fitted line and income variability is taken to be the variance around that line.

Mirer's data suggests that income fluctuation is high for families in the lowest income group and the fluctuation drops as income increases. The variance continues to drop until the third highest of his 18 income categories. In addition, the results suggest that variation in low income is related to variation in earnings, but variation in high income is related to variation to non-earnings.

On the assumption that permanent income is relatively more valuable than variable income, Mirer suggests that these results indicate that the relative position of low income households is worse than would be suggested by a review of actual incomes. Further, Mirer suggests that the variance in low incomes is sufficiently high as to cast doubt on the interpretation of income changes. Several studies have suggested that

income change over time is sufficiently large that we can assume that most poverty is a short term phenomenon and likely to be of little significance. Instead, Mirer suggests that the degree of fluctuation in the incomes of the poor is such that in any given year some are likely to have moved out of poverty, but this is probably only a transitory phenomenon and their real position may still be grim.

As a reminder that variability of income can matter, Mirer's comments are useful. Unfortunately, the use of the standard deviation as the measure of variability means that we do not know whether these changes in income were part of a planned life-style (and therefore part of the choice set), or were imposed by changed circumstances (and therefore a reflection of brute luck). However, though we may not be sure about the precise level of unplanned variation, the result suggests that the position of low income households needs to be considered carefully.

b Income Plus Assets

A major weakness of any measure of income, permanent or actual, is that it does not measure the control over resources but, at best, it is a measure of the flow of resources. "It is a person's ability to reach a given consumption level, not his or her income, that determines well-being." (Burkhauser et al, 1985, page 70.) Knowledge of money income does not give us an idea of the flow of benefits from assets. In addition, we do not know the potential ability of the individual or household to dip into their pockets to tide themselves over periods where income is reduced. This suggests that information about assets is necessary to gain a full picture of control over resources. Three issues may be identified. The first is whether reported cash income will genuinely reflect receipts from capital. The second is the imputed value of the non cash stream of benefits from assets. The third is the life time ability to realise assets and so boost one's access to resources.

Because most people now work for wages or salaries, or have a formalised contract for receipts of payments for labour services, it is relatively straight forward to assess income from labour. However, income from capital can be very much more manipulable. Such simple devices as assigning the nominal ownership of assets, and therefore income, to lower income members of the family, or assigning assets to some form of trust, may mean that the reported income from capital is very much different than the true flow of resources from that asset. Steuerle managed to combine 2700 estate duty returns in the United States with the income tax returns of the deceased for the previous year and the income tax returns of the beneficiaries for the concurrent and subsequent years. His data suggested that the reported returns from capital assets were consistently less than would be expected from the apparent value of the assets. He concluded that income tax laws in the United States at that time (between 1975 and 1978) were totally ineffective in assessing income from capital.

"At the individual level, the recognition of income from capital is in many ways a voluntary event for both tax and other purposes.... the individual tax (and loss of benefits or implicit tax in welfare systems) on capital income is in part a tax on liquidity, risk reduction and diversification, simplicity, and ignorance". (Steuerle, 1985, page 96.)

To that list presumably he could have added that the tax was a tax on honesty.

In New Zealand, following the recent reforms in income tax including the introduction of withholding tax on interest and full imputation of company income, the situation is very much better than described by Steuerle. It is true that it is in the nature of capital

transactions that some forms of evasion are more possible but, especially with the increased flattening of the tax scale and therefore the reduction of incentives to avoid or evade tax, it is likely that our problems are not as acute as he described.

The second major issue is the imputation of a value for the effective income derived from the ownership of assets. The classic example which is typically quoted, and which in some regimes is subject to tax, is the imputed value of owner occupied houses. However the issue is not simply related to housing but covers the stream of services that may be received from any consumer durable asset.

Danziger et al (1984) used an expenditure approach to try to estimate the significance of these services for elderly people in the United States. The group was able to use survey data which inquired into expenditure as well as recording ownership of a variety of assets. Once imputed values have been derived to evaluate the annual implicit flow from these assets, they were able to construct a picture of notional total expenditure. This expenditure was then adjusted to take account of household size. The group concluded that apparent expenditure by the elderly significantly understated their actual use of goods and services. In total they considered that at the time of the survey (1973) the elderly in the United States were on average significantly above the poverty line. This implied a substantial improvement from the generally understood position.

The third way in which assets may be significant is as a store of value. These stores may be realised to maintain the desired flow of resources when required. The difficulty is how to translate from the value of assets into the potential sustainable contribution to income. If we count solely interest income, we are interpreting assets as a potential perpetual annuity. This must understate the possible gains that any one individual could derive from those assets. Alternatively, if we count the full value of assets in any given period, we are assuming that they are fully realised and consumed in that one period.

The path breaking work in this area was carried out by Weisbrod and Hansen (1968). They suggested that the correct approach is to view net worth as an asset which could potentially be converted into an annuity for the expected lifetime of the owner. They suggested that the current economic position of an individual should be modelled as follows

$$y_i^* (t) = y_i (t) + NW_i (t) \cdot A_n$$

Where:

$y_i^* (t)$ = current economic position of the ith unit in time t

$y_i (t)$ = current annual income (net of yield of net worth)

$NW_i (t)$ = current net worth

A_n = annual value of n year annuity with a capital value of \$1.00

n = life expectancy of the ith unit.

The second element on the right hand side of the equation represents the lifetime annuitised value of current net worth.

This approach is clearly very sensitive to age. As age increases so life expectancy decreases and therefore the lifetime annuity value of current net worth increases. As formulated, the equation implies that all assets would be totally consumed on death. If

instead the person wished to leave a positive bequest, Weisbrod and Hanson suggest that a desired target bequest could be subtracted from net wealth before the lifetime annuity is calculated.

Wiesbrod and Hanson used 1962 data from the survey of financial characteristics of consumers to derive data on families by age of principal income earner and income and wealth. This was combined with the current population survey (which did not include wealth data) to generate an estimated distribution of wealth by income and age. The result of their analysis was to significantly reduce the proportion of the elderly who were assessed to be poor. In addition, the proportion of the poor who were elderly was significantly reduced.

Similar approaches have been used by other researchers. Burkhauser et al (1985) tested a lifetime annuitised concept of income compared to actual income of 1,782 married men in the retirement history study. This was a ten year longitudinal survey of the retirement process conducted by the Social Security Administration. The sample was composed of people who were working in 1969 but had retired by 1979 and whose spouse was present in the household. Their results showed that, although actual income appeared to drop significantly, the drop was considerably reduced when a lifetime annuitised measure of wealth was included.

A conceptually similar approach was carried out by Moon (1976). Like the other studies she used a lifetime annuity approach and also took account of household size. She used a sample of seven thousand persons aged 65 and over in 6,300 families from the 1967 survey of economic opportunity. Once she took account of lifetime annuitised net wealth the average measure of well-offness was increased and the effective income distribution was widened across all elderly people.

Clearly the inclusion of the potential consumption value of net worth is an important factor in assessing control over resources. However, it is not so clear that the lifetime annuitised value of net worth is an accurate measure. The central problem is that the approach assumes certainty about one of the most uncertain aspects of life, that is the number of years one has still to live.

If the lifetime annuitised approach to net worth were correct, we would expect that savings might drop with advancing age. If, however, the elderly are insecure about the potential costs they might face for an unknown number of years, this life-cycle effect might not be observed. There have been some studies that have attempted to test this life-cycle hypothesis.

Hamermesh (1984) took a sample of five hundred white married couples aged 62-69 from the retirement history survey. His study showed that immediately after retirement the households spent at an unsustainably fast rate (that is, faster than their expected income) and ran down savings as might have been expected. However, after one or two years consumption was reduced below pre-retirement levels and so the run-down of savings was reduced. On average he found that consumption was reduced so far that it was below annual expected income and savings were increased during later years of retirement. A further study by Menchik and David (1983) used a sample of probate returns filed in Wisconsin and compared them with previous income tax returns for up to 30 years before death. They were unable to confirm the hypothesis of dissaving in retirement and instead found that many people were accumulating funds.

These results suggest that the lifetime annuitised approach needs to be adjusted to take account of precautionary balances by the elderly. It might be hypothesised that the elderly have a target level of net wealth for security purposes, and that this target level might increase with age as the risk of long term disability comes nearer. I am not aware of any work that has attempted to draw the retirement saving results and the annuitised net worth approach together but some combination of them might produce a more plausible approach.

In conclusion, it is clear that assets do matter in assessing the ability of a household unit to control resources. This comes both from the stream of services that the assets provide as well as the store of value that the assets represent. However, given the different risks faced by different individuals and the varying values that they place on those risks, we face a difficult task in assessing the contribution that assets make to the control of resources and so to well-being.

c Potential Income

As well as the expansion of choice sets that an increase in wealth may offer, we also need to be aware of the differences in human capital between individuals. The better educated an individual is and the better the job record, the greater is the likelihood that the individual will enjoy higher earnings in the future. The ability of the experienced accountant to find a secure well-paid job represents a substantially greater control over resources than that enjoyed by the low paid construction worker, even if neither of them currently hold a job. The relevant concept in this context is not simply the actual annual income, but the potential income that both could earn if both worked to capacity.

A difference in annual income between an accountant working 15 weeks in the year and a truck driver working consistent over-time for 50 weeks in the year, may be substantially an outcome of different choices. However, a difference in income between the same two working for the same number of hours per year, may be the result of a difference in choice sets. If both take up all reasonable earning opportunities, but one is able to earn more than the other, then we may regard one as having a higher potential income.

The concept of potential income was explored by Garfinkel and Haveman (1977a and 1977b). They assumed that each individual had a working capacity of up to 50 hours per week. Potential hourly earnings were estimated for each individual in the 50,000 families of the 1971 current population survey. The estimation used variables which the authors said were consistent with those conventionally employed in empirical studies based on the human capital approach to analysing wage and earnings differences. The variables included age, years of schooling, marital status, and location. The expected earnings were estimated separately for blacks and whites, and for men and women, in order to take account of any discrimination in the labour market.

Having derived a capacity weekly wage of 50 hours per week times the estimated earning ability, an annual potential income is calculated by assuming a capacity of fifty weeks per year minus the number of reported weeks of sickness or unemployment. In effect the approach assumed that all weeks of unemployment were involuntary. A household capacity income was derived by the fifty hour fifty week calculation for both partners and adding non-earned income, including interest, dividends, rents and alimony but not government transfers.

In order to take account of work costs for those with children, a fixed sum per child (\$1510 per child under 5 and \$376 per child aged 6-14) was subtracted from the gross earnings figure to derive a net earnings potential.

The authors then compared the computed potential earnings per household with the reported earnings for those households. In order to assess the results the percentage of households that were below the official poverty line on a current income basis was derived; this was 11% of all households. The composition of the bottom 11% of the potential earnings capacity distribution was then examined to see how it compared with the composition of those assessed as poor on a current income basis.

On a current income basis only 26% of all poor were in households who had a principal income earner working for 50 weeks of the year. However this changed to 40% of all poor households on a net earnings capacity basis. That is, once their potential earnings were taken into account, a significant proportion of apparently poor households were promoted out of the poor category and were replaced by some low-paid workers with consistent work habits. Similarly the proportion of poor who were black increased from 31% on a current income basis to 38% on an earnings capacity basis. That is, the potential pay rates faced by blacks reduce their earning capacity, and on average more of them were working to capacity in order to make ends meet on a current income basis. On the other hand 21% of the poor on a current income basis were aged over 65 but only 13% of the poor on a net income basis (that is net of childcare costs) were aged over 65.

Garfinkel and Haveman concluded that current income understates the percentage of the poor who are black, from large families and in work, and overstates the percentage of the poor who are old, very young, alone or out of work.

There are some real problems in the estimation approach used by Garfinkel and Haveman. In effect, they have assumed the potential opportunities for work and have made a strong rationality assumption around the choice to work or not to work. Though they have accepted that any period of reported unemployment may be regarded as a reduction in potential work (and so ignored any possible voluntary unemployment) they have assumed that anybody else could have got a job if they tried. However, this ignores any discouraged worker effect which might have led various people to take themselves out of the labour market in the knowledge that no job was available for them.

The more worrying point in terms of assessing potential income as a measure of well-being is that it implicitly values 50 hours of every week at the opportunity cost of cash employment. However, the individual may suffer substantial personal utility losses from the stresses of full-time paid employment or incur significant agency losses in being unable to provide the personal services to other family members that may seem desirable. Clearly there are real gains that are enjoyed by each individual who is voluntarily absent from paid employment but, if the individual did not regard the work as being worth the level of financial compensation that could have been received, the gains are not necessarily equal to the calculated financial gain that could have been earned had the individual been in work.

d Family Position

As well as sustainable household income, physical and financial assets, and human capital, another important source of support for individuals or households, and so for their control over resources, is the value of voluntary contributions received from others. These contributions may come from a neighbour, a friend or family. The relevant source depends on the unit being used as the basis for analysis. If the individual is the basis of the analysis then others in the household, including the spouse or parent, are relevant sources of non-financial or financial voluntary contributions. If the household or nuclear family is the basis then other members of the wider family may be seen as the source of inter-family transfers and the intra-family transactions are ignored. The analysis which is reported in this section was all carried out in a household or nuclear family basis and examines the significance of contributions from members of the wider family.

There are two main areas of inter-family transfer that are of interest. The first is current flows of support, either financial or in kind. The second is intergenerational transfers, generally bequests.

In terms of the regular flow of cash payments between households there are no conceptual difficulties and in theory these should be included in an estimate of household income. As an administrative matter it may be very difficult to estimate such flows since neither party may co-operate in reporting the transaction. However, this makes no difference to the conceptual significance of the flow.

Support in kind is more difficult because the valuation is more subjective. A major, and possibly most significant, form of support in kind is the provision of personal labour services, that is the use of time. There are many examples of this form of support; grandparents baby-sitting for grandchildren provide a clear value to the household. Adult siblings helping one another in do-it-yourself activities around the home are similarly boosting the household's control over resources. Another example is the sometimes mutually beneficial services that elderly parents living with younger couples may derive. "Individuals can also make transfers to relatives by doubling up and providing housing and other goods and services directly and probably more efficiently but at some emotional cost" (Morgan, 1984, page 203).

Each of these examples, and most obviously the last, is very difficult to value. Should the grandparents' services be valued at the same rate that is paid to a teenager for baby-sitting because that is the alternative which the parents face? Alternatively it could be valued at the parent's hourly earning rate because their alternative is to participate in a baby-sitting pool where each hour of service received must be repaid with an hour of their own time. Or the value could be assessed in terms of the grandparents' potential earning rate. There is similar confusion in the case of do-it-yourself work around the home. For some, the poor quality of work may mean that it is ludicrous to evaluate the work at carpenters' rates, but it is presumably also rather strange to charge it out at the possibly even higher potential hourly earnings rate in the person's own job.

In the case of the families doubling up together in one house, the valuation is even more difficult. We presumably cannot talk in terms of hours because this service is continuous but the interaction intermittent. We might assess some notional rent foregone on the use of space, but this ignores the emotional cost in terms of loss of independence and domestic disagreements.

As with the assessment of potential earnings, it is dangerous to assume that each activity is the result of some utility maximising calculus and that benefits can be assessed on the basis of revealed preference using observed opportunity costs. However, it is equally fallacious to ignore inter-family services when assessing control over resources. Two households with the same assets and income but with different family support networks are in very different positions. The conclusion seems to be that family services matter, but they are not amenable to easy measurement.

The other area of inter-family transfers is intergenerational payments, either between living people or on death. It might be assumed that these payments tend to be from the wealthy (commonly elderly) to the less well-off in the family. As such they would seem to be promoting equality and reducing poverty. This is the approach taken by Cox and Raines (1985). They took a sample of 4,600 respondents from the Presidents' Commission on Pension Policy household survey. This survey included questions on voluntary gifts and Cox and Raines showed that gifts tended to go from richer individuals and households to poorer individuals and households. However Menchik (1985), in commenting on that paper, suggested the authors had misinterpreted their results. Once other factors than income were taken into account it was apparent that gifts tended to flow from the well schooled elderly to the well schooled young; that is, the recipients of gifts tended to have a high human capital and therefore a high potential income. Similarly the gifts went from the wealthy elderly to individuals who had an inheritance expectation that was three times the average expectation of others in the survey.

Menchik would suggest that inter-family transfers are much more strongly correlated with maintaining high wealth expectations than redistribution. He carried out a study (Menchik, 1979) in Connecticut in which he compared wills probated in the 1930s and 1940s with the probated wills of the children of those earlier deceased. He established from that that the wealth of the parent at death tends to be correlated with the wealth of the child at death. His later work on Wisconsin estates (Menchik and David 1983) which connected income tax returns and probate returns demonstrated that the top quintile of income earners had a substantially higher marginal propensity to bequeath wealth than others in the population.

An extra dimension to the analysis of family transfers has been provided by Blinder (1976). He suggests that bequests may take two forms, either human or financial. A human bequest is support in the provision of education, culture and personal contacts. Human transfers of this sort have the advantage of being personally beneficial to the recipient and are inalienable, therefore they may be attractive to the caring parent who is protective of the child's well-being. However, the other feature of human capital is that by the nature of the recipient, there is a limit to the amount of human capital which can be invested in one person. Initial investments have a good return, but as capacity is approached we may expect that marginal returns drop. At a certain point the return on financial investments is better, so we may expect that some of the bequests made by the rich will be in the form of financial assets, while the less prosperous will pass on their wealth as human capital.

This discussion on the various forms of inter-family transfers would suggest that if wealth matters in terms of assessing control over resources, and if permanent and lifetime income expectations have any significance, then parents' wealth matters also. However, it also suggests that a large part of the role of families is in non-financial and difficult to quantify forms, which are inherently of limited significance since they rely on the personal efforts and capacities of the giver and the receiver.

Conclusion

The overall aim of Part One is to investigate the information requirements of an efficient and equitable redistribution system. The purpose of the theoretical discussion in this chapter has been to get an overview of the issues and to see if there are any indications of what, if any, information is desirable as the basis for a Government policy to take from one and give to another.

The functioning of any redistribution system centres "around that elusive something which we call 'discrimination'." (Simons, 1938, page 91.) If we are to discriminate we need to have valid grounds for our discrimination. We also need to know that the information on which we are making our discrimination decisions reflects those grounds. That is, we need to be sure we are measuring the right thing. To be worth collecting information on which to base an integrated redistribution policy, we must be sure of what we want the policy to achieve, that its achievement would be worthwhile, and that the means we are to use are likely to contribute towards that achievement. This chapter has worked on the assumption that the Government has decided that redistribution is worthwhile and it has focused on whether we know what it is we wish to distribute and how we would measure relative need.

The first conclusion from the discussion is that at every level the concepts are slippery. Well-being is not clearly defined; the nearest we have been able to get to a basis from which we could construct policy is Sen's idea of capabilities. The assessment of capabilities requires the use of proxies, of which control over resources seems promising in many circumstances but by no means all. The definition of control over resources also proved to be elusive. The most widely used approach is to measure income, but even that turns out to have basic flaws.

"[Economists] have done almost everything with the income concept except to give it such definition as would make it eligible to a place among our analytical tools" (Simons, 1938, pages 94-95).

Having dismissed all previous work so scathingly Simons went on to give us the best operating definition that has been produced, but the work of Hicks and Kaldor has established that there are still basic problems. Various other approaches such as expenditure, net wealth, human capital or family background have been explored and all offer some solutions but contain other problems. We must agree with Feldstein's depressing conclusion that "with multiple abilities or different tastes any feasible tax on income or consumption will violate horizontal equity" (1976, page 129). Indeed we must add in despair that any feasible tax on wealth in a financial, physical, human or family form will fail the same test.

However, we need not despair absolutely. Anybody who seriously inquires into redistribution issues must already have put aside perfection as a goal. The aim must be to achieve a reasonable likelihood of identifying relative well-being, rather than a precise ordering of all members of society. Though we cannot derive precise conclusions, there are some regular themes which emerge to help us find our way forward.

The second conclusion is that a major aim in the process of discrimination is to identify to what extent the relative position of individuals is a result of choice and how much reflects circumstances beyond the individual's control. Ideally we would wish to allow the

results of choices to lie where they fall, but to protect people against the winds of fate. However, this ideal too is impossible partly for measurement reasons and partly because one person's wind may be the backwash from someone else's gentle fanning.

The more we are concerned with the dynamics of the economic process and the risks that might flow from changing economic incentives, the more we may be inclined towards an ex ante presumption in designing our policy. However, the more we are concerned with living standards and equality then the more we will tend to be pushed towards an ex post presumption in designing tax and benefit systems. Neither approach allows us to discriminate between option luck and brute luck, rather they tell us how much weight we put on the distinction. The conclusion from this discussion is that the choice set is the central philosophical concept that should be used to compare the well-being of people, and so act as a fair basis for redistribution policy.

The third main conclusion is that, in spite of the disappointing conclusion that nothing is unequivocally clear, some forms of information do seem to provide a relatively consistent basis for discrimination because between them they offer some insights into the constraints people face. The two main required elements seem to be:

- a a measure of the flow of resources to the person or household; and
- b a measure of the store of assets held by the person or household.

In combination these two may give a good idea of the total stream of resources that are used, both in money and in kind, and also of the options for the future use of resources that wealth may offer. At this stage the specification of the need for information about income and wealth does not necessarily imply an income tax base since an expenditure tax would also require both of those elements of information.

It is likely that information on personal abilities and family relationships would also give useful information on the relative position of an individual or household. However, the collection and comparison of information in these areas would be necessarily subjective and unreliable to a considerably greater extent than applies to income and wealth. In addition, the invasion required by an investigation of the personality and relationships of an individual is significantly more sensitive than that needed to inquire into the person's affairs.

The results of our discussion, and therefore an indication of the nature of the information required for an effective redistribution system may be summed up as follows:

"A unit's economic well-being or economic position should be thought of as a function of the flow of services over which it has command. This flow depends importantly on the consumer unit's current income and also on the services it receives from its assets, net of liabilities." (Weisbrod and Hansen, 1968, page 34.)

The following chapter looks at the issue of whether it is necessary to be consistent across all people involved in the redistribution system, or whether a different base may be used in different parts of the system. It also looks at drawing more precise conclusions about the base for assessment that would be appropriate in New Zealand with particular reference to the requirements of an integrated system of redistribution.

CHAPTER THREE: INTEGRATED REDISTRIBUTION SYSTEMS AND THE PERIOD OF ASSESSMENT

Introduction

In Chapter Two it has been established that, in order for a redistribution system to determine with reasonable precision who should give and who should receive, we need information on the income and wealth of members of the community. Once it is appropriately analysed, this information may be used to measure the choice sets facing people, and so act as a proxy for their general well-being. If we were to generate a complete picture of those aspects of well-being that are of concern to us, we might also need information on particular capabilities, like the ability to house oneself or the ability to have access to medical care. However, as the basis for a more broad approach to redistribution, we require a more generalised measure of control over resources, which for most purposes seems to be the best proxy for well-being.

In arriving at its basic conclusion on the concepts and measurements of well-being, the previous chapter has abstracted from any practical consideration of administration and has viewed redistribution as a unitary concept. The discussion of the base to be used for assessing control over resources implicitly assumed the existence of only one base for the whole system. That approach was useful in identifying the central significance of income and wealth but it has limitations as we shift towards the design of usable redistribution systems.

Though it is intended that this chapter will be more specific than Chapter Two, and more concerned with the application of the theories developed in that chapter, it is not intended to design an ideal redistribution system or to identify precisely the base that such a system should use. As with Chapter Two, the aim in this chapter is to clarify the information needs of an effective redistribution system. In order to do that we need to identify the necessary attributes of an effective redistribution system, but not necessarily to design a perfect system or even the best system. We wish to assess the information requirements of effective redistribution and to broadly understand the value and significance of that information. Since the value of the information is derived from its use within the redistribution system it can only be assessed against the requirements of effective redistribution.

There are a variety of possible approaches to redistribution. Any system involves choices of an administrative structure, the effective scale of rates for tax and benefits, the base for assessment, and the period of assessment. It is not intended, however, to discuss administration issues at this stage and questions of the number of different institutions and their inter-relationships are therefore deferred for consideration in Part Three. Similarly, it is not intended in this thesis to identify the ideal rate structure, and therefore rates will be discussed only where they are useful to illustrate other points and where they link to other issues. This leaves the question of the base and the related issue of the period of assessment.

The period of assessment is, in fact, one aspect of the base of assessment. If we decide to use any given metric for assessing control over resources such as income (the same issues would apply with consumption), we still face the question of whether to assess income over a lifetime, a business cycle, a biological cycle (such as the beef cycle for

dry stock cattle farmers), a year, a month or a day. This is just one of the aspects of the base that need to be clarified as we shift from general concepts in measurement towards operationalising our systems.

We may visualise the selection of a base for assessment as having three stages. The first stage is to establish in general terms the quantum that is to be used. The second stage of decision making is the establishment of accounting rules, including the period of assessment. The third level of decision making leads to precise formulas and legislative rules for assessing income or consumption. Whereas Chapter Two focused on the general issue of the quantum to be considered, this chapter focuses on the second

to illustrate some of the alternatives, and so give some practical focus to the later analysis. Once the options are outlined the next section includes an examination of the criteria that are significant in determining the accounting approach for redistribution purposes. The later half of this chapter contains a theoretical discussion of the period of assessment from the point of view of the equitable distribution of well-being and then from the point of view of the efficiency costs of redistribution. This is used to identify the factors that need to be assessed in an integrated approach to redistribution.

Options for Accounting Systems in Redistribution

The discussion so far in this paper has focused on general issues of well-being. Though that provides a central purpose for the design of redistribution systems, there are a range of practical issues that need to be considered in the selection and assessment of the approaches that are to be used. In order to give some greater administrative reality to the analysis, this section outlines some of the options that exist in the design of a redistribution system. These cover the degree of integration of the overall system, the use of prospective or retrospective assessment, and the time periods to use in different parts of the assessment process, and whether to measure those periods on a fixed or moving basis.

- The Degree of Integration

As we turn to broad issues of system structure and design the immediate observation must be that most countries around the world do not have integrated redistribution systems. Most countries have a progressive income tax, based on annual assessments, and a separate mechanism to identify those in need of support and to make that support available. Many developed countries have some form of social insurance which provides support related to previous contributions or work record, but these insurance systems are generally supplemented by income tested assistance. It is the income tested assistance that is effective at the margin in controlling the resources of recipients, especially the lowest income recipients, and therefore that is the part of the system that matters most both from the point of view of equity and efficiency. The income-tested systems could be said to be an extension of the progressive tax structure, but there are usually important differences between the tax and benefit systems. Many countries use slightly different definitions of income in different areas of the system; usually the testing of income is done by different agencies and commonly benefits are provided on the basis of an assessment covering about one month to six weeks, but income tax liability is based on a full year of income. In addition, benefits are not usually based solely on income but may require evidence about other factors such as the presence of dependents, joblessness or incapacity. To identify this common form of tax and benefit system we might use the term "compartmentalised redistribution". In a compartmentalised system we may find multiple administrative structures, multiple definitions of the base, multiple periods of assessment, and multiple effective marginal tax rates.

Over the last twenty to thirty years there has been substantial academic criticism of this compartmentalised approach to redistribution. It has been suggested that compartmentalisation leads to capricious incentives, inefficient administration and a poor record in responding to relative need. Proposals for a negative income tax were an attempt to develop a more unified approach which would address those criticisms. The basic intention of a negative income tax was to test everyone's income in order to

establish their liability for tax or entitlement to a "negative tax" depending on their income. Various different structures of negative tax have been canvassed, and in recent years the credit income tax has emerged as a significant reform proposal. In its most developed form the credit income tax would give each tax unit a demogrant and that grant would then be abated against income at a uniform marginal tax rate. The same marginal tax rate would apply across all income. This uniform rate credit income tax might be seen as "perfectly integrated redistribution". The characteristics of perfect integration involve one administration system, one base of assessment, one period of assessment and one marginal tax rate.

Between the polar options of compartmentalised or perfectly integrated systems there are many possible approaches, but it is unusual to find a systematic discussion of the options and the accounting systems they might imply. This may be because as a general rule redistribution systems have developed over a long period of time with each reform being an adaptation of existing systems. One example of a clean slate approach was the income maintenance experiments that were carried out in the United States in the late 1970s. For those experiments negative income tax systems were designed from scratch and in order to develop the systems the experimenters had to give considerable thought to the interactions within their systems. The items listed in the following paragraphs are drawn from the issues that confronted the experimenters during that time.

- **Prospective or Retrospective Assessment**

The first question to be resolved was whether to assess circumstances in prospect or in retrospect. The difference is significant in terms of operational characteristics of schemes and reflects a substantially different philosophical approach to redistribution.

"If welfare payments are seen as charitable benefits designed just to permit people to meet their dire needs, then a prospective approach may seem natural. This is the approach of traditional welfare programmes. On the other hand, one might think in terms of a 'right' to a certain minimum level of income; payments would then discharge a liability for past deficiencies and a retrospective approach would seem more appropriate." (Asimow and Klein, 1970, page 4).

A prospective approach allows payments to be geared to needs as felt at the time of assessment, and as expected to continue during the time of receipt of assistance. A retrospective approach permits an examination of actual outcomes and redistribution can attempt to equalise those outcomes.

If a prospective approach is used, it is possible to operate a checking system to ensure that the payments that are made relate to the actual circumstances as they emerge over time. This could involve a periodic check or reconciliation, as is done by Inland Revenue in the operation of the Family Support Tax Credit (see Appendix One). Alternatively it might involve some random checks and possible penalties as with the case of the income-tested benefits administered by the Department of Social Welfare.

- **Period of Assessment**

The second major question relates to the period of assessment. Bawden and Kershaw have identified three aspects of the period of assessment.

- a the accountability period. They define this as the "ex post period over which equity is maintained among families" (1971, page 259). In effect this relates to the length of history that will be enquired into in each case in order to ensure that the assistance given to each recipient is comparable to that given to another recipient in some other circumstances;
- b the accounting period. This is defined as "the length of time over which ex post income is averaged for calculating payments" (1971, page 259). Payments are likely to be made more frequently than the total period that is taken into account in assessing comparability of payments. The significance of this period relates to the speed of responsiveness of support to changes in circumstances, and therefore it is particularly important in considering incentive issues;
- c frequency of filing income statements. This is essentially an administrative issue, and it is closely related to the accounting period. The accounting period cannot be shorter than the length of income periods that are reported in the returns. If returns relate to more than one period there is an increased risk of mis-reporting.

It is possible for the accountability period, the accounting period and the frequency of reporting to all be the same. This is the case with annual tax assessment systems. It is not necessary, however, for any of these periods to be a year, and it is quite possible for both the accounting period and the frequency of reporting to be shorter than the accountability period. The range of options that were considered at the time of the income maintenance experiments included annual, half-yearly, quarterly or monthly periods for each of those three concepts.

- Fixed or Moving Assessment

The third issue relates to the method of measuring data and the period against which it is to be applied. It is possible to use discrete periods of time to finalise the assessment within each period or an alternative approach is to use some longer term averaging system. It should be realised that any plausible redistribution system must involve some averaging over time. Even if we went to a daily income assessment this could still be regarded as an averaging approach, since one's salary is only paid into the bank account at a particular moment of the day and it is then spread of the whole of the day. More obviously, a weekly basis of income assessment involves spreading the income received on the pay-day across the pay week.

The question at issue here is not whether to use an average concept of income, but whether to use a moving average or a fixed period average. The income tax year may be regarded as a fixed period averaging system, and the various income smoothing schemes that have operated from time to time in agriculture and forestry for taxation purposes may be seen as moving average approaches. In New Zealand at present all of the benefit payment systems are fixed period type. For example, the Family Support Tax Credit involves short term fluctuations in payment and a long term (that is one year) fixed period averaging at the end. The income tested benefits are paid on a fixed basis with short term reappraisal.

The most obvious method of operating a moving average approach would be to accumulate the income from a certain number of previous periods, and divide by the number of periods in order to determine the basis for assessment. An alternative approach was developed and used in the New Jersey negative tax experiment. There they used a carry-forward concept. Earned income in each month in excess of the

predetermined break-even level was accumulated in a carry-forward sum. In any later month when income was below break-even the carry-forward sum was added to family income for that month. For assessing entitlements, income was therefore the sum of earned income in that month plus any carry-forwards brought forward from previous months. If the result of this calculation exceeded the break-even level then the surplus would be carried forward to future months. Once the carry-forward is used up then the family begins to get payments. Income was carried forward for up to eleven subsequent periods, and then written off after twelve months. As an extra refinement, the actual periodic payment was calculated on a three month moving average basis. In terms of the terminology established above, the one year carry-forward expiry period was the accountability period, the three month moving average was the accounting period, and the frequency of filing returns was monthly.

It is not intended to firmly resolve any of this agenda of issues in this thesis. They are listed to give an idea of the questions that must be addressed in the detailed design of any system. They also illustrate the practical reality of the questions that are addressed here about the period of assessment and whether to use a single or multiple period approach.

Criteria for Assessing Accounting Options

Having reviewed some of the possible options for the form of redistribution systems, we need some idea of their significance, and the issues of importance in choosing among them. A great deal of analysis of redistribution systems tends to ignore the detail of timing issues. As a general rule calculations are often carried out on an annual basis and effective marginal tax rates are expressed as a nominal rate without reference to the time that is involved. However, these timing issues can be of critical significance. Different choices among the options can lead to significant differences between individuals whose income is received in different periods or who are on a rising, falling or static income path. Similarly the total cost of schemes can vary quite substantially as a result of changes in the timing issues even though the other parameters may remain similar.

As well as discussing the range of options that need to be considered in the design of a redistribution system, Bawden and Kershaw (1971) also suggested a set of criteria to be used in assessing accounting rules. The items on their list of criteria were as follows:

- a administration cost should be held at a reasonable level;
- b most families should be able to report their own circumstances and comply with the requirements of the system without assistance;
- c disincentives to take on paid employment should be minimised;
- d responsiveness; the system should be reasonably responsive to the changing needs of recipients;
- e equity among all recipients should be maintained.

They also included a criterion that there should be a close relationship between national and state programmes. However, that is not relevant in the New Zealand context and is therefore left off the list.

In reviewing these issues Kesselman (1982) suggested two further criteria.

- f avoid distorting the timing of income and saving decisions;
- g simplicity; make the system simple enough so that recipients can understand the consequences of their financial decisions.

A further couple of criteria that could be included are:

- h minimise the risk of fraudulent claims being successfully lodged;
- i stigma; the system should aim to minimise the stigma and humiliation felt by recipients of assistance.

Clearly it is possible to generate a long list of detailed criteria against which to vet any proposed redistribution system. The items that have been listed are all significant and the design of an effective redistribution system would need to take account of them. However, we cannot expect to achieve perfect results against those criteria because several of them are mutually exclusive. In particular, the more responsive the system is to changes in the circumstances of the individual, the more likely we are to generate disincentives to take paid employment.

Rather than attempting an exhaustive examination of all possible criteria, for the purposes of this chapter it is sufficient to note that the criteria listed above fall into four general types:

- i administrative cost and complexity; includes criteria (a) and (b);
- ii incentives and deadweight costs; includes criteria (c) and (f);
- iii equity and comparability as between different people; includes criteria (d) and (e); and
- iv issues of the interface between redistributive systems and the people using them, and the emotional reactions that they feel; includes criteria (g) and (i).

This categorisation of the various criteria into particular areas is clearly arbitrary. For example, issues of fraud relate to administrative cost, equity between people in the system, and deadweight costs. Similarly, the avoidance of distortions in the timing of decisions may also relate as much to equity as to incentives. Similar linking between areas could be found for the other listed criteria. The aim of establishing the broader areas of focus is to bring out the critical points that relate to information requirements. Any fully elaborated case for a redistribution system would require a more detailed review of every criterion.

In this chapter, for the purposes of identifying the types of information that are needed for an effective redistribution system, we need to focus on the implications for the period of assessment that are derived from the measurement of well-being and from efficiency and incentive considerations. That is, the concern is to identify an approach which is both fair, and which reduces the risk of significant behavioural change. These concerns

relate to the second and third of the broad criteria, which are here equated loosely with efficiency and equity. Other issues relating to the collection and management of information cast further light on what is efficient and equitable. These matters, which relate to the first and fourth criteria, are discussed in Parts Two and Three which consider the matters in the context of the design of operating systems.

The criteria of equity and efficiency will each be explored in a theoretical discussion, and then the policy implications for the information systems that are appropriate for redistribution will be considered in Chapter Four. Before considering the theoretical analysis, we must introduce the concept of the time horizon, which is a theoretical tool of some significance in the later analysis.

Time and the Assessment of Well-Being

The basic purpose of any redistribution system is to achieve a more fair (more equal) distribution of well-being. The existence of such a goal presumes that the well-being of individuals is in some sense commensurable. If this is so we could reasonably expect some common measure to be used when assessing the position of different individuals. That simple analysis is intuitively attractive and it points us towards an assumption in favour of a uniform basis for assessment. Such an assumption cannot be proved, but it may be challenged. For the purposes of this discussion the assumption of the superiority of a uniform base for assessment is adopted as a working hypothesis, and it will be checked by examining the range of arguments that might be deployed in favour of the opposite conclusion.

The following sections, the first on equity and relative well-being, and the next on efficiency considerations, discuss the necessary conditions for the working hypothesis to hold, and identify some limits on its applicability.

Before discussing equity and efficiency, it is necessary to introduce the concept of the "time horizon". It is generally accepted that most people place less significance on future events (such as income, consumption or losses) than they do on equivalent events of the moment. This is formalised in the notion of time preference, and measured by the discount rate. The discount rate provides a measure of the extent to which the value of future events may be discounted below the value of nominally similar events of the present.

The concept of the time horizon is derived from these concepts of time preference. When evaluating a future stream of events, it is plausible to assume that, at a given discount rate, events that are expected to occur subsequent to a certain date in the future are too insignificant to matter. That is, some events in the distant future "do not count". The perceived significance of possible future events is related to the absolute magnitude of the future event and the discount rate. For a given individual, with a plausible stream of future events and a given discount rate, this date beyond which future events are too trivial to be worth taking into account may be termed the time horizon.

The definition of the time horizon may be stated more formally as follows. Assume, for convenience, that the future events may be expressed as income. Let Y represent the expected stream of income for an individual, S represent a value below which the individual regards a discounted stream of income as being insignificant, and r be the discount rate for that individual. For every individual, we may identify T , the time horizon, as the time (t) that satisfies the following condition:

$$\sum_{t=T}^{\infty} Y_t / (1 + r)^t = S$$

It is apparent from this that the time horizon for an individual is sensitive to that person's discount rate, the flow of expected events (in this case income), and views on what magnitude of future prospects are significant.

Though the time horizon will be referred to frequently in the subsequent discussion, it should not be perceived as a precise date for any individual or for every context. It serves as a shorthand way of expressing the link between discount rates and the person's view of future events. The discount rate provides a measure of the individual's attitude to future events. The time horizon converts this into an expression measured as a period of time within which events are expected to be of sufficient significance to influence decision making. It is quite possible that for any given person this may vary from time to time, or in respect of different events. In particular, if we were to adopt a more disaggregated approach and examined different commodities individually, it is possible that a different time horizon may exist in respect of food or shelter than exists in respect of various social interactions.

The attraction of the time horizon is that it is measured as a period of time, and that is an easy thing for bureaucratic information systems to handle. It is here applied to the general notion of control over resources which we are proxying with income, so issues of an array of individual time horizons are set to one side. The drawback of the time horizon is that it imposes an arbitrary divide between events that are within or beyond the horizon. However, given that pre-set time periods for the assessment of income or other resources are necessarily arbitrary, it is useful to have a concept which explains the link between periods of time, time preferences and discount rates.

Equity and the Period of Assessment

In order that we may achieve some equity between different recipients or payers under a redistribution system, we need to examine further the issue of the measurement of well-being. The question of the period of assessment may be very sensitive as between two people with similar lifetime receipts, but one with a stable salaried career and the other with a few years of high pay on a remote building site and unstable seasonal work for the rest of her or his life. Similarly, for any system to be responsive to the changing needs of recipients, it is critical to focus on the time period for assessment since any change in needs implies a time dimension to the measurement of well-being.

In the light of these issues we need to consider whether the aim of redistributing well-being is likely to be best served under a perfectly integrated approach or a compartmentalised system. In particular we will focus on whether it is preferable to have a single uniform period of assessment or varying periods of assessment.

An assessment of income in a redistribution system amounts to an attempt to measure the choice set. For this purpose the choice set is seen to be composed of the flow of resources available to the person or household over a period of time. The introduction of a time dimension immediately raises a problem about the effect of a time limit on assessments. At a subjective level we may need to be assured that the individual's options at the time of measurement are in fact confined to those within the time period

under review; if he or she actually has some degree of assurance about prospects beyond the period assessed, the validity of the assessment is thrown into doubt. Then, even if the subjective test at the time of assessment is valid, there may be problems looking back on the comparative treatment of different people across a series of assessment periods. Looking at their relative positions at the end of a number of periods, and the assistance given to each person during those periods, we may conclude with the advantage of hindsight that justice does not appear to have been done.

This revives the issue of the relative importance of *ex ante* or *ex post* assessment. In pure form both the *ex ante* and the *ex post* approach are too stark to be helpful. A pure *ex ante* approach would presumably assess the prospects of a child at birth and offer any equalisation at that time. This would involve assessing what Meade (1973) refers to as fortune. In the glaring cases of the very rich this could be sufficient, but it seems unlikely to be adequate for anybody else. Similarly, a strictly pure *ex post* assessment would involve waiting until death before making any adjustments, which seems a less than helpful approach. What we need is some means of assessing concurrent choice sets. If we accept that otherwise similar financial and physical bundles of assets are the result of different combinations of fortune, option luck and brute luck we arrive at the conclusion that present means are an important part of the basis of assessing relative well-being, but not the whole story. For some, past receipts and therefore past opportunities are more valid in terms of assessing current choice sets than for others. This means that for some the assessment of the choice set needs to involve an inquiry into past (and maybe future) circumstances, but for others whose changes of fortune have been of a more random nature, this inquiry is less relevant.

This discussion links back to the issue identified in the earlier section about prospective or retrospective assessments of income. In practical terms the issue is less significant than it seemed. All assessments aim to generate a picture of the current choice set. This is related both to present receipts and prospective income. It is improbable that we would operate a totally prospective assessment, as even those schemes which adopt a fixed benefit payment for a forthcoming period base the payments on an assessment of current income.

The other practical conclusion we are forced to is that any bureaucratically feasible assessment period will inevitably depend on some period of time. Whatever period is used, we inevitably exclude experiences beyond that period. This may violate a subjective assessment of well-being through the exclusion of the person's expectations, and almost certainly will violate a longer term retrospective assessment of circumstances for all except those who do not survive longer than the period that is being assessed. This is not a weakness of the choice set concept, but derives directly from the problem of imperfect information that bedevils all real-world real-time decision making. The aim is not to devise a test of circumstances which will make perfect judgements that would not be questioned in a retrospective reappraisal, but to devise a test that best uses available information for delivery of appropriate assistance when it is needed.

In terms of the concept of capabilities, the central question is whether a person is able to meet a certain goal now, this week or this month. Could the individual concerned be plausibly expected to access the appropriate levels of nourishment, shelter, social contact or cultural fulfilment? The answer will depend (partly) on the level of means (income and wealth) currently available, and also to some extent on past means and on

expected future means. It is a nice intellectual challenge to conceive of tests which might continuously adapt to provide perfect assessments in an ever changing world. However, in a world of imperfect information, the real issue is to select the appropriate period over which to assess income, and in particular to explore the significance of using the same or different periods in different parts of the redistribution system.

- Time Horizons and Choice Sets

The working hypothesis is that the same time period should be used to compare the circumstances of all individuals. In order to assess this hypothesis we must identify the necessary conditions for it to be correct. This involves examining the significance of the passage of time in the assessment of well-being.

The purpose of assessing well-being is to ensure that people in like circumstances are treated alike (horizontal equity), and that the relative well-being of people in unlike circumstances is ordered correctly so that they may be treated appropriately differently (vertical equity). In order to achieve this we need to measure the choice set of the person concerned.

In a single period world there is no problem in comparing two incomes. The recipient of the larger income may be accepted as having a greater control over resources and greater well-being. In a multi-period world the relationship between the flow of income and present well-being is less clear. We may only make a direct comparison of streams of nominal income on the assumption that both people have the same rate of time preference and the same discount rate.

Since it is improbable that everyone has the same discount rate, comparisons between different income streams are very complex. The problems involved with multiple discount rates, and their effect on choice sets, is explored by Le Grand (1987, Essay Three). He points out the difficulties in accepting the discount rate as one of the parameters of the budget constraint defining the choice set. If the discount rate is selected by individual preference, it cannot be regarded as a constraint on the choice set. We will return to this issue later. For the present discussion we may note that, if the discount rate is to be seen as defining the choice set, it must be determined exogenously to the individual, and assume accordingly. Once this assumption is adopted, and assuming appropriate discount rates are known, different income streams may be analysed to measure the choice set.

However, the information problems in identifying discount rates and future streams of income are enormous, and would seem to be beyond the clerical processes that could be used in redistribution systems. For practical purposes the issue reduces to assessing income over a period of time, and the policy problem is to select the most appropriate period. The period may be regarded as covering the choice sets of the individuals concerned, or comparable subsets of the items in the choice sets. If the range of actual discount rates that different individuals operate under is narrow enough, the adoption of a single time period for assessment would give an acceptable approximation of relative well-being. Major problems arise, however, if discount rates are sufficiently different that for some people the period assessed is longer than the person concerned perceives as being relevant. Events which are beyond the individual's time horizon would appear to be outside that person's choice set.

The implications of this can be seen in a simple two period example. A stream of income (Y_i) may be received by two individuals (p, q) in two periods $(0, 1)$.

$$Y_i = Y_{i0} + Y_{i1} \quad (i = p, q)$$

For most individuals in most circumstances the budget constraint (and therefore the choice set) may be represented in the normal way by discounting future income to its present value. The choice set (C) for individual p is therefore:

$$C_p = Y_{p0} + Y_{p1} / (1 + r)$$

Where r = the discount rate.

However, a person with a short time horizon has such a high discount rate that income in future periods is effectively irrelevant. For the purpose of this example, r tends towards infinity. Therefore the choice set for individual q is:

$$C_q = Y_{q0}$$

The problem is to select an assessment period of the stream Y_i which gives a fair assessment of the choice sets of both individuals. If the income stream is assessed over only the first period, then the choice set of individual p is underestimated. However, if the assessment is taken over both periods, then the choice set of individual q is overestimated.

The plausibility of any individual q existing in any real world context is critical to the usefulness of this analysis. Does anybody exist for whom the subjective current view of expectations is really bounded by any one period? In order to establish the real world possibility of case q, we may consider the famine victim. In the absence of immediate food aid there comes a time in the life of a famine victim when tomorrow is the last day. For that person there is no prospect of next week, let alone next season's harvest and the wealth it might bring. Assuming no bequest motives (given that the rest of the family may have died already), that person has a rigidly defined time horizon.

If we move closer to the twentieth century context of New Zealand redistribution policy, the case of the famine victim may appear contrived. In the world of the welfare state shouldn't we assume that everyone expects to survive any given period, and so to anticipate future receipts of some level? The fallacy here is that the success of the welfare state is being used as evidence of lack of need for redistribution. In assessing policy, the appropriate consideration is what would happen to twentieth century New Zealanders without welfare benefits. In the absence of assistance measures that are available to the person concerned in a sufficiently prompt manner, some New Zealanders would die, and this life expectancy in the absence of assistance could be seen as a time horizon which is relevant to the assessment of need. The fact that the receipt of assistance, and even its anticipation, has changed choice sets does not mean that redistribution is misguided; on the contrary it is a measure of the success of any redistribution policy.

A further point about the plausibility of case q, is that it is excessively pure to claim that there should be zero expectation of any possible future income. For case q to be correct, it is enough for any expectations beyond the first period to be insignificant. We know already that we cannot use an assessment of current circumstances to arrive at a measure which will always be demonstrated to be correct *ex post*, and that is not our

goal. It is enough to arrive at a picture which describes the subjective view that the individual has, as that is what describes the options that the person has, or the choice set. It is asserted therefore that case q is not merely an intellectual curiosity, but a state which is sufficiently relevant to the lives of real people that it is overlooked only at the risk of serious misjudgement of relative well-being.

The policy conclusion from this is that, if individuals face different discount rates, and these discount rates are a constraint rather than a reflection of personal preference, then the use of any common period for assessment may jeopardise horizontal and vertical equity. Depending on the actual levels of nominal income and the discount rates, the individuals could be on an equivalent level of well-being (with similar choice sets), or on different levels. The use of a common assessment period could mistakenly separate those on the same level, and reverse the order of those on different levels.

- The Role of the Discount Rate

A critical assumption in this approach is that discount rates may be externally imposed. Le Grand (1987) follows the usual approach of regarding the selection of the individual's discount rate in an imperfect capital market as being the result of personal preference. Faced with different interest rates for lending and borrowing, individuals decide whether to be lenders or borrowers, and so select their discount rate. This process of selection can be seen as a result of preferences rather than a constraint on the choice set.

If discount rates are chosen from a market set on offer to the individual, then, for the assumption of a constrained discount rate and time horizon to be valid, it is necessary to establish that the choice is in some sense predetermined. If it is claimed that choices are predetermined in a market context the source of this predetermination (which is presumably outside that market) must be identified. One approach is to hypothesise a characteristic which is intrinsic to the person concerned, and which predetermines discount rates and time horizons. It turns out that there are severe logical problems in this kind of approach, which become apparent in a review of some individually based explanations of time preferences. It is probably true, for example, that there is a systematic variation in the time preferences of the poor and the rich. However, the source of the difference is critical.

One possible explanation is a difference in tastes between social classes. However, to suggest a regular variation in tastes is problematic. The term "tastes" implies that there is a preference inherent to an individual which has developed entirely outside the process of economic exchange. It is plausible to argue that there may be variations in taste between individuals, but if we assert that these variations are correlated with economic position we create a paradox. Are we to suppose some cause and effect between taste and economic position? If we regard tastes as being exogenous then any causal connection must flow from tastes to economic position. That is, a taste which leads to a relatively short time horizon, or a preference for short-term plans, appears to be a factor contributing to being in poverty. If that is so, then it would appear that poverty-inducing behaviour is being selected as a matter of taste and the grounds for providing assistance to the poor would appear to be thin. Assuming the existence of exogenous tastes would also pose some theoretical problems which limit the potential for analysis (see Stigler and Becker, 1977).

A more fruitful approach to analyse the alleged existence of systematic variations in planning horizons and time preferences between the poor and the rich is to assume that

long-term planning perspectives are valued by all. However, the adoption of a long-term perspective necessarily involves tradeoffs against short-term consumption. As with any other normal good, the price of long-term planning is more likely to be met by those with a higher income. As income drops the relative priority of short-term issues increases. If we understand time preferences in these terms, it suggests that long range planning is not valued any less by the poor than the rich, but that their behaviour is an adaptation to low income. Presumably they would prefer both increased incomes and the ability to undertake longer term planning.

These theoretical considerations suggest that the poor might generally have higher discount rates and shorter time horizons than the rich. Observation of the world provides some empirical support for such a theory. For example, Barr (1987, page 250) quotes an example based on evidence from the Canadian tax system. It is possible for Canadians to "sell" their expected tax refunds at a discount, and for some time the discount rate was unregulated. By assessing the rates that individuals accepted it was possible to deduce that the discount rates for many very low income people were extremely high.

It seems likely therefore that the poor frequently operate under higher discount rates than the rich. By itself, however, this is not sufficient to justify the use of a different time period for the assessment of benefits than the period used for tax. This is because, as in the previous paragraphs, it is not possible to use utility analysis, tastes or other subjective approaches to establish that discount rates are externally imposed on the individual.

This discussion suggests that the issue for examination is not whether there are systematic factors which ensure that beneficiaries have different time preferences to others in society and therefore which justify different time periods for assessment for benefits as opposed to taxes. Rather the question should be: are there means by which a government may identify any people who are constrained to have shorter time horizons (that is narrower choice sets) and assess the well-being of those people over a shorter time period to that applicable to others who face wider options? If we can identify externally imposed variances in time horizons and therefore in choice sets, the policy question is to determine the information necessary to distinguish the choice sets available to different people. To design policy on the assumption that everyone faces similar combinations of fortune, option luck and brute luck and therefore should all be assessed over similar time periods is to ignore some critical differences in the circumstances of people. Since the aim of redistribution is to address the differences in circumstances, this would appear to undermine the whole purpose of the policy.

The conclusion that may be drawn on the equity of using common or differentiated time periods for the assessment of well-being, is that people should only be assessed using a shorter time period if it is possible to establish that there are constraints which oblige them to operate on higher discount rates, and therefore to have shorter time horizons.

The Period of Assessment and Efficiency Costs

Redistribution involves reducing the income someone would otherwise have got and increasing the income for others. This implies a variation in relative prices and incomes and we may expect that some behavioural response will follow. Any attempt to assess the efficiency costs or deadweight costs of such changes must be by comparison with some alternative state of the world. That is not meant to imply that this counter-factual

state, be it one with no government organised redistribution or one with a different form or degree of redistribution, is in some sense satisfactory; rather it implies that this alternative state is an option. Shifting from one state to another involves some gain in terms of a desired change in distribution patterns, but also involves an opportunity cost in terms of output foregone.

In comparing two different policy states we hope to achieve the desired redistribution at the least cost in terms of output. At a personal level this implies that we want to minimise opportunistic changes in behaviour as people adjust their lives in order to profit from (or avoid contributing to) the redistribution system. The analysis below is a corollary of the discussion of the role of the choice set and the time horizon in the context of equity. Simply stated the core of the discussion is that, if we are concerned to avoid opportunistic responses to redistribution policies, we need not concern ourselves about responses that require a longer period to bring to fruition than the time horizon faced by the individual concerned. Plans that need to be considered over a longer term than the time horizon have already been shown to be outside the choice set; since they do not represent available options for that person we do not need to worry about the possibility of that course being pursued. Policy should be concerned with real risks of behaviour changes from those who do have an option, but ought not to attempt to guard against responses from those with no real choice.

- **Marginal Tax Rates and Incentives**

To a large extent the degree of change in behaviour can be expected to be related to effective marginal tax rates. The higher the effective marginal tax rate, the greater the expected change in behaviour as a result of the redistribution system. In addition, if there is variety in the effective marginal tax rates (such as is found with progressive tax scales or rapid abatement of benefits) we may expect to see more changes in behaviour as people attempt to avoid the effect of high effective marginal tax rates.

This effect of high and varying effective marginal tax rates is the major rationale behind proposals for a uniform rate credit income tax. If we can organise a redistribution system such that everybody faces the same effective marginal tax rate whatever their circumstances, and if that rate is uniformly low, we may expect the minimum disruption and change from the redistribution system. The fundamental problem, however, (as acknowledged by Kesselman, 1982) is that if we establish a credit demogrant at any level sufficient to support someone who has no other income, we are obliged to set a high marginal tax rate. Since this high marginal tax rate is faced by everyone in society its effect could be substantial. A uniform rate credit income tax may represent perfect integration of redistribution, and it may promote desirably even effective marginal tax rates for all, but it is not a perfect redistribution system because it achieves its efficiency goals at the cost of delivering very little redistribution.

It appears that for an effective redistribution system we will need some form of relatively rapid abatement of assistance, or some extra form of qualification for benefit assistance rather than simply income testing. That is, we need to discriminate among the potential recipients and those recipients must face a somewhat different regime to others in the redistribution system. One of the ways in which that regime might vary is the period of assessment. To gain an impression of the significance of this we need to analyse the role of the period of assessment in any behavioural responses to income assessment regimes.

If we assume that net income (that is post-tax and benefits) is a good proxy for well-being (or a significant aspect of well-being), we may expect that individuals will aim to maximise net income subject to the cost of earning it (for example, this includes the effort of work).

Net income is a function of gross income and of the tax rate (which may be negative or positive). However, if the tax rate is not a constant, but is itself a variable function of gross income as assessed in each period and, if the recipient has some influence over the level of gross income in each period, then we may expect the individual to manipulate gross income in order to reduce the effective tax rate and maximise the net income to effort ratio. If gross income is beyond the control of the individual during the period being assessed then the existence of a variety of steps in the tax scale is of less importance; if gross income during the assessment period is relatively easy for the individual to influence then the existence of a variable tax rate may lead to costly behavioural changes.

- The Variability of Gross Income

The ability to vary gross income, and therefore effective tax rates, is a matter of time. As a general rule the longer the period of assessment the more difficult it is for an individual to manipulate the timing of receipts and so to affect tax liability. If the Government can set an assessment period that is longer than the period over which the individual can afford to manipulate income, then the tax rate becomes in effect exogenous for the taxpayer and so it has less effect on behaviour. If we can set the tax assessment period long enough in relation to the choice set of the individual (that is, long relative to the individual's time horizon), then we may expect that any behavioural response will be in respect of the fixed effective marginal tax rate, and attempts to shift from one step of the scale to another will be less significant. Clearly this effect also depends on how close the individual's income is to any step in the tax or benefit assessment scale, and therefore the more steps there are the more likely it is that someone will be close to a step and the more likely it is that people will respond by trying to adjust their circumstances to shift from one step to another. However, holding the number of steps constant, the longer the period of assessment the less ability the individuals have to manipulate their circumstances.

However, if we adopt a very long assessment period those who have unexpectedly fallen into poverty could have to wait an uncomfortably long time to qualify for assistance. As with the case of the uniform rate credit income tax, a uniformly long period of assessment may minimise disincentives and distortions, but it also minimises the effectiveness of redistribution in terms of responding to personal circumstances. On the other hand, if we shifted to a uniform short period of assessment (say one month) there would be many who could (and already do) organise their affairs to receive little or zero income in many months of the year; all of those people could receive assistance during those months and we might expect many others to adjust their affairs to qualify for assistance. If a short uniform assessment period were used, gross income would cease to be a constraint and would instead become a manipulable factor in the set of measures that were supposed to be included in the choice set.

As we have seen in the previous section on well-being, though there are many for whom a month is a short sub-period within their planning horizon, which can be easily bridged through credit arrangements or running down savings, there are many others for whom a month without income could represent destitution. For such people past receipts or

labour market opportunities are insufficient to provide confidence, and future prospects are too uncertain to provide any security. They cannot plan their affairs a year ahead and are unable to manipulate their circumstances in the following month. In such circumstances monthly gross income may effectively be beyond the control of the individual, and is therefore a constraint on the choice set. In that case the efficiency cost of a short time period of assessing well-being will be considerably less than it would be for someone with a longer time horizon.

The critical issue affecting the efficiency cost of redistribution policy is whether we can identify who has a long time horizon and who has a short time horizon. If we can distinguish between those capable of adjusting their short term circumstances in order to qualify for assistance under a short assessment period from those for whom the next month is a series of unpredictable events, then we might apply a long period of assessment for the first group and a short period of assessment for the second group without a great cost in terms of behaviour change and economic efficiency.

Conclusion

In the discussion of well-being and the period of assessment it was concluded that, though for most purposes in comparing well-being we would prefer to use a long period of assessment, for some people with restricted choice sets a short period would be more valid. Similarly, in the discussion of efficiency costs of redistribution it was concluded that on most occasions we would wish to assess tax liability or eligibility for assistance over a long period, but for those with a short time horizon there is little loss involved in using a shorter time period. Combining both the equity and efficiency considerations there appears to be some case for a dualistic approach to assessing circumstances. We must conclude therefore that the working hypothesis that a uniform measure is superior cannot be sustained.

This rejection of the theoretical superiority of perfectly integrated redistribution systems might raise doubt about the use of any integrated approach to the collection or analysis of information for the administration of redistribution systems. If we acknowledge that people with different time horizons may appropriately be assessed using different assessment periods, we might seem to have no need for an integrated redistribution system. Instead we might hope to find two (or more) administrative structures each applying tests of well-being that are appropriate to their "clients". However, under such a structure we would still be faced with the problem of determining who should be covered by which base. We need information on the constraints people face, to determine whom to assess under a short run test and whom to assess over a longer run.

Before considering the practical implications of this theoretical conclusion, it is worthwhile to pause to consider the procedures that would be involved in a redistribution system using different periods of assessment. In the absence of any specific proposal of a set of tax and benefit structures, the discussion in the previous sections is occasionally a little elusive.

It could be thought that the whole discussion of periods of assessment could be avoided by a system of repeated reassessment over different periods. For example, we could imagine a system using a short assessment period for emergencies, followed by a later reassessment "wash-up" covering a longer period. Under such a system benefits might be paid for any four-weekly period when income is low. At the end of the year the net

level of benefit payments could be reconsidered based on income for the whole of the year. The end of year settlement process might involve either further payments to the beneficiary, or repayment of benefits received. (Note this is not the same as the New Jersey carry-forward approach, which carried forward earnings, but left benefits to stand once they were received.)

The problem of the end of year benefit settlement approach is that it can set up extremely strong employment disincentives for beneficiaries contemplating leaving the benefit. The earlier acceptance of a benefit can effectively preclude the resumption of employment later in the year, as the effective marginal tax rates may be over 100 percent.

It seems, therefore, that we must accept that benefits once paid must stand (except for the normal income tax liability which can be expected to imply a moderate marginal tax rate). When combined with the earlier finding that a single period of assessment for all people would be inequitable and inefficient, this implies that we must expect a system with short assessment periods for those in need, and a longer assessment period for others.

In the terminology of assessment periods introduced earlier in this chapter, the relevant concept is the accountability period. This is the period over which net liability is assessed and settled. The conclusion from the discussion of constraints on time horizons is that the accountability period should be related to the time horizon of the individual concerned. Those with a long time horizon may be assessed using a long accountability period, and those constrained to a short time horizon need a short accountability period.

Using this approach, the policy issue is not the determination of a preferred assessment period to apply across all of the redistribution system. Instead, we accept that ideally the period of assessment should be closely connected to the choice set of the person concerned, and the issue then becomes how best to identify the constraints on the person's time horizon in order that the appropriate period of assessment can be applied.

CHAPTER FOUR: IDENTIFICATION OF CONSTRAINTS ON TIME PREFERENCE

Introduction

Having established that different periods of assessment may be appropriate for some people, and that redistribution systems need to identify those for whom a shorter assessment period is appropriate, one basic problem is that the time horizon is not observable. It is an entirely subjective and theoretical concept. Though it seems plausible that variations in the time horizon will lead to variations in behaviour, it seems unlikely that any individuals could identify the extent of their own time horizon, or clarify its influence on their decisions. Even if they were able to make such an estimate they would have no incentive to report that accurately. It is generally in the interests of the individual to claim that the time horizon is shorter than it actually is.

However, in order to give effect to a discriminating policy approach, and to identify those with constraints on their time preferences, we would ideally need to identify factors that are likely to influence the time horizon. Two possible approaches are identified below. The first is to assume that the existence of a (relatively) short time horizon can be identified, and established to be the result of a constrained choice, by means which make it "costly" to operate in systems with a short period of assessment. This approach is identified with the current information collection systems generally used for benefit administration. The second approach is to consider the nature of the capital market to deduce which people are likely to have little option but to adopt a very high discount rate, and so to operate under a short time horizon.

If, as is suggested here, the length of time horizons is correlated to well-being, we might expect to find that existing administrative systems already have means of selecting short-time-horizon applicants for short time period assessments. Commonly used administration systems will be reviewed in the following section to see if that is so. Following that, the possibility of a more direct information inquiry to arrive at a rough test of constraints on time horizons will be explored. Of necessity, this discussion of existing administration systems and possible alternatives must remain theoretical, and must be tested against intuition rather than empirical results. These discussions of alternative approaches lead on to a concluding section with a broad consideration of policy options for the information systems to be used in redistribution.

The Success of Existing Systems in Distinguishing by Time Horizon

I am unaware of any institution administering redistribution systems which acknowledges the significance of time horizons. Instead, differences in time periods for assessment are generally justified as being administratively simple, or an intuitively obvious necessity, as the needs of the low income require an urgent response. However, if, as is suggested above, redistribution is intended to even out well-being, and shorter time horizons are correlated with reduced well-being, it is possible that existing administration systems already incorporate processes which tend to discourage long time horizon applicants from receiving assistance.

For those who subscribe to theories that government systems, like market systems, are the result of the rational choices of many players through public choice processes, and so incorporate the collective wisdom of society, it is inevitable that, if time horizons correlate with well-being, then social welfare systems would tend to incorporate processes that would discourage long-time-horizon applicants. For a true enthusiast of

such theories it could be that the presence of administrative devices that discourage long-time-horizon applicants would be a test of whether time horizons are associated with well-being. This approach would assert that the collective wisdom of administrators and electors would perceive the true nature of need and construct programmes accordingly; if the programme has the effect of discouraging those with long time horizons then we may infer that this is evidence that this group was not a high priority for assistance.

For our purposes it is not necessary to adopt such a strong political rationality assumption. Instead it is sufficient to see whether the administrative arrangements of welfare assistance tend to distinguish among those who are in apparently similar short term circumstances by being less attractive to those with a longer time horizon. For those with some real choice in their discount rate such an approach would tend to discourage the adoption of a short term view. However, any who for some reason have no choice but to operate with a high discount rate would not be discouraged, and so could effectively select themselves as eligible to be assessed under a short term income test.

- Stigma

The main feature of many current arrangements that may be more significant to those with relatively long time horizons, is stigma. It is true that welfare authorities do not generally promote stigma, but it certainly remains as a real factor which is often complained of by prospective and current beneficiaries.

Though the poor laws are long since repealed, and political debate seems to have achieved a substantial support for the state's redistributive role, public opinion still attaches considerable opprobrium to the receipt of welfare benefits. In addition, potential recipients of welfare assistance are commonly ashamed to apply for their entitlements. Moffitt (1983) has estimated that stigma may be a significant factor discouraging the take up of benefits in America. The presence of stigma is undoubted; the next step is to establish a link to time horizons.

It is in the nature of stigma that it relates to people's images of themselves as members of society. This is in itself a long term concept. Neither image, nor membership in society, are things of the moment. If they have significance to an individual that is an indication of a long term view of life. For those who are desperate for assistance, and who cannot see any future means of providing for themselves, short term need is paramount, and longer term social consequences are likely to be less significant. For these people, for whatever reason, the short term has become the most important; that is, future costs are heavily discounted and their time horizons have shortened. For those with a longer time horizon, the fact that there is, and may continue to be, some social cost attached to receiving assistance, is likely to reduce the chance of applying. We may expect that someone with a longer time horizon will be less likely to apply for assistance than an otherwise similar person in similar circumstances with a shorter time horizon.

Another perspective on stigma may be found through concepts of social alienation. The concept of being integrated into society implies an intricate web of long term relationships. Those who value their social role are aware of it as an ongoing aspect of life. For the socially alienated, long-term relationships are lost, and life is lived day by

day. Stigma only has meaning in the context of long term relationships, and it tends to hold fewer fears for the alienated. That is, stigma tends to be more important for those with a longer view on life - a longer time horizon.

Having established the apparent relative importance of stigma for those with long time horizons, we may explore the ways the operation of welfare schemes tend to expose applicants to identification and embarrassment. Though as a matter of policy most schemes tend to emphasise that entitlement to schemes is a right, and that there should be no shame attached to receiving assistance, it is noticeable that most schemes do not take all possible steps to avoid public identification of welfare recipients. In various commercial contexts "shameful" services are generally offered under cover of darkness, or by mail order with delivery under "plain brown wrapper". Welfare services do not offer similar protections. It is true that to adopt a stealthful approach would be to endorse the shame supposedly attached to receiving welfare, and would probably be counter-productive. However, there are several aspects of the commonly accepted methods of providing assistance which tend to be an ordeal for applicants which could be avoided under different information management systems. These administrative systems include:

- a **Application in Person:** The need to appear at the welfare office both exposes the person to the gaze of other applicants, and also confronts the applicant with the fact that (at least in the eyes of the welfare authorities) the applicant is the same as other beneficiaries. Both of these points may be galling to the person involved.
- b **Frequent Retesting:** The need to re-apply may mean a further personal appearance at the welfare office, as well as a renewed feeling of continuing "failure" for the beneficiary.
- c **Home Visits:** The need for social workers to make home visits to confirm eligibility can be very intrusive for the applicant, as well as being hard to hide from the neighbours. The invasion of privacy and community labelling that can occur cannot be totally avoided by even the most sensitive social worker.
- d **Income Checks:** Income declarations are commonly confirmed with employers (current or former) and also banks and other payers of interest and dividends. This process inevitably identifies the welfare applicant as someone in need, when that position may previously not have been obvious to that organisation.

These administrative devices tend to occur in various forms in the assistance providing agencies of all redistribution systems that I have examined. All of them are found in New Zealand systems, both for social welfare benefits and housing assistance.

There is nothing intrinsically wrong with these systems, and their use is not evidence of malevolence or incompetence on the part of welfare authorities. The characteristic in common about them is they are all part of the process of collecting information about the applicant. The question of interest for policy is whether other methods of accessing information would be as effective and efficient in identifying relative need, and in permitting those with the option of longer time horizons to be identified and excluded from short period assessments.

The efficiency of the use of stigma as a means of distinguishing between potential applicants for assistance depends on its accuracy and its cost. We have no means of directly measuring its accuracy other than by a review of those receiving benefits. In any system there are some whose position is such that they are not in true need, and they could be expected to attend to their own needs. These people can be seen to have adequate choice sets and a long enough time horizon to make their own plans. However, in New Zealand and apparently most other countries, most recipients of assistance seem to have few options; the current processes do not seem to encourage large numbers of applicants who could reasonably be expected to look after themselves. The issue then is not to find a new system that can be expected to achieve a massive clean up of welfare rolls, but to see if other systems may be similarly effective with a lower marginal cost. The other aspect of accuracy is the mistaken exclusion of those who were the intended recipients of assistance, but who were discouraged from applying. Stigma is a very blunt instrument, and its link to discount rates is not strong. If stigma does discourage applicants, it is likely that a significant proportion of those discouraged would be from the group that the policy was intended to assist. However, the issue of discouragement, which could be measured by take-up rates, is not the full picture on costs. Some beneficiaries may apply in spite of suffering considerable stress as a result of stigmatising processes. This stress is an emotional cost. A more specific and less labelling approach may be more accurate, and less (emotionally) costly.

Three areas must be taken into account in the assessment of costs. The first is the administration costs for the agency concerned. The second is the compliance costs for those providing information for the assessment of income. The third is the stigma costs suffered by applicants for assistance. It seems likely that a scheme which could reduce the number of embarrassing checks and interviews would be less "costly" for those applying. If the same (or better) reliability in determining relative need could be achieved at a similar (or lower) compliance cost with less embarrassing exposure of personal affairs, then social well-being must be enhanced.

The Concept and Measurement of Bankability

In the earlier discussion of policy options it was accepted that time horizons cannot be directly measured. However, the factor that needs to be measured is the presence of a constraint on an individual's discount rate (and hence on the time horizon and the choice set), and this may pose less of a problem.

In considering the possible presence of constraints we should begin with a consideration of the means by which people usually take advantage of future (or past) opportunities. In a timeless world, income is consumed as it is received. In a multi-period world, income may be brought forward or deferred. The means of achieving this is through the capital market. The price for early consumption, and the reward for deferral, is the interest rate. In an imperfect capital market, lacking full information on future income and with positive transaction costs, the interest rates faced by different people in different circumstances are likely to vary. The discount rate that is commonly used to analyse the position of a given individual is not a subjective time preference, but instead is the interest rate that an individual selects in a given context.

Since most people in the capital market are price takers, a case could be made that all discount rates applicable to borrowers or lenders are substantially constrained. However, for most people there is some degree of choice, especially at the margin in decisions of whether to run up debts or draw down savings.

For some, however, especially among those with low current incomes, there may be virtually no option. The unemployed gang member with a prison record, or the poorly educated sole mother, may find the capital market unwilling to quote any price for a loan. In effect, these individuals could be said to face a market interest rate that approaches infinity. If there are inadequate family resources, limited wealth, and few prospects, the chance of being offered a loan may be virtually zero. In such a case the person concerned is effectively constrained to a high discount rate and a short time horizon.

This suggests that the identifying characteristic for someone who is constrained to a short time horizon is "non-bankability". Bankability is not a subjective concept, and is not related to preferences. It is a characteristic that relates to the individual, but not by choice. The characteristic is derived from the market's assessment of the person and his or her circumstances.

Those individuals who are bankable have the option to act on future prospects by bringing forward or deferring consumption. This group chooses their discount rate from the range of lending or deposit (or other investment) rates that are available. The person who is non-bankable cannot attract any reasonable loan. It may be that some forms of extremely expensive credit are available, but the acceptance of those interest rates generally implies very high discount rates and a short time horizon. In addition, the non-bankable person has very low current income, and therefore little practical opportunity to save. For such a person it seems very odd to claim the discount rate is selected by choice. We do not need to inquire into the personal preferences of these people as it is clear that they are constrained to accept a very high discount rate. If non-bankability is established, a high discount rate may be assumed, and the choice set is defined within a short time horizon. For such a person it is equitable to use a shorter period of assessment than would be applicable for bankable people.

- Factors Contributing to Bankability

The issue for policy then becomes how to identify bankability. In any given market this is an empirical issue, to be established by reference to the habits of the bankers in that community. For the purposes of approximating a policy it is not necessary to be precise, rather the goal is to identify the factors that are generally likely to matter in the assessment of bankability.

The major factors appear to be as follows:

- a **Income over Time:** If we were to use income to assess the time horizon there would be an immediate circular problem; do we mean current income or past income? The problem is that until the time horizon is determined we do not know what is past and what is current. Current income for someone with a long run time horizon might have been received sufficiently long ago to be considered past income for someone with a short time horizon. However, these problems of time horizons need not concern us as, having expressed the issue as the assessment of bankability, the problem is simpler. To give the notion of income some practical meaning in this context we may talk of monthly income. If monthly income in previous months has been high, we may surmise that bankability is likely to be improved. This is because the flow of receipts in earlier months demonstrates an earning capacity which suggests good future prospects. In addition, past receipts permit a substantial control over resources which can lead to increased choice sets for the borrower and increased security for the lender.

This discussion of previous income needs to be distinguished from current income. By itself, the level of income in the current period cannot determine bankability. If current income did determine bankability we could simply accept lack of income in any given month as sufficient test for receipt of a short time assessed benefit. However, there are many professionals or other wealthy people who may still appear as good loan prospects even if their current income is zero or negative. Non-bankability would normally be associated with low current income, but many bankable people may also have low current incomes. Current income is effectively irrelevant, as we may assume that a lack of current income is the initial test of need that a redistribution agency would use. The issue at this point is to distinguish between these low current income people to identify which are non-bankable and therefore eligible for assistance on the basis of a short term test of current income.

- b **Wealth:** The presence of wealth is of critical importance to bankability. Wealth can act in two ways to improve bankability. It can produce a stream of income, in which case it's effect is as in the previous section on income. Alternatively it can improve the likelihood of final repayment of debts because the existing assets can be sold to provide a source of funds. A banker may substantially reduce the bank's risk by taking security over assets. Even without formal security the existence of wealth which could be accessed to meet liabilities improves the prospects for repayment. A borrower with sufficient wealth could attract a loan irrespective of current income. From this it is obvious that as wealth increases bankability improves.
- c **Self Employment:** Those in hourly or weekly paid employment have comparatively little direct influence over when they receive income. The flow of receipts is laid down in the contract of employment and any interruption in that flow may have immediate effects on the person's well-being. The self employed are in a different position. Since they control business spending they have some ability to manipulate net business receipts in the short run in line with their personal cash flow requirements. Further, since they control decisions over whether to invest or to take income out of the business we might expect that any year in which personal receipts are low may be related to an increase in future prospects. Low receipts might be accompanied by a build up of stock or, equally important but less easy to measure, a build up of good will.

A major difference between the bankability of the self employed and the salaried person relates to the recognition of income. As discussed in Chapter Two, the increase in capital that is involved in any build up of stocks or goodwill is a form of income. However, for many accounting purposes the self employed and even the bank (and in most regimes any welfare assessment agency) may equate income with cash drawings from the business. If this is used as the basis for assessment, clearly at any given level of drawings the self employed person is likely to be more bankable than a salaried person on an income at the same level as the self-employed's drawings. It is the ability to reorganise current plans, and the ability to commit business assets as security, that makes the self employed a relatively bankable group. Though the steady income prospects of a salaried person may be more secure, the entrepreneurial freedom of the self-employed means that they may often be more bankable than short run drawings might suggest.

Even if the bankability of the self employed may seem suspect, it would seem very odd to accept in any normal circumstances that the self employed could be constrained to have a time horizon as short as one month. Presumably most self employed facing such dire straits, and a such poor credit and asset position, would be in imminent danger of collapse. In more normal cases it stretches the imagination to claim that the self employed have a time horizon as short as a year.

- d **Inhibitions on Employment:** Various factors may make it difficult for a person to undertake paid employment. The two most obvious are family commitments and personal disability.

The person with commitments to care for other members of the family is less able to be secure about the future flow of receipts from earnings. The commitment to care for the daily material well-being of others increases the difficulty in making long term labour force commitments. As a result, many of the people (generally women) who face such commitments are either not in the labour force or are in peripheral part time or part year jobs. This connection between labour market behaviour and family commitments can be expected to reduce the bankability of the members of this group.

Those who are unwell or disabled, such that they cannot expect to get and keep long term paid employment, inevitably face reduced credit worthiness. Where there is no work suitable, or only casual work, long term planning becomes unrealistic.

Each of these factors is likely to interact with the others. A person with a high recent income and substantial wealth is likely to be a better loan prospect than an individual with high recent income but little wealth. Similarly, a disabled person with substantial wealth is likely to have more chance of raising a loan on good terms than a disabled person with little wealth.

It is noticeable that the list of factors that are likely to improve bankability are closely related to factors that might directly affect a subjective assessment of time preference. This does not imply that subjective measures are being confused with an objective assessment. Instead, it is reassurance that, if the objective measure of bankability were used to identify those with constrained time horizons, it is likely to have results consistent with those based on personal preference.

There are some other factors that may well have some relationship to bankability (and the time horizon) but which have not been listed. They have been excluded because the nature of enquiry required to measure them is very difficult, and they are largely subjective. These problems make them unsuitable for inclusion in the concept of bankability, which is intended to be objective and easy to assess.

One of the excluded factors is variability of income. It is likely that those facing substantial unexpected and uncontrollable variations in income will enjoy less well-being and have a shorter time horizon than those with a more stable flow of receipts which might average to the same level in the long term. However, we cannot simply accept variability as a factor reducing bankability unless we (and the bank) can tell how much of the variability was expected. Where the variation follows a regular seasonal pattern it

would appear to be evidence of a long time horizon of at least a year, rather than a short time horizon. Other people such as insurance sales agents or real estate agents might also suffer considerable income variation in the short term. However, in terms of the customary distinction between risk and uncertainty, this variation is part of the generally expected business risk for people in such jobs. This may be contrasted with the unpredictable and uncontrollable uncertainty faced by the low skilled unemployed. The existence of business risk and consequent income variation does not necessarily reduce the bankability (or time horizon) of an individual. On the contrary it may be evidence of the acceptance of a long view on life and income.

Another factor which would tend to be related to the length of the time horizon is the level of skills and prospects of the person. Those with substantial work related skills and experience are likely to be more attractive in the labour market and have more secure employment prospects than a lower skilled person. The common banking marketing practice of targeting students and young graduates implies that such groups on average enjoy improved bankability. However, it is difficult to assess the effect of this factor in isolation in an assessment of credit worthiness. It would be difficult for a bank to make such a calculation, and presumably even more difficult for a redistribution agency.

In effect this discussion is based on a view that human capital is fundamentally a personal and subjective matter. It is not practically possible for a person or government to "invest" in another individual's human capital in any way that gives a firm expectation of return to the investor. This is for two reasons. Both the law and philosophical imperatives prevent us from using another person as a means, and so we (generally) are unable to take possession of the returns from future investments. Secondly, and more directly significant for the assessment of prospects and bankability, it is not possible to assess expected net income by reference solely to any external measure of skill and training. It might be possible to monitor occupation as an explainer of variability of income, and formal training as a proxy for job skills and prospects. However both of these would be poor proxies which would give only a partial indication of the person's true options. Any further enquiries would need a detailed examination of the person's motives and abilities that would seem both uncertain and intrusive.

- The Required Information

From the list of factors that have been identified as likely to influence bankability it appears that, in order to determine who should be eligible for a benefit the level of which would abate against a short run current income test, we would need information on the following:

- monthly income for at least the previous year;
- annual income for the last year or two;
- the level of wealth;
- the employment status;
- family commitments and personal disability.

The precise operation of such a system need not concern us once its outlines have established the information required. Whether earnings are assessed as a moving

average of earlier months or whether the carry forward system is used makes little difference; the important point is that monthly income is desirable for more than simply the most recent month.

The central issue in the operation of this system is that, because it relies on objectively verifiable data rather than emotional responses that discourage inappropriate applications for assistance, it could be administered by more discreet methods than are used at present. For example information on income over time, employment status, and even wealth could be collected using reformed tax return data. Depending on the methods used the cost to applicants in terms of form filling and embarrassment could be greatly reduced.

As with the discussion of stigma, in assessing the concept of bankability as a means of identifying those eligible for assistance, the concern is with its effectiveness and efficiency. Since bankability is a measurable concept, it would be possible to mount a study of existing recipients of assistance to see how many might be regarded as ineligible under various bankability tests. Given the lack of relevant data currently available, such a study is beyond the scope of this thesis. Similarly, once appropriate data were assembled, it would be possible to assess the effect of different bankability tests in excluding relatively needy groups. This could give an idea of the sensitivity of the approach.

In terms of the personal effect on the applicant, a potential cost of reductions in form filling and embarrassment is a loss of control over information in government data bases. The use of information from tax or other sources may be seen as an unacceptable loss of privacy, and a breach of the information management principles that now enjoy widespread international agreement. This issue is considered further in Part Two.

Viewed from the point of view of the identification of those in relative need, and remembering that a perfectly integrated approach to redistribution has been rejected, bankability appears to offer a better approach than is currently employed. The concepts are not complex, and they use objective measures. Obviously it would be possible to add any desired degree of local discretion to handle complex cases, but at the basis we could have a scheme which has a direct link to notions of well-being, but which is objective and capable of being modified to meet varying redistribution goals.

Conclusion

The three chapters of this part have examined the information requirements necessary to operate an effective and efficient redistribution system. The examination of concepts of well-being revealed that none of the concepts are straight-forward, and there is a lot of room for confusion at both a theoretical and administrative level. However, simply stated, the analysis suggests that a relatively robust concept of well-being that is useful in the context of redistribution, is the choice set.

For the purposes of this thesis the choice set can be seen to be related to current control over resources and the time horizon. As a general rule the circumstances of those who are constrained to operate under a high discount rate and a short time horizon should be assessed over a shorter period. Because time horizons vary it is necessary that individuals in otherwise similar circumstances be assessed over a time

period that relates to the time horizon of each person. If we are to devise an efficient system of discrimination we need a means of assessing the constraints on the time preferences of different applicants to decide who should be assessed over longer or shorter time periods.

Existing welfare and tax systems could be claimed to use stigma as a means by which individuals are encouraged to select themselves so that those with longer time horizons are less likely to opt for welfare assistance, with its short time period assessment, than those who are constrained to operate under shorter time horizons. Alternatively, it is possible to devise a list of measurable factors to assess bankability: this could be used as a means of determining the appropriate period for the assessment of the well-being of different applicants.

Nothing in these chapters has established what the correct periods for assessment are. The case for using a year for tax purposes rests on accounting convention, which itself is derived from agriculture. For our purposes there is no case to challenge this custom. Similarly the case for selecting any particular short period for the assessment of income for assistance purposes relies on practicality. If a period longer than a few weeks were selected, it is likely that many of those most in need of assistance could be destitute before aid were available. An important criterion, as with the selection of a year for tax purposes, is that information must generally be available for the period to be assessed. Since most individuals in New Zealand are paid on a fortnightly basis, this suggests that a multiple of a fortnight, perhaps four weeks, would be a sensible period.

In theory, it might be possible to identify a constrained time horizon for every person. If this were done it would establish the appropriate assessment period for each individual, and would address the problem that Le Grand (1987) identified of precisely comparing the incomes of individuals. However, in a bureaucratic application it is unlikely that tax or benefit systems could be precise enough to distinguish those on market borrowing or lending rates, or that our assessments of income will be precise enough for the distinction to be of practical significance. This is not of concern for our purposes, as the determination of the appropriate periods to use for assessment is not the subject of this paper. Instead, the work reported here focuses on the need to determine who should be assessed over each period.

The overall aim of this Part One was to use a philosophical analysis of well-being to derive a bureaucratically practical set of information that could be used in the administration of redistribution policies. Having established the value of the theoretical concepts of capabilities and choice sets, we have established that a uniform assessment system is unlikely to be equitable or efficient, and that it is preferable to use a system which distinguishes those who are constrained to operate under high discount rates for assessment of their income on a short term basis. In addition, it has been possible to derive some concrete suggestions that the desirable set of information should focus on current income and bankability. However, though the desirable set of information has been identified from the point of view of effective redistribution, it is also necessary to focus on other aspects before selecting a preferred approach to redistribution. It may be that the collection of the desired set of information is too intrusive; to assess this we must focus on privacy issues. It is possible that, even if the information is theoretically acceptable from privacy and redistribution perspectives, it may require much more costly administration and compliance than the current system needs. These issues are addressed in Parts Two and Three.

PART TWO

PRIVACY RIGHTS

Antithesis: Privacy, the Government Must Not Know

CHAPTER FIVE: DOES PRIVACY MATTER?

Introduction

Any policy for the systematic redistribution of income depends on government information systems. These systems include records on the means of members of society so the government may determine who should pay tax, and who should receive assistance. To assemble this information accurately and efficiently may require linked or fully integrated tax and social assistance data bases, as discussed in Part One. However, proposals for the introduction of identification schemes or for integrated data storage by the government have usually been met by very hostile responses. Public comment commonly focuses on claimed threats to civil rights.

These concerns may be seen to be part of a wider concern at the provision of identification and other information to Government agencies. At a basic level the issue revolves around the role of the state and the rights of individuals.

The following statement from Mr Justice Douglas, in the US Supreme Court, is an example of the sentiments that can be involved.

"The bureaucracy of modern government is not only slow, lumbering, and oppressive; it is omnipresent. It touches everyone's life at numerous points. It pries more and more into private affairs, breaking down the barriers that individuals erect to give them some insulation from the intrigues and harassments of modern life."

(*Wyman v James*, 1971, Douglas dissenting, quoted in Shattuck, 1977, page 24.)

The case which provoked Douglas' outburst was one involving the right of the state to acquire information from beneficiaries on their living circumstances. The US Supreme Court held in that case that the state had a right to enter beneficiaries' homes to confirm eligibility for benefits. Douglas' response demonstrates that this decision is not without room for substantial disagreement.

When we attempt to explore the basis for concerns about invasions of privacy by the state or other agencies requiring identification or collecting information, the arguments often become very unclear. Commonly there is a quick and vigorous claim that civil rights are being breached and liberty threatened. Though that amounts to an important clarion call, it is not in itself very illuminating. The purpose of Part Two is to explore the basis of the rights and threats involved in identification and information gathering.

Much of the literature in this area has been concerned with legal questions, revolving around discussion of what are the rights to privacy as revealed by legal judgements and statute. Many of the articles focus on America, where a tort of privacy has developed over the last 100 years. In analysing the legal developments several influential writers (Prosser, and Thomson) have suggested that there is no coherent right to privacy as established in the law. Instead they suggest that the language has been abused and one term has been extended across a range of rights. In reviewing the American legal tradition most authors regard the starting point as an article in the Harvard Law Review in 1890 by Warren and Brandeis. This colourful article thunders against the invasion of privacy by the gossip columns in the yellow press. Warren and Brandeis are commonly regarded as the initiators of the development in the law that has occurred since their

article was published. It may be that this historical analysis is correct, and if so it could itself help to explain the apparent confusion in the state of American tort law. Though the Warren and Brandeis article is entertaining and illuminating it contains some fundamental problems which make it unlikely to be a successful basis for the construction of a well understood right.

The outrage which Warren suffered at his wife's social life being the subject of extensive press coverage led the two authors to develop a theory that the right to privacy was a "right to be let alone". Though being let alone sounds a desirable concept, it is hardly a useful basis for a discussion of privacy. The difficulty, as Gavison has pointed out, is that this alleged right covers almost every complaint that anyone could conceivably make.

"A great many instances of 'not letting people alone' cannot readily be described as invasions of privacy. Requiring people to pay their taxes or go into the army, or punishing them for murder, are just a few of the obvious examples." (Gavison, 1980, page 357.)

This state of apparent confusion suggests that it is very important to clarify the concepts involved. If notions of privacy are to inform policy analysis, then we must be clear on what it is that is involved, and what are the moral issues. This part of the thesis attempts to develop a philosophical approach to privacy from which to derive principles which can be used to guide policy.

The argument is developed in three chapters. This chapter, Chapter Five, contains a philosophical discussion of the moral value of privacy. Chapter Six uses that philosophical foundation to develop a statement of the right to privacy. Chapter Seven includes a re-examination of privacy literature to establish that the statement of the right to privacy, though new, is consistent with the conclusions commonly drawn in other writing.

The philosophical analysis of the value of privacy begins with a definition of privacy, as a necessary precursor to any coherent discussion, and then explores the question of whether there is any moral value in privacy, and focusing especially on those authors who have attacked the concept or questioned its worth. There is an analysis of the functions of privacy in the daily lives of people. These functions are the grounds for the assertion that privacy does have a moral value. Up to this stage in the chapter the discussion is essentially a review of existing positions that have been established in the literature.

The chapter continues with an analysis of the limits on the moral value of privacy. Though it is commonly accepted that privacy is not always good, and more privacy is not always better, other authors have not examined the origin of these limits on the value of privacy. The chapter concludes that there is a real issue which needs to be kept in mind if policies to achieve equity are not to pay an excessive cost in terms of personal privacy.

What is Privacy?

If we are to develop a philosophy of privacy we must first have a clear understanding of the term. The literature in this area is bedevilled by a continuing confusion about the concept of privacy, and the lack of a consensus on the term has hampered the development of a robust philosophical analysis.

"The concept of privacy has become too vague and unwieldy a concept to perform useful analytical ... work. It has grown into as nebulous a notion as freedom (with which it is not infrequently equated) or autonomy (with which it is often confused)" (Wacks, 1989, page 11).

In order for a definition to be useful in this context it needs to pass three tests:

- a the concept must be precise and narrow enough to mark it off from other states and concerns;
- b the ideas must conform to a common sense understanding of what privacy is about; and
- c the definition must be neutral; that is the definition should not itself assert the moral claim that is to be examined. (This is discussed more fully later.)

Several potential definitions of privacy have been suggested in the literature. Most fail one or more of the suggested criteria. Warren and Brandeis' concept of the right to be let alone (which is commonly referred to in legal judgements and articles) has already been dealt with as impossibly broad. Several other authors have endeavoured to develop a similar concept with a more particular wording. In particular an equation between privacy and autonomy is sometimes suggested. For example, Beardsley (1971) effectively suggests that the freedom of speech and indeed all liberties, are part of privacy. This appears to be a rather unhelpful confusion of private rights vis a vis the state and the notion of privacy.

Another example of an author adopting a very broad approach is Van Den Haag (1971). He suggests that "privacy is the exclusive right to dispose of one's proper (private) domain" (page 151). This definition would appear to collapse on two grounds. The first is that it is excessively broad. Van Den Haag suggests that smells or noise which affect an individual are an invasion of privacy. This implies that privacy is equated to the right to personally enjoy life in the way one chooses without interference. The second problem with his definition is its inherent tautology. We seem to be no further ahead if we are told that privacy involves an invasion of that which is private.

A more powerful and influential suggestion, which meets the first test of being more precise, is that privacy relates to control over information about one's self. This approach is generally attributed to Westin.

"Privacy is the claim of individuals, groups or institutions, to determine for themselves when, how, and to what extent information about them is communicated to others." (Westin, 1967, page 7.)

This concept of control over information has struck a responsive chord with many writers. For example Gross (1971) contrasts the position of those who willingly broadcast information about themselves with those who have information about them accessed by others without their knowledge or consent. He considers that those who voluntarily offer information have lost no privacy. Though the whole world now knows some fact about an individual, that person has suffered no privacy loss whereas someone else of whom details are spoken against their will to only one other person has suffered a loss of privacy.

This notion of control is very significant, and it is one which will be returned to later in the paper. However for the purposes of a definition of privacy it is inadequate. It seems fatuous to claim that the Prime Minister has the same level of privacy as a junior civil servant simply because the Prime Minister has willingly taken on a job which involves being closely observed. In New Zealand, the Member of Parliament for Miramar, Peter Neilson, has regularly published accounts of his wealth and income. It is nonsense to claim that because he has done this voluntarily he has just as much privacy as various wealthy industrialists, such as the Spencer or Todd families, who have made no such disclosure. It is true that he may be no worse off than they because they have all disclosed as much as they choose to disclose, but there can be no doubt that their position is more private than his.

This returns us to the third of our three criteria for a definition of privacy. The problem of using control as a defining concept is that it incorporates the normative ideas that the philosophical inquiry is intended to examine. This becomes apparent if we start from a liberal position that individuals ought to be allowed to attend to their own affairs, and then define privacy as a loss of control. It is hardly surprising that we then condemn a loss of privacy. It would seem preferable to establish a neutral concept of privacy which describes the state that people are in. Having established the characteristics of that state we may then inquire into its moral value.

Wacks has attacked this approach and claimed that to construct a neutral definition of privacy is to "strip the concept of much of its explanatory meaning and power." (Wacks, 1989, page 19). He asserts that privacy is only meaningful in terms of information of significance, but because the term has been so often misused it has lost all coherence. Instead he suggests that it is more helpful to shift the focus from the term privacy, and instead to be concerned with the protection of personal information. This looks attractively simple, and slices the gordian knot, but several significant threads are lost in the process. Though Wacks uses his process to construct a list of different types of high and low sensitive information, because he starts from the premise that personal information ought to be protected, there is no basis to understand the different sensitivities of different facts. It is only by stripping the concept of privacy to a neutral description of "a state in which persons may find themselves" (Valecky, 1978, page 18) that we may develop a robust basis from which to explore the value of that state. It is through this exploration that we may establish when privacy is significant, and so decide whether it (or personal information as Wacks would prefer) is worth protecting. A further problem with Wacks' approach is that, as will be seen in the following paragraphs, information, personal or otherwise, is only one of the aspects that privacy is concerned with.

The need to establish a neutral concept is fully elaborated in Gavison (1980). Her definition of privacy will be adopted for the purposes of this work. She begins by establishing a methodological concept of perfect privacy. In this context perfect is to be regarded as complete rather than as desirable; it is therefore akin to the concept of perfect competition.

"In perfect privacy no one has any information about X, no one pays any attention to X, and no one has physical access to X ... These three elements of secrecy, anonymity, and solitude are distinct and independent, but interrelated, and the complex concept of privacy is richer than any definition centred around only one of them." (Gavison, 1980, page 351.)

The first component of this definition, information, or the lack of it, is clearly part of privacy. It seems to accord with normal understandings of the word that where more information is known about me then I have less privacy. The celebrity on the talk show, voluntarily discussing her family background, must have less privacy than those in the audience. Similarly, the beneficiary supplying information to the Department of Social Welfare to prove eligibility for income support has less privacy than a Lotto winner who need only produce a ticket to establish eligibility.

The concept of attention and anonymity is less commonly discussed in analysis of privacy. However, it is again easy to see that for the person who is one in a crowd there is more privacy than for another who is singled out for attention. Similarly, differences in the degree of attention will be related to variations in the level of privacy. The purchase of a railway ticket involves a small amount of mutual attention, but is a substantially anonymous transaction. Applying for a passport involves a greater degree of scrutiny. Little if any new information is made available in the passport application, but there is considerable focus on the identity of the applicant and therefore this is a less private transaction.

The third area of proximity also has clear links to privacy. To swim around a point and arrive at a remote beach, only to find it full of boaties and their families, is to have a less private experience than would occur were one alone on the beach, or if one were to drown in the surf while rounding the point. There need be no exchange of information or identification. There may be a studious ignoring of the different groups on the beach. The fact remains that being one of many on the beach is less private than being alone on the beach, or alone in the surf.

It is an interesting question, which is significant if this approach is to be used as the basis for policy, whether secrecy, anonymity and solitude are a complete statement of the components of privacy. The appropriate test would seem to be whether the three factors provide a complete screen against invasion by any of the senses. It is hard to see how any combination of sight, hearing, smell, touch and taste could overcome secrecy, anonymity and solitude, so the components appear to be sufficient to ensure privacy. It may be that some other component could be proposed, but it is noticeable in the literature following Gavison (not all if it friendly) that no-one has yet attacked her definition for incompleteness.

There is nothing in this definition which suggests that privacy ought to be protected. It is simply involves a comparison of different states. The value of the definition is that in its breakdown into the component parts of privacy it permits us to analyse more fully the different consequences of various types of interaction. In particular, issues to do with identification and identification cards can be seen to be more to do with attention and anonymity than they are necessarily to do with information or proximity. Similarly the use of data banks is more to do with the amount of information known about individuals rather than attention or proximity. The policy implications of proximity would appear to arise in areas such as town planning; they have little implication for us and therefore this part of privacy will not be a major feature in our discussion.

It should be noted, in passing, that though the definition of privacy was derived by reference to perfect privacy, the states of privacy are located along a continuum of greater and lesser privacy. Privacy is not an on/off condition, rather a "private situation" should be understood as one which is more private than another. Privacy is intended to be understood in this relative meaning in this thesis.

Does Privacy Have Any Moral Value?

Having established a neutral definition of privacy, we need now to consider what moral significance privacy might have. The first step in this process is to examine the arguments of those who have suggested that privacy is not of itself a significant value. Among the literature supporting this sceptical view there are two main threads. The first is the suggestion that privacy is simply a collection of unrelated values which have been brought together under one name. The second is a suggestion that privacy of itself has little value for society.

The most significant legal writer who has suggested that privacy is not a separate right is Prosser (1960). At the time he was writing, Prosser was accepted as one of the most prominent thinkers about tort law. His critique of the tort of privacy was therefore particularly significant for an insight into the legal understanding that has developed in America. After an exhaustive review of the cases he concluded that, though it had been fashionable since Warren and Brandeis to refer to one privacy tort, there were in fact four separate torts. These separate causes for action were intrusion, the public disclosure of private fact, appropriation, and false light. However, since Prosser's discussion focuses on the existence or otherwise of a legal tort, his conclusions are of only limited significance for our discussion. The principal point of interest here is his implicit concern that the inclusion of the concept of privacy has clouded the judgement of those involved in the cases and led them to be more protective of some personal interests than they would have been if other tort principles had applied. Prosser was concerned that so called privacy rights were assuming an excessive significance.

Another author writing in a similar tradition is Thomson (1975). She is more determinedly reductionist in her approach and suggests that privacy is simply an amalgam of various property rights that we have over the use and observation of our bodies and properties. It is not that our privacy as such is violated, but that our property has been abused. The fundamental problem with Thomson's approach is her refusal to acknowledge any extra significance in the individual, or the body over that of any other property. Though it is a classic problem in philosophy to define just what it is that makes humans significant, it is generally accepted that there is some degree of significance about people which is of greater value than is attached to tables. The way you treat, observe or record my table is likely to provoke less reaction in me than the way you treat, observe or record my body, or my emotions. The refusal of the reductionists to acknowledge the complex amalgam of characteristics and values that humanity involves means that their approach necessarily misses the sensitivity that is required to adequately deal with issues of human value.

A further reason for rejecting a reductionist approach is that this approach is too convenient for those who might wish to propose integrated social assistance regimes. Inevitably there needs to be a philosophical discussion of the values involved, and the case for an integrated regime will be much more robust if it can stand up against those arguments which identify a central moral value attaching to privacy. Like any other value statement, reductionist arguments cannot "disprove" value judgements attached to privacy, and therefore it is better to address them more fully.

The second attack on the moral value of privacy suggests that the values being defended in privacy are themselves suspect. Schoeman, himself a strong supporter of privacy, is well aware of this problem.

"Privacy itself is suspect as a value. It makes deception possible and provides the context for concealing things about which we may feel ashamed or guilty". (Schoeman, 1984, page 403.)

The use of privacy may be seen to be a deliberate means of avoiding the truth. It is a means by which we disguise unpalatable facts about ourselves, it is also a means by which we avoid truthful exchanges between individuals. The philosophy of encounter groups which became fashionable in the 1960s, is opposed to such privacy. It suggests that truth is essential in order that meaningful understanding of ourselves and each other can be established. Wasserstrom (1978) discusses this "counter culture" view in order to explore the suggestion that privacy is a culture specific value. He points out that the counter culture view would suggest that privacy makes us vulnerable because we do not confront those things of which we are ashamed.

"If we would be as indifferent to whether we are being watched when we have intercourse as we are to when we eat a meal, then we can not be injured by the fact that we know others are watching us, and we can not be injured nearly as much by even unknown observations" (Wasserstrom, 1978, page 331).

Privacy in this analysis is therefore a disguise by which we cloak our own inadequacies and so remain inadequate.

The fundamental criticism of this "counter culture" approach is its idealism. The premise behind this approach is that people have the potential strength to cope with full truth and total sharing. In this respect it seems to suffer from the same failing as any other philosophy which suggests that people are perfect. It is precisely the fact that we are imperfect, not fully tolerant, sometimes selfish and often careless that has led to the need for the definition of rights and liberties. A perfect society of perfect people would not need any such codes. Privacy can be criticised as evidence of our frailty: more to the point, however, it may be seen as a necessary response to our frailty.

Without getting into the esoteric perfectionism of the counter culture approach, the suggestion that privacy is a cloak behind which we may hide vices is a common reason for denigrating privacy arguments. In particular, governments are quick to use this approach when challenging the various liberties that are associated with privacy. The classic example is the right to avoid self incrimination. To a reductionist, this right is simply a means by which criminals are able to avoid the sanctions that should attach to their actions. To a privacy theorist, this right is intrinsic to the recognition of the value of persons, and the need to avoid the self denigration and self contempt that may be a part of open confession (Gerstein, 1970).

Without necessarily getting as threatening as removing the right to avoid self incrimination, governments have commonly used the suggestion that honest people have nothing to fear as a justification for the development of data bases. The Australian Government used this line in its defence of the Australia Card. This approach can only be fully addressed in the context of a discussion of the value of privacy to individuals. It is therefore deferred to the next section.

One of the most elegant sceptics about privacy is Posner. Posner has applied his economic analysis of law to the area of privacy (Posner, 1978). He points out that the individual to whom information relates is not the only person with a legitimate interest in that information. The whole reason why there are people who wish to pry is that they too have an interest in the information. The individual with a record of defaulting on

transactions would prefer not to have that widely known because it is more difficult to get credit. Potential lenders also have a legitimate interest in such information and therefore are prepared to spend money acquiring it. Information, in Posner's view, is akin to any other asset. As with his usual approach to the law, Posner suggests that rights to the control of information should be allocated so that wealth can be maximised across society. This suggests that, in the presence of transaction costs, rights should be allocated to the party that can most effectively use the information.

In a corporate context, Posner points out that corporations can make money out of confidentiality. In particular, marketing strategies and production processes can be very valuable if kept secret. He therefore suggests it is desirable to permit corporations to maintain such information in private. Without this right it might be relatively difficult for those corporations to keep information to themselves and therefore investment and wealth promotion would be discouraged.

For private individuals, Posner suggests the position is reversed. Information on the disreputable past of any one individual is relatively easy to conceal if there is no obligation to pass on information and if records are not allowed to be kept. The individual certainly has a comparative advantage compared to the insurance company or the bank or even the welfare agency in knowing his or her own circumstances. Posner would suggest that it is appropriate that individuals should be liable to provide the relevant information that others might need in order to transact with them.

"It is no answer that, in Brandeis's phrase, people have the right to be let alone. Few people want to be let alone. They want to manipulate the world around them by selective disclosure of facts about themselves. Why should others be asked to take their self serving claims at face value and prevented from obtaining the information necessary to verify or disprove these claims?" (Posner, 1971, page 33.)

However, Posner would agree that individuals should be protected from prying and eavesdropping. If we do not know when our business is being observed we are forced to always behave in a constrained manner. The costs of this would (in Posner's view) be excessive and therefore the rights against eavesdropping need to be allocated to the individual.

The strength of Posner's argument depends on his basic premise that wealth maximisation is the appropriate criterion for legal decision making. As a general rule he has found this approach very effective in many areas of the law, and therefore it would seem to have a good track record. Similarly, for any economist the concept has considerable attraction and the general public utility that would be derived from wealth maximisation is easily understood.

The question mark about the concept is its degree of general applicability. It should be realised that even to a utilitarian analyst, wealth is only a proxy. The true aim is to maximise well-being. Wealth has been selected by Posner as a proxy that the law can take into account in its consideration of transactions between people that appear in a judicial context. For a great many cases, especially those involved in contract, this proxy is likely to be appropriate. The difficulty is that in the context of privacy cases, the values being considered may not be adequately reflected in a wealth concept. The concepts of individual growth, personal relationships or the functioning of society are not usually taken into account in a wealth calculation. Conceptually wealth could be defined to include such notions but it does not appear that Posner has made any attempt to do so.

The alternative grounds for concern about Posner's approach is that a utilitarian trade-off is not necessarily the appropriate approach. If the issue revolves around the sanctity of individuals and the importance of reflecting their needs then a utilitarian calculation may be seriously deficient.

In conclusion, it seems that the reductionist and the sceptical approaches do raise some serious questions about the absolute value of privacy. However, they do not seem to have established a robust claim that privacy is of no intrinsic value. Accordingly, it is appropriate to move on to a consideration of the values that are involved in privacy.

What are the Functions of Privacy?

There is a substantial literature on the functions of privacy. Many different values and functions have been identified.

"... The values served by privacy are many and diverse. They include a healthy, liberal, democratic and pluralistic society; individual autonomy; mental health; creativity; and the capacity to form and maintain meaningful relations with others." (Gavison, 1980, page 360.)

In order to maintain some coherence to the discussion, this section will be subdivided into three areas. These include the functions of privacy in relation to individuals and their ability to live their lives and develop themselves; secondly there is a question of the ability to enter into meaningful personal relationships with others; the third issue relates to the functioning of a democratic society.

- The Individual

There are a series of ways in which privacy has been claimed to protect the interests of individuals. Privacy allows us to avoid malevolent intrusions into our lives; it gives us the practical means of achieving growth, in particular learning; it is an expression of our respect for people; it permits autonomy and non-conformity (this is discussed in the society argument later); and it may be seen as a symbol of our moral ownership of ourselves.

A common argument against the use of data banks or other information storage systems is the risk that individuals might be subjected to malevolent, capricious or careless use of the information against their own interests. Bloustein gives expression to this sentiment.

".... The fear that a private life may be turned into a public spectacle is greatly enhanced when the lurid facts have been reduced to key punches or blips on a magnetic tape, accessible, perhaps, to any clerk who can throw the appropriate switch." (Bloustein, 1964, page 191.)

This type of concern may be simply a technical issue, or it may revolve around a fundamental pessimism about governments. To the extent that the issue is a technical one, involving the way in which information is handled, it seems that it is likely to be amenable to a technical solution. Once adequate protection systems have been devised then the problem disappears and the argument is finished. As such this argument becomes not a privacy issue but a data management problem.

The alternative concern is not that there are inadequate technical controls, but that government is inherently untrustworthy. This often takes the form of a fear that some future government will adopt totalitarian principles. Again, this is not strictly speaking an argument about privacy or information; instead it is a problem intrinsic in the coercive powers of government. The social contract that validates government obliges the government to behave in the interests of the people. Where that obligation is no longer respected the issue is broader than a misuse of data and instead involves the general need to protect all civil rights.

Arguments about the risk of misuse of data therefore boil down either to technical issues of systems control or political issues of the government and its role. If these issues are resolved in their appropriate context they do not reappear as issues of privacy.

The other issues in the list in the first paragraph of this section all relate to ways in which privacy may affect individuals. The first may be dealt with quickly as it relates mostly to issues of proximity. Where we have peace and quiet, it seems that some kinds of activities can be carried on more effectively than where crowds are present. One example is the ability to relax, and so muster the strength to continue day to day life. Another slightly less homespun example is the necessity of peace and quiet in order to learn. It is a commonly reported phenomenon among low income or Polynesian families that children have considerable difficulty keeping up with school work, partly because of the difficulty of finding adequate uninterrupted time and space to complete the academic work required. Though other more social goals might be achieved through this higher level of interaction, it is at the cost of some loss of personal opportunity (see Gavison, 1980, page 363). Though this trade-off of personal learning for communal interaction implies some individual or collective choice in favour of social values, that does not in itself imply that personal learning (and hence seclusion) is of no value. Instead the loss of the opportunity for personal learning is the price paid for the communal experience. The recognition that a price has been paid is evidence that personal learning and solitude do have a positive value, even in this example.

Benn suggests a more profound rationale for privacy. In his view privacy is basic to our respect for each other as individuals. He suggests the kind of observation that might be appropriate when bird watching is totally inappropriate between people. Though it is permissible to observe individuals with their consent, the basic problem to Benn is that the act of observing changes the nature of the other person's act. If they are aware of being observed then this awareness affects their behaviour; if they are not aware of being observed then they are deprived of the opportunity to carry out what they expected was a private act but which is in fact one which more than one person is experiencing. It is this deprivation of opportunity that is at the heart of the disrespect for individuals. In Benn's words "... a general principle of privacy might be grounded on the more general principle of respect for persons ... To conceive someone as a person is to see him as actually or potentially a chooser; as one attempting to steer his course through the world, adjusting his behaviour as his apperception of the world changes, and correcting course as he perceives errors" (Benn, 1971, page 229). Any observation, overt or covert, alters the conditions of actions, therefore "thwarting ... attempts to make a rational choice" (Benn, 1971, page 230).

Benn applies this concept directly to data banks. He sees them as having various technical problems to do with the potential for false information, the risk that correct but partial information will cast a false light, or that the bureau might be seen to be infallible. However these are not the basis of his concern. His basic concern is "resentment that

anyone - even a thoroughly trustworthy official - should be able at will to satisfy any curiosity, without the knowledge let alone the consent of the subject. For since what others know about him can radically affect a man's view of himself, to treat the collection of personal information about him as if it raised purely technical problems of safeguards against abuse is to disregard his claim to consideration and respect as a person" (page 231).

However, having carved out this view Benn realised that it was too sweeping. It did not seem reasonable that no information could be recorded. Benn therefore suggested that protection should involve only those things intrinsic to one's perception of oneself. This would include the body, and all those things which are seen as close extensions of the body. This he suggested was culture specific, and could be expected to vary from place to place and time to time. He also suggested that even once an interest is established as being close, it still needed to be balanced against other public interests.

Valecky has followed a similar process in attempting to pare down personal interests to that area which demands the protection of privacy. He suggests that our fundamental human characteristic is to be a moral agent making our own choice of right and wrong. Only those invasions of our personal sphere which threaten this basic capacity are real breaches of our privacy rights.

A person's human right to privacy is a right to be the captain of his soul without any evil-minded interference by others" (Valecky, 1978, page 31).

Attempts to assert the sanctity of information in any lesser cases turn out in Valecky's analysis to be appeals to snobbery or other base sentiments, which are not deserving of protection.

Whatever bounds are put around the protected domain of the person the basic consideration is that in the collection and use of information there needs to be adequate respect for individuals. The question for debate still revolves around how much respect is adequate.

A stronger version of the concept of privacy as a sign of respect is Reiman's view that privacy is essential to the ability to understand ourselves as having moral ownership over ourselves. In his words "privacy is a social ritual by means of which an individual's moral title to his existence is conferred" (Reiman, 1976, page 310). Reiman suggests that the concept of self is critical to our understanding of persons. Without a notion of self we cannot conceive of autonomy or responsibility. A minimal concept of self is a notion of moral ownership of one's body.

"... there are two essential conditions for moral ownership of one's body. The right to do with my body what I wish, and the right to control when and by whom my body is experienced" (Reiman, 1976, page 312).

This ability to control when and by whom the body is experienced is essentially a privacy issue.

On a slightly broader plane, Freud (1968) also sees a major function of privacy as a symbol of respect. Freud suggests that many of the areas where we are private, such as excretory or sexual matters, have no necessary intrinsic significance. They are simply symbols which express the significance of the people concerned and their self-ownership.

Whether we regard the maintenance of sufficient privacy as being a practical matter relating to the ability to grow and learn, a philosophical question of respect for persons, or a symbolic act, it clearly is of considerable significance in our understanding of ourselves and our realisation as individuals.

- Personal Relationships

Privacy has been suggested as playing a role in personal relationships in various different ways. The first emphasises the possible threat from a loss of privacy to the ability to maintain intimate relationships; the second asserts a positive role for privacy in promoting love, friendship and trust; the third generalises the concept to identify a function for privacy enabling a variety of forms and levels of social interaction.

Just as Benn was concerned that individuals' freedoms could be constrained by a loss of freedom, so also he was concerned that the ability to enter into and maintain closer personal relationships can be constrained by a loss of privacy. He suggests that though almost all relationships conform in many outward characteristics to role expectancies (such as husband to wife, parent to child, friend to friend), the heart of each relationship is unique. It depends on the evolution of mutual understanding between the parties, and external monitoring or participation reduces the ability of the parties to develop the relationship in the way that they choose.

"Personal relations are exploratory and creative; they survive and develop if they are given care and attention; they require continuous adjustment as the personalities of the parties are modified by experience, both of one another and of their external environment. Such relationships are, in their nature, private."
(Benn, 1971, page 236.)

Any attempt to involve an extra party in a relationship inevitably changes the nature of that relationship. Sometimes a counsellor might be invited in as a facilitator and with very sensitive handling the relationship might survive this temporary addition. However, by its nature the concept of involving a counsellor has altered the relationship. Even more seriously, the intrusion of an uninvited third party obliges the partners in the relationship to adjust their behaviour to take account of the extra person. This intrusion, even if it is only passive observation, can destroy the intimacy of the relationship.

Gerstein focused specifically on the concept of intimacy. He suggests that true intimacy with God or with a partner involves losing oneself in the relationship. That is, the person must go beyond being aware of their behaviour (ie, prayer or love) and be fully immersed in the activity. If the person becomes aware of any observer then that awareness destroys the immersion and therefore loses the intimacy.

"There is a great difference between the way we experience our own actions when we intend them to be observed and understood by others and the way we relate to them when we are immersed in intimacy." (Gerstein, 1978, page 267.)

Therefore, as with Benn's notion that observation changes the nature of an individual's act and so deprives that person of choice, so Gerstein sees the intrusion of a third party as the imposing of a fundamental change in the nature of the actions of those in a relationship.

The second approach to relationships focuses not so much on the threat of intrusion, but the gains from privacy. Fried has developed a thesis that privacy is a basic necessity for love, friendship and trust, and that these emotions are central to our being.

"To respect, love, trust, feel affection for others and to regard ourselves as the object of love, trust and affection is at the heart of ourselves as persons among persons, and privacy is a necessary atmosphere for these attitudes and actions as oxygen is for combustion." (Fried, 1968, page 205.)

Fried suggests that a central aspect of love is the voluntary mutual relinquishment of rights to the partner, and the creation of a shared joyous interest. Critical to these rights are not merely property or time and energy, but knowledge of one another.

"To be friends or lovers, persons must be intimate to some degree with each other. But intimacy is the sharing of information about one's beliefs, actions or emotions which one does not share with all, and which one has the right not to share with anyone. By conferring this right, privacy creates the moral capital which we spend in friendship and love." (Fried, 1968, page 221.)

Fried acknowledges that the exchange of various gifts and affection are central in love and relationships, but he asserts that it is only by the exchange of exclusive information that partners are able to build true intimacy.

Fried is not totally starry eyed about loving relationships. He also suggests that privacy is necessary to the maintenance of love through permitting partners to withhold thoughts which might otherwise threaten the relationship. In a world of perfect disclosure partners would be obliged to share every passing thought including those moments of exasperation and anger which may be better left unsaid.

The third approach to personal relationships extends the privacy beyond intimate or loving relationships to all areas of social exchange. Rachels (1975) points out that people are involved in a wide range of different relationships, and that the behaviour appropriate to those relationships varies. The loving care of a parent may differ from the more brisk behaviour that the same person displays in a work environment. The raucous behaviour of a person celebrating a victory with sporting teammates may differ from the rather more formalised behaviour that that same person will display in the presence of his or her mother-in-law. Rachels suggests that the general concept which makes sense of this variety in behaviour is the widely understood concept that some things are "no one else's business" (1975, page 292). A teammate's appreciation of beer may well be the business of other members of the team. A prospective son-in-law's appreciation of cucumber sandwiches, and maybe his employment prospects, are the business of his potential mother-in-law. However, the fact that this information is someone's business does not make it everyone's business. It is necessary for successful social exchange that we have the ability to modify our behaviour to different contexts. Without privacy that would be impossible.

Schoeman provides a good example of the need to be able to modify a behaviour to different contexts. He points out that where we encounter behaviour which seems inappropriate to us we become uncomfortable.

"It is ... very awkward to be going about one's business and be confronted with a plea or expectation with personal involvement which, by hypothesis, is unoccasioned by the relationship." (Schoeman, 1984, page 404.)

As Schoeman suggests, intimacy is demanding and in normal circumstances we need to be able to keep our distance by a maintenance of some degree of privacy.

To some this diversity of character is seen as ultimately deceitful. They suggest that the wearing of different clothes is a means of disguising the inner self and concealing ourselves from the world. However Rachels (and Schoeman) suggest that this notion of a "true self" is mythical. Though we may be integrated personalities that does not mean that we behave in a uniform way in all contexts. Our behaviour depends on our context, and the success of relationships depends on our ability to modify our behaviour to be appropriate to the various contexts.

The lack of adequate privacy would therefore appear to be threatening both to intimate and loving relationships and also to the general ability to maintain a range of appropriate relationships.

- The Democratic Society

The role of privacy in facilitating the functioning of a democratic society is closely related to the role of privacy in enabling individuals to realise themselves. This connection comes from the basic characteristic of a free and democratic society, which is a society permitting diversity and non-conformity. A basic identifying sign of democracy is the right of people to work for change in the government and in society. If there is an essential sameness between everyone in society, there will be little likelihood of pressure for change. A de facto totalitarianism, or at least stasis, would emerge. The function of privacy is to foster the emergence of difference between individuals.

A democratic state respects the rights and interests of the individuals living within it. The people must be seen as individuals with the right and capacity to make their own choices. That is, people must be autonomous. The role of privacy is to permit that autonomy, and so allow diversity and change.

An idealistic vision of a democratic society might demand that everyone stand up and express their views and dissent whenever they have some concern about the majority view. However, Benn has pointed out that this would require every person to have the strength of Socrates. This would seem to be an unrealistic expectation.

For most of us Benn suggests that we need the room to dissent in private. While we might not have the inner strength to challenge the moral prejudices of society, we can entertain the notion of non-conformity within a protected private area.

"... The freedom we need is the freedom to be something else - to be ourselves, to do what we think best, in a small protected sea, where the winds of opinion cannot blow us off course." (Benn, 1971, page 242.)

Gavison has picked up this concept and elaborated it. She suggests that one function of privacy is to assist the exercise of tolerance that we would like to think that we are capable of. Behaviour which challenges our personal beliefs, especially in sensitive areas such as sex or religion, may cause us offence, and we may feel obliged to act against that. Privacy permits others to follow these forms of behaviour in a discreet way;

we may remain aware that such things are happening somewhere, but we do not have to confront the event on a day by day basis and are therefore able to feel more relaxed about its continuation.

"Privacy works ... to ameliorate tensions between personal preferences and social norms by leading to non-enforcement of some standards". (Gavison, 1980, page 367.)

Like Benn she suggests that privacy allows non-conformity to flourish without requiring everyone to be moral giants.

As well as permitting tolerance and diversity she suggests that privacy allows people to form their own judgements and ask their own questions about issues facing society. Having arrived at that answer, privacy permits individuals to have confidential political discussions and secret votes on issues of the day. These rights are essential protections for the minority to develop and promote its views.

A strong statement on the importance of autonomy, which clearly shows the link back to the significance of privacy for the individual, was made by Bloustein.

"The man who is compelled to live every minute of his life among others and whose every need, thought, desire, fancy or gratification is subject to public scrutiny, has been deprived of his individuality and human dignity. Such an individual merges with the mass. His opinions, being public, tend never to be different; his aspirations, being known, tend always to be conventionally accepted ones; his feelings, being openly exhibited, tend to lose their quality of unique personal warmth and to become the feelings of every man. Such a person, although sentient, is fungible; he is not an individual." (Bloustein, 1964, page 188.)

The three aspects reviewed in this section have demonstrated that privacy does play a critical role in permitting individuals to develop their own lives, allowing personal relationships and assisting the functioning of a democratic society. It would appear that privacy is not simply a luxury which can be ignored at will. It is not something which governments should regard as a problem to be got around. It is a value which is of true significance and deserving of recognition. The question for the next section is whether there are bounds on this significance, and what concepts will help us to understand its bounds.

The Limits of Privacy

In this section it will be established that privacy, in its various aspects of secrecy, and anonymity and solitude, is not an absolute value. Though we have established that a degree of privacy is of value to us as we lead our individual lives, as we participate in relationships and as we function in a democratic society, this does not mean that privacy is always to be desired in every context, or that more privacy is always to be preferred to less privacy.

A simple intuitive test of the implausibility of privacy as something to be always desired is to contemplate the concept of "perfect privacy". If privacy is of unlimited value this

would imply that perfect privacy would be the ideal state. It takes little imagination to see that though the life of an anchorite may be worthy, for most of us it is far from ideal.

The writers who have defended privacy generally include an explicit acknowledgement that it is possible to have too much privacy.

"Privacy ... cannot be said to be a value in the sense that the more people have of it, the better. In fact, the opposite may be true." (Gavison, 1980, page 359.)

As a general rule, privacy appears in the literature associated with concepts such as a pool of privacy, a reserved area, or some personal space. The next question to analyse

their status as people (who are ends and not means) then respect might appear not to need any information or attention to others. That is, respect would demand privacy, and would justify no intrusions into privacy. However there are two basic problems with this notion of respect.

- a Respect is not simply a concept of unfocused theoretical reverence; it involves daily interaction between real people.
- b Though the value we place on people derives from their intrinsic worth as people, to respect them we need to see them each as individuals with their own characteristics. Respect implies an appropriate acknowledgement of this individuality, including the attributes and affiliations that each person embodies.

Having established this more specific concept of respect it is now apparent that some enquiry about others is not disrespectful, so long as it stops somewhere short of prying. However, on top of the idea that respect offers a licence for reasonable enquiry, it commonly imposes an obligation to offer information. To refuse to offer basic identifying information can be to make it difficult for others to function; this implies a lack of concern (or respect) for their needs. A withholding of all information can be to imply that the other is not worthy of hearing the information.

As well as information issues, respect may involve some attention. A simple example from the idea of good manners can be seen here. For many people it may be rude to stare at someone else in a railway compartment, but it is also rude to be so inattentive as not to offer assistance to a person who is having difficulty alighting from the compartment. Respect for persons requires honouring their anonymity, but not ignoring their needs.

Proximity can raise similar issues. Where space is available, then normally respect implies leaving adequate space around others. However, in a context where it is understood that there is little available space, leaving a gap can be a form of insult. On a crowded bus where every seat is full except the one next to me, if everyone declines to take that seat that might be a slight on me.

The role of privacy as a ritual can also be seen to be constrained by two concepts. The first is that the ritual that Reiman has proposed, being one conferring self-ownership, itself implies social relationships.

"Ownership in the moral sense presupposes a social institution. It is based on a complex social practice." (Reiman, 1976, page 312.)

Any such social exchange could not exist in a world of perfect privacy.

The second limit on the ritual concept is the realisation that there are other rituals involving the exchange of information, identity and even proximity which are also of basic value. These rituals confer or acknowledge membership in society. The exchange of names when people greet one another or in introductions, represent an important ritual. In addition, in various contexts it is common to add one's affiliation (work, iwi, or sporting club depending on the context). This exchange of identifiers clearly ranks as a social rite. In addition, the further queries as to one's state of well being which are common in the greeting process also form part of the rite. The whole of these rites indicate a mutual respect, but also a mutual acknowledgement that the other individual is a member of society with social identifiers and not simply a person alone.

- Personal Relationships

To claim that personal relationships cannot exist without some loss of privacy is to state the obvious. Perfect privacy and personal relationships are contradictions in terms. However, it is still of some value to tease out the concepts involved to establish some of the ways in which a loss of privacy is necessary to permit personal relationships to occur.

The discussion in the last section on personal relationships focused largely on intimate relationships. In that context it was clear that there needs to be a comprehensive exchange of information between partners, and therefore some loss of privacy was automatically envisaged. In this part of the paper we will focus mostly on more arms length relationships. The general issue may be stated simply; whatever type of relationship is concerned, the process of entering into a relationship means that some aspects of the individual's life becomes "the business" of the partner to that relationship. If the partners wish to continue that relationship then it is in their joint interests that the information which is appropriate to that business is exchanged. Similarly, the appropriate degree of attention and proximity is also necessary for the continuing success of the relationship.

"In general, a fact about ourselves is someone's business if there is a specific social relationship between us which entitles them to know ... Thus, if we are asked how much money we have in the bank, we cannot say "it's none of your business" to our banker, our prospective creditors, or to our spouses, because their relationships with us do entitle them to know." (Rachels, 1975, page 297.)

In effect, my bank balance is my bank manager's business because I wish to deposit with (have a relationship with) my bank. My address would also be my bank manager's business in order that the bank may send me statements of my account. Should I wish to borrow from the bank then my income, my assets, and my liabilities will also become my bank manager's business. That is, because I wish to change the nature of the relationship between me and my banker the range of information about me which is my bank manager's business changes. This connection between information exchange and the nature of the relationship is a general concept.

"The candidate for employment, credit, or welfare payments volunteers to give up as much privacy as is relevant to their position applied for, though he need not intend or anticipate the affects of this abridgement." (Van Den Haag, 1971, page 159.)

An alternative way of viewing information and privacy within relationships depends on concepts of social expectations. Benn points out that every social relationship creates an expectation of behaviour; this expectation can include a social obligation to provide appropriate information.

"All characteristically human relations - I mean relations of a kind that could not exist between stones or wombats - involve some element, however small, of role expectancy." (Benn, 1971, page 235.)

While it is not clear that Benn's understanding of the habits of wombats is correct, the general notion is sound. The example Benn uses is the business-like and narrow exchange that occurs on the purchase of a railway ticket. In that context the

expectations of the roles are discharged by the exchange of cash and a ticket. However, in the relationship between the patient and a doctor, the employer and the employee, or the parent and the child, the exchange is ongoing and complex and the obligations to offer information, and to pay attention to the partner, are substantial.

- The Democratic Society

The effective functioning of a democratic society requires autonomous individuals. However, there has been an intellectual understanding since at least the time of Aristotle that all people live within a "polis", and that this involves a complex web of interaction and mutual interdependence.

At a simple and mechanical level, privacy is seen to be basic to democracy through the secret ballot. However, the running of a secret ballot requires the provision of information to establish eligibility to vote. This involves the prior submission of information on age and citizenship. In addition, the would-be voter must provide adequate evidence of identification in order to exercise the right to vote. This then is a classic example of the fact that the exercise of autonomy can only exist within the context of social exchange, including some loss of privacy.

The justification for privacy in a democracy that was put forward in Section C revolved around the encouragement of a dynamic and pluralistic society in which people had the opportunity to avoid conforming to stultifying norms. However, in order to let ideas develop and to become significant within the political and social process they must be discussed. Thoughts must start as private ideas and may need some initial protection for their private development. However, thoughts that remain private cannot contribute to the political and social ferment that is at the heart of a dynamic and changing society. The loss of privacy that is implied in the statement of our views is compensated by the comments and reactions that we receive which can help us to modify our view of society and the political options that are available. A democracy without debate is hollow, and debate involves the exchange of information.

Conclusion

In this chapter it has been established that privacy is a neutral concept, which may include solitude, anonymity, and secrecy. Privacy has a moral value which is derived from its value in individual development, personal relationships, and a democratic society; these three values also define the limits of the moral value of privacy. There are bounds beyond which privacy can be counter-productive.

"... both perfect privacy and total loss of privacy are undesirable. Individuals must be in some intermediate state - the balance between privacy and interaction - in order to maintain a human relations, develop their capacities and sensibilities, create and grow, and even to survive." (Gavison, 1980, page 358-9.)

In addition we would add to Gavison's list the need to maintain a democratic society.

Any claims for rights to privacy must be located somewhere within Gavison's balance between privacy and interaction. Like any other such rights, these rights to privacy may then be balanced against competing rights such as the right to freedom from want or the right to due process. The next chapter focuses on the derivation of privacy rights based on the value of privacy and the limits of that value.

CHAPTER SIX: THE RIGHT TO PRIVACY

Introduction

This chapter uses the analysis of the value of privacy and its limits as the basis for the derivation of a statement of the right to privacy. Though international conventions and legal literature have long recognised a right to privacy, the basis for that right is not generally explored in those sources. This new statement of the right to privacy, as rooted in the moral value in privacy, is then compared to the internationally recognised principles, rules and conventions which cover identification and the collection and use of personal information.

Having established that privacy has a value, but not an absolute value, we may expect that the right to privacy will also not be an absolute right. The right can be expected to vary in line with the nature of the information involved (or the identifier or proximity sought), the relationship between the parties and the circumstances surrounding the transaction. That is, the rights will be context specific.

The risks or burdens imposed on the person losing privacy will not be the same in every case. Similarly the interests of the party that is acting to reduce someone else's privacy will also vary from case to case. Therefore we must not expect that all threats to privacy should be protected by a right to privacy.

"In the first place, not every threat to privacy is of sufficient moment to warrant the imposition of civil liability or to invoke any other form of legal redress. We all are, and of necessity must be, subject to some minimum scrutiny of our neighbours as a very condition of life in a civilised community. ... Secondly, even where a clear violation of privacy is made out, one must still face the question whether it is not privileged or excused by some countervailing public policy or social interest." (Bloustein, 1964, page 189.)

With our focus now shifted to rights, we are no longer simply considering the state of privacy, or its value. We now are looking at the conditions necessary to be able to choose privacy. The critical characteristic of a right is not necessarily the presence and protection of a given state, but the ability to choose whether or not to enjoy that state. The other central attribute of a right is that it imposes obligations on other parties (including the state) not to contravene the right. It also imposes an obligation on the owner of the right not to abuse that right.

Having introduced the concept of rights as choices, this returns us to the idea of "control" that Westin used in his definition of privacy. Recall that his definition of privacy is "the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others" (Westin, 1967, page 7). Our discussion in the previous sections has established that control is not privacy, and that privacy involves more than information. However, the general direction of thinking that Westin had adopted is close to the appropriate concept of the right to privacy. The aim of this section is to establish the extent of control over personal information that individuals need to have in order for there to be an adequate right to privacy.

The most helpful way to address these questions is by analysing the three aspects of privacy that Gavison established: secrecy, anonymity and solitude. Because the issues

seem to get less complex as we move along that list, the following discussion will be taken in the opposite order.

The Right to Solitude

From our earlier discussions it is clear that society must recognise some rights for people to be alone. However, this right can only be expressed within plausible bounds. There can be no social obligation to provide an empty island for everyone or anyone. If we are to participate in society and live in communities we must put up with the fact that from time to time we will be one of a crowd.

The story of Lady Godiva provides an example of an occasion where the right to privacy was pushed excessively far. In order that Lady Godiva might have her privacy respected as she rode naked through the streets of Coventry, it was ordered that all citizens should be off the streets with doors and shutters closed. It is conceivable that any of us might demand the evacuation of the main street in order that we may disport ourselves outrageously and privately. However, to claim this as a right is a nonsense. Any attempt to exercise such a so-called right would really be a creation of a privilege by means of an unprincipled use of force. Though one might attempt to justify such an approach by appealing to respect for the individual concerned, that same individual is clearly not respecting everybody else whose lives are disrupted by their whim. In his discussion of privacy Reiman has addressed this issue.

"It [privacy] does not assert a right never to be seen even on a crowded street. It is sufficient that I can control whether and by whom my body is experienced in some significant places and that I have the real possibility of repairing to those places." (Reiman, 1976, page 312.)

We do not have the right to demand solitude wherever we are, but we do have the right that we have reasonable access to places where we will have some solitude. Obviously the range of places open to us will vary with the extent of our property holdings. However, in New Zealand society, it is clear that for any individual who has no place to hide there is inadequate privacy and their rights have been breached. This concern for privacy is one of the reasons behind the adoption of housing codes and the Housing Corporation's building standards. It is also the reason why we do not permit searches without a warrant, or permit landlords to enter a tenant's house without notice and why we are concerned at such facilities as toilet cubicles without doors which are sometimes found in institutions.

The Right to Anonymity

The right to be anonymous, that is the right to go about our business without saying who we are, is an important freedom. It protects us from random stopping and from demands that we should produce our "papers". The extent of the right to anonymity revolves, as with most other privacy issues, on the question of whose business it is that we are in a particular spot or participating in a given action. The basic reason why we should object to being stopped by a policeman to identify ourselves is that the state has no business to know where I am at any given time or what I am doing. If, however, a crime has recently been committed in the area and the policeman thinks I am acting in some way which raises his suspicion, then my identity is his business and his enquiries become legitimate. At that point my right to anonymity is lost.

As the discussion proceeds, it will appear that there are a great many contexts in which I do not have the right to be anonymous. However, that does not undermine the basic point that the presumption ought to be that I may be anonymous unless it is someone else's legitimate business to know who I am.

A preliminary question on definition is the matters which are included in the concept of "identification". For the purposes of this discussion, identification is those basic details which permit the subject to be distinguished as a particular individual. In any society this would usually imply the name of the individual, and in many contexts it might imply the provision of a number such as a society membership number or a bank account number. It may be that often the matters included in an identification are those facts which are sufficient to initiate some enquiry to confirm the plausibility of other information which is supplied or needed. Clearly the extent of information that is regarded as being adequate for identification can vary between cultures. For example, on the marae, Maori people might expect that identification would focus more on tribal affiliations rather than the individual's name. However, at this stage we will not enter into the complexities of the different types of information that might be included in the identifier.

From the above discussion we can derive a statement of the right to anonymity as follows: any individual has the right to be anonymous except in those contexts where another party has the right to know that individual's identity. This definition might seem to be ludicrous, but it serves two purposes. The first is that it asserts that the default right is anonymity. The second is that it establishes a framework within which claims for a right to know someone else's identity can be developed. As with all the claims for rights in this section, such claims will depend on the context in which they are put forward.

In the context of voluntary interactions, either party has a right to discontinue the relationship if the other will not identify itself. That is, everybody has a right to require the identification of any other person as a condition of the continuation of a voluntary social interaction. This does not give individuals the right to stop each other in the street and demand identification, as this is not part of an interaction. However, it does mean that strangers are under no obligation to make conversation with one another if they have not been introduced, (or have not taken the liberty of introducing themselves).

When expressed in terms of casual social exchange this right to view identification seems trivial. However, when it is translated into commerce it becomes more significant. Where a customer tenders cash for a moderate sized purchase the shopkeeper has no right to demand the identity of the customer. There is nothing in the nature of a cash transaction that requires information about the parties beyond the fact that one has cash and the other has goods. However, even in this case the shopkeeper would have some grounds to inquire if there is any reason to doubt that the customer acquired the money by legitimate means. For example, a child producing a large sum of cash could expect to face enquiries from the shopkeeper about the source of the money.

Where the customer is not offering cash, but instead is asking for credit or has tendered a personal cheque, the relationship is changed. The customer is now asking for a degree of trust from the shopkeeper. In exchange for the provision of goods and services the shopkeeper is expected to take some risk about the likelihood of future

payment. To expect the shopkeeper to undertake this risk with no information as to the customer's identity, is to ask the shopkeeper to act on blind trust. Such blind trust is possibly appropriate where the issue is religious faith, but it is not the stuff of commerce, and the shopkeeper has no obligation to deal with any customer on this basis.

Where the state is one of the parties to the transaction the situation is inevitably different. The state uses its monopoly powers of coercion to collect obligations from citizens and distribute entitlements. This means that relationships with the state are not voluntary. The rule in this area is that agents of the state may legitimately inquire as to the identity of an individual where the entitlement being sought or exercised is one which is bestowed on selected individuals. For example, there is no universal right to drive a motor car on the roads. Having been stopped because of some concern to do with driving, drivers may legitimately be asked to identify themselves as licensed drivers.

The situation is similar in the case of income-tested benefits or tax assessments. The amount owing to any given person is an individual matter and the Social Welfare Department has the right to know the identity of the person to whom it is paying money.

Having established the contexts in which it is reasonable for a party to inquire as to the identity of another party, the next issue is the standard of proof that may be required. Is it sufficient to simply give one's name, or can one be asked to verify that? What kind of verification can be required? Is it reasonable to ask for corroboration from other individuals, if so how many? The resolution of these issues must depend on the nature of the risk that the other party is exposed to.

The requirement for a will to be witnessed by two individuals who have no interest in the will and who actually see the document signed, is necessary because at the time when the will is proved the deceased is unable to testify as to its correctness. In relations between living parties the problems are much less.

In any of the commercial or entitlement transactions that we are discussing an individual is potentially liable for fraud charges if a false identity is offered. This makes a powerful incentive to encourage honesty and should reduce the extent of individual corroboration that is necessary in any given case.

However, where an entitlement depends on a specific history of previous transactions, including previous receipt (or non-receipt) of various payments, then some form of specialised identification may be necessary. It may be insufficient to know that someone says her name is Joan Smith and can produce letters addressed to herself in that name. It is likely to be necessary that the individuals can identify themselves as the legitimate users of particular bank accounts or recipients of specific entitlements, perhaps by citing the numbers of their accounts or eligibility numbers, and possibly by producing some evidence of their right to use those services. Agencies facing the problem of keeping track of varying individual entitlements for specific recipients commonly find it necessary to issue their own identification forms.

Given that the agency involved has a need for some evidence of identity, and given that this identification must link to the agency's evidence of entitlement, it does not seem unreasonable to issue identifying material and require its use. The constraints on the issue of such identifiers are that they must only be used for the purposes intended and they must not be difficult, uncomfortable or embarrassing for the individual to use. That

is, they should only be used to establish identity in respect of eligibility for entitlements which are personal to the holder of that identity document, and they should not require the individual to memorise long personal identification numbers, or undertake other unreasonable mental or physical contortions. Similarly, the identifying material should not serve to mark out the individual in any other contexts than the determining of eligibility. The design of the identification material needs to take these criteria into account.

In summary, we may conclude that the issuing of identifying material, and requiring its use, can be legitimate where an organisation needs a means of distinguishing its clients. This identifying material can serve as part of the means by which individual entitlements may be recorded. Any such use of identifiers should be subject to the following conditions:

such material should only be used in respect of the particular entitlement (or set of entitlements) for which it was issued, and

use of the identifiers should not be difficult or stigmatising, so that the process of identification should not of itself restrict access to the entitlement.

This limited justification for the use of identity documents cannot be read as legitimising a universal multiple-purpose national identity document. The rationale for the issue of identity documents that has been derived here depends on the need for an organisation to know who it is dealing with. The right to identification (or the loss of the individual's claim to anonymity) relates specifically to the contexts within which the identity of given individuals, and the level of their entitlements, is the legitimate "business" of an organisation.

The application of a traveller to cross a national border is an example of these principles in operation. No non-citizen has an automatic right of entry to another nation. The host country may legitimately exclude any person that it considers to be undesirable. A government may therefore take reasonable steps to establish the bona fides of would-be visitors, and a first step in this process is to establish the identity of the applicant. A host country may have limited means of verifying the identity of foreign nationals, so it may instead ask for a secure identity document, verified by the foreigner's own government, that is, a passport.

However, this argument for passports cannot be used to justify the generalised issue and compulsory production of identity documents in all contexts, including for law enforcement purposes. To be justified, any national general purpose ID would depend on a claim that it is the legitimate "business" of the government to know the whereabouts of all its citizens at all times. This view of the role of the government is not consistent with the usual liberal vision that dominates the Anglo-Saxon, common law tradition.

The case for a national identity document does not fail because of some overwhelming privacy (anonymity) argument, but because, in this context, the state cannot claim to have a legitimate interest which can overcome the general right of the individual to be anonymous. With a different view of the role of the state, or in different circumstances of national emergency, it might be possible that the case for a national ID would be stronger. As with all other examples, the right to anonymity depends on the context in which it is asserted.

The Right to Secrecy

As Westin has suggested the central element of a right to privacy of information revolves around control over the information. The right to private information, that is, secrecy, means the right to control the dissemination and use of information about oneself. The critical question is how much control the individual should retain, over what information, and in what contexts? As with other aspects of privacy, the right to withhold information, or its obverse, the obligation to provide information, is related to the nature of information and the purpose for which it needs to be used. A further complication in the area of information is that any facts which are supplied in one context may endure and could be used in a different context. This means that any rights designed to give adequate control to individuals, need to cover both the supply of information and its later use.

An extreme interpretation of the right to privacy would assert that all information about me is mine, and I must be able to control any use of information about me. The assertion that all data matching is invalid, or that it is improper to make statistical use of information which was supplied for administrative purposes, generally depends on this proposition that total control must be held by the individual.

To identify problems with this proposition it is not necessary to consider any balance of competing rights; it is enough to consider the impracticality of total control of personal information. It is impossible to have perfect control of information about me, and to live in society. Simply by walking down the street I make it possible for any casual observer to gather information on my appearance, including physiognomy, complexion, height, size, gait, and dress. From that I cannot prevent observers making some informed deductions on my age, sex, agility and health. There does not seem to be any way to stop those observers from passing on their conclusions through casual gossip or more deliberate reporting and publication. It is absurd to claim an absolute property right to information about me; observers too must have some "property" in their observations and conclusions. I may need some rights to prevent particularly damaging or malevolent uses of the information about me, but I cannot conceivably enforce a right to prevent any collection or dissemination of information on me, nor does there seem to be any compelling moral reason why I should enjoy such a right.

If individuals do not have an absolute right to control all information about themselves, it is necessary to clarify what information might reasonably be covered by this right of control. Clearly it cannot include an absolute prohibition on the collection, use or dissemination of any information that could be gleaned by casual observation, as any such prohibition would impose an excessive restriction on others' activities. There are various other possible means of drawing a boundary around the controlled sphere of information, but none of them seem very successful. Benn (1971) concluded that the protected area should include those matters which are intrinsic to one's self perception. However, this seems of limited use as it is culture-specific (as Benn acknowledged), and it also may exclude some items which might be sensitive in some contexts. Similarly, Van Den Haag (1971) used the concept of the "private domain". This too is difficult to give any operational meaning, as it must vary between people, cultures and contexts.

One possible line could be derived from the practical considerations of what could conceivably be controlled. If total protection of information on an individual fails because no individual (even perhaps such notorious privacy seekers as Hefner or Greta Garbo) can prevent all casual observation, one sphere that could be protected is those pieces

of information that, in the normal course of events, would not be conveyed except by a conscious act of the individual concerned. Casual observation will give information on dress, and therefore the basis for an estimate of spending on clothes; however, this is a most unreliable way to estimate income. The only way to get reliable information on income, wealth, or aspects of health, is directly from the individual concerned or by reviewing records that are not normally in the public domain. Individuals are generally in a position to make a conscious choice of who will, and who will not, share this information about themselves. However, though this concept of a conscious choice to give access is helpful, it is not complete as there are others who necessarily hold the information in question, and often the information is as much the "property" of this other party as it is of the individual concerned.

Wacks (1989, pages 230-238) has constructed a detailed list of items of personal information covering such aspects as biographic (name, age), home (address, housing), family relationships, employment, financial, medical, educational, ideological, police, leisure, habits and travel information. This is sub-divided into over three hundred items, each of which is classified as high, moderate or low sensitivity. This is an informative list, and an impressive reminder of the range of items of information that can accumulate about a person. However, as a guide to how information should be handled it seems less than adequate. At a detailed level it is possible to debate the classifications. For example, it is not at all clear why sporting information should be of low sensitivity while theatre going is of moderate sensitivity. Of more concern, however, is the presumption that any such classification could provide a useful steer for policy.

One example of an item which Wacks, and most others, would generally regard as being of low sensitivity is one's address. This could be seen to be potentially observable, and therefore not secret. However, for some people in some contexts the address is sensitive. During the period of compulsory military training the New Zealand Labour Department (which administered the ballot for military service) asked universities to supply the addresses of students so those not on the register could be traced. Victoria University refused to supply the information; it had not been collected for that purpose, and in that context it appeared to be sensitive for some students. Similarly the address of the estranged wife of a violent man can be very sensitive information. This suggests that any attempt to identify what ought to be kept private must be based on the circumstances of cases, not prior views on the sensitivity of information.

It seems that, rather than arriving at a firm list of what is rightly secret and what is public, we must examine the context within which the information is collected and used. The appropriate control over a given item will depend on its context. The relevant question is not simply what is the nature of the information, but whether the information was legitimately acquired for the use to which it is being put. The critical issue is to determine the means by which information may be acquired legitimately. Before proceeding with a discussion of the legitimacy of the means by which information may be acquired, it is necessary to distinguish between administrative uses of information, and statistical or analytical uses. Administrative uses occur where the information is used in determining some aspect of the affairs of the individual concerned; this might be a credit rating influencing a banker's judgement or income information affecting a tax assessment. Statistical uses of information have no direct effect on the individual. The information on each individual is combined with that on others to provide a picture which might influence overall judgements, but is not used specifically to determine any part of

the individual's business. For the most part the discussion in this section will focus on administrative uses of information, the legitimate ways it may be acquired, and rights to withhold information in that context. Following that there will be a brief discussion on statistical information gathering.

- Collection of Information

The first and usual way that information is acquired by someone about another person, is as an incidental part of going about one's business. This might be through casual observation, or deliberate noting of information in order to complete the matter in hand. Casual observation, as discussed above, may be disposed of first. It is not reasonable to deny someone the right to acquire information as a result of informal and unfocused observation of another. If we were to attempt to prevent such observation we would need some means of requiring people to suspend their faculties. Even if some chemicals or hypnosis might give us the technical ability to achieve such an effect, clearly the process would require an abuse of the observer and a limitation on function which could not be seen as consistent with human respect. Having acquired knowledge, it then would be a further attack on the rights of the observer to prevent its further use. The knowledge was not acquired with any caveats or protections on its further use, so there would seem to be no limitation on publication or gossip. In some cases, such as domestic servants in a private house, there may be an explicit understanding that information acquired during the course of work is confidential; in that case the information should not be passed on, and any such further use or dissemination of the information is not legitimate.

The other case is the deliberate noting of information on an individual in order to carry on an activity. Assuming the activity itself is legitimate, for example it is not observation preparatory to robbery, abduction or other attack, the test of whether information is appropriately noted is whether the information is necessary for the activity concerned; is the information the observer or recorder's "business"? For example, an employer cannot continue the process of employing an employee without knowing and recording wage payments. This is clearly information about the employee. It is also commonly regarded as sensitive information. Though it is sensitive information about an individual, the employer has a legitimate reason for having the information as, in this case, it is as much the employer's information as it is the employee's.

There are many contexts in which a person or organisation has a legitimate right to personal information. Any firm supplying banking services needs to keep a record of transactions and balances. A telephone company must keep a record of phone calls for billing purposes, as must any other utility monitor use of services. These examples relate to cases where, in the process of the transaction, the other party generates information on the individual. In addition, there are cases where the organisation may legitimately acquire information on an individual. As with the question of where identification may be required, any information which is appropriate to the transaction may reasonably be requested. For example, this formulation permits lenders or insurance companies to require information on the financial position and health of would be customers. For those institutions to require this information in the context of loan or insurance contracts is not an unreasonable invasion of privacy.

The context and the interests of the parties are not the only consideration. The means by which the information is acquired is also relevant. Though casual observation and incidental noting of information acquired in the normal course of business are legitimate,

eavesdropping is not. The distinction lies in the expectations and understandings of individuals as they go about their lives. Where the individual is exercising a right to solitude, that is when carrying on a private life in a private place, there must be an expectation that the individual will not be covertly observed. Similarly, when the individual is carrying on an anonymous activity, such as a cash transaction for an item which has no special significance for any social or personal entitlements, there must be an expectation that the activity, and the individual's role in it, will not be recorded (but see the following paragraph on security surveillance). The expectations about what will be observed or recorded may vary from person to person. Those in public life must expect that some of their private behaviour will be subjected to greater scrutiny than would apply to a less public figure. However, even for public figures, when the doors are closed and only family or personal activities are being carried on behind them, there must be an expectation that they will not be observed. This is why the activities of photographers who haunt the rich and famous, with telephoto lenses always focused, may be condemned.

In addition to those protections, which are derived from the right to seclusion and the right to anonymity, when carrying out any activity, an individual may reasonably assume that he or she is not the object of systematic observation by people who are not party to that activity. This does not mean that surveillance (using cameras or otherwise) is improper when carried out for security purposes in banks or other places where the public have access. There are two reasons why such surveillance is reasonable.

- i The surveillance is carried out for the security of the institution and the visiting customer; security is understood to be necessary to the transaction, and therefore the surveillance could be regarded as an incidental part of going about business.
- ii The information gained from crowd scanning surveillance is of a general nature, and of the same character as could have been acquired by casual observation. The fact of one's presence at a given location is public information to everyone else present, and it seems precious to object to a camera record of the event. The information gained from this surveillance is not of the sort that would normally require a conscious decision to be revealed by the individual, and therefore the intrusion is trivial.

The concept of the conscious decision whether or not to impart knowledge provides a means of distinguishing eavesdropping from generalised surveillance. In a personal conversation or letter an individual has consciously decided to whom some information is to be given. To eavesdrop on that through bugging rooms, wiretapping, or reading mail, is to deliberately subvert the intent of the individual, and to capture information that was not intended for anyone other than the proper recipient. That is a breach of the individual's right to secrecy that could only be justified by very strong evidence that the information was someone else's "business". A possible area where such a case could be made is some law enforcement contexts; in these cases it is appropriate that the police are required to justify themselves to a judicial body to receive a warrant for the eavesdropping activity. However, where surveillance gathers information that is generally available by casual observation, there is no such thwarting of the intent of the individual, and no breach of a right to secrecy. This suggests that where a private detective observes an errant spouse checking into a motel with a stranger there is no breach of a privacy right; but if the same detective attempts to read the names that were used to sign in, or to peep through the curtains, there is a breach of a privacy right.

We have established therefore that individuals cannot have absolute control over information about themselves. So long as information is acquired by legitimate means, and so long as it is relevant to the transaction that the person is engaged in, its collection and use is generally reasonable. Though the process of providing information for loans or insurance may be intrusive, the obvious need for the information means that it is not generally seen as contentious.

- Further Use of Information

The discussion so far has identified a variety of contexts where information on an individual may be the legitimate business of another, and has established that where such information is acquired legitimately it may be used by people other than the individual concerned. However, these cases remain the exceptions to the basic assumption that all individuals are free to withhold information that is not relevant to the context of the activity or transaction in question. The default presumption remains that there is a right to secrecy unless others have a proper interest. Without this right the concept of control over information on oneself would disappear entirely. The importance of this point becomes more clear in the context of the issue of multiple uses of information.

The discussion to this point relates solely to the collection of information, and its use for the purpose for which it was collected. The issue of passing on information to other users is a little more complex. If the right to withhold information that is not relevant to a given context is to have any meaning, the individual has to be able to require that it is not used for any other purpose than the purpose for which it was initially offered. When an assurance has been given that information will only be used for a specified purpose, an individual has a right to expect that the use will be restricted to that purpose.

This approach does not suggest all information that is freely offered will automatically be used only for the purpose for which it was offered. In the context of the voluntary provision of information as part of a private transaction, there may be no good grounds to object to that information being passed on if there was no prior assurance that it would be withheld. A common example of this is mailing lists. The name and address of subscribers is not secret information. The fact that they subscribe to a magazine or are members of an organisation may be confidential, but only if that organisation has assured its members of that protection. In the absence of such an assurance it can be argued that it is legitimate to sell mailing lists. However, even in this case the example cited earlier of address lists being used to locate draft evaders demonstrates that the appropriateness of selling mailing lists must always depend on the context.

In the case of more sensitive information, such as health status or income, it is commonly understood between the parties that information will be treated carefully. Doctors are aware that patients do not want their health gossiped about and therefore their ethics forbid the passing on of medical information without permission. Similarly banks generally protect their customers' positions by withholding information on bank balances. In both cases it is in the interest of the recipients of the information to continue to enjoy their customers' business; as a result they order their business in a way which meets their customers' needs.

This approach suggests that, in the context of a voluntary transaction, the exchange of information in the absence of a specific agreement that it will only be used for the initial purpose may amount to a licence for the recipient of the data to use it for any purpose.

The absence of a specified restriction may be claimed to be an implied or constructive consent to further use. The crucial issue here is the concept of consent, and the necessary components of adequate consent.

The two complications that arise in considering consent, are whether the individual was properly aware of the collection of data, and whether the individual has adequate understanding of the likely uses of the data. In the kind of examples that have been cited so far, the application for insurance or a loan, individuals are well aware of the process of providing information. Similarly, in those examples the possibility that information on defaults or claims will be shared with other companies does not seem to be beyond what could be expected by the individual. In many other cases the processes are not so clear, and therefore the claim of implied consent may be less reasonable.

Modern technology gives us examples of areas where information may be provided, or at least made available for collection, without a conscious intention by the individual. Telemetry now permits utilities to measure the use of services by remote sensors. In Norway, for example, the electricity meters record and report consumption every six minutes (Council of Europe, 1989, page 10). This permits an accurate and timely billing system, but it also provides the utility with information which could be used to give an indication of the times when the members of a household are at home. Interactive media allow individuals to select from a range of offered services to choose television viewing services or to carry on electronic shopping. This allows services to be tailored to the needs of the user, but also indirectly generates an electronic record which could be used to construct a profile of the tastes of the user. Electronic mail provides an easy and reliable means of keeping contact with others, but it also generates a record of opinions. In each case the individual has generated information that is now in the hands of both the provider of the service (or recipient of mail), and the carrier. The telephone network needs to keep a record of these various information flows for its own billing purposes, and so is also in a position to amass a comprehensive record on times of use of services, and on connections made between parties.

It seems far fetched to claim that by turning on a heater in the home an individual consciously provided information on location to the electricity company and the telephone company, or that the individual has given implied consent to that information being passed to others. The other services similarly aim to offer easy, everyday, casual services which are supposed to be available without any special endeavour by the individual. The notion of casualness is inconsistent with the expectation of being a focus of attention, and therefore it is not intrinsic in the apparent nature of the act that information is being passed and collected.

The Council of Europe points out that, in this context, it is critical that there be adequate consent to the collection of data. They suggest that the essential element is "transparency" (Page 35); unless the collection of information is apparent, consent cannot be real. In the context of further use of collected data they are even stronger.

"The free and informed consent of the individual should be envisaged, the notion of 'informed' implying that the individual must know exactly what he is taking on by accepting that his name may be disclosed to other service providers." (Council of Europe, 1989, Pages 36-37.)

Though the issue of informed consent is starkly clear with complex technologies, it also exists in other contexts. The National Consumer Council of Britain recently conducted public opinion surveys, and organised discussion groups of randomly selected consumers, to get an impression of the degree of understanding of current uses of information. Their results suggest that there is little understanding of the present range of exchange that occurs, and that few consumers have been informed of the likely use of data. They suggest that this causes resentment among consumers.

"The use of implied consent by financial institutions has led consumers to believe they have been cheated into allowing disclosure." (National Consumer Council, 1988, page 22.)

In considering the further use of data the Council suggests two critical principles, **transparency of intended use** and **informed consent to disclosure**. So long as these principles are achieved there would seem to be adequate grounds to pass on information acquired in the context of a voluntary transaction. It is significant that the Council accepts that where a consumer refuses to provide informed consent, it is reasonable for institutions to charge more for services provided. This would seem to be a logical part of the flexibility inherent in a voluntary transaction.

From the discussion so far it would appear that a statement of the right to secrecy would assert that information may be withheld except where another party has a legitimate interest, and that the individual may require an assurance that the information will only be used for the purpose for which it was provided. The operation of these rights has so far been analysed in the context of voluntary exchanges; in the context of compulsory transactions the issues change.

The issue of a right to restrict information to the proper use for which it was provided arises most severely in the context of the compulsory provision of information. This means that effectively it is a question which arises in dealings between individuals and the state. It is reasonable that individuals be required to provide the necessary information to establish their eligibility for entitlements that the state offers, or their obligations to the state. The requirement here is parallel to that developed in the context of obligations to identify oneself. Provided information is necessary for the process of determining personal rights and obligations it may legitimately be demanded. Otherwise the information cannot reasonably be required, and the individual should have a general right to withhold information.

In the case of further use of information supplied to state agencies, particular care is needed. The general operating rule for voluntary transactions is that, provided there is adequate consent, the recipient may pass on the information for other uses. This is because, by voluntarily supplying the information without any requirement that it be kept confidential, the individual may be regarded as effectively waiving control of the information. However, this presumption cannot apply in the case of transactions with the state. Given that there is little choice other than to provide the information, and that the state is the only source of the entitlements that are sought, it is unreasonable to regard the information as freely offered. If the information is not freely offered then the right for it not to be used for purposes other than those for which it was provided cannot be assumed to be freely waived. This implies that the state is always obliged to protect the right that the information be kept secure.

- Sources of Information

Another aspect of a strict reading of a right to control information about oneself that has been touched on in this chapter, but not considered closely, is the source of information. Purists claim that only information supplied by the individual should be used in assessing any business of that individual. The basis for this claim is that only by this means could full control of information be achieved. However, a quick examination demonstrates that this is another area where a claim for total control is impractical. Unverified information offered by individuals can often be misleading and self-serving. The need to review such information and seek independent corroboration may arise in many contexts. Decisions on the eligibility of an individual for an insurance policy may depend on information supplied by doctors or assessors. A decision on a loan secured over real property may depend on information supplied by a valuer. Similarly, decisions on eligibility for income tested state support may require information from employers and bankers.

The more complex question is not whether such independent sources should be used, but what right the individual has to know they are used, and what obligation the independent source has to offer the information. Once again the appropriate answer depends on the context, in particular on whether the transaction in question is voluntary or compulsory.

To take the first question, the issue is whether individuals have a generalised right to know the information about themselves that others are considering when deliberating on the affairs of the individual. Though this is often cited as a "privacy" right, for example Canadian provisions permitting the inspection of one's own files are in their Privacy Act, it is primarily an issue to do with fair process. However, since it is an issue of information rights, and relates to information on the individual, it is discussed here.

It is commonly claimed that individuals are entitled to know information which is used in determining their receipt of various services. However, as a generalised right this is an impossible proposition. Individuals make decisions that affect one another all the time. A decision not to accept a dinner invitation need not be justified and the information used to make the decision does not need to be supplied. This principle extends as far as eligibility for loans. Applicants have no entitlement to receive a loan from a bank as of right, and therefore it is not clear why a bank should justify a refusal of a loan.

A generalised statement of the rights in this area would be of the form:

where there is an obligation to supply a given service to an individual if that individual is found to be eligible, then the individual is entitled to be assured that only appropriate information is used to determine eligibility.

As mentioned above, this is essentially a right of due process, as well as an administrative virtue, rather than a privacy issue. To assess whether this entitlement has been met, individuals need to have both access to the information that was used in assessing their eligibility, and also the ability to correct it.

The area of obligations and entitlements is the area of state agencies. The information used to determine the eligibility for benefits or liability for tax can reasonably be displayed to the individual concerned. Similarly, information involved in approving citizenship or issuing passports should be open to the individual. However, obligations are not solely found in the state. An example is the obligation that building societies may

have to offer loans to eligible members. If the loan is declined then a member would appear to be entitled to know the grounds for having that loan declined. Similarly, though an insurance company may decline to offer insurance to an individual without supplying the reasons why (because at that time there is no contract between the parties) its reasons for declining a claim should be provided given the contract that exists.

The second issue identified above in relation to the use of third parties as a source of information on individuals, is whether the third party should be obliged to provide information on individuals if it is sought. Though there are many different cases in which different factors will be of greater or lesser relevance, the general principles appear to be basically similar to those applying to the individual. Just as with information on oneself, everyone has a right to withhold information that is not the legitimate business of the person or organisation seeking the information. Where the holder of the information has an agreement with the provider that the information will be held secure, or where the information was given to the holder compulsorily, then the holder of the information is an agent of the provider, and the interest of the provider should only be overruled in a case as compelling as would oblige the provider to offer equivalent information. This means that, in the case of taxes or the assessment of eligibility for entitlements, just as it is reasonable for the state to require information on personal circumstances from the individual, so too it is reasonable to require similar information from employers, bankers, and other sources of income or informed individuals. The important qualification to that is, as outlined above, the individual is entitled to know that this information is being provided.

- **The Distinction Between Voluntary and Compulsory Disclosure**

Throughout this discussion of the concept of the legitimate acquisition of information, it has been clear that a voluntary exchange of information raises different issues to those that apply in a compulsory transaction. A voluntary exchange would seem to apply when two private organisations or individuals do business together, and a compulsory transaction involves the state's coercive powers. However, it is not always easy to see which transactions are voluntary or compulsory.

A possible grey area is the provision of utilities. Strictly speaking these would be regarded as a voluntary transaction, and the rules both for the security of information and rights to check files would seem to be matters for private negotiation. However, it could be claimed that the use of utilities such as water and electricity is essential to modern life, and since there is usually a local supply monopoly, for the purposes of information handling the transaction could be seen more in the nature of a compulsory transaction. For the purpose of this discussion that area can be set aside to be resolved in other debates, but the question of social welfare entitlements can not be set aside as it is central to any program of redistribution.

As with utilities, strictly speaking benefits are received as a matter of choice, and therefore it might be claimed that the assessment process is a voluntary process. However, this argument fails because of the inherent logic of state provided welfare. The provision of state assistance is an expression of a right to a basic living standard. In order to be eligible for the funds necessary to achieve that living standard, certain information is required. It is in the nature of the welfare system, especially income tested systems, that (in the implicit view of policy makers) to fall below the welfare level is to be unable to remain as a fully functioning participant in society. While it is not technically

compulsory to apply, in effect the only alternative is socially (and probably personally) unacceptable. The state agencies are the only source of adequate assistance. Since there is no viable alternative for those who need assistance, the process of applying for assistance, and providing the required information to prove eligibility, should be treated as a compulsory transaction.

This completes the discussion of the legitimate means of acquiring information for administrative purposes, and rights to withhold information. The other significant context is statistical or analytical uses of information.

- **Information for Analytical Purposes**

The first issue relates to the collection of information directly from individuals. In the case of administrative uses of information the proper approach revolved around whether the information was someone else's business, but collections for statistical purposes are a more complicated issue. Here individuals are put to the trouble and expense of co-operating in a loss of their own privacy for no direct return to themselves. The justification for requiring the supply of information in this context depends on the balance of convenience and meeting the tests of the control of the future use of the information. The balance of convenience argument simply establishes that there is no other practical way for the government to assemble statistics on national or sector performance. If the accumulated cost of compliance in providing information is less than the gains made from the assembly of the information, then there is the basis for a case to require compliance. This suggests that, so long as the information requirements are kept minimal and questionnaires are as simple as possible, information may be required for statistical purposes.

The next issue is the collection of information from other parties on the life and business of an individual for statistical use. This implies the passing on of information, which generally it was established should only occur for the purpose for which the information was collected. However, this control on the alternative uses of information relates solely to uses which directly affect the individual. That is, information which is supplied for statistical purposes ought not to be used for the assessment of eligibility for entitlements, but there is no good grounds to be concerned at the opposite use of information. There is no loss to the individual if information from building permit application forms is used to compile statistics on capital formation. Similarly, there is no loss to the individual if income tax figures are used to assemble data on private incomes. In fact, from the discussion on statistical surveys above, it would seem that the state has a responsibility to use information sources which impose as little extra information compliance cost on individuals as possible. This implies that there is a real virtue in using administrative information for statistical purposes wherever it is informative to do so.

Analytical uses of information do not necessarily involve the combination of data on individuals for statistical analysis. Alternatively the analysis might involve a researcher studying the handwriting or grammar used in a response to a questionnaire, which was conducted for an unrelated purpose. Whether this is a breach of privacy rights depends on the circumstances of the acquisition of the data, and the use to which it is put. If the initial researcher promised to show the answers to no other person, then that promise must be respected. However, if the undertaking was to guarantee the anonymity of the responses there seems no obstacle to its use in the second application so long as

anonymity is respected. The appropriate precautions to protect anonymity depend on the risk of identity being revealed. For example, in New Zealand it might be unwise for the handwriting researcher to use a copy of a distinctive style in any public context without explicit consent, as the chance of the writing being recognised can be uncomfortably high. In a larger society, with an innocuous piece of writing, the use may be reasonable.

One complaint about using entitlement information for statistical purposes, is that it is alleged to dehumanise the providers of information. This is a farcical claim. People are forever being counted. Passengers getting onto a ferry are counted to ensure that there is no overloading; far from stripping them of their humanity this counting process would seem to be an assertion of their value. When cinema managers count the number of patrons, or shopkeepers count the number of customers, this does not remove their humanity, it merely expresses that aspect of the relationship which was relevant in that transaction. Of course statistics fail to represent the full humanity of each individual. That is the function of statistics; they are designed to abstract from the detail of every day life in order to provide an overview. Given that no extra information is being sought from the individual, and that no judgements are being made about the individual on the basis of the information, there is no ground to object to its use for statistical purposes.

In essence the conclusion of this discussion is that there is no privacy issue in the collection or assembly of information for statistical or analytical uses. So long as personal information is kept securely, and not published in any form which could reveal the affairs of the individual to any reader, the considerations that should govern the collection of data are matters of convenience and cost, not privacy.

- The Right to Secrecy: Summary

This section on the right to secrecy has suggested many contexts in which it is appropriate for organisations to require the supply of information. However, these are listed as exceptions to a general approach. A general statement of the rights over information would state

all individuals must be free to withhold any information which is not appropriate to the context of the transaction in question, and

the individual is entitled to be assured that the information will only be used in that context.

Stripped of the detail of the nature of different pieces of information, and the legitimacy of its acquisition, this is the right to secrecy. When combined with the right to solitude and the right to anonymity as developed in the previous sub-sections, we have a fully developed right to privacy. This right allows us our own space and the chance to hide ourselves and our affairs, but not at the expense of depriving others of the information that they need to deal reasonably with us.

Having used a philosophical view of privacy to develop this statement of a privacy right, the next section looks at the operational implication of such a right in the light of the various administrative codes that have developed to handle privacy and information issues.

Privacy Rules and the Right to Privacy

Chapter Five reviewed the nature of privacy, and the scope of the moral value of privacy. Based on this analysis, the previous sections of this chapter have derived a statement of the right to privacy. This philosophical discussion has proceeded with only incidental reference to existing administrative or legal statements of privacy rights.

A quite separate tradition of thought has developed, with a particular vigour in recent years, to outline principles and rules of privacy. To a large extent this train of thought has been a reaction to technological innovation which has made information storage, sorting and transfer, very much easier. These innovations make it more difficult for an individual to be sure of keeping personal secrets from public knowledge, or more particularly from the knowledge of large public or private entities. A general concern about possible surveillance, inspired largely by the sentiments expressed in Orwell's *Nineteen Eighty-Four*, has encouraged an effort to define the boundaries of what is reasonable in information handling.

The influential literature in this area has largely been from official or quasi-official sources. There have been many government and parliamentary reviews in several countries, as well as some important work by international agencies. At a risk of making sweeping generalisations, these reports have tended to accept at the outset that personal privacy must be defended, and have set out to define principles that may achieve a reasonable balance of privacy rights and other needs. This has led to the adoption of various administrative rules, voluntary codes of conduct, and statutes, each of which have defined rights and mandated procedures.

The purpose of this section of the chapter is to draw the theoretical discussion more closely into a policy focus. The section will briefly identify the important principles that appear to inform the developing international consensus of official thought on privacy. These principles will then be compared with the statement of privacy rights as derived from the moral value of privacy. The purpose is a two way check. If there is any serious inconsistency between the two approaches then both need to be examined for error. If they are basically compatible, then the philosophical analysis has passed a simple common sense test. In this case the value of the philosophical analysis is to further validate the prevailing consensus, while permitting an improved understanding of why each principle matters, and therefore what the costs may be of the compromise of any principle.

Most of the official sourced literature in recent years has been on the issue of information handling, that is in the area of the right to secrecy as developed in the previous section. The debate on the proposed Australia Card has provided some discussion of the right to anonymity. This section of the chapter will also be largely devoted to these two areas. The discussion will, however, begin with a brief discussion of the right to solitude.

- The Right to Solitude

Though the right to solitude is not central to the policy thrust of this work, and it has not been the subject of a great deal of recent public discussion, these paragraphs are included both for completeness, and also because a simple discussion in this area establishes the importance of cultural values. The effect of different cultural values is also significant in the discussion of the other privacy rights. Recognition of cultural

difference can sometimes seem to undermine generalised philosophical propositions. However, it will be asserted that, in this area, they are an example of the frequently repeated point that privacy rights depend on their context.

Official policies on rights to solitude find their clearest expression in town planning ordinances, building codes, and housing assistance policies. All of these contain a common thread that standards must be maintained so that individuals may have an ability to withdraw from the company of others. In New Zealand, for example, dwellings must all have bedrooms, and those bedrooms must meet minimum size requirements. Similarly, one of the purposes of height restrictions, and prohibitions on building too close to boundaries, is to reduce the risk of being continually exposed to the stare of the neighbours.

However, though anthropological evidence suggests that every society values some forms of privacy and solitude (see Silber, 1971), the particular methods used to protect privacy may differ. The Housing Corporation of New Zealand has had to confront the fact that for many of their Polynesian clients a modest living area and several bedrooms, in separate family units on separate plots of land, does not meet their needs. For example, some iwi are taking advantage of special policies to build cluster housing on papakainga land around the marae, partly to permit a greater sharing of daily life. Similarly, extended families of Pacific Islanders commonly seek houses with extra communal living space, seeing this as more important than separate bedrooms for all individuals.

Respect for solitude may take different forms, such as the frequent admonition in some Polynesian societies to avoid direct eye contact. Similarly, most European and Asian societies accept considerably less personal space than is seen as necessary in Australia, North America, or New Zealand. Instead, those societies commonly have more formal mores which may discourage casual intrusion. The form of protecting solitude may differ, and the amount of personal space that is seen as necessary depends on the activity and the cultural expectations, but the general expression of rights to solitude in law and custom, tends to conform to the statement derived in the previous section, that we are entitled to have reasonable access to spaces where we will have some solitude.

- The Right to Anonymity

It could not be claimed that there is any international consensus on the extent of our rights to anonymity. In the section deriving the statements of rights, it was asserted that we have a right to be anonymous unless our identity is someone else's business. This was said to be no basis, in itself, for the issue of national identity cards; any such case would need to rest on an assertion that our whereabouts is the business of the state. It is then disconcerting to realise that practices around the world have developed in opposite directions. In many countries it is accepted that identity cards must be carried by all adults, to be produced on official demand. In others the notion of a national identity card is anathema, with vociferous political reaction whenever such an idea is suggested. How can such different approaches both be compatible with a general statement of a right to anonymity?

It could be that one approach is simply wrong. Maybe the demand for identity cards is an amoral approach and an attack on basic liberties. This is consistent with the use of identity cards in such societies as South Africa. However, for many other countries

where identity cards are an accepted part of the landscape, it could not be claimed that liberty is absent. It seems we need to look harder to bridge the gap between the philosophical generalisation and practice.

As with variations in the form of rights to solitude, maybe the stark difference in practice over anonymity reflects different cultures, and historical backgrounds. It is beyond the scope of this paper to undertake a comparative anthropology of the various countries of the world. Instead, one example will be selected to see if there are different cultural understandings of the state which could account for the different approach to identity cards. If the case can be supported in one comparison it is not proved in general, but it is established as a possible approach. The example to be used in this discussion follows the approach by Spiro (1971), and relates to the differences between mainland Europe on the one hand, and Britain and the British colonised countries of North America and Australasia.

A critical difference between the countries of Europe and the Anglo-Saxon countries is the legal tradition. Europe has tended to use codes of civil law, derived partly from Roman practice and characterised by inquisitorial magistrates. The countries in the British tradition have followed the common law, developed from judicial precedent and relying on oral debate in open court, before judge and jury. An important step in the development of these different traditions was the effective abolition of trial by ordeal by Pope Innocent in the twelfth century. This left the civil authorities in need of an alternative method of trying cases.

In Europe the systems were largely based on the, then recently established, ecclesiastical courts. Since these were being run by the church, which was then the strongest centre of scholarship, they were characterised by various techniques of intellectual enquiry, not least the taking of written evidence. The judge was charged with investigating anything that could be found in relation to the case; the evidence would then be sifted from the written record and a conclusion arrived at. It is in the nature of written evidence that large amounts can be collected and assessed. Armed with this tool the judges developed the practice of collecting as much information as they could, and it was in the context of as wide a knowledge as possible of the people concerned that they would arrive at their judgements.

England had an alternative model, which had been adopted shortly before for the compilation of the *Doomsday Book*. That document was a statement of individual rights and obligations which were recorded by small teams of assessors that William I sent around the country. These assessors did not work alone; instead they adapted a Saxon practice, and drew on the local knowledge and judgement of groups of worthies who were gathered together for the purpose. When a system of trials was needed this same model was adopted, local juries under the control of a judge. Unlike the European system these juries, and sometimes the presiding judge, were illiterate. It was critical therefore that evidence be heard orally. For the local knowledge of laity to be useful the trial had to consist of the hearing of alternative views, stated before the jury. Given the limits on ability to absorb oral detail, it became necessary for the evidence to be limited solely to those facts strictly related to the matter in hand.

The difference between gathering all the available information on people involved in a case, or hearing only those facts related to a given issue, provides a critical cultural backdrop to very different understandings of the role of the state. Where it is understood that the state has a right to know any information to resolve an issue, it is easy to

develop a view of the state as being responsible for ordering society, and the individual as accountable to the state for meeting social responsibilities. Where the state can only investigate specific issues, it is easier to characterise the state as serving the public, and using its powers to develop a society in which people can pursue their own aspirations. Broadly speaking everything might be said to be the "business" of the state when it is responsible for ordering society, but only specific information in particular contexts is appropriate for the state in a more individualistic approach.

This discussion suggests that whether or not the use of a national identity card is a breach of our right to anonymity, depends on our view of the role of the state. Where there is a tradition that the state is entitled to know the information it needs to maintain a well regulated society, it is clear that the issue and use of national identifiers does not breach the right to anonymity.

This approach might seem to gut the right of any force at all. However, the virtue of the approach is that it pushes the debate away from vague appeals to privacy, towards a debate on the role of the state. In the long term this is the ground on which the issue of identifiers must be resolved. Given that New Zealand has a common law tradition, it seems that we must start with a presumption against general purpose identity cards.

A quick review of some overseas debates in common law countries can help to clarify this assertion. In Australia the furor over the proposed Australia Card was often expressed in terms of the role of the state. The Joint Select Committee considering the idea concluded that the use of the card would effectively introduce "an additional element which is essential for their [adults'] legal personality." (Joint Select Committee, 1986, page 112). In a minority addendum to the same report Senator Puplick states "we will now have to prove that we are "entitled to operate" " (Joint Select Committee, 1986, page 157).

A dominant figure in the debate, Mr Justice Kirby, said:

"What is at stake is nothing less than the power and authority of the state in relation to the individual ... Until now, the state and its agencies cannot intervene in our lives without a lawful and reasonable excuse so to do. The danger of the new surveillance is that this will change." (Kirby, 1985, page 8.)

Another recent example, is the use of the Canadian Social Insurance Number (SIN). From an identifier that was initially introduced to keep track of cumulative social insurance entitlements, the number has been used in several areas including tax, employee records and by credit agencies. Following increasing public concern, largely expressed by the Canadian Privacy Commissioner, the Government has moved to limit Federal use of the number to those issues directly associated with tax and redistribution (Treasury Board of Canada, 1989). This outcome seems very consistent with the discussion under the derivation of the right to anonymity. There is a set of activities where it is important for the Canadian Government to deal with identified individuals, and where it is important to treat the same person consistently in different related activities; for those activities it is reasonable to require the use of a consistent identifier, but for other activities it is not.

In another society, outside the common law tradition, it is apparent that both the Australian and Canadian cases could have turned out very differently. The right to anonymity still exists, but the line is drawn differently depending on the cultural context within which the right is asserted.

- The Right to Secrecy

Two of the early official writings on the rights of the individual in relation to data and record keeping were by the US Department of Health, Education and Welfare, in 1973, and the Younger Committee on Privacy in the UK in 1972. Others have included the United Kingdom (Lindop) Report on Data Protection (1978), the US Privacy Protection Study Commission (1977), the New South Wales Privacy Committee Guidelines (1977) and Information Privacy Principles (1986), the Australian Law Reform Committee Report on Privacy (1983), and the New Zealand Information Authority report on personal information issues (1985). In several of those administrations, plus various others in Europe and Canada, privacy legislation has been enacted. In the international area there is a convention of the Council of Europe (1980), and Guidelines from the Organisation for Economic Co-operation and Development (1980).

This range of sources, which itself represents only a selection of the more significant documents, contain a wide number of privacy principles. Some list several different principles, and others are more economical. It is not intended here to attempt any comprehensive review of these documents. An analysis of the various principles is included as an appendix by McBride (1987). For our purposes we may focus on one set, the OECD Guidelines, governing the Protection of Privacy and Transborder Flows of Personal Data (1980). This source is selected because it is very influential. Most authors cite these guidelines as the criteria against which to assess other proposals. Some other proposals identify more separate principles, but these can generally be seen as expansions of issues included in the OECD list, rather than completely different ideas.

The relevant principles as identified in the OECD guidelines are:

Collection Limitation - "There should be limits to the collection of personal data and any such data should be collected by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject."

Data Quality - "Personal data should be relevant to the purposes for which they are used, and, to the extent necessary for those purposes, should be accurate, complete and kept up-to-date."

Purpose Specification Principle - "The purposes for which personal data are collected should be specified not later than at the time of data collection and the subsequent use limited to the fulfilment of those purposes or such others as are not incompatible with those purposes and as are specified on each occasion of change of purpose."

Use Limitation Principle - "Personal data should not be disclosed, made available or otherwise used for purposes other than those specified in accordance with [the purpose specification principle] except:

- (a) with the consent of the data subject; or
- (b) by the authority of law."

Security Safeguards - "Personal data should be protected by reasonable security safeguards against such risks as loss or unauthorised access, destruction, use, modification or disclosure of data."

Openness - "There should be a general policy of openness about developments, practices, and policies with respect to personal data. Means should be readily available of establishing the existence and nature of personal data, and the main purposes of their use, as well as the identity and usual residence of the data controller."

Individual Participation - "An individual should have the right:

- (a) to obtain from a data controller, or otherwise, confirmation of whether or not the data controller has data relating to him;
- (b) to have communicated to him, data relating to him
 - (i) within a reasonable time;
 - (ii) at a charge, if any, that is not excessive;
 - (iii) in a reasonable manner; and
 - (iv) in a form that is readily intelligent to him;
- (c) to be given reasons if a request made under sub-paragraphs (a) and (b) is denied, and to be able to challenge such denial; and
- (d) to challenge data relating to him and, if the challenge is successful, to have the data erased, rectified, completed or amended."

In attempting to compare these principles with the statement of the right to secrecy, as derived in the previous section, there is an obvious inconsistency. The OECD guidelines identify seven principles, where we have found a derivation for only two rights. Those rights were a right to withhold information that is not the legitimate business of the requester, and a right to require that information is only used for the purpose for which it is supplied. However, on a closer examination of the list of principles, it is clear that there is no basic disagreement between the two approaches.

The seven principles need not be read as seven distinct points of equivalent status; instead they are more comprehensible when the basic rights they guard are identified, and the other principles then clarified as instrumental rights, established to give effect to the basic privacy (secrecy) right. As part of the data quality principle it is established that data must be relevant to their purpose and, when read alongside the collection limitation principle, this establishes the equivalent of the first right. The use limitation principle is equivalent to the second right.

However, to simply assert the two basic rights without addressing the means of asserting or defending those rights is of little use. The purpose specification principle is essential to allow the individual to judge the appropriateness of the exchange, and the relevance of the requested data. The security safeguards principle is necessary to give some strength and effect to the use limitation principle. The openness and individual participation principles are particularly important. They are sometimes identified as the most important principles; for example Mr Justice Kirby, who chaired the OECD committee that produced the guidelines has referred to access principles as the golden rule of privacy. Clearly he is correct, in the sense that it is only by an openness of process and access to personal records that individuals may have true assurance that information is not being abused. However, the right to check records, is not in itself a privacy right (and certainly not a secrecy right), rather it is a critically important right to permit the protection of privacy rights.

One area within the OECD guidelines cannot be derived from the rights to secrecy; this is the requirement that information be accurate, complete and up-to-date. Strictly speaking the possession by another of inaccurate information on an individual is not a breach of privacy. On the contrary, it is consistent with the protection of secrecy for wrong information to be used. It can be that the publication of false information can cause unwarranted opprobrium, but this represents a breach of anonymity rights, not secrecy; it requires the publication of true information to breach the right to secrecy. However, this approach is a little pedantic. While it is correct secrecy is not threatened by the use of incorrect information, the principle that information should be correct is logically consistent with the requirement that only information that is the legitimate business of the inquirer may be required to be supplied. Clearly false information is no business of the inquirer.

The importance of accuracy is also related to the separate issue that was identified in the derivation of rights; that is, when entitlement is being assessed the applicant has a right to have only accurate and relevant information considered. This requirement for accuracy is really a data management and good record keeping issue. It is closely related to privacy (and as shown above not inconsistent with privacy rights), and the openness and access principle relates as much to this issue as it does to the prevention of the misuse of accurate information. It causes little operational difficulty to run them together, but, strictly speaking, it remains true that an accuracy principle cannot be derived from a statement of privacy rights.

A similar process could be completed for most of the other official statements of rights to information protection. In effect these statements represent a restatement of the basic secrecy right, plus an outline of the additional operational rights that are necessary to make the secrecy rights meaningful. This suggests that the philosophical approach has arrived at a generally consistent conclusion to that which has been arrived at by those seeking to arrive at fair operating rules for information management. It also clarifies which principles are a statement of the basic privacy rights, and which are the instrumental rights, designed to permit the effective operation of the privacy right.

Conclusion

A right to privacy is necessary in order that the moral value of privacy may be captured. However, it is not an absolute right because its significance and form depends on the context of the activity or transaction in question. The privacy right takes three aspects:

The right to solitude, by which everyone is entitled to reasonable access to space in which they may withdraw;

The right to anonymity, which allows people to withhold their identity, unless it is the legitimate business of another; and

The right to secrecy, which permits everyone to withhold information on themselves, unless it is the legitimate business of another, and to be assured that information is only used for the purpose for which it was given.

When these rights are compared with the prevailing consensus of official thought it is clear that they are broadly consistent. This provides some philosophical confirmation of existing practice, as well as a common sense check on a theoretical exercise.

An important implication of this statement of the right to privacy is that in any given context the authority of the state to require information about people depends on whether that information is the business of the state. That depends on an understanding of the role of the state in any given activity, which itself is a matter to be determined by reference to an ideology of the state. This link between rights to withhold information from the state and the ideology of the state is not commonly drawn in the literature. The following chapter presents a re-examination of the literature to determine whether this conclusion is consistent with conclusions about privacy rights that others have drawn.

CHAPTER SEVEN: THE BOUNDARIES OF THE ROLE OF THE STATE

Introduction

In Chapter Six it was established that people have a right to privacy. In the aspects of privacy that are of particular concern to redistribution, that is anonymity and secrecy, the central issue in determining the extent of a person's right to privacy is the nature and extent of the other person's "business". The assertion is that the critical issue in determining whether the state ought to be able to collect and use particular sorts of information for redistribution purposes is the extent to which the state is seen to have a vital role in redistribution of various forms.

Since much of the debate about privacy issues tends to revolve around the application and observation of privacy principles, this claim that the basic issue is the role of the state is unusual. In this chapter the validity of this assertion will be tested by examining a selection of the type of arguments that have been used in privacy debates. Clearly it is not possible to provide an exhaustive analysis of privacy debates, but it is possible to give a reasonable discussion of the important approaches. The aim of this analysis is to demonstrate that in many contexts the main reason for objections to the use of information is, in fact, a debate about the appropriate role for the state. In addition, it is argued that those who base their objections to information use solely on the internationally accepted privacy principles generally find that they have little grounds to object to the collection of information, but rather to the way in which it is used. This suggests that, when used in isolation, the principles do not give a complete guide to how the state should use information about people. The full story can only be assembled from a combination of the standard privacy principles and an ideological view about the role of the state.

The discussion of different privacy arguments is assembled into two sections. The first could be characterised as the view that the state cannot be trusted to observe privacy principles. This can arise either from observed or suspected flaws in specific proposals, or from a concern that even well-intentioned information schemes may be undermined by future evil governments. It will be demonstrated that these arguments in isolation are insufficient to deny the government the right to collect information. The second type of objection is that a particular set of information should not be given to the state because it is being collected for a purpose which the state should not pursue. The state may be regarded as too powerful, too intrusive, too controlling or too all-pervading. That is, these arguments assert that the information is being collected for a purpose which is beyond the true role of the state; they are therefore arguments about the ideology of what the state ought and ought not to take on.

The Threat to Privacy Principles

The argument that is very commonly produced when proposals are put forward for new collections or uses of information, is that such information uses will breach privacy principles either because proper rules may not be in place or they may not be followed. Much of the literature on privacy, which Rule (1973) characterises as the "official" stream of thinking, has concentrated on the development and application of privacy principles. The first and most influential writer in this stream is Westin (1967), but many others show a similar approach. See, for example, Younger (1972), Lindop (1978), Privacy Protection Study Commission (1967), OECD (1980) and, in New Zealand,

Information Authority (1988), McBride (1984 & 1987), and Bloemendal (1989). Some of the literature in this stream, including Marshall (1986), has explicitly accepted that the question of whether to collect information is assumed as being already made and therefore the only appropriate focus is on the means of handling information. However, most do not discuss the question of whether information should be collected beyond the general notion that collection should be "limited" (OECD, 1980) or "necessary" (Information Authority, 1988).

This type of argument is often constructed around "horror stories". There have been lamentable examples in which regimes with otherwise reasonably respectable human rights credentials have severely abused the information interests of their clients or subjects.

One case which is cited in many papers (see, for example, Flaherty 1989, Simitis 1987, and the Office of Technology Assessment 1988), is a match conducted by the State of Massachusetts in the late 1970s. The welfare rolls were matched against local banking records to see which individuals had cash holdings in excess of allowable limits. Many individuals were then automatically struck off the welfare roll because of apparent breaches of the welfare rules. However, after an outcry from many of those who were struck off, and presumably after many of them suffered some distressing financial embarrassment, it was realised that virtually everybody whose benefits were suspended was in fact entitled to the benefits. Most of the apparent matches turned out to be either mistaken identity or related to forms of cash holding (such as a term deposit to meet funeral expenses) which the beneficiaries were entitled to. This case and others like it are often used as evidence that the bureaucratic imperatives of efficiency and speed, and the pressure to achieve redistributive goals, place unacceptable pressure on the observance of privacy principles.

Arguments about the risk that government information use may breach privacy principles are here presented in three areas. The first is the risk posed by poorly administered matching programmes. The second is other forms of administrative carelessness, and the third relates to the risk of deliberate misuse of information by an anti-democratic government.

- Matching

The Massachusetts example and various other similar bureaucratic excesses are frequently used (for example see Flaherty 1989, New Zealand Law Society 1989, and Bloemendal 1989) to support a claim that computer matching is an unjustifiably dangerous procedure. The particular arguments against matching that are generally put forward are:

- a data matches commonly breach the use limitation principle because the data is used for a purpose other than that for which it was collected;
- b data matches are notoriously inaccurate because data collected for unlike purposes can contain many anomalies;
- c data matching is a form of "warrantless search and seizure" in the nature of a fishing expedition; and
- d computer matching reverses the onus of proof so that guilt is assumed where a match is found.

However, except possibly for point (c) above, these failings are not necessarily features of computer matches. All of these concerns have proved to be manageable once privacy principles have been carefully observed. For example, in the United States and in Canada, which between them currently account for the vast majority of electronic data matching, rules have recently been introduced to address those concerns. So long as matching is restricted to reasonably closely associated forms of information and only to cases where the purpose of the information collection has been clearly specified, the first two objections can be readily solved.

The last objection is an administrative matter in the way in which apparent "hits" are handled. It is now generally accepted that it is not reasonable to stop benefits simply because of an apparent match thrown up by a computerised process. Instead, it is usual to ask the beneficiary to account for the anomaly. It should also be remembered that an administrative investigation of benefit eligibility is not a criminal investigation. It is not clear why an assumption of innocence before guilt is proven for criminal law purposes should be extended into an assumption of eligibility for benefits for all applicants until ineligibility is proven.

The argument about fishing expeditions would seem to be the most serious concern. However, the comparison to search and seizure seems to be rather overstated. An examination of records held by a government bureau would seem to be of a qualitatively very different nature to entry and search of private premises or the search of a person. It is true that a computer matching exercise is not part of the investigation of a particular offence, but is rather a process designed to discover whether an offence has been committed. However, one might more justly compare this to the general public surveillance carried out by police on the beat rather than search and seizure. Another more appropriate comparison is auditing. Auditing is a generally accepted practice, involving searches of records, and matches against authorisations, which is largely designed to discover whether frauds have been committed. Auditing may well involve examining personal information, perhaps to check whether a local bank manager has exceeded delegated authorities or guidelines. There is no general expectation that such audits should only be carried out once an offence has been discovered, and it seems sensible to use them to uncover and discourage abuse.

So long as the information being matched is within the bounds that a provider of the information could have reasonably understood as a use of that information (and especially where the match was an understood use for which the information was collected), computer matching may be seen as wise husbandry rather than a fishing expedition. The point of this discussion of matching is that although matching is generally seen as the most threatening technology currently in use, so long as the information has been collected reasonably and the administration of the match is carried out with due process, a reference to privacy principles does not seem to be sufficient to provide grounds for regarding matching as outrageous. Matching issues are revisited in the context of New Zealand's redistribution policies, in Chapter Eight.

- Careless Administration of Data

Whether or not matching is involved, concerns are frequently expressed about the possible misuse of data in various government collections. Simitis, the world's longest serving privacy commissioner and a very well respected commentator on privacy issues,

has observed that "every step towards routinised processing accentuates the danger of misrepresentation and false conclusions. The more complex the case, the greater the danger of an improper result" (Simitis, 1987, page 718).

The basic message is that the need for decisions to be based on information leads to bureaucracies demanding information. However, the fact that information can only ever be partial and that processing is imperfect means that the consequences of data collection can often be quite different to the initial purpose for which the information was gathered.

In an important review of the law on privacy issues in America, Shattuck (1977) has collected together several cases which illustrate different privacy issues. On the likelihood of the careless collection of data, and the risk of its future misinterpretation, he cites the case of *Greg v Lytton*. The plaintiff in this case had fallen asleep on a park bench while waiting to meet a friend, and was detained for vagrancy. He was never formally arrested or charged, but the record of his detention was entered in the FBI records. As an intending lawyer such a record could have serious consequences and the plaintiff sought to have the record corrected. The evidence in the case demonstrated an appalling story of different organisations all disowning responsibility for the record and declining to make any correction. This administrative irresponsibility would seem to be an example of the remote and routinised bureaucracy that Simitis feared.

An even more worrying case, also cited by Shattuck, was *Bishop v Wood*. The evidence in that case showed a similar story of bureaucratic carelessness, but the alarming factor was that the judge was not necessarily prepared to correct it.

"We must accept the harsh fact that numerous individual mistakes are inevitable in the day-to-day administration of our affairs. The United States constitution cannot feasibly be construed to acquire federal judicial review for every such error." (Mr Justice Stevens, quoted in Shattuck, 1977, page 166.)

Simitis' basic thesis appears to be correct. Clearly bureaucracy can lead to carelessness and error, and the possibility of judicial review is not necessarily sufficient to protect individuals. However, that does not prove the case that the collection of information by government agencies will necessarily be characterised by incompetence and misuse of data. A careful application of information principles, backed up by adequate institutional processes (including, for example, independent agencies involved in monitoring the compliance with privacy rights) can ensure that reasonable information handling processes are maintained. The exemplary record of the New Zealand Inland Revenue Department, for example, demonstrates that even without these protections it is possible for bureaucratic processes to be very successful in ensuring that information is only used for the purpose for which it was collected.

The lesson to be drawn from these examples of careless misuse of data, and the contrasts that may be found in well ordered institutions, is that privacy principles can be observed so long as they are seen to be important and so long as sufficient attention is paid to them. If they are accepted simply as a sop, and are only paid lip service, then Simitis is correct and the privacy rights of individuals can easily be threatened. If, however, there are appropriate systems, clear accountability and adequate monitoring, there would seem to be no reason why privacy rights cannot be protected, so long as

the information that is being collected is the business of the state. That is, it would seem to be possible to ensure that the privacy principles are met by the adoption of appropriate institutional means, and the remaining question would be whether the state should have collected that information at all.

Though there is a significant volume of writing on information systems, there are fewer works focusing on identification and identity cards. Eaton (1986) has made an important contribution in this field. He points out that most Americans (as with many New Zealanders) already carry various forms of identification. However, he also points out that most of this identification is unreliable, because it is easy to forge or to gain improperly. He suggests that this leads to major problems of fraud in welfare systems, illegal work by immigrants, tax evasion, and fraudulent applications for credit. He suggested that a tamper proof identity card, with biometric identifiers, would be more effective than any other means to solve the problem. He acknowledges the likely political reaction against the idea, and suggests that initially it should be voluntary. He predicts that most people would find the card very attractive, and soon it would be in such widespread automatic use that it would quickly become a national identity system. Though the card might initially be introduced as an option, the costs of not choosing it could be high; its introduction would supposedly offer a new choice, but in effect it might remove the old cardless option.

The interesting gap in Eaton's work is any discussion of why it should be the role of the state to provide a verified identity system for multiple uses. If, as much of his work implies, it is an issue of transaction costs and the reduction in risk, it would seem possible for private agencies to meet a commercial need by supplying verified identity cards. To a certain extent the banks could be regarded as doing this already with credit cards and cheque cards. His discussion assumes that the identity of others can be reasonably required in many contexts, and ignores the right to anonymity as outlined here. Since the right to anonymity is ignored, it is not surprising that Eaton is able to persuade himself that the issue of cards is reasonable, and that rights of individuals can be adequately protected by introducing some procedural controls. As with the issue of information use, issues of identification cannot be fully addressed without considering the role of the state.

- The Risk of Evil Government

Another version of the hypothesis that one cannot trust the state to observe privacy principles is that, although existing systems and purposes may be trustworthy, we must guard against the possible risks posed by future authoritarian governments. Systems which may be developed for honest reasons in order to dispense justice among citizens, may later be perverted for corrupt purposes by a totalitarian regime.

The classic historical example is the identification card system in use in the Netherlands before the Second World War. It is commonly claimed that the success of the Nazis in murdering 90 percent of all Dutch Jews was largely a result of the efficiency of the Dutch Identification Register and the difficulty of forging Dutch identity papers. In France, where the register was not as efficient and where ID cards were more easily forged, 60 percent of Jews survived the holocaust. Flaherty reports that this historical experience has led some to argue that information systems must be made sufficiently fallible as to be of limited use to evil governments.

"*Terminal* [a French computing periodical] argued for the inalienable right of the subject to falsify papers in the face of police powers, recalling how this process enabled many French Jews to save their lives during the Nazi occupation" (Flaherty, 1989, page 227).

The only complete protection against future threats from possible future misuse of personal information systems is to forego the gains that systemised information processing may offer in order to avoid the possibility of future misuse of the information. Rule, an important figure in privacy debates whose views will be discussed more fully later, argues that there is a parallel between the state abandoning selective assistance policies, and so restricting its own need (and ability) to collect information, and various other controls which the state has in place (Rule, 1973, page 351). In particular he identifies controls on the use of guns, drugs and arrest powers as examples of existing constraints on the state, aimed at avoiding future abuse.

On closer examination these parallels do not appear to be very convincing. Controls on guns and drugs are not in fact controls on the state, but are controls on subjects. In addition, the social threat from guns and drugs is immediate, and does not depend on future collapse of democracy. The parallel with arrest would seem to be closer, but it appears that constraints on the powers of arrest are an example of how systems can be put in place to reduce non-democratic behaviour by the government without suspending a whole area of government activity. Controls on police powers of arrest seem to be remarkably similar to the use of privacy principles to control government agencies' powers to collect and process information. So long as the government remains reasonably honest, and so long as there is some independent process of review such as the judiciary, these controls are generally successful in protecting basic rights. A future government with little interest in the protection of privacy principles would presumably find it as easy to ignore controls on arrest, as fascist and Communist governments have done in the last sixty years.

In order to explore the logic of Rule's approach, we may consider the proposition that if we truly wished to restrict the power of future governments we should presumably not simply control arrest, but abolish the police. This would seem to be the step which more closely parallels the idea of declining to operate effective state redistribution because this involves the collection or processing of data. Once we contemplate the thought of minimising government activity in order to reduce the power of possible future governments, many other examples come to mind. A particularly important example would seem to be the abolition of compulsory education, as the control of the curriculum is a very important means by which a totalitarian regime may seek to entrench itself.

Once we contemplate this scorched earth approach, in which we dismantle schools, the police, the army and all state redistribution policies in order to avoid possible future abuse of government power, we quickly discover that the strategy is poor. The same institutions which could pose a threat if controlled by a malevolent government are central to the defence of democracy. It has always been true that the democratic process requires some internal controls and social constraints. These are necessary to protect the operation of democracy in a world which is not exclusively populated with angels. The test of whether these institutions are being operated in a way consistent with democracy is whether due process is being observed. That is, in the context of information gathering, are the privacy principles being followed? We cannot guarantee that there will be no future dictatorships. The best approach, therefore, is to define and protect rights on an on-going basis.

It seems that if privacy issues are defined as a question of ensuring that the state obeys adequate procedural rules, the application of privacy principles can address the problems. However, for those who seek to ensure that the state keeps out of areas that do not concern it, this approach is too mechanistic, and avoids any coherent discussion of the question of what information may be collected.

It is apparent from the examples outlined above that misuse of data and breaches of privacy principles pose real threats to privacy rights. However, the appropriate response is a matter of information management. Given appropriate management, and monitoring, the principles can be protected. This implies that the principles are effectively silent on the question of whether the state ought to be allowed to collect a given type of information. This is because, though the observance of privacy principles is a necessary part of adequate privacy rights, it is not sufficient. The central issue remains to define what areas are and are not the Government's business and are, therefore, issues on which information may or may not be collected.

The Extent of the State's Business

The extent to which redistribution (or whichever other activity is in question) is the role of the state, is at the heart of any discussion of privacy rights. Unless this issue is resolved, the question of whether a given piece of information is the legitimate business of the state must be left hanging. However, this issue is only rarely acknowledged in discussion of privacy issues. Most publications on any given issue of information collection by the state tend to focus on privacy principles, and only a few address the more fundamental question of whether the information ought to be acquired by the state at all. Rule has found a wonderful early example from someone who was prepared to express an opinion on this basis. The Parliamentary Debates for 1753 record that during the debate on an early census proposal, being the Bill for Registering the Number of the People, Mr William Thornton rose to say:

"Sir; I was never more astonished and alarmed since I had the honour to sit in this House, than I have been this day: for I did not believe there had been any set of men, or indeed, any individual of the human species so presumptuous and so abandoned, as to make a proposal which we have just heard ...

"To what end ... should our number be known, except we are to be pressed into the fleet and the army, or transplanted like felons to the plantations abroad? And what purpose will it answer to know where the kingdom is crowded, and where it is thin, except we are to be driven from place to place as graziers do their cattle? If this be intended, let them brand us at once! But while they treat us like oxen and sheep let them not insult us with the name of men.

"As to myself, I hold this project to be totally subversive of the last remains of English liberty ..." (quoted in Rule, 1973, page 12).

It would appear that Mr Thornton's objection was not so much to the collection of information and the invasion of privacy as such, but rather a questioning of the role of the state that this information collection seemed to imply. Presumably Mr Thornton preferred a less interventionist world.

This review of examples where the role of the state has entered into consideration of the rightness of collecting information begins with some judicial determinations which give an idea of some of the contexts that are involved. Following that there is a close look at

the few authors who have given direct attention to these issues, first those opposed to the state collecting detailed personal information for social purposes including redistribution, and then those who are not opposed.

- Case Law and Other Examples

It is possible to identify some judicial and political examples where privacy decisions have been made with explicit or implicit reference to the role of the state. The collection of American cases that have been assembled by Shattuck (1977) contains some which revolve around the issue of whether or not a given set of information is the valid concern of the state.

In *Merriken v Cressman* the issue was whether a questionnaire was an invasion of privacy. The questionnaire had been administered on high school pupils with a view to discovering which of them was relatively likely to abuse drugs. It inquired into many personal details of home life. After the court had considered the issues the drug control programme was "struck down because there was no compelling state interest to justify the intrusion into family life resulting from the school questionnaire" (Shattuck, 1977, page 177).

However, in the case of *Kochmann v Kermsburg Board of Education* an even more intrusive form of information gathering was permitted. Teachers were required by state statute to submit to physical and psychological examination whenever the board judged that a "deviation required it". The results of the examination would determine the continued employment of the teacher. Shattuck reports that the court "agreed with the teacher that the statute impinged on the constitutionally protected autonomy interest, but held that the state interest in protecting the educational process was even greater." (Shattuck, 1977, page 178.)

A more directly relevant example is the case of *Wyman v James* which was cited at the beginning of Chapter Five. New York state law requires that recipients of AFDC (sole parent) benefit be visited by a social worker. When a beneficiary declined to be visited her benefit was cut. She sued on the basis that the statute required an unreasonable search which was a breach of the 4th amendment. The US Supreme Court majority found that there was no breach of the 4th amendment as the state's role justified the collection of information.

"The agency, with tax funds provided from federal as well as state sources, is fulfilling a public trust. The state ... has appropriate and paramount interest and concern in seeing and assuring that the intended and proper objectives of that tax produced assistance are the ones who benefit from the aid it dispenses." (Mr Justice Brennan delivering the majority judgement, quoted in Shattuck, 1977, page 33.)

In assessing the impact of this stream of decisions, Shattuck regards these activities of the state as inevitable and therefore that information collection and intrusion is bound to occur.

"The widespread collection and use of personal information is, of course, an inevitable feature of our society. The social services we regard as essential - medical, legal, social-welfare, educational, credit, insurance - can only be performed when there is full and honest disclosure by the persons served to those performing the service. (Shattuck, 1977, page 185.)

However, having identified that the role of the state is an essential issue Shattuck, and other authors like him, simply accept the role of the state as revealed at any given time. This passes over the basic issue of whether the state should be carrying out such a role, and whether the collection of information is worthwhile. Resolving this question involves a balancing of the social goals that may be achieved through the programme in question, and the individual losses of autonomy and privacy that the collection of information can lead to. Any such questions can only be determined by a value judgement. Decisions as to the appropriate role for the state are fundamentally an ideological question. The link from judgements on how to protect privacy and views on which activity the state should undertake, can be seen in another example Shattuck has found, this time in a political rather than judicial context. There was a ballot in California in 1974 on whether privacy should be added to the list of inalienable rights identified in the constitution. On the ballot paper those proposing and those disagreeing with the amendment were entitled to express their views. Those proposing the amendment said:

"Some information may remain as designated public records, but only when the availability of such information is clearly in the public interest" (Shattuck, 1977, page 186).

Those against the amendment said:

"Our government is helping many people who really need and deserve the help. Making privacy an inalienable right could bring chaos to all government benefit programmes thus depriving all of us, including those who need the help most." (Shattuck, 1977, page 197.)

Clearly the essential difference between the two parties revolved not so much on whether privacy mattered or whether certain rules should be respected, but on whether the state should be presumed to be involved in a given area and therefore whether information ought to be collected on that matter. Even those who claimed privacy was an inalienable right acknowledged that public interest would over-ride this from time to time and information would be collected and retained. Clearly the boundary of the right to privacy depends on where the public interest (or the role of the state) begins and ends.

- A Minimal View of the State

Though it is possible to find examples where privacy issues appear to have been debated and resolved by reference to the question of whether the state had a legitimate interest in a given area, there is very little analytical writing in these terms. There has been a recent spate of books, the collection seems to have boomed in the years since 1984, which rail against the tyranny of the state and the intrusive behaviour of state agencies. Among these we might include, for example, Campbell and Connor (1986) and Hilliard and Percy-Smith (1988). However, it is often difficult to discern a theoretical or philosophical underpinning for these works, and they appear more as political tracts than analytical works. The most important theoretical authors are Rule and his colleagues and, to a lesser degree, Mowshowitz. It is worth examining the work of these authors in some depth in order to get a clear insight on the issues.

To James Rule the central issue is the social control which is exercised by state institutions. These organisations collect information for entirely worthy purposes, commonly in order to provide assistance to members of society. In order that this assistance may be dispensed with justice, it becomes necessary to collect sufficient

information about the circumstances of different individuals so that assistance may be appropriately tailored to their relative needs. This wish to ensure that the assistance matches the circumstances of the individual has been characterised by Rule as "fine-grained decision-making". The continued pressure to require the state to make fine-grained decisions is seen by Rule as the central reason why there is increased information gathering. He has developed a theory of a series of factors which are associated with substantial collection of information. He identifies the following factors (Rule, 1973, page 29):

- a large and anonymous clientele;
- rules that are potentially burdensome to the client;
- enforcement of decisions on a client by client basis;
- decisions based on precise details of each person's situation;
- decisions based on a full history so that people cannot evade the consequences of their past behaviour.

Rule says that when these factors are present it is inevitable that there will be massive information collection, and therefore public surveillance of the population. Rule sees this surveillance as being pernicious and allowing far too much social control for the state. To Rule the threat is obvious, as is the solution which is to have fewer activities which require a great deal of information to be given to the state. He regards it as odd that few other privacy commentators arrive at a similar conclusion.

"Given the frequently frightening prophecies put forward by writers on mass surveillance, one might expect their pronouncements to end with demands for wholesale curtailment of such practices. Such expectations are not fulfilled... to my knowledge no one has seriously opposed the *principle* of using personal data in discriminating decision-making processes..." (Rule 1973, page 346.)

Instead, Rule points out that most commentators have advocated what he calls "reforms of record keeping" which in the terminology of this thesis would be the observation of privacy principles. Rule asserts that the reluctance of privacy commentators to call for the abandonment of these programmes occurs because most of them are "liberal intellectuals" who like social insurance and similar programmes and so accept the need for fine-grained decision-making.

Rule further acknowledges that the support for these programmes does not just come from liberal intellectuals. There is a widespread perception that careful identification of relative need is just.

"One can point to few systems of collection and use of personal information in America which were foisted on a wholly unwilling public simply for narrow bureaucratic purposes. On the contrary, people often want and in the end even demand the fine-grained decision-making afforded by personal data systems". (Rule et al, 1980b, page 70.)

That is, Rule acknowledges that in both the overwhelming judgement of the public and the judgement of many individuals who have studied the issue closely, in the final analysis it is worthwhile for the state to collect information which permits careful discrimination between the circumstances of different people. Ultimately this is the expression of a value judgement on the part of those people who want the products of fine-grained decision-making. Rule's own value judgement is different; he considers the collection of the information is very dangerous and it is not worthwhile.

"My position is simply that these practices are sufficiently undesirable in themselves and in certain of their potential consequences that we would do well to curtail them wherever possible. This judgement applies even in cases where systems operate with justice and on behalf of highly desirable purposes." (Rule, 1973, page 350.)

Rule acknowledges that there are considerable efficiency and even equity gains to be made in careful discrimination. However he prefers a "looser" society in which less heed is taken (especially by the state) of the circumstances of individuals and in which people are treated more similarly. He can see that there would be some losses in terms of increased tax costs and less precise recognition of relative need, but he considers there are more valuable gains to be made in protecting privacy.

"The choice lies between meeting the costs of discriminating and paying the costs of relaxing some discrimination. For every degree of intimacy of surveillance relinquished by organisations benefits accrue in privacy and autonomy." (Rule et al, 1980b, page 80.)

The gains to be made from a looser society are identified by Rule and his colleagues as being:

- Aesthetics. It is inherently desirable to keep experiences only to those who initially shared them. That is, privacy is seen as intrinsically good.
- The value of "looseness". It is important to allow social relations to take their own shape rather than have them dominated by state defined dimensions. In particular, records may tie each one of us to our past rather than allowing us to develop in otherwise unpredictable directions.
- Decentralisation. The increased surveillance by the state shifts power to the centre, and even if power is not used there is always a risk of its abuse.

In order to achieve these gains Rule would sacrifice some of the existing functions of government.

"If we are serious about protecting privacy, we ought to demand development of less information sensitive alternatives to practices now requiring personal data." (Rule et al, 1980a, page 8.)

This implies more simple tax systems, less enquiry for credit purposes, fewer eligibility controls for welfare and less employment data for employers.

The other major author in this field, with a similar approach, is Mowshowitz. He is concerned at the inherently centralising tendency of government processes and, in particular, of bureaucracy. This is exacerbated by the possibilities offered by new technology which can improve the efficiency of bureaucracy. As a result, the in-built protection that was previously afforded by the physical limitations of bureaucrats to enquire into every aspect of our lives is reduced.

"It would appear that technology has swept away the natural barriers against the abuse of power". (Mowshowitz, 1976, page 169.)

When the filing cabinet was the central element of surveillance systems, the threat from information gathering was always limited. Now that electronic data bases exist, surveillance can be very much more dangerous. Given the need for bureaucrats to administer efficient systems, Mowshowitz sees it as inevitable that privacy will be threatened. He points out that generally the bureaucrat will not be aware of the damage being done to individual rights because:

"Like the industrialist of the 19th Century, the manager of today is not particularly troubled with a bad conscience. On the contrary, he prides himself on the rectitude of his commitment to bureaucratic surveillance, which he believes to be a boon to society." (Mowshowitz, 1980, page 100.)

As Mowshowitz sees it, the increased use of new technologies and the delivery of social services through centralised processes leads to ever increasing social complexity. In order to address social complexity it seems necessary to have subtle and complex bureaucratic processes. These continually remove control from the individual and so suppress the individual will. This strikes at the heart of the democratic process and individual self-realisation. Instead Mowshowitz would advocate a more simple society with fewer complex social interventions from central government.

An application of the concerns which these authors have been expressing, which is directly relevant to redistribution issues, is offered by Garfinkel. In considering the question of whether income-tested benefits are better or worse than universal benefits, he identifies that, among other things, income-tested benefits suffer from requiring more information and so conferring more power on the Government and its agents.

"Income-tested programmes create large bureaucracies that exercise great power over their beneficiaries. By their nature, income-tested programmes must check into more details to determine both eligibility and benefits than comparable non income-tested programmes. For income-tested programmes, eligibility and benefits depend upon at least income and frequently assets as well. The more information an agency collects on individuals, the more labour-intensive and larger it must be. The more information the agency requires to make a decision affecting the well-being of that individual, the more power the bureaucrats in that agency have over the lives of beneficiaries, for information must be elicited, processed and interpreted by the bureaucrat. The more information he needs, the more decisions the bureaucrat must make. And the more decisions he makes, the more powerful is the bureaucrat (Garfinkel, 1982, page 498-499)".

The unifying thread through these authors' messages is that the state is taking too much power to itself and intervening in too many areas. Their concern is not that privacy principles are being ignored, but that the information ought not to be collected in the first place because it is not the legitimate business of the state. They are concerned that the

state is going too far and encroaching into too many areas. In the final analysis their argument is that the state is developing into something which is inconsistent with their own ideology of the state. They would prefer that the state adopt a smaller role which would require less information and assume less power.

- A Broader View of the State's Role

There are a few other authors who have also considered privacy issues in terms of the role of the state, but who have arrived at different conclusions. Laudon, the principal author that I have found who has directly addressed Rule's approach, finds it useful to examine the value of state institutions in comparison with the value of local institutions. Laudon points out that, in spite of Rule's fears of surveillance, surveillance is a necessary part of any social control system, and social control is an inevitable part of any society.

"Surveillance' ... conjures up some very nasty literary and historical images. Those who survived Sociology 101 in a conscious state will remember that surveillance - the collection of information for the purpose of social control - is a fundamental requirement of any form of social life whatsoever, from the family, community, city, to the state." (Laudon, 1980, page 90.)

In that context Laudon then suggests that the critical issue is to decide where justice is most likely to be dispensed, and where intrusion is likely to be least. He points out that local surveillance is by no means benign and can often be much more capricious, as well as more fine-grained, than any central surveillance system.

"The place to find fine-grained decision-making is, of course, in the small, local systems of social control ... the grocer who grants credit because he 'knows' a person; the cop who detains a person because he does not 'know' him or her; the judge who gives someone a stiff sentence because he 'knows' that person's family; these are the fine-grained decision-makers, and they are often not benign, fair, or even analysable." (Laudon, 1980, page 91.)

As a matter of historical fact, Laudon points out that the process of introducing electronic databases was often accompanied by the dumping of very large amounts of data that used to be held in local record systems. The need to codify information records meant that many opinions were left unrecorded in the new electronic systems. As database technologies have progressed in the 1980s this argument would have less force, but it is still likely that some of the subjective detail that used to be found on hand-written records would be less likely to make its way onto electronic files.

Laudon is unconvinced that the development of complex electronic state-run systems presents an inevitable threat to privacy. He would assert that privacy has always been threatened, and always will be. The issue is to focus on problems of the day in order to ensure that there is a reasonable balance maintained between the provision of social services and the defence of personal interests. In his own extensive studies of US information systems, in particular a review of the FBI (Laudon 1986), he has become aware of many bureaucratic failures and political pressures which can lead to threats to privacy rights. However, to propose the abandonment of social programmes in order to protect privacy rights appears to him to be excessive and unnecessary. Instead he suggests that we should work to ensure that an appropriate balance can be maintained.

"The challenge is to envision efficient and humane systems operating within constitutional limits and under strong statutory control. These systems will require a broader base of public participation; they will be more expensive to build, more difficult to manage well, and will be of somewhat reduced efficiency than technologically feasible. The alternative appears to be fewer services delivered in a manner neither efficient or humane". (Laudon, 1980, page 96).

The critical difference between Laudon and Rule would appear to be that Laudon regards the social services offered by the information intensive agencies as being of sufficient value to justify the collection of information and to justify the participation of the state. Laudon also takes account of the privacy costs that would have occurred in the absence of the state, and concludes that, on balance, the state's involvement is worthwhile.

Another author who advocates the continued use of central information systems is Mellors. He considers that it is inevitable in modern societies that the state takes on increasing social roles. As these roles are assumed, so it is also inevitable that personal privacy will be reduced and state power increased. In his view, that is not necessarily a crisis of democracy, but simply a circumstance which requires a review of the provisions of the social contract. If the state is to assume more power, then there has to be adequate means by which citizens can monitor the state.

"The important question ... when considering privacy in the context of the relationship between individuals and government is not 'which affairs should be subject to government scrutiny', but 'which safeguards should apply in the collection, storage and application of such information?'" (Mellors, 1978, page 109.)

The device which he is particularly interested in as a means of balancing the increased power of the state, is increased openness of state information systems. If the state is to know more about its citizens, it is critical that citizens should know more about the state. By this means it is possible for democratic review to prevent the risk of dishonest or unreasonable use of information about individuals.

"... a major advance in protecting privacy and diluting .. power whilst retaining the benefits of our modern social existence, lies in the reduction of the secrecy that currently [in the UK] surrounds the government and their civil servants. In simple terms, the best safeguard is not that they know less about us, but that we know more about them; and that we are aware of what they know about us and how they use that information". (Mellors, 1978, page 109.)

This approach puts a slightly different slant on the question of the role of the state. To Mellors, it is inevitable that the role of the state will expand and therefore as new roles are assumed it is important that the constitution of the state be changed in order to provide adequate protection. Given that these protections can be made adequate, Mellors is unafraid of an expanding role for the state and is happy to allow the business of the state to be defined widely and therefore residual privacy rights to become more narrow.

The experience of some judicial and political decisions about governmental collection and use of sensitive information suggests that views on the role of the state are basic to determining views on what are fair and reasonable privacy rights. The discussion of the work of Rule and Mowshowitz, on one side, and of Laudon and Mellors on the other,

demonstrates that what separates many who agree that the invasion of privacy poses a threat to individuals, is different views on the role of the state, and the ability to control the excesses of bureaucracy.

The Role of Ideology

It is apparent from the previous paragraphs that privacy rights cannot be defined solely in terms of privacy principles, but also must depend on perceptions of the role of the state in any given issue. In general terms this is neatly summed up by Simitis.

"The citizen's access to information ends where the bourgeois' claim for privacy begins." (Simitis, 1987, page 731.)

The determination of where the boundaries lie between these two manifestations of the individual in society must depend on a judgement of what is appropriate in a given context. At different times and in different societies the outcome is likely to vary. In the words of one European commentator:

"Our ideas on privacy are not permanent, but are affected by social and technological development. In addition, these ideas are different in different age groups and population groups, and also vary depending on the type of information concerned." (Vierge 1973, quoted in Flaherty, 1989, page 105.)

An example, from one end of the spectrum of views about the correct balance between the state and the individual, is Sweden. Sweden has been characterised by Flaherty as a "surveillance society". There appears to be a strong social consensus which supports the giving up of a great deal of privacy in order to allow the state to provide social services. The debate there has reached such a point that a Parliamentary Commission reviewing the Data Act in 1978 was prepared to say:

"The defence of personal privacy must not assume such forms that, rightly or wrongly, it is looked upon as striving to prevent the control which most citizens, especially in their capacity as taxpayers, feel to be urgent and necessary." (Quoted in Flaherty, 1989, page 148.)

As a result of this attitude much information on individuals is publicly available in Sweden.

An alternative example may be found in Australia. Although the Australian Government attempted to introduce the Australia Card, the response was sufficiently strong that the Government was forced to back down. While many commentators (such as Marshall, 1986) focused on specific breaches of privacy principles that they feared, one very prominent objector to the card, Mr Justice Kirby, saw the issue in more stark terms.

"What is at stake is nothing less than the power and authority of the state in relation to the individual." (Kirby, 1985, page 8.)

Kirby saw the requirement to carry a card as being an unwarranted intrusion into the rights of the individual that have been developed in common law societies. The ideas of the power of the individual and the power of the state as developed in the common law are very different from those which have developed in Europe (see the discussion in Chapter Six, based on the work of Spiro, 1971). That different tradition means that jurists such as Kirby approach the discussion of the role of the state and the provision of state services with a different set of ideas than might be applied elsewhere.

Another important critic of the Australia Card proposal was Puplick, a Liberal Party senator. In his trenchant attack on the card, he saw the card as being fundamentally flawed because it was inconsistent with the common law tradition. He was appalled and outraged that the testimony of some of the senior officials supporting the proposed card before the joint select committee demonstrated that they did not have any understanding of the development of the common law, and its influence in societies that follow the British tradition (Puplick, 1986, pages 163-165).

The point is not that the common law is inherently superior to civil law. As pointed out by Puplick (1986, page 188), the identity cards which exist in some civil law regimes are often administered in the context of a very different set of administrative law, which imposes specific and positive responsibilities on bureaucrats. The history of common law countries has seen us develop our own set of checks and balances, which are predicated on a limited role for the state. The state can and has expanded into new areas, including redistribution. But whenever the state takes on new powers or imposes new obligations on citizens, the risks that are raised must be viewed in the context of the traditions that existed before the reform. Obviously the legislature can and should introduce reforms which redefine rights and obligations in line with modern expectations, but in judging the overall "rightness" of any change it is not surprising that common law rights may be seen as the base line. The ideals that go to compose the prevailing ideology in any given place or time are informed by the history of that people, including its legal tradition.

In order to define an appropriate boundary line for the rights to privacy in New Zealand in the 1990s, it is necessary to identify an appropriate ideology of the state. This would be a daunting task if all aspects of state information gathering were considered. Such an exercise would need to consider for example, police, security services, border control and industry policies. However, for the purposes of this paper, it is possible to restrict ourselves simply to redistribution questions.

If we are to arrive at a view on the rights of the individual to withhold and protect information which might be used by the state for redistribution purposes, we must address the question of what role the state has in redistribution in New Zealand at this time. If Rule's approach is adopted we would expect to see a reduction in the degree of testing of the circumstances of individuals and a greater use of universal provision of assistance. (However, it is noteworthy that even Rule suggests that a negative income tax system might be adopted; this would necessarily require an integrated approach to the testing of the cash position of individuals.) If an approach more like Laudon's is adopted, then we could expect to see redistribution operated by the state but with a careful emphasis on the protection of information that was collected and the maintenance of due process in the handling of that information.

Conclusion

The chapters in Part Two have examined privacy issues in the context of redistribution. The basic conclusion to be drawn is that privacy matters, and redistribution policy ought not to be written as if distributional justice were the only matter to be considered.

It is not possible to determine the weight that policy makers should place on any matter without an understanding of the values involved. In Chapter Five, literature on the nature and value of privacy was reviewed, and the limits to those values were determined. In Chapter Six, these values were used to develop a new statement of the right to privacy,

and this was tested against generally accepted privacy principles. Chapter Seven has looked more closely at writings on privacy to demonstrate the significance that the concept of the role of the state has previously played in this area, and the problems that arise when the issue is ignored.

The outcome of this discussion is that the weight to be given to privacy matters must be determined in the light of an understanding of the role of the state in redistribution. The answer must be specific to any given country and any given time. On the one hand, we cannot simply accept that redistribution goals are overwhelmingly important, and therefore ignore privacy issues, and on the other hand we cannot assume that considerations of personal privacy always outweigh social goals of redistribution.

We now have two building blocks for use when considering the appropriate approach to assessing relative well-being for redistribution purposes. Part One has identified the nature of the information that would desirably be collected. Part Two has shown that the decision whether to collect that information should depend on its use being in accordance with the privacy principles, and its collection being in accordance with an accepted ideology of the role of the state. These matters are brought together in Part Three, where the process of managing an effective and efficient redistribution system is considered.

PART THREE

ADMINISTRATION SYSTEMS

**Synthesis: What Information May the Government Collect
And How May it Be Used?**

CHAPTER EIGHT: CRITERIA FOR EVALUATING REDISTRIBUTION INFORMATION SYSTEMS

Introduction

On the assumption that redistribution will be carried out by the Government to some degree, as has been the accepted practice in New Zealand and most other OECD nations since the war, there is a need to develop efficient systems to identify who are to contribute through taxes and who are to receive state assistance. In carrying out that identification exercise the Government must make sure that all costs, broadly defined, are minimised. In this context costs include social and personal costs, as well as resource costs.

In Part One there was an examination of how to recognise relative well-being. This analysis led to a discussion of the information needed to measure the circumstances of different people and to decide who is more or less in need of assistance or more or less able to contribute support. Part Two contained a discussion of the nature and values of privacy, from which was derived a statement of privacy rights.

These previous chapters have been entirely theoretical. In order to move from that theoretical basis to an analysis of practical administrative options, we must use the theory to derive a set of criteria for the evaluation of information systems that could be used in the administration of redistribution. These criteria will then be used for an indicative analysis of possible policy options in later chapters. Chapter Nine focuses on the existing systems, and Chapter Ten explores possible alternative approaches.

In order to create a conceptual structure with which to translate the theories of well-being and privacy into practical considerations, the first section of this chapter briefly discusses the cost and benefit framework within which any choice of administrative system must be made. The next section focuses on the information needed to assess tax liability and benefit eligibility. Following that, there is a section looking at the personal, or subjective, costs that may be imposed by information systems. The subsequent section goes on to consider the more straightforward issue of the resource costs of information systems. Once these different areas have been canvassed the final section pulls together the result of these discussions to construct a list of criteria for use in evaluating the information systems to be used for redistribution purposes.

Some of the considerations involved in either assessing relative well-being, minimising subjective costs or reducing resource costs, may reinforce one another and therefore different considerations may contribute towards a single criterion. However, in other cases there may be conflict between accurate assessment of relative positions and the minimising of subjective or resource costs. Such conflicts can lead to contradictory criteria. Such an outcome is to be expected, and is not in itself a cause for alarm. It is in the nature of policy analysis that conflicting goals need to be clarified so that appropriate tradeoffs may be made. The value of constructing a list, as will be done in this chapter, is that the tradeoffs can be made clear during the process of examining alternative systems.

Costs and Benefits of Information Systems

Though this chapter works towards the construction of a list of criteria that may be used to select a preferred information system for use in the administration of redistribution policies, at a more general level of abstraction there is only one criterion; the system

should be that which offers the best balance of costs and benefits. In the assessment of costs and benefits the focus should not simply be on financial issues, like staff costs or computer costs, nor is it sufficient to consider wider economic costs, such as the effect on total economic output. In arriving at an overall assessment we must include social and personal issues such as privacy, freedom and distributional justice.

It is possible to conceptualise such a balancing act, but it is not possible to weigh the two sides on a common scale. There is no means by which privacy costs can be forced into a commensurate index alongside the cost of investigations into benefit fraud, or the gains from a fairer and more precise redistribution system. The best that can be achieved is to analyse all financial and economic gains or losses as closely as possible, and to describe the social and personal gains and losses; the two need then to be juxtaposed to see whether the change in society appears to be worth the economic cost.

However, though this may be an adequate bare bones description of the evaluation of two alternatives, it does not explain the mental process by which the options are selected. At any given time there are infinite options for policy. In order to manage the agenda it is necessary to identify goals; the selection of goals itself implies tradeoffs, but this must be done at a very general level. Having selected goals, many options for policy are automatically relegated to the bottom of the pile.

In Part One it was assumed that redistribution was a continuing goal of the government. This means that the possible range of policy outcomes is largely identified. However, from the discussion in Part Two, it is clear that other issues, including privacy, need to be reviewed before a policy approach can be determined. Once that balance of redistributive goals and individual rights is broadly struck it is possible to look in more detail at the tradeoffs that need to be made to arrive at the best approach.

Some of those tradeoffs may be entirely financial; for example, shifting of compliance costs from employers may add to the enforcement cost for the government. Other tradeoffs may involve other dimensions; for example, the loss of freedom involved in the compulsory use of identity cards must be weighed against the fiscal gains from increased tax receipts and reduced welfare fraud, and to the improvements in the ability to enforce immigration law. Though the balance may be easier to assess when both factors are purely financial, conceptually these two tradeoffs are similar. The aim in both cases is to strike the balance that will maximise some concept of social welfare while according adequate respect to individuals as ends in their own right.

Though it is not possible to reduce the comparison of options to a single measure, it was suggested above that in order to arrive at an adequate description of the options it is necessary to factor in all financial and economic items into a quantified analysis. Such an approach would need to explore the interactions between different parties, and the discounted value of alternative investments. In this context there are three principal parties; the government, the individual, and third party suppliers of information. Each of these is composed of separate groups such as tax and welfare agencies, taxpayers and beneficiaries, and employers and financial intermediaries, each of whom may be affected differently and react differently. On top of this is a bewildering array of electronic information processing options, involving different mainframe computers, network systems, cards and readers, as well as a wide range of alternative administrative systems. To assess any option to the point that a policy decision could confidently be made, a great deal of careful economic and financial analysis is essential so that the interactions between the parties and the factors may be brought out.

This thesis does not aim to reach this degree of finality. Instead it is intended to outline the probable areas that are worth exploring more closely, and to identify the factors that should be included in any more complete analysis. Though the factors will here be identified rather naively as factors which should each be maximised or minimised, it is only the overall balance that should be optimised. When the complete analysis is made, it may become apparent that welfare and justice are best served by increasing some factors which, all other things being equal, would appear to need to be minimised. However, that does not make such a list mistaken. The point of the list is to identify the factors that should be taken into account, and the direction of movement that appears appropriate for those factors. If closer analysis reverses that judgement, that is simply an example of the tradeoffs that need to be made to arrive at the best outcome.

Having established that ideally we should use an all-inclusive interactive modelling approach, complete with a variety of scenarios for social and personal costs, but that such an approach is beyond the scope of this work, we may now embark on the more humble task of identifying the separate criteria that should be considered in the design of an information system.

Information for the Assessment of Relative Need

In Chapter Two it was established that the two principal elements needed to assess relative well-being were the flow of resources used by a person (generally represented by income) and the stock of resources (wealth) held by that person. In considering whether the assessment of the flow of resources should always be carried out over equal periods, it was established that in order to accurately measure relative choice sets it is essential to determine which people are constrained to operate with limited time horizons. Those with constrained time horizons face small choice sets and need to have their income assessed over a relatively short period in order to determine their need for assistance. However, those with fewer constraints on their time horizons should be assessed over a longer period in order to take account of the wider options that they may face. The central elements of any information system to assess relative positions are therefore an estimate of current income and some measure of the constraints which may reduce time horizons.

An important prerequisite of any administrative method of measuring income or constraints is that the process be feasible. In their pure form theoretical concepts involved in assessing relative well-being are elusive. Inevitably, the process of translating the theoretical concepts to measurable factors involves compromises, and their reduction to a measurable list must lose some nuances. There is no point in defending theoretical purity if the resulting system is not capable of being operated using existing technology and available staff and resources. There is a cost in pursuing feasibility, but much greater cost, to the point of destroying the whole endeavour, if real world practical do-ability is ignored.

The two elements that make up a measure of relative need, current income and constraints, are considered in turn.

- Current Incomes

Chapter Two canvassed some of the classic debate that has continued for many years on the theory of income. This theoretical debate has been reflected in a practical debate about what items should be included in the base for assessment of current income. There has been much argument about how to recognise income from capital in the form

of capital gains. There has also been vigorous debate about whether to assess imputed income which comes mostly from the use of assets (especially the owner-occupied housing), but also sometimes from the non-market uses of labour. A further major issue has been the question of the appropriate unit of assessment: individuals, families, or households. It is not the purpose of this study to address the question of which items should be included in the base for assessing current incomes, or the unit of assessment. The focus is more on the information which should be collected in order to give effect to a given assessment. It is not necessary to resolve these questions of the composition of the base for measuring current income or the unit of assessment because, as a general rule, the approach as explored in this study would be the same for any of the likely means of assessing income. For the sake of simplicity, however, it is generally assumed in the exposition below that imputed incomes are not included and issues of assessing capital gains are ignored.

Given this approach to income, our problem is to assess the current flow of resources received by a person. In itself this is generally a relatively straightforward measure. For most people the major form of income is salary and wages. This is both a widely understood concept and also one which is easy to quantify. Obviously there are greater difficulties in the assessment of the business income of the self employed. However, the concepts which have been developed by the Inland Revenue Department are very robust and well understood, at least by accountants and generally by most business people. The concepts are considerably more complex than simply recording salary and wage receipts, but the experience of many years has demonstrated that for most people most of the time taxable income is able to be self assessed and verified by the Inland Revenue Department with few major complications.

Though the concept of current income is relatively clear, some operational considerations are still very important. It is essential that the measure of current income be accurate in order to achieve a correct relative ordering of individuals and, as near as reasonably possible, a correct measure of absolute income. The first step in this is to have an understood definition, as already established. The second is to ensure that the collection process minimises mistakes, which may arise from honest error or fraud. Honest error can be reduced by having well understood definitions and simple concepts. Deliberate fraud is addressed by means of adequate monitoring, including independent verification of income wherever possible. The most reliable form of independent verification is information from the source of income. For most people this means a report from an employer on the level of salary and wage payments made to the individual during the year. Similarly, verification may include reports from bankers or other debtors on the level of interest payments that have been received. For those with business income, the verification process requires access to the accounts of the business, including access to records of receipts and payments; this is the most complex aspect of the income assessment process, but there is no extra problem than those which tax departments already address on a routine basis. Since it is suggested that the self employed would normally be assumed to be bankable, the overall effect may be to make it easier for welfare agencies to assess the needs of those with business income.

If a family or household income concept is being used, there can be a difficult problem to confirm whether an individual is in a family relationship with someone else, and therefore whether the income ought to be pooled. This is a difficulty which already occurs in social welfare systems and it is not a new issue raised by the study. It will be furthered discussion below under the section on constraints.

As well as ensuring that the reports of current income are reliable, by means of having a straight-forward reporting process and adequate verification, another important aim is that the measurement system should take account of changing circumstances so it can respond to needs which may emerge from time to time. The assessment system must be sensitive to significant developments as they occur. For many people in a stable situation occasional measurement of income may be sufficient, but for others facing sudden change, in particular a sudden loss of income, a more frequent income reporting system may be necessary.

This discussion suggests that in order to assess current income we need a feasible administrative system, involving a clear and workable definition which is simple and easy for members of the community to understand, adequate verification of statements of income, and sufficiently frequent reporting to identify changes in circumstances that call for a government response.

- Constraints on Time Horizons

In Chapter Three it was established that in order to determine who should have their income assessed over a relatively short period it is necessary to identify those with constrained time horizons. Chapter Four explained the means by which current income assessment processes might achieve that identification process. Because of the stigma that is generally associated with the receipt of income tested assistance it is likely that there is some degree of self selection. This theory suggests that only those who are sufficiently desperate that they can discount any long run humiliation from receipt of benefits will take the step of applying. In effect, the state of being desperate can be understood to be a state in which the individual can see no other way out. That is, the individual can see no options and is effectively tightly constrained to a short term time horizon and a limited choice set.

However, there are major problems in this process as a means of targeting redistributional assistance. Two of the major failings of this approach from the point of view of a Government are as follows:

- Lack of Control: as a minimum for fiscal purposes, and also to give some substance to equity goals, the Government must have some means of controlling or influencing the number of people from the community who may be deemed eligible for assistance. The stigma selection system is entirely subjective and is likely to be very sensitive to changes in fashion. There is no reason why such changes would be in step with the Government's aims and intentions for redistribution.
- Lack of Precision: because different individuals are likely to feel stigma differently, and in particular there is no reason to expect that sensitivity to stigma will be correlated to the Government's perception of relative need, this self selection process is very uncertain. There is no guarantee that those whom the Government consider most in need will be prepared to apply for benefits, or that those who are seen to be relatively less needy will be discouraged from applying.

In effect, the self selection process using stigma is an extremely blunt and unmanageable policy instrument.

Even if these technical problems did not exist with such an approach, there is also a moral problem. Using people's self image as a means of weeding some out from assistance systems seems uncomfortably close to using people as means rather than ends, which is an unacceptable approach for policy purposes.

It seems, therefore, that if the stigma-based self selection system is regarded as a policy device it is inadequate. On the other hand, if as seems more likely no such policy approach was ever contemplated or wanted, then we do not have any method of identifying relative degrees of constraints on options. Either way, it seems that we need a new and better system for identifying who is constrained to operate under limited time horizons. Such a system needs to be more controllable and more precise.

The concept of bankability, as developed in Chapter Four, passes those tests. It is an objective concept which is capable of being defined and administered in a measurable way. It is also able to be adjusted by means of changes in the required levels for different factors from time to time. By such means the government would be able to achieve an appropriate degree of control and precision both at an overall fiscal level and at the level of testing the circumstances of individuals.

As established in Chapter Four, in order to measure bankability we need information on:

- past income, including monthly (or quarterly) income for the past year plus annual income for recent years;
- wealth;
- employment status;
- family commitments;
- disabilities.

As with current income it is important that all of these items be relatively certain and verifiable. The problems involved in achieving an adequate measurement quality may be reviewed item by item. Past income presents no measurement problems that are not involved in current income and therefore it will not be discussed further at this point. There may be record keeping costs, but these will be covered later.

The measurement of wealth involves some classic uncertainties mostly to do with valuation. However, most wealth is in forms that are fairly readily valued. Generally financial assets are assessable. Steps are already underway in New Zealand to ensure that banks and other institutions report interest and dividend payments for individuals, and it would seem no more difficult to report wealth at the same time. There can be problems in arriving at an agreed capital value for some assets with expected future earnings, but usually a value can be struck within reasonably broad bounds. The other major form of wealth holding is real assets. Land holdings are already recorded under the land registry system, and valued for rating purposes, and it would certainly be technically feasible, if rather complicated, to assess this data for the assessment of wealth. These government valuations are not perfect, and problems would arise, but most land and property is in forms that are fairly frequently traded and therefore valuers are able to arrive at reasonable estimates of value. Less liquid assets such as jewels, art works, furnishings, machinery and sometimes motor cars, maybe more difficult to

assess. Arriving at a generally accepted and verified valuation of these more portable and illiquid assets can be extremely difficult. The question of whether to include such assets may revolve around whether the complications and arguments about assessing their value are greater or less than the problems involved through the possible creation of shelters if they are not included in the assessment. For the purposes of this exercise, which is essentially to discover which individuals are in a position which requires assistance to be offered on the basis of an assessment of a short period of current income, the problem of non-liquid assets may be insignificant. Clearly wealth is not a simple problem, but in this context the problems do not seem insurmountable.

For almost all people there is little doubt about employment status, and its verification is generally not hard. In the context of a system in which verified information on current and past income were available to those assessing bankability it would even easier to ensure that the employment status of most people was clear.

The assessment of family circumstances is always difficult. It is sometimes hard for the individuals concerned to be clear on whether their circumstances are in breach of the rules for welfare assistance. It is obviously even more difficult for those outside the relationship to understand the nature of the shared obligations and understandings. There have been many cases in New Zealand on the question of whether individuals are participating in "a relationship in the nature of marriage" and it is unlikely that we will ever achieve a totally satisfactory set of tests. Case notes on some of the recent cases are included in Hooker and McBride, (1986). The suggestion that family circumstances need to be included in an assessment of bankability does not impose any new problems for welfare assessment, but nor does it offer any new solutions.

There is always room for debate about the level of disability for any given individual, but the process of referral for a professional opinion is generally understood and seems fairly straight-forward. There are no new problems in this area beyond those already faced in the administration of invalidity benefits.

As well as the need for an accurate and verifiable measure of the components of bankability, it is important that there be an appropriate degree of flexibility. Bankability, as defined by income, wealth and the other factors, is only a proxy for constraints on choice. It is quite possible that individuals who appear in a relatively prosperous position, and who therefore seem highly bankable, may face unexpected and unfortunate circumstances. The intervention of some events beyond the control of the individual may lead to a sudden and severe restriction on options. Alternatively, even though as a general rule the self employed might be assumed to have relatively long time horizons, some may be running very peripheral businesses like busking or odd jobbing. People in this type of work may not be building up human capital or business good will, but instead may be surviving on a hand to mouth basis. Simple tests of bankability would tend to fail to distinguish adequately between such individuals. In order to take account of these complex and unpredictable cases a degree of flexibility must be built into the process of assessment.

The precise form of this flexibility need not be determined here; it is likely that it would be sufficient to offer an interview process with experienced staff to ensure that those with limited options are not harshly treated. The important point is that any test of constraints must be understood to be a proxy which requires flexible interpretation if injustice is to be avoided.

This discussion suggests that, as with the assessment of current income, the measures of the factors contributing to bankability must be feasible, simple, certain and verifiable. In addition there needs to be sufficient flexibility to take account of unusual circumstances.

Having established the factors that need to be measured, and the attributes that the measures must possess, we may now turn to a measurement of the costs of that measurement process. The first component of the costs is subjective cost.

Subjective Costs

A very important aspect of the costs associated with the collection of information and assessment of relative need is concerned with how people feel. If a given redistribution scheme and information system makes people upset, that is a cost which should not be ignored. The base line for measuring such costs or degree of upset is not the degree of desperation that people might feel in a regime with no redistribution. The appropriate comparison is between the levels and forms of upset that might be provoked by different means of redistribution and different processes of information collection and analysis.

Subjective costs may take any of a variety of forms for different people, and that which is significant to one person may be less important for another. Two particular areas are examined here; they are invasions of privacy rights and feelings of stigma. These two are discussed because their significance is widely accepted, and also because, though their impact is subjective, they both arise from interactions and can be understood in a social and policy context.

- Privacy Rights

Following the analysis in Chapter Six the right to privacy has been defined as:

- any person has a right to reasonable access to places where they may find solitude;
- any person has the right to be anonymous except in those contexts where another party has a right to know that person's identity;
- any person has the right to withhold information which is not appropriate to the context of the transaction in question;
- any person is entitled to be assured that information supplied will only be used in the context in which it was supplied.

These statements provide only the bones of the rights to privacy. In order to give them some effect in a policy context their implications need to be drawn out. The discussion in Chapter Six suggests that there are two areas that need to be addressed in the area of the right to secrecy or information privacy. The first is that privacy principles (for example as outlined by the OECD, 1980) need to be observed. The second is that the extent of data collection must be consistent with an accepted ideology of the role of the state. These two approaches are considered in turn, and the issues are then applied to data matching, which is an important and contentious issue in information privacy. Following that, there is a discussion of the issue of rights to anonymity, and the possible uses of identity cards.

a *Privacy Principles*

The privacy principles were examined in Chapter Six, and it was demonstrated that they are consistent with the privacy rights as outlined above. In order to understand the significance of the principles we must consider them one by one and identify their operational implications.

- **Collection Limitation:** the scope of the information that may be collected is covered in the later discussion under ideology. In addition, this principle implies that redistribution systems and any other administrative processes should not collect information by underhand methods such as the use of spies or secret surveillance. This does not imply that third party sources cannot be used for information, but that the process and collection of information from such sources should be open and legal.
- **Quality:** for the purposes of this discussion the defining characteristics of quality data are as outlined in the previous section on the assessment of relative need. So long as the information is relevant and timely for that assessment then it meets the quality principle.
- **Purpose Specification:** this is an issue relating to the process of collecting data, and the links from that collection process to the uses of data. Whatever information system is in place, those supplying data should be made aware of the nature of the information system and the implications of supplying information for that system. Multipurpose disclaimers, such as "any information supplied may also be matched with information supplied to other agencies", are inadequate. Rather it seems appropriate that any purpose specification should be at least sufficiently precise to show that (say) information supplied for income tax purposes is available to be checked by state agencies administering income tested assistance schemes. If this purpose specification principle is to be followed with due care, it becomes effectively a constraint on the number of uses to which a given set of information may be put. If the range of manipulations and matchings that take place are very complex, then it becomes effectively impossible to explain to those supplying the information what the implications of such supply might be.
- **Use Limitation:** this principle may be viewed narrowly, so that whatever purpose may have been specified at the time of collecting data can automatically be pursued at a later date, and information may therefore be applied to a wide range of purposes. A more cautious interpretation of the principle suggests that there must be a strong presumption that information collected by one agency for a given purpose should not be deployed by an apparently unrelated agency for a distant and different purpose. The important difficulty in this context is to define purpose. Income taxation may be regarded as a very distinct purpose from the provision of social welfare assistance, or both may be regarded as aspects of a wider redistributive purpose. To a degree such differences in approach can only be resolved by reference to accepted views on the role of the state, as will be discussed later.

- **Security:** the important operational application from this principle is that data will be kept in a safe form. Physical and logical security in the form of locks, guards and passwords are all important parts of providing security for information. However, even more important is the maintenance of an attitude of trusteeship among those handling the information. The more people who are involved in handling personal information, the more difficult it is to ensure that corporate values of trusteeship are maintained. In addition, the more people who are aware of the contents of personal data files, the more likelihood there is of simple error and careless mention of personal details. This suggests that the fewer officials with direct access to personal information the better.
- **Openness and Accessibility:** these two principles imply that data must be kept in a form that is understandable to enquirers, and also that the data be managed in a way that is able to be changed readily if mistakes are found. This suggests that the number of separate uses and separate file connections that are made should be minimised. The data storage and use needs to be as simple and comprehensible as possible if these principles are to be met.

In summary these principles suggest that the collection of information must be restricted to that necessary to assess relative positions, any collection must specify the purpose and data should only be used for that specified purpose. Data must be kept secure with access limited to those with a legitimate reason to use it, and systems should be kept simple and easy to correct. As a general rule these requirements all point towards relatively simple data systems with limited number of uses of information for any given data system. An associated implication is that individuals should have maximum control over information about themselves so that information once given to one part of the government should not automatically be liable to be transferred to any other government departments without the knowledge and consent of the individual concerned.

These principles cover most of the mechanics of information management, but they do not address the central issue of what information may be collected. For this we must turn to a consideration of the ideology of the role of the state.

b Ideology

The issue of how to assess the appropriate ideology which should inform decisions on data collection and identification systems in New Zealand is not simple. In the final analysis, it is for politicians to make ideological judgements, not bureaucrats such as this author. I am aware that it could appear presumptuous for a bureaucrat to trespass into this territory. My aim is not to arrive at a manifesto, or statement of what I consider to be the morally correct approach. Rather, I aim to identify evidence of a widely held view, which could be adopted here to inform the development of criteria.

There has not been an extensive public debate in New Zealand on privacy and identity issues. Civil rights groups and the Law Society have made statements from time to time and there have been occasional newspaper articles about the possible threats from Big Brother (see for example the Dominion, 26 March 1990, page 18, "Big Brother Fears as IRD Seeks Tax Number Tags"), but there has been no mass movement or upswell of public argument. In the absence of any clear and informed public consensus it is necessary to search for some reasonable basis for an expression of an ideology of the state that can be used to give substance to policy discussions.

One possible source of ideology judgements is measurements of public opinion. In the USA, for example, there have been several major sampling exercises conducted to find out how happy people are about the use of personal information by the Government and by private sector agencies. A substantial survey in 1980 (Louis Harris, 1981) demonstrated widespread concern about privacy, but also showed a majority support for the proposition that the Internal Revenue Service and welfare agencies collected only information that they needed to gather. More recently the Internal Revenue Service has used sampling agencies to identify public opinion on the use of the Social Security Number and on the uses of tax information. Those surveys showed that substantial majorities were happy with the use of Social Security Number and identification systems to catch migrants (IRS, 1989f) and the use of tax information and systems to extract funds from delinquent fathers (IRS, 1989e).

Some more local information on public opinion is available from Australia. During the recent debate over the proposed Australia Card, surveys commissioned by the Government showed that 70 percent of Australians were happy with the introduction of a card system designed to control tax fraud and benefit abuse (ANOP Market Research, 1986, page D4). Similar results were found by the Bulletin and the Melbourne Age (quoted by Health Insurance Commission, 1986, page 53). It was apparent, however, that as the debate progressed this substantial popular majority was reduced (ANOP Market Research, 1986, page D10).

There are two big problems in using public opinion surveys of this type to arrive at a statement of an acceptable ideology for use as a basis for policy in New Zealand. The first is the lack of any reliable survey result for New Zealand. Both major survey houses in New Zealand (NRB and Heylen) inform me that they have never tested opinion of New Zealanders on privacy issues. The Royal Commission on Social Policy reported that 80 percent of respondents in their attitude survey agreed that individual freedoms should be protected, but no question was asked on privacy or information use. The nearest source which includes information on opinions relating to privacy is Roberts et al (1985), which reports on a tolerance survey conducted in Christchurch in the early 1980s. Respondents were asked what rights they were prepared to accord to their most disliked groups in society. In a set of responses which showed that New Zealanders were generally happy to suspend many civil rights for disliked groups, it was noticeable that privacy was accorded some respect. The evidence for this is that 79 percent of all respondents were not prepared to authorise phone tapping for their most disliked group (Roberts et al, 1985, page 88). This shred of evidence suggests that, in some forms at least, privacy is seen to have some importance to New Zealanders.

However, even if we had more technically reliable information on public opinion, this is a very unsound basis on which to develop policy underpinnings. Civil rights appear to be a relatively esoteric issue for most people. The threat involved in the suspension of personal rights is often seen to be remote and may not be valued by private individuals as much as it ought to be valued by policy makers and jurists. In Mr Justice Kirby's words:

"The public is all too often willing to participate in the destruction or erosion of its own liberties. It is to informed people ... that there falls the sometimes unpopular function of holding out against the popular tide" (Kirby, 1987, page 152).

This suggests that officials and ministers should be careful to examine the rights and wrongs of issues before arriving at a judgement involving the possible restriction of civil rights.

An alternative approach to establish an ideological basis, which is particularly appropriate for bureaucrats, may be to take heed of the ideological position adopted by past governments (and likely future governments) in New Zealand. Without wishing to get involved in partisan politics it seems best to examine the statements and records of decisions of the major parties in government and opposition in recent years. If it is possible to identify an area of commonality, then this would seem to be a fairly robust basis for the development of policy in this context.

The most dominant factor in recent policy in this area has been the maintenance of very secure provisions in the law relating to tax information and social welfare information. Law and practice have both been very cautious. Currently it is illegal to use tax information for any purpose other than tax, except for statistical uses which do not identify individuals (Inland Revenue Department Act, 1974). There is similar control on the use of social welfare information (Social Security Act, 1964). Though there has been some discussion of possible linkages there has been little enthusiasm for major change until very recent times.

Both major political parties have expressed support for legislation to define and defend privacy rights. McBride (1984) quotes statements from both major parties' manifestoes around that time on the need to protect privacy. More recently, the then Minister of Justice (more latterly Prime Minister), has consistently advocated increased privacy protection and has foreshadowed legislation to protect privacy interests (Palmer, 1989). Though in the July 1990 Budget the Labour Government has indicated that it intends to permit some sharing of tax data, this decision has come after an extended period of deliberation, and is conditional on the enactment of privacy legislation. This suggests that privacy is still seen as having some significance. National Party speakers have also endorsed such a concept. I have attempted to identify a recent official National Party statement without success. However, interviews with two of the relevant party speakers, Simon Upton MP and Jenny Shipley MP, confirm that they do not regard personal privacy as a matter to be lightly set aside. Both expected the state to continue to be involved in redistribution, and that personal information was therefore necessary. However, they saw this need for personal information as one of the costs that eventually limit the role of the redistribution policies.

This record of political caution, and an understanding that the state has only limited rights to demand information on citizens is consistent with New Zealand's tradition as a common law country. A basic assumption behind the development of the law has been that the state does not have an unfettered right to know about the affairs of citizens. New Zealanders may be constrained to supply information on themselves, or to identify themselves, in particular contexts, but not as a general rule. It is also a critical point that in any transaction, especially if it is potentially prejudicial to the citizen, there must be due process. Government agencies may not act capriciously to suspend services or assistance, and people must be given adequate opportunity to state their case. It is inappropriate for the Government to collect information from diverse sources to build up a dossier on an individual which is then used as the basis of decision-making. Instead decisions about individuals which critically affect their interests must be made once they have been given an adequate opportunity to defend their interests and challenge any evidence brought against them.

Reviewing the argument so far, we find that public opinion offers a shred of support for the proposition that privacy should command respect; the political record shows a substantial and long standing commitment to protect the individual against excessive prying by the state; and the social traditions embodied in the common law suggest that the privacy interests of individuals must be protected against the state. In the face of a strong commitment to distributive justice, and a need for accurate state discrimination, these factors could all be set aside in the process of arriving at an ideology of the role of the state. However, as a bureaucrat, and therefore as someone whose motives in this area are inherently suspect (see, for example, Mowshowitz, 1967, and Flaherty, 1989), it behoves me to be cautious. I interpret the available evidence to say that there are no grounds to claim that individual privacy interests are of little weight in New Zealand. Given that there is a tradition of respect for privacy interests, it is appropriate that, in any evaluation of policy options for redistribution systems, similar caution should continue to be applied until a Government directs that it wishes to operate under a new ideological understanding with a greater (or lesser) degree of information collection.

The implication of this discussion of privacy issues is that there is a central need for close control by the individual over the information about him or herself. We cannot presume that the state has a general right to collect information on citizens and make determinations about the interests of those citizens.

However, though it has taken some little time to derive this ideological statement on privacy rights, it is more clear that there is a consensus that the state has a role in redistribution. Since 1938 there have been extensive safety net provisions. All political parties have supported the maintenance of these provisions with only limited debate about their level. The recent review by the Royal Commission on Social Policy reaffirmed the principle that the state should be involved in redistribution, and the public opinion survey conducted by the Royal Commission demonstrated public support for that position. Their survey showed support for the proposition that the state should ensure that various groups received enough to live on, as follows.

Group	Yes %	No %
Those who cannot get a job	68	24
Elderly	94	5
- Less if well off	54	44
Long term sick and disabled	95	3
- Less if well off	55	41
Families with children that do not have enough income	69	23

(Source: Royal Commission, 1988, Vol 1, pages 493-500.)

However, as with the discussion on attitudes to privacy, it is more important for a bureaucrat to consult the Government rather than public opinion. Both the National Party and the Labour Party have endorsed the role of the state to support those in need, and therefore some degree of distinguishing between those in need and those with greater means may be accepted as part of the role of the state. It is not necessary in this context to establish support for extensive redistribution. Nor is it necessarily clear that

there is unanimous political support for all the existing systems, or even a specific focus on discrimination on the grounds of income rather than some other method of classification. It is enough to find support for some role for the state in redistribution, broadly (even loosely) in line with current levels of state activity. The evidence suggests that there is a bipartisan endorsement for such a role.

There appears therefore to be a general acceptance, both through public opinion and from the record of political support, that the state has a role to participate in redistribution and therefore to enquire into the relative means of citizens. However, it is also clear that the state does not have a generalised mandate to enquire into the circumstances of all people, and any use of information for redistribution purposes should be cautious and sensitive. The conclusion is that, as much as possible, the control over information must remain with the individual concerned, but the state does have a legitimate interest in acquiring relevant information on relative positions of people in order to administer redistribution.

c Data Matching

Having established the nature of the balance to be struck between privacy ideals and redistributive goals, and explored the implications of observing privacy principles, one issue that needs to be traversed is the application of these points to data matching. This needs to be covered because the issue is important in itself, and it can also serve as an example of how the concepts can be used in practice. Issues of data-matching have already been addressed in a theoretical context in Chapter Seven, but here they are re-examined more fully to see the appropriate use for matches for redistribution policy in New Zealand.

Data matching involves the comparison of two data sets to identify whether there are inconsistencies in the information about any individual. For example, data provided by employers on wages paid to an individual may reveal wage receipts that were omitted from the tax return filed by that person. As electronic processing technology has increased in power, it has become possible to match very large data sets about large numbers of people at very low cost.

In discussing matching it is important to distinguish two contexts. Many matches are carried out for administrative purposes. This means that the match is carried out as part of the process of monitoring a programme, in order to identify errors. In redistributive programmes the intended result of a match is to identify and stop mispayments, and sometimes it is part of a process leading to criminal action against an individual who appears to have committed fraud. A second context for matches is analytical. Such matches are carried out solely to find out how many records show an apparent irregularity, or to acquire more information on the people whose records are included in a data set. Sometimes this may be done for research purposes (as with the match of probate returns and income tax files that was reported in Chapter Two) and sometimes it could be carried out as a trial to test options for future administrative approaches (as in the many trial matches carried out by the US General Accounting Office, see for example, GAO, 1986 and 1988a). The essential difference between the two contexts is that an administrative match can have an immediate practical effect on an individual included in a match, but an analytical match has no immediate effect on the people involved.

It is clear that an administrative match is significant to individuals, with potential significant effects on privacy interests and their economic position. It is understandable, therefore, that there is considerable concern that such matches should only occur where there is a clear need and under close control. Analytical matches, however, pose less direct threat and it would seem (as stated in Chapter Six) that so long as personal information is handled with sufficient security, there is little concern at such exercises.

However, in New Zealand it has recently been claimed by a committee of the Law Society that not only should administrative matches of tax and benefit files be prohibited, but that analytical trial matches should also be forbidden until the need for them can be proven (Law Society, 1989, page 15). The validity of this position can only be tested against the implications of the accepted ideology of the role of the state.

If, as is asserted in this chapter, redistribution is one of the accepted functions of the state, it is clear that some information collection and analysis to identify relative need is necessary and permissible. In particular, the government is justified in making reasonable efforts to determine the best means of administering redistribution. The payments involved in assistance schemes are substantial, and the cost of administration is not trivial. It seems a reasonable proposition that the government should explore administrative options to see which are reliable and efficient. Analytical matches are an essential means of increasing knowledge about those receiving assistance, and so possibly developing new approaches to policy. Analytical matches are not necessarily a stalking horse for future administrative matches; they may provide insights on many aspects of welfare policy, and they may prove that a particular possible administrative match is not worth pursuing.

At present, as a result of the very tight statutory protection accorded to both tax and welfare information, it is not possible to carry out useful analytical matches in New Zealand. As a result we cannot be sure how efficient the current identification and verification processes are, or how much they could be improved. It is possible that the current practices are effective, but such a conclusion is inconsistent with the observation that recent increases in the effort put into fraud control has exposed a substantial amount of overpayment. The Law Society is effectively claiming that this state of ignorance is proper. However, in arriving at this position they have ignored the question of the appropriate role for the state. The forbidding of analytical matching can only be consistent with a view that there should be no redistribution by the state, or only inefficient redistribution. It is improbable that they (or anyone) would advocate an inefficient redistribution system, lacking the means to carry out its agreed goals. If alternatively they advocate abandoning the redistribution function, that approach is inconsistent with the conclusion that redistribution is among the generally accepted functions of the state. If redistribution is accepted as a function of the state, and it is acknowledged that the Government has a responsibility to handle its affairs efficiently, the case for analytical matches is clear. So long as information on individuals is kept secure, and not released in an identifiable form, research seems to be permissible and essential.

The issue of administrative matches is not so clear. Here the invasion of privacy interests can be substantial, and a loss of individual control of personal data is inevitable. Though, in Chapter Six, I have rejected the claim that matching is a form of fishing expedition, other substantial issues remain. The critical point is whether the

match is within the Use Limitation Principle. It is now technically possible to match such diverse sources as a selective service register and a prison muster; the issue that must be resolved is whether such a match is consistent with a reasonable use of personal data.

There are two areas where matching appears to be generally accepted as a reasonable use of data. The first is in the administration of income tax. Data on sources of income is regularly matched to returns. There is a wide understanding of this process, and it provokes little complaint; it seems to be understood as a justified system to encourage and enforce compliance. The second case, which privacy advocates often accept as a reasonable (or less objectionable) form of matching, is front-end matching (see for example Bloemendal, 1989, page 95, and Law Society, 1989, pages 23-25). Front-end matching occurs when an applicant gives permission for information to be checked against tax or other sources at the time an application is made. The other sources are then searched for information on that particular individual. This approach may be contrasted with mass data matching, which may occur at any time and involves a search of two or more data sets to find all records relating to the same individual, and searching all such matched records to identify any anomalies. If we examine the reasons why these forms of match are seen to be relatively virtuous, we may improve our understanding of the issues involved in data matches across the redistribution system.

Though I have not seen any source address the issue, my understanding of why income tax matching is seen to be reasonable is because the data involved all relates closely to income, and the information was supplied for tax purposes, which is a homogeneous use. The first point, which relates to the quality of the data, and the risk of mistaken anomalies arising, would seem to be equally applicable to the information that might be examined to confirm income and bankability claims as it is to income tax returns. The second issue returns us to the issue of the role of the state, and the relationship between income tax and state welfare payments.

It would seem rather odd to claim that income tax is not an aspect of the government's redistribution system. A major justification for income tax is its relationship to the ability to pay. Even a proportional single rate tax is still designed to take more from the rich than the poor. If we wish to have a non-redistributive tax we can use indirect taxes or poll taxes (which, as the British are discovering, can pose their own information problems). If it is accepted that income tax is redistributive, and that this redistributive character is a significant virtue of the tax, then it is reasonable to think of income tax as an aspect of the government's redistribution policies and administer it accordingly. In particular, it does not seem beyond the letter or spirit of the Use Limitation Principle to use information collected for income tax in the assessment of the circumstances of people elsewhere in the redistribution system. This is consistent with the approach adopted in North America (see Appendix Two on International Experience of Exchange of Information). In Canada, the Government has decided to draw a circle around tax, social insurance and welfare, and to permit the use of the Social Insurance Number as a common unique identifier within that range of uses. In the United States, all states using federal funds to contribute to welfare payments must match their welfare rolls against IRS tax data.

On the issue of front-end matching, the reason for its relative virtue appears to be a belief that it provides more control; any person who does not want data to be matched has the option to withdraw their welfare application. This argument is specious. As discussed in Chapter Six, welfare applicants are generally not in a position to withhold

consent, so their control is weak at best. If we have any faith in their consent, it would be similarly possible to extract an agreement to an open ended number of future matches.

The real issue in mass matching is that it involves the comparison of total data sets. This potentially gives staff of another agency access to information on many individuals whose affairs are no business of that agency. This clearly breaches privacy rights. By contrast a front-end match involves a search of only one person's record, with no need to search any other person's file. The intrusion involved in a match of every person's file may be substantial, but a one-off search is less problematic. This problem can be partly addressed by the welfare agency (which presumably has the smaller list) providing its data to the tax agency for checking. By this process the provision of new information on existing taxpayers to the tax office is minimised, and no information on non-beneficiaries needs to be transmitted to the welfare agency. This is the approach used for the IRS matches in America, with only data relating to apparent "hits" being returned to the welfare agencies. Alternatively, a preferred approach would be for data to be supplied wherever possible on a one-off basis. Clearly there is a relationship between tax and welfare information, so some sharing of information seems consistent with the Use Limitation Principle, but searches of the files of unrelated people does seem less justified without due cause.

There does not seem to be a hard and fast rule. Certainly the use of extensive matches between unrelated data sets is unacceptable. However, matches of welfare rolls, or housing assistance lists, and personal tax files seem less unreasonable, and one by one matches seem entirely proper. Overall the balance would seem to depend on the severity of the problem being addressed and the likelihood that a matching programme could help to alleviate the problem (which cannot be established without the power to make analytical matches). Any matching which is agreed to must be secure, to avoid the misuse of sensitive personal information, and involve due process in the follow up of apparent mismatches of data.

d Identification

An exploration of the implications of the right to be anonymous, so long as one's identity is not someone else's business, requires a discussion of ideology as was necessary for information privacy. Because the issues are very similar they need not be examined in great detail again.

The lack of evidence on public opinion, and the problems that would be involved in attempting to apply any such evidence, both apply again. However, there is some evidence from the occasional public comment. During the Australia Card debate there was a brief flurry of reaction following an off the cuff comment from the then Prime Minister to the effect that such cards may well appear in New Zealand in the future. The public reaction was strong (see Bloemendal, 1989, for a summary of the reaction) and the Government and Opposition both very firmly distanced themselves from any such proposition. The then Minister of Justice (more latterly the Prime Minister) firmly stated that the Government had no plans for any such cards in New Zealand. More recently a National Party speaker on social policy issues repudiated any possible use of ID cards (Upton, 1989a, and 1989b).

A dominant feature of New Zealand policy has been the complete absence of any general purpose identity card. There has been no substantial push at any policy level for

such identification. This lack of any political push is consistent with the traditional expectations in a common law society. The basic significance of this in everyday life is seen in the words of Mr Justice Kirby.

"A dentist who survived Auschwitz may declare that the best thing of living in Australia (it could equally be Canada, the United States or England [or New Zealand]) is that he is never likely to be stopped on the corner by someone in uniform with the demand 'Papieren!'." (Kirby, 1986, quoted in Puplick, 1986, page 160.)

It is in the nature of a general purpose identity card that it fundamentally affects the relationship between the individual and the state. The proposed Australia Card, which would have been compulsory for a wide number of transactions, and was intended to address immigration control as well as redistribution issues, was described as a means of licensing those "entitled to operate in the Australian community" (Walker, in testimony before the Joint Select Committee, quoted by Puplick, 1986, page 157). Clearly this is a far cry from the present situation in Australia, or in New Zealand.

It appears that in New Zealand there is no expectation that the state has a responsibility to affirm the identity of individuals for use in general contexts. On the contrary, it seems that the banks may be more important in this role since it is their cards that are generally accepted for commercial identification purposes.

However, though there does not appear to be any ideological acceptance of a general purpose identity card, it is common and normal for people to carry and use special purpose cards. Many individuals carry cards which provide evidence of their right to use financial services or libraries, or their status as valued clients of various retailers. Organisations such as unions, sporting groups and political parties issue cards to their members, the production of which can be mandatory for the exercise of rights within the organisation.

The most important single purpose card issued by the government in New Zealand is the driver's licence. The case for this card presumably depends on the public safety importance of ensuring that only qualified drivers are on the road. In addition, as described in the appendix on redistribution systems in New Zealand, identity cards are offered to beneficiaries of state assistance. They are used to prove eligibility for a state subsidised housing loan, employment assistance, increased pharmaceutical subsidies, or a variety of other forms of aid that some organisations offer to social welfare beneficiaries.

These single purpose cards are widely used and generally accepted. They serve an obvious purpose of identifying an individual in a given context. However, there is no case to claim that this acceptance of limited purpose cards would extend to the issue of multipurpose cards.

If we adopt the same cautious approach to recognising an ideological view of the state as was used in the context of information privacy, we must accept that the state cannot be seen as having a role to impose generalised identity systems. This implies that any identity card that might be issued should be for a limited purpose, consistent with the recognised role of the state in redistribution. In order to ensure that cards cannot be abused and become de facto general purpose cards several protections are needed. As

a minimum the law must ensure that the individual may withhold the card if it is requested in any context other than the purpose for which it was issued. In addition, it is desirable that identity cards should offer as little information on the face as possible, and be readable only by authorised readers. This reduces the value of the card to merchants or law enforcement authorities who might otherwise be tempted to ask for the card.

This discussion completes the review of privacy issues; the second subjective cost is stigma.

- Stigma

The term stigma is used here to cover all forms of humiliation or embarrassment that people might feel as a result of the process of applying and proving eligibility for assistance from the state.

It could be suggested that stigma is a useful means of discouraging frivolous applications for assistance, and is therefore a necessary feature of any redistribution system. However, this ignores the possibility that more accurate and less stigmatising means of distinguishing frivolous claimants might be available. The administrative cost of more precise methods should be compared with the stigma costs of other approaches. At best the use of stigma can only be justified if it is "cheaper" than other available means with the same degree of accuracy in determining relative need. In any event, stigma is a real cost to those who suffer it and, all other things being equal, it is preferable to reduce costs of any form.

The presence or absence of stigma attaching to those who receive state assistance is largely a reflection of generalised social attitudes about assistance schemes. In the short term, at least, these attitudes would seem to be beyond the influence of the government and therefore not a factor to be considered in the design of information gathering systems. However, this more generalised aspect of social stigma is not the subject of this section. Here we are concerned solely with the marginal differences that may occur as a result of the administrative process of application and proof of eligibility, not the wider social view which may attach to any person's status as a beneficiary.

Two aspects of stigma may be distinguished. The first is the feeling of embarrassment or humiliation that may be caused by being publicly identifiable as a person applying for assistance. This is the embarrassment at being seen at the welfare office, seen in the benefit queue, or identified to former or current employers, bankers and other associates as the object of a welfare office enquiry. This form of stigma may be termed "external stigma", and is directly related to the number and identity of the people who have some knowledge of the claimant's circumstances as a result of a claim being lodged.

A second form of stigma is the feeling of intrusion and loss of control that comes from being required to provide personal information. It relates to a person's self image as a separate individual with intrinsic value. At its fullest development it is an aspect of the way in which privacy links to a psychological understanding of self and self worth. (See for example the discussion in Chapter Five, and the work of Rorty, 1976, and Ingham, 1978). This form of stigma relates to the feeling of a loss of self worth that is caused by the need to participate in an intrusive process of self disclosure. This concept may be termed "internal stigma", and is directly related to the number of times a given individual is required to repeat personal details to others, especially when applying for assistance or in some other relatively weak position.

Since external stigma is related to the number of people who are aware of an individual's circumstances, and internal stigma is related to the number of times that an individual must report sensitive information, the following list of operating criteria would seem necessary in order to minimise stigma. The information system should:

- minimise the number of occasions when people must fill in forms, participate in interviews or otherwise report their situation;
- minimise the number of enquiries to third parties, especially specific purpose enquiries associated with welfare applications; and
- minimise the number of visits that applicants must make to welfare offices.

Having canvassed privacy issues, including information privacy and identification, and discussed stigma, this concludes the discussion of subjective costs. The next area for review is resource costs.

Resource Costs

In this paper the term resource costs refers to all use of goods and services in the production and processing of information for assessment and also to any losses in output or fiscal balances as a result of any behavioural changes brought about by the information systems. All of these costs are dead-weight costs on the running of redistribution schemes and, all other things being equal, it is desirable to minimise resource costs in every form. As a general rule, in the design of redistribution schemes and the construction of tax and benefit scales, behavioural effects are the most important component of dead-weight costs. However, in this section we are assuming that the base for assessment of relative positions has already been determined (partly by reference to the efficiency effects of different bases) and the question of the scale is not part of the study. Instead we are focusing on the administrative methods of collection and use of information, so administrative costs become relatively more significant than they are in the overall scheme of redistribution.

The discussion of resource costs is divided into two sections. The first covers administrative costs, which involve the government, the individual and third parties. The second section covers the costs of changes in behaviour.

- Administrative Costs

There are two main areas of administrative costs. The first is the cost incurred by the state and all its agencies in the process of collecting and analysing the data necessary to distinguish between the relative positions of its citizens. The second is the compliance costs faced by all those providing information to contribute to the assessments; this includes taxpayers and beneficiaries, as well as employers, bankers and other third parties. When assessing the overall cost of administration it is important to aim to reduce the sum of all these costs. It is not appropriate to focus simply on the government, or to focus solely on compliance costs, as the two areas are likely to interact. An attempt to minimise the costs of one party is likely to involve a shifting of costs to the other party if the overall effectiveness of the information gathering is to be maintained. Having said that, it is worth identifying what factors are likely to influence the cost of different parties in the system so that the possible costs of different approaches

can be considered, even where it may be difficult to assemble all the information required to assess overall administrative costs.

In assessing the administrative costs for the government it is important to look at the redistribution system as a whole. The costs to a tax office are only one component of the total costs, as is the cost of a social welfare agency or of a housing assistance office. It is quite possible that an integrated information system might add substantially to the costs of administering tax, but as a result of the improved information flow the costs of administering assistance may be significantly reduced. The issues to be considered include the costs of collecting data, storage and retrieval of data, security, and the manipulation and analysis of data. The assessment of administrative costs must take account of the whole range of activity included in arriving at an assessment for income tax and the cost of assessing an individual's eligibility for assistance.

Costs need to be considered at comparable levels of effectiveness. For example, the security of information held by the New Zealand Inland Revenue Department, with its homogeneous function and a high level of staff identification with the purpose of the agency, is very high. The resource cost of similarly high security could be substantially increased if the same data were freely accessible to staff from other state agencies who did not share the corporate purpose of those in Inland Revenue. In such a general access context, to achieve comparable security it might be necessary to have more elaborate access control and access logging, with consequent greater resource cost than has proved to be necessary so far in the Inland Revenue Department.

Overall the criterion in this area must be to minimise all administrative costs of collection and processing of information across the total redistribution system. However, the cost information required to assess this is very complex and would require very careful studies of possible means of transferring or accessing information in different scenarios. This paper will only attempt to make a preliminary analysis of the factors that are likely to contribute to administrative costs in different parts of the system. In discussing criteria it is therefore possible only to list a series of approaches that seem likely to reduce costs. In a broad-brush analysis these factors can be compared across different systems to see which approaches are likely to be among those worth more thorough investigation. For more precise decision making it would be necessary to have much more elaborate financial modelling before a given information system could be selected.

Some of the factors that seem likely to reduce the administrative costs for the government are as follows. It seems desirable to minimise the number of collections of equivalent information about each person. The amount of information collected on each person should be minimised (consistent with arriving at an adequate assessment) and kept as simple as possible in order to maintain ease of handling of information after it is received. It would be preferable to minimise the amount of processing of data that is carried out on individuals for whom that information is irrelevant. Security systems need to be simple and effective, including clear controls on data access.

A less obvious cost-minimising point is that it is preferable that organisations involved in redistribution should have clear and simple functions. Having an organisation that is principally involved in tax gathering but also with a significant involvement in the distribution of welfare (or vice-versa) may lead to confused organisational missions and reduced clarity of goals by the staff. Such confusion may affect morale and efficiency throughout the organisation, so contributing to unit costs of assessments.

In effect, these add up to a fairly standard set of simple rules for efficient administration. Organisations should be kept simple with clear goals, processes should be simple and understandable by the staff and clients, and the number of times operations are carried out should be minimised consistent with the need to provide a good service.

From the point of view of the providers of information, again the goal is to minimise the cost of all providers of information, subject to adequate information being provided. The primary source of information for any redistribution purpose is usually the individual concerned. That person must fill in a tax return, or a social welfare application, or a Family Support declaration, or a rental housing application. All of these forms may be complex, and the process may be supplemented by the need to produce documentation and interviews. The time and effort involved may be considerable.

The process of filling in tax forms is clearly understood as a compliance cost for the individual. In addition, though it may be less often acknowledged, the process of applying for assistance also imposes a cost on individuals. The significance of application costs may sometimes be discounted either on the grounds that it is right and proper for applicants to expend some effort to qualify for assistance, or on the ground that the value of time is very low for welfare beneficiaries. The first ground misses the point; whether or not it is proper that applicants ought to expect to spend time and effort, the process still exacts a cost which should be factored into the analysis. The second ground is simply wrong; no one has a zero opportunity cost of time, there is always something else to do. It is true that for some lonely people the process of applying for assistance can provide the human contact which is a highlight of the week, but it is unrealistic to assume that most beneficiaries are in that position. Many have domestic responsibilities, some are in (low paid) employment which requires their time elsewhere, and others may wish to pursue enjoyable leisure pursuits. We cannot assume that, because a person is applying for benefit, time is of no value to that applicant. If such an assumption were to be used it would imply that the recipient of assistance is of no account, and this is an ethically unacceptable basis for policy.

It is true that it is difficult to determine the price at which the time of a beneficiary should be valued, but the time itself can be measured. All other things being equal, it is desirable that the time involved for all individuals in providing personal information for the redistribution system should be minimised, so long as adequate information is supplied.

For providers of information, especially employers, banks and other businesses, there are significant costs in organising their own information systems (especially accounts) into a form that produces information of the type that the government wishes to have. Having made that infrastructural investment, there is then a recurring cost of providing information which is incurred each time the information must be supplied. In order to minimise both the initial investment and the recurring costs it is desirable to keep information requirements simple, and preferably closely related to information which the firm would have wished to assemble for its own purposes.

The important aspect about compliance costs is that they represent a dead-weight cost on transactions, including the cost of providing financial services and of employing labour. Given the importance to the economy of the efficient provision of financial services, it is quite clear that it is economically desirable to minimise this cost. Similarly, it is clearly important to minimise non-wage labour costs. It would require a rather

strained argument to claim that redistribution provides particular services for the financial sector or for employers. This means that user pays arguments cannot be used to justify imposing a de facto tax on bankers and employers by shifting the administrative costs of redistribution on to them. Instead, the justification of imposing information requirements on those industries is that they are the groups holding the relevant information, and the overall social costs are likely to be minimised by approaching the institution that already holds the information. However, the fact that employers and bankers do not themselves get any special benefit out of the use of the information underlines the importance of minimising compliance costs and ensuring that state systems are designed to handle the receipt of information with as little burden on the supplier of information as possible. In particular, it would seem desirable to ensure that compliance costs are not only low, but that they be uniformly low as between different employers contemplating taking on more employees, or between financiers considering the supply of extra financial services. Any system which imposes extra costs on those employers who happen to have a high labour turnover, or a lot of seasonal work, might excessively discourage employment in those industries for no valid reason.

As with government administration systems, the information on the overall cost of compliance is not easy to come by. However, the likely effect of some factors can be identified in order to undertake a broad-brush analysis of possible administrative alternatives.

All other things being equal, it would seem desirable to reduce the frequency with which third parties are required to supply data on the circumstances of individuals. However, it may be more significant to reduce the number of occasions on which one-off enquiries are made about a particular person. So long as the information which is regularly collected is as simple as possible, it may be more desirable to report regularly on all employees or clients, rather than to respond on a one-by-one basis as state enquiries are made. For the purposes of this discussion we may declare that it is desirable both to minimise the overall frequency of reporting and to avoid one-off enquiries. The appropriate balance between these can only be determined as an empirical issue.

- Behavioural Effects

Any activity by the government is likely to lead to changes in relative prices. Under normal rationality assumptions we may expect that the behaviour of people in society will change in response to the new set of incentives. These behavioural changes can lead to changes in outputs, and changes in the payment of taxes or receipt of benefits. The difference between the levels of output or fiscal balances associated with different sets of policies may be regarded as a measure of the resource costs of alternative approaches.

The transfer payments involved in redistribution programmes introduce substantial changes in relative prices. In particular, the net returns to employment and saving are likely to change as a result of changes in tax or assistance schemes. However, it is not the purpose of this study to assess the overall consequences of redistribution. Instead it is assumed that redistribution will continue to be part of the government's activity at approximately similar levels to the present. The focus instead is on the behaviour changes induced by different methods of collecting and processing information for redistribution purposes. In that context two main areas of concern emerge. The first is changes in related activities that might occur as a result of the use of information for

redistribution. The most commonly quoted example in this area is the possibility of reduced voluntary compliance with tax systems in response to the use of tax information for other purposes. The second behavioural response is the possibility of fraudulent tax returns and benefit applications as individuals seek to take advantage of the redistribution system.

a Changes in Related Activities

There appear to be two obvious areas that could be affected by the information systems used for redistribution. The first is the change in the likelihood of individuals accepting assistance from the state, and the second is the change in the likelihood of individuals complying with tax obligations.

In the area of the uptake of benefits it is important to be careful to specify the problem correctly. We are not here talking about fraudulent applications, but the uptake of assistance by those who are eligible for that assistance. Since the purpose of benefit policy is presumably not cynical, administrative processes which increase the percentage of the eligible population who take advantage of redistribution schemes are to be preferred (even though the fiscal cost is higher) over those with a lower percentage uptake. It is hard to see any legitimate reason for the state to prefer a low uptake for any given scheme, since that would imply either a systematic bias in delivery which excluded whole sections of society, or that the receipt of assistance was effectively a lottery. Neither outcome would seem to be consistent with any plausible government goals in redistribution. Therefore we may assume that information requirements should be as simple as possible so that they can be readily understood and acted upon by the eligible population. This suggests that, all other things being equal, integrated redistribution schemes with uniform income returns and automatic receipt of assistance, are desirable.

Another possibility is that the uptake of benefits might vary because different approaches to administration might encourage or discourage people from ordering their lives in a way that makes them eligible for assistance. As a general rule, schemes which encourage people to rely on the state to support them, rather than to make extra efforts to take on paid employment and so become self-sufficient, are to be discouraged. However, it is difficult to see what could be involved in the information systems used for redistribution which might change people's eagerness to be eligible for assistance other than stigma or inconvenience. Stigma has already been covered and, all other things being equal, it is clearly preferable to reduce stigma where possible. Inconvenience for applicants for assistance has also been covered already since it is a subset of compliance costs. It must be assumed that as a general rule the lesser the inconvenience to applicants, the better. This is partly because of the general presumption that any reduction in compliance cost is to be preferred, but also because the marginal impact on the behaviour of applicants as a result of administrative inconvenience is unpredictable between different individuals. It is more straightforward and less capricious to operate a scheme with minimal applicant inconvenience but a lower level of benefits, rather than a package with similar average costs but a higher level of benefits and higher applicant inconvenience. The net impact between beneficiaries would be more predictable with a low inconvenience scheme and as a result the government could be more confident that those individuals who were targeted to receive assistance were in fact utilising it.

The conclusions for the design of information systems from this discussion is consistent with those already outlined under the headings of stigma and compliance costs. In particular it seems preferable to have schemes which are as simple for the applicant as possible, including systems where an application for tax and for support might be actioned simultaneously.

The area of tax compliance is very contentious. Tax departments the world over tend to claim that the use of tax information for any other purpose might have drastic implications for voluntary tax compliance. They predict that taxpayers would be less willing to supply honest information if they knew that the tax information was liable to be used for non-tax purposes. This means that any integrated redistribution scheme based on tax information could be expected to be accompanied by a loss of tax receipts. Any such loss would be a serious cost to the government which might outweigh any fiscal gains from a move to more accurate information systems and the reduction in benefit fraud.

This argument seems plausible and my interviews with tax officials around the world showed that it has widespread support. However, under more close examination the argument collapses from the lack of a theoretical foundation and the absence of any empirical support. As explained in Appendix Three on Tax Compliance, once it is assumed that a major factor leading to tax compliance is a fear of getting caught for non-compliance, it is apparent that there is no strong reason to expect a major taxpayer response as a result of changes in the way in which the tax information is handled. The marginal loss in tax receipts from those who are in a position to choose to withhold tax information is likely to be substantially offset by the gains from those who are not in a position to adjust their tax returns and whose fraudulent benefit applications could be quickly exposed. Theory does not give us a clear prediction on the likely outcome of this balance, so we must turn to experience. It is difficult to establish accurate empirical results in this area as there is no base line for comparison and no opportunity for control groups. However, results in the United States, where tax information is now used in a large number of contexts including many redistributive contexts, has not produced any evidence to show that compliance behaviour is impaired as a result of other uses of tax information. Even where tax information is used to take money from fathers who are defaulting on maintenance payments, IRS officials acknowledge that there is no evidence that this group respond by refusing to comply with tax obligations (interview with Lefbom, October 1989).

In its review of the New Zealand Inland Revenue Department, the International Monetary Fund (IMF) expressed a concern at the involvement of the tax department in social policies (IMF, 1988). However, this does not mean that the IMF felt that the Inland Revenue Department's information should not be used for social purposes. Instead the IMF report suggests that, rather than having Family Support administered by Inland Revenue staff, the tax information could be handed over to another agency for the administration of social policies. The IMF see no significant compliance problems that would be created by such an approach. (IMF 1988, page 59).

This discussion suggests that the issue of tax compliance raises no concerns that need to be reflected in the criteria for the assessment of information systems to be used for redistribution.

b Fraudulent Claims

The need to reduce fraudulent claims is an area that may be separately identified in assessing information schemes. Every payment made in respect of a fraudulent claim is both inequitable, as it provides funds for those who are not most in need, and also represents a dead-weight cost as it increases the transfer costs of a benefit scheme.

However, beyond acknowledging that fraud is a cost, most aspects of the issue need not be explored more closely here as it has already been covered in the discussion of the means of assessment. The need to provide accurate measures of relative need, in particular the requirement that income and other bankability information be verified wherever reasonably possible, is aimed at avoiding fraud.

One issue in fraud prevention that has not been covered is the design of identity card systems. If cards are issued, and relied on for proof of eligibility, it is important that they be secure. This involves three tests. The first is that the issuing process must have high integrity; cards should only be issued where it is clear that the person has been correctly identified, and that any aliases are also noted in connection with the one card. This is essential to reduce the risk of the redistribution system being abused by people acquiring official cards illegitimately. The second is that it must be difficult to forge cards, or tamper with legally issued cards. This is necessary to reduce the risk of people using improper cards to access the system in any way. The third test is that it should be as difficult as possible for anyone to profit from the theft of an identity card. If the card contains extensive details about the user which can be readily read on the face of the card, it is relatively easy for a thief to impersonate the card owner, and so gain access to the benefits that the card was supposed to regulate.

Another possible source of fraud is staff fraud. It is not in the purpose of this study to cover internal audit procedures. However, it is consistent with the need to avoid staff fraud that systems be kept as simple as possible and be used with adequate identity checks and verification of the income information which is supplied by claimants. The need to control fraud therefore provides support for several of the criteria that have been developed in other sections above.

The Criteria

Having reviewed the nature of the information necessary to run a redistribution system, and the costs that may be imposed by such systems, it is now possible to bring together the conclusions arrived at in the earlier discussion into a list of criteria for use in the assessment of information systems for redistribution. All of the items in the list below have been identified in the previous sections. Some have occurred in several sections and others arise from the contradictory conclusions of different sections. In applying these criteria for policy analysis purposes it will be necessary to make tradeoffs between some of the different goals.

For ease of application, the criteria are sub-divided into four different sections. The first relates to the nature of the information that is needed in order to assess the relative position of different members of society. The other three relate to the steps that should be taken in order to minimise the costs on the government, individuals and third parties.

- The Required Information

In order to arrive at an accurate interpretation of the relative position of different people the analysis contained in Chapters Three and Four, and in the earlier section of this chapter, indicates that the following information is necessary:

- current income;
- recent income, measured in intervals of less than a year;
- past income, annually for at least two years;
- wealth;
- employment status;
- disabilities;
- family circumstances.

On the assumption that the definitions of these items are clearly understood and accurately followed the important attributes that the system must protect are:

- **Feasibility:** information collection and processing systems must be technically feasible;
- **Timing:** the information must be collected sufficiently frequently and must be sufficiently timely to be useful for administrative purposes;
- **Verification:** information on the circumstances of individuals should be validated from third party sources wherever reasonably possible;
- **Flexibility:** the interpretation of information on individual circumstances must be interpreted with sufficient flexibility so that those facing constraints can be accurately identified.

Having determined the nature of the information that would be preferred to make a fair assessment of relative need, we may now list the criteria that should be considered if the costs of the information system are to be minimised.

- Government Systems

- **Simplicity:** the information being collected, and the flows of information, must be kept simple;
- **Duplication:** similar information should be collected and assessed as few times as possible;
- **Correctability:** information should be stored in ways which allow the ready correction of any mistakes;
- **Security:** all information must be kept under adequate physical and logical security, and the number of officials with free access to the data must be minimised;

- **Organisation:** departments and other government organisations should have straight forward structures, avoiding conflicting missions;

Two particular areas that need to be covered are:

- **Matching:** administrative matching should only proceed using closely related data for which those supplying the data understand the purpose for which it will be used, and with due process to be used in all steps of the administration. Preferably any match should be on a case by case basis. Analytical matching (with no immediate administrative implications) should be permitted so long as there is secure protection of the data involved.

- **Identity Cards:** Any identity card issuing system must have adequate integrity, the cards should be difficult to forge, and should contain the minimum freely readable information on the face.

- **Requirements on Individuals**

- **Control:** individuals should retain as much control as possible of information about themselves;
- **Identification:** identity cards should only be used on a single or limited purpose bases;
- **Repetition:** the number of times individuals must supply personal information should be minimised;
- **Exposure:** the number of visits to welfare agencies, or other public acts in the process of applying for assistance, should be minimised. Similarly, the number of specific enquiries to third parties for information about named applicants for assistance should be minimised;
- **Effort:** the total time involved in providing information on personal circumstances should be minimised.

- **Third Party Requirements**

- **Frequency:** the number of times that third parties must supply information should be minimised;
- **Enquiries:** the number of specific purpose enquiries to third parties should be minimised;
- **Accounts:** information collected from the third parties should be as close as possible to that which they would have been likely to collect for their own purposes.

In total the list calls for information on seven different factors, which should comply as well as possible with nineteen criteria. Some of these, such as the different aspects of duplication are repetitive, and the criteria could be shortened. However, the list is kept in its full form here to enable an examination of the issues from the point of view of each of the individual, the Government, and third parties. In later chapters these standards of a good redistribution information system will be used to assess the performance of existing systems, and to make an indicative evaluation of possible alternative approaches.

CHAPTER NINE: A CRITIQUE OF EXISTING REDISTRIBUTION SYSTEMS

Introduction

Having used the theory of well-being and the philosophy of privacy to establish a set of criteria for the assessment of information systems used for redistribution, we may now use those criteria to assess the design of existing systems. In order to make a shift from the abstract to the concrete, we must first introduce the systems which are in use and then apply the criteria to evaluate the current approach.

The first part of this chapter will present a stylised description of the major redistribution systems used in New Zealand. The description will be cast at a generalised level, drawing out the significant points about the information systems used. For a more detailed description of a set of information systems the reader may refer to Appendix One, on New Zealand redistribution systems.

The description will focus first on the information systems used for tax. Following this there will be an outline of systems used for welfare purposes, with housing included as a separate entity within the welfare area. The following section of the chapter is a step-by-step application of the criteria to these redistribution information systems.

The System Overall

Tax and welfare systems jointly contribute to a complex set of information flows. There are important differences between the two areas; one collects annual information on past income and the other collects periodic information on current and recent income, wealth, employment, disabilities and family circumstances. However, there is a substantial overlap and duplication across the various parts of the redistribution system.

Figure One contains a highly simplified schema of the information flows relating to income. It would be possible to construct a diagram which illustrated the flows of all the different types of information that are collected for redistribution purposes, but it would be very complicated. Information flows relating to income are shown here because income is the most interesting single factor involved in the assessment of well-being. Information on location (migration) is also added as an example of other items which add to the overall flow of data.

It would also be possible to conceive of a larger diagram, showing all flows of information (or all flows of income information) to the government. This diagram on information used for redistribution could then be located within a more comprehensive framework. A major addition in such a larger diagram would be the Department of Statistics, which collects information on all of the areas identified in Figure One from each of the groups shown. However, the focus for our purpose is solely on redistribution, and other information flows are ignored here.

Some features which are immediately apparent from a quick scrutiny of the diagram are:

- there is a large number of flows of similar information into the government redistribution system;
- there is very little exchange of information within the redistribution system;

FIGURE ONE: Information Flows To & Within the Government's
 Redistribution System: Income & Location

- outside the tax system there is very little comprehensive verification of circumstances.

These visual impressions provide only a first blush overview. Before making a more comprehensive analysis the systems must be described more fully.

The description in this chapter applies particularly to the processes used in New Zealand, but the outline of any one part of the information systems could equally be applied to many other countries. As a general rule the administration of welfare system in New Zealand is very similar to those in the United Kingdom, and the administration of tax is very similar to the system used in the United States of America. Some of the significant differences in other administrations will be pointed out during the description. One important aspect of the New Zealand system is that we have a centralised Government. Those nations with a federal administration face many complexities which we are able to ignore.

Like any other real world system, the existing structures used for the collection and management of information for redistribution purposes is extremely complex. There is a great deal of variety even within one country, and there are many individualistic quirks about different programmes. This complexity is not surprising. Information systems have grown over time as the redistribution system has developed. Many details may be added from time to time as new policies are introduced and old policies adjusted. Technological innovations tend to be applied on an uncoordinated basis to different aspects of the system as problems emerge or opportunities occur.

For the purposes of this discussion we may abstract from most of this confusing detail to identify the most important aspects of the information systems. Though redistribution may be viewed as one entity, the two different aspects of redistribution, tax and welfare assistance, are here described separately.

Information Systems Used for Tax

The important detail to establish about the information systems in this area are: what information is collected; from whom; at what times; and how that information is processed. The following paragraphs focus on those details.

Information on What? Information for tax purposes focuses almost entirely on income. The first item of information, however, is an identifier, which is the tax number. All dealings with the Inland Revenue Department should contain a reference to the tax number of the individual concerned. Though there have been some problems as a result of some duplication during the initial issue of the tax number, this is supposedly a unique identifier for every taxpayer in New Zealand. The Inland Revenue Department has recently announced plans to upgrade the integrity of the tax number, and the likelihood of duplication will be greatly reduced.

Having clarified the identity, the main focus for the information is the income received in the previous March year. The information covers income from all sources, but excludes imputed income and (except for those trading in assets) excludes income from capital gains. The income to be reported includes all salaries and wages, social welfare benefits, income from capital (interest and dividends), and all business income including income from trusts, estates and partnerships. In New Zealand there are very few

deductions for non-income purposes; for example there is no deductibility for mortgage payments on owner-occupied housing in New Zealand. This means that the New Zealand system arrives at a nearly comprehensive assessment of annual income and for most wage and salary earners it is relatively simple compared to the systems that prevail in some other countries.

In addition, though the primary focus of the information collected is on income, the Inland Revenue Department also collects information on the employment status of taxpayers through the year. The purpose of this is to ensure that income earned at all times is reported, and to identify any gaps in reported earnings.

Information Collected from Whom? The annual return filed by the individual taxpayer is the primary source of information. Most income information must be provided with substantiating material. This generally means providing evidence of receipts from employment (in the form of a statement from the employer), evidence of interest and other capital receipts, and receipts for any deductible expenditure. This emphasis on universal annual returns is found in virtually all income tax systems; the British system, which requires employers to calculate PAYE deductions on a cumulative basis through the year, is an exception to the rule. In every tax regime, businesses must submit full accounts and retain evidence of receipts and payments for possible later audit by the tax authorities.

The second supplier of information is the payers of income. All employers must produce evidence, identified by tax number, of all wages and salaries and other allowances paid during the March year for each of their employees. Banks and other payers of interests, and also share registrars must also supply information on the amount paid to depositors and shareholders; currently this is identified by name but administrative processes are being introduced so that all interest and dividend payments may be identified by tax number in the near future.

The third source of information is the projects that are run by the Inland Revenue Department. The Department may approach institutions to require records of payments made by members of various groups (such as local authorities) to the providers of a service (for example, contractors). This project information can be used to check the information supplied in the returns filed by those service providers, to see whether all their activities have been accounted for.

When is Information Provided? All information returns, from taxpayers and from those providing income, must be forwarded soon after the end of the financial year. For most taxpayers this means the March year. All third party reports on salary and wage payments, and interest or dividend payments to individuals are provided on a March year basis. This means that most of the information is provided in the first quarter of the financial year but for some business income the returns may be provided some months later. Information for project or for audits can be collected several years after the end of the financial year in question.

How is the Information Processed? The tax collection system, and hence the associated information management system, is characterised by tax authorities as a voluntary compliance system. This means that the tax authorities assume that most people, most of the time, present honest tax returns. That assumption implies that it is

necessary only to check enough returns to encourage continued honesty, but it is not necessary for there to be comprehensive checking of all returns. For most people, therefore, the self assessment of tax is accepted as the final assessment and the process of recording liability is substantially a clerical transfer of data from the tax return.

However, after the assessment has been arrived at, there is a post-assessment verification and audit process. Verification involves the matching of data from returns with data provided by third party payers of income. In New Zealand, a substantial percentage of source information (around half of all employer data) is electronically matched to returns. In some other countries a higher percentage is matched, for example in the United States 100 percent of employer returns are matched to individual returns. In addition, information from other sources, including project information gathered by IRD staff, is matched on a regular basis. The aim of this verification process is to identify income information that is not offered by the taxpayer. That is, where a taxpayer neglects to mention income from a particular employer or misreports the level of income received from a particular source, the matching process is likely to reveal the payments made and so permit an increased assessment to be arrived at.

The audit process is a further check. Audits involve the examination of returns and a check against information about that taxpayer in order to confirm the accuracy of the return. The auditing process is largely driven by experience of what kind of taxpayers are most likely to file incorrect returns, and what kind of information is most subject to incorrect reporting. Because it is the area of greatest complexity, and the area with the most opportunity for false returns, most audits focus on business earnings.

Because tax assessments can be adjusted up to 10 years after the end of the financial year in question, tax data is retained by the Inland Revenue Department for many years. The return and associated documents are kept in paper records, and the electronic ledger which records all of the central details from the assessment, is kept on the central computer. All staff in the Inland Revenue Department have the right to access any return (other than a few sensitive returns such as from the judiciary and from the Department's own staff). This access can be achieved through on-line terminals in all district offices and at head office or by calling for the file on a given taxpayer. It should be noted that, in spite of the inherent risk posed by the widespread staff right to access data, the Inland Revenue Department has an exemplary security record, with no major leaks of personal information. There is a very strong emphasis in the Department on the need to protect the information supplied by taxpayers and to ensure that it is used solely for tax purposes.

In Summary: The set of information that is received by the tax authorities is regular and comprehensive, with a very large proportion of payments being reported to the Department automatically. In addition the Inland Revenue Department can require information on individual transactions or to do with the affairs of any given taxpayers. The information systems used for tax purposes are characterised by bulk handling of one type of information (annual income for the past year) and comprehensive verification. Up to 10 years of records of the taxes for every taxpayer are retained.

Information Systems Used for Welfare Purposes

The information systems for welfare are more complex but less thorough than those involved in tax. The complexity arises because there is a greater variety of forms of assistance, a greater range of information and more institutions. The reduced

thoroughness relates to the lack of comprehensive verification. The description here focuses mostly on the systems operated by the Department of Social Welfare and the Housing Corporation. The systems are described together because as a general rule the information collected and the process of handling that information is similar for both agencies. However, it should be noted that though this presentation gives the impression of a single system, the implication is that for many people the same information is collected twice, as the two systems duplicate each other. The other major welfare agency is the Inland Revenue Department which operates the Family Support programme.

As with the discussion of tax, the information systems are described by reference to the information collected, the person from whom the information is collected, the timing of the information collection, and the processing of the information once it is collected.

Information on What? The tax number is not used as an identifier outside the tax system so the Department of Social Welfare requires separate identification to be offered. Once the identity of the individual is established, generally using at least two forms of identification, an applicant is assigned a unique Social Welfare number for use by the Department to keep track of all of that person's dealings with the Department. In contrast, it is notable that the Housing Corporation does not require any form of identification from applicants, and operates no national numbering system. For Family Support, which is constituted within the tax system, the Inland Revenue Department uses the tax number.

The major item of information that is supplied to all welfare agencies is data on current income. The Department of Social Welfare and the Housing Corporation both require information on wages and salaries received over the last month or so. Similarly, the Inland Revenue Department requires evidence of recent pay slips when households apply for the Family Support Eligibility Certificate. In addition, for most benefit and housing purposes, information on income received over the previous twelve months is also sought. Though this does not involve a breakdown of receipts within that twelve month period, it could be characterised as a first approximation of recent income.

In order to confirm estimates of income from capital, and also to establish eligibility for accommodation assistance, both the Housing Corporation and Department of Social Welfare require information on assets. This focuses on financial and real wealth. Information on employment status is also gathered by each agency involved in welfare assistance.

Information on the disabilities of sickness or invalids beneficiaries is collected by the Department of Social Welfare. The Housing Corporation would only normally acquire information on disabilities for special assistance that may be offered to help with house conversions and as a factor in deciding priorities for state rental housing.

Information on the family circumstances is required by every welfare agency. This generally includes information on the identity of the spouse and the number, names and ages of all dependent children. The income of all adults in the family unit (as defined for the purposes of that assistance) is also generally collected.

The paragraphs above account for all the items which measure bankability. In addition there are other items which are collected for particular purposes in the administration of assistance. Several benefits are only available to people currently residing in New Zealand, and therefore information is gathered on location, or particularly on emigration.

Another area of information that is commonly collected is data on spending. Generally this relates to spending of a particular sort, eg accommodation. The provision of all forms of accommodation assistance is contingent on information being supplied on accommodation costs, and the Housing Corporation also requires details on the standard of accommodation. Information on specific items of expenditure is also collected for other special purpose forms of assistance such as pharmaceuticals and child care. A further example where spending information is collected relates to discretionary assistance. The provision of supplementary benefits, or the discretionary discounting of rents or interest payments, is usually contingent on a fully itemised household budget being prepared and submitted to the relevant agency.

Information from Whom? The main source of information for welfare purposes is from the applicant. In every case there is an application form which usually requires that evidence be provided to substantiate details of receipts and payments.

For Family Support purposes, the information that is collected is essentially similar (but in more detail) to that provided for tax purposes, and the verification process is the same as used for tax, with the addition of some recent pay slips during the process of applying for the Eligibility Certificate. Family Support, being part of the income tax system, is the only welfare scheme which involves comprehensive verification of income from all sources. All other schemes verify only those sources of income that are identified in the application for assistance.

For Social Welfare and Housing Corporation purposes, verification is sought in respect of all sources of income that are specified in the application. The Housing Corporation requires the applicant to produce a form filled in by an employer attesting to income paid. The Social Welfare Department generally prefers the applicant to supply evidence of income received (generally recent pay slips) but when this is not available, or when extra information is needed, the information is acquired using enquiry forms. These are one-off requests that are forwarded to the sources of income nominated in the application. Employers or other providers of income are requested to inform the Department of Social Welfare of payments made to the identified individual.

The welfare agencies do not normally exchange information between themselves, but the staff of the Housing Corporation and Social Welfare contact each other occasionally to clarify the position of an applicant. In addition, because benefits are taxable, the Department of Social Welfare reports annually to the Inland Revenue Department on the benefits paid to each individual, identified by tax number.

There are two major sources of information on matters that may be omitted from the information provided by the applicant. The first is information from the general public. Tip-offs, often anonymous, are received by all agencies but are most important for the Department of Social Welfare. The other independent source of information relates to departure from New Zealand. Everybody leaving New Zealand is required to fill in a departure card and these are referred by the Immigration Division to the Department of Social Welfare. The Department matches the identities on the departure cards with its roll of benefit recipients. This is the only comprehensive set of verification information that is used outside the Inland Revenue Department.

When is the Information Collected? The information is mostly provided at the time of applying for assistance, and subsequently as required whenever renewal of assistance is needed. For most benefits and for housing assistance these renewals are on an

annual basis, at the anniversary of that particular benefit or assistance. For some benefits there is a more frequent rotation (often two monthly). The renewal cycle for each beneficiary operates from a date determined by reference to the time of application for that benefit. This has two implications. The first is that the flow of information to the Department continues through the year. The second is that information provided to welfare agencies about the previous year's income may not bear any relationship to the tax year or a calendar year.

How is the Information Processed? The processing of Family Support is effectively the same as income tax, and need not be described again in this section.

Unlike the tax system, welfare and housing assistance are not dominated by any annual cycle, and applications arrive in a steady stream through the year. As a result, staff are not organised by function (such as classification or verification as found in the Inland Revenue Department). Instead, because the main distinguishing feature of the assistance process tends to be the detailed differences between different benefits or between rental and lending assistance, the staff are organised by type of assistance. Staff within one section of a welfare office are likely to handle all aspects of application and verification of information for one form of assistance.

All applications (especially those to the Social Welfare Department) are carefully checked and often double checked. Each item of information is expected to be verified, and evidence should be attached to the file to substantiate the claims included in the application. The benefit or level of housing assistance is calculated by welfare staff and not by the applicant. Internal control and audit systems are designed to ensure that each step is properly carried out and that the calculations of assistance are correct. The information processing system may be characterised as being application driven. Staff specialising in all aspects of handling a particular form of assistance are required to carefully vet all information on the application and to confirm it against all reasonable sources.

There are two main exceptions to this application driven approach. The first is the Benefit Control Units, which largely rely on information from the public to identify beneficiaries whose circumstances should be audited. The second is the emigration card matching process which is carried out at a centralised data office.

Though the Department of Social Welfare has a substantial computer system, its capabilities are limited and only a small amount of personal data is held electronically. At present the central computer system in the Housing Corporation is even more limited, containing only ledger data on debts and payments, and no personal data. Both the Housing Corporation and the Department of Social Welfare keep most information on paper files in district offices. Access to the files is normally open to all staff, so that anyone working in a particular district has ready access to information on anybody receiving assistance from that office. In addition, staff in the Social Welfare Department are able to access more summary information contained in the central computer system on every beneficiary. As with the Inland Revenue Department, it is not apparent that there has been any major leaks of personal information from these welfare systems.

In Summary: All of the items which comprise the elements of income and bankability are collected in some form or other, and in addition further information is frequently collected to establish eligibility or to identify a particular need for discretionary assistance. Welfare processes are generally characterised by detailed scrutiny of

individual cases and the verification of information supplied on the application form, using one-off approaches to third party sources. There is almost a complete absence of comprehensive verification of circumstances against sources that have not been nominated by the applicant.

The Criteria for Evaluation

The bones of the redistribution systems are now apparent (and there is more flesh in the appendices). In order to determine whether these systems meet the needs of an effective and sensitive redistribution policy, the criteria that were developed in Chapter Eight may be used to identify the strengths and weaknesses of the current information system. The criteria are subdivided into four areas. The first is the information requirements, and the others relate to the Government, the individual and to the third party supplier of information.

- The Required Information

The current information systems used in redistribution may be claimed to collect in some form, and into some agency, information on all the categories that have been identified as necessary to assess income and bankability. The most doubtful claim relates to recent income, but for all other areas it is clear that some information is being collected.

Current income, being information on salary and wages in recent weeks, is collected by welfare agencies. Recent income, in the form of information on income over the last twelve months, but not broken down into shorter periods, is also collected by welfare agencies. Information on past income is collected by the Inland Revenue Department. Information on wealth is collected by welfare agencies and all institutions collect information on employment status. Information on disability and on family circumstances is collected by welfare agencies.

However, though information is collected, an examination of the factors necessary for good quality information highlights some significant deficiencies. These criteria will be examined in turn.

Feasibility: Since all the systems described in this chapter are currently functioning they are obviously feasible.

Timing: Information for tax is collected annually at the end of the tax year. This is both sufficiently timely and sufficiently frequent for all tax purposes and for any other purpose for which information on past income is required. Information on current income is monitored frequently for short term benefits. Generally new returns are required about every eight weeks. This is consistent with the desired frequency that was suggested in Chapter Four.

The major gap is the monitoring of recent income. Because no agency regularly collects monthly (or even quarterly) income information, there is no source for welfare agencies to use in assessing this aspect of bankability. Individuals are not asked for any periodic breakdown of their last year's income, and employers are asked only to supply either current income or income for all of the recent year. The Inland Revenue Department does not normally collect data on the flow of income during a year. The only circumstances when receipts during the year may be supplied on a more disaggregated

basis is in the case of an individual who has changed jobs during the year. In that case certificates of earnings from different employers may reveal the income profile during the year. Such data is lodged within the written tax file but the information is not processed, so it is not readily accessible. In addition, even though the tax file could be queried, the information would not be available before the end of the tax year.

Income on wealth is collected annually during the periodic reassessment of eligibility for assistance. This would seem to be a sufficiently frequent period of review.

Information on employment status and family circumstances (and, where relevant, disability) is supposed to be reported whenever circumstances change. Since the assistance relates directly to the current status of each of these factors this seems an appropriate timing.

Verification: Information for tax purposes is generally subject to comprehensive verification. Data from individual returns is routinely matched to source data to identify any income that has not been reported and to verify the levels of income that are reported.

In the welfare area, verification is much weaker. Though there is a regular policy to check all reported information, there is no normal means of identifying sources of income that are not reported, or any other circumstances that have not been divulged. The individual with an unreported job, business, or bank account, has a good chance of remaining undetected in the normal course of events in the processing of a welfare application. This is why the Department of Social Welfare continues to have a problem with individuals who fail to report their new jobs when they start employment.

For long-term beneficiaries, and for the assessment of bankability, past income could be useful in clarifying the circumstances of individuals. However, though the Inland Revenue Department holds verified information on past employment status and past income, this information is not used to verify the information provided for the assessment of bankability; the information held by the Inland Revenue Department is not used to confirm any aspect of eligibility for welfare or housing assistance. This strict separation of tax and welfare systems is also found in Britain, but in various other parts of the world tax information is used to help confirm eligibility for assistance. In Europe one-off comparisons of tax information are common and in North America computer matching of tax source information against welfare rolls is regularly used (see Appendix Two on Information Exchanges).

There is no comprehensive verification of wealth information. The Social Welfare Department regularly sends enquiry forms to bankers and other institutions, but, as with employment income, these forms only go to nominated institutions. There is no general check against wealth registries in order to confirm claims lodged by applicants. The Housing Corporation makes no systematic check of reported wealth holdings.

There is also no general check of information about disabilities, but in this case there is no problem. Because eligibility for assistance depends on the presence of the disability (rather than the absence of income or wealth), there is no need to verify the non-existence of disabilities. The incentive is for the individual to report the disability and its existence can be checked on a one-off basis.

Family circumstances is a notoriously difficult factor to verify. There are two aspects to this problem. The first issue is that the existence of outward signs is a poor indication of subjective commitment. The fact that two people may be observed living together is not a definite sign that they live in a relationship in the nature of marriage. Unlike employment, which is relatively easy to identify because both parties have an incentive in clarifying the boundaries of their relationship, personal relationships can be very vague. The individuals involved may have two different understandings of the relationship and even when there is a legal contract (marriage) this is not conclusive evidence that the relationship is continuing.

The second issue in identifying family circumstances is that even those matters that might seem objectively verifiable (for example the presence and number of dependent children) can only be confirmed by the use of very intrusive methods of observation. Visits from social workers, enquiries with neighbours, counting of washing on the line or beds in the house are all extremely intrusive forms of information gathering.

The Department of Social Welfare is well aware that this is a sensitive and difficult area. The main items of information are either statements from beneficiaries or contrary assertions from neighbours; both may be subject to accidental or wilful error. The Department has developed a follow up process for neighbourhood reports, using a counselling (rather than inquisitorial) approach. Head Office staff report that this approach is proving effective, with a high proportion of beneficiaries acknowledging that they are in breach of the rules, and is popular with staff and beneficiaries (interview with Hughes, April 1990). The new technique cannot achieve certainty, but it does provide a means of checking circumstances, and allowing beneficiaries to respond to allegations against them.

It is clear that family circumstances are not verified as well as some other factors. However, it is also clear that this area is inherently vague and we cannot expect to achieve a high level of verification; the methods that are being used seem to be as robust and sensitive as is likely to be achieved.

Flexibility: The systems of emergency assistance and the ability to consider extra information when arriving at a tax assessment or an estimate of benefit eligibility confirms that there is substantial flexibility in the present system. Means exist to collect extra information where necessary and to consider circumstances in greater depth in order to ensure that a more accurate understanding of the circumstances is achieved.

In Summary: Information is collected on all factors involved in bankability, but the lack of a regular collection of income information more frequent than annually means that information on recent income is so poor as to be substantially non-existent. The verification of information for tax purposes is good, but it is very weak for welfare purposes. It may be possible, in particular, to improve the information used for welfare purposes in the areas of income, wealth and employment status.

Having examined the nature of the information to be collected we may now turn to the area of costs of provision, collection and analysis of information.

- Government Systems

An assessment of the issues involved in the Government's administration of redistribution and the design of information systems may be assisted by reference to Figure Two. This is an expanded extract from Figure One, focusing particularly on the

FIGURE TWO: Information Flows to the Government

flows of income information to and within the redistribution system. The main impression from this diagram is of a large number of repeated flows of similar information into the various redistribution agencies, and very small amounts of information exchange between the agencies within the system. The significance of these flows can be identified by reference to the criteria for assessing information systems.

Simplicity: Though listed under the factors affecting the government, complexity imposes major costs on individuals and third parties. The discussion here therefore relates to all groups involved in the provision and analysis of information.

It is in the nature of income, and of bankability, that the information involved is complex. For many people tax returns and welfare applications are among the most complex forms that they need to fill in. However, in New Zealand most of the deductions from income have been removed so that tax forms for salary and wage earners are now among the most simple in the world.

However, the assessment of income is not always simple. In particular, the assessment of business and investment income is always more complex than salary and wages. Given the traditional problems of defining income in this area (see Chapter Two) it is not surprising that operational systems are complex. In recent years in New Zealand, as the tax base has become increasingly comprehensive through reforms such as full imputation, the information requirements on some individuals and third parties have become increasingly complex. The Tax Simplification Committee (1990) has reported that information requirements are onerous. However, the Committee also acknowledged that this is an inevitable result of increasing fairness in the tax system (Tax Simplification Committee, 1990, page 5). As the definition of income for tax purposes has been reformed to more accurately reflect relative circumstances, this has required increasingly elaborate tax returns for those with business and investment income. For most people, however, and especially for those applying for welfare assistance, the assessment of income is not excessively complex.

From the point of view of the government, and the processing of the information once it has been received, most of the information poses few problems. The Social Welfare Department, some offices of the Housing Corporation, and the Inland Revenue Department, all use fairly simple computerised systems to assess the level of assistance to be provided or tax to be levied. For some individuals the particular quirks are too complex for a general purpose programme to handle, but a large proportion are sufficiently straight-forward that their affairs may be readily summarised for computer assessment. Therefore, even though income and bankability are inherently complex matters, for many applicants the issues are capable of being reduced to relatively simple administrative steps.

Overall, it is clear that income information and much of the bankability information are complex, but it is not clear how they could be more simple without losing the ability to draw fair distinctions between individuals. For most people, and for the overwhelming majority of applicants for assistance, the information requirements are substantial but not onerously complex.

Duplication: There is a large amount of duplication in the information collected by different parts of the Government's redistribution system. Social Welfare and the Housing Corporation both collect virtually identical information and assess it in very similar ways. However, because applications for housing assistance or welfare benefits

are not usually lodged at the same time, the assessment of circumstances (which depends on affairs for the year up to the date of application) may vary for the same person at different times during a calendar year. This means that information collected by one agency, and the assessment of circumstances arrived at by that agency, may not be able to be adopted by the other agency without further enquiry.

The information collected by the Inland Revenue Department is also not identical to that collected by the other agencies as it relates to the previous March year rather than current income or income over the last 12 months. In addition, there are some details of cash payments and receipts which the Inland Revenue Department does not normally collect. The main area that this applies to is maintenance payments, and also child-care costs.

However, though the data sets collected by the various agencies are not identical, there is a high degree of overlap between the information on the past 12 months that is collected for most welfare purposes and the assessment of taxable income for the previous March year. Over a period of years, the three agencies each collect a history of essentially similar information on any person who deals with them all.

Security: Although there has been the occasional minor incident, there have been no substantial losses of any personal records by the redistribution agencies in New Zealand. As computerisation increases the theoretical possibility that a staff member could collect and improperly use data on a large number of people is increased. However, the design of new systems can incorporate means to reduce this risk, such as the proposal by Inland Revenue that all access to the data on their new system will be logged. The other major protection is the corporate culture of data protection which particularly imbues the Department of Inland Revenue.

Organisation: At present all of the agencies involved in redistribution discharge multiple functions, with sometimes conflicting goals. One apparent contradiction involves the Inland Revenue Department. The primary role of this agency is to collect taxes, but since the introduction of Family Support it has acquired a welfare function. This new role complicates the activities of the Department, at some cost to their overall operations. The IMF was sufficiently concerned at this diversion of roles that it recommended removing the administration of Family Support from Inland Revenue.

The other agencies also have complex structures. The Housing Corporation has two very different roles. It provides welfare assistance, but it also operates as a financial institution. On the one hand it uses data on well-being to identify who qualifies for aid, but on the other hand it aims to protect itself against the risk of default that can occur through dealing with those who cannot pay their debts. The Department of Social Welfare has a role of supplying benefits to all those who qualify, and another role to provide social work services and support to members of the community.

In each case the presence of multiple roles can lead to conflicts of priorities in the daily operation of the agencies. However, it is not the purpose of this study to arrive at the optimal form of government administration. Instead the focus is on issues directly associated with redistribution, and to see whether redistribution systems themselves are causing avoidable complications of organisational complexity.

In the context solely of redistribution, the most obvious oddity is the Inland Revenue Department. The juxtaposition of a tax gathering and a benefit paying function could be

claimed to be a damaging contradiction of roles. However, on closer examination the issues may not be so clear.

It may be noted that Inland Revenue is not unique in having extra roles attached to its tax collection function. In Australia the Tax Office now includes an office to administer the enforcement of child maintenance payments from delinquent fathers. In the United States the IRS has an office administering the collection of federal debts by means of offsets from tax refunds. It is possible, but unlikely, that governments the world over are carelessly sabotaging their revenue raising organisations. The alternative explanation is that there is more involved than payments and collections.

The roles involved in redistribution may be broken into the assessment of circumstances of individuals, the receipt of moneys from those paying tax, and the provision of assistance to those receiving support. In addition the assessment (and possibly the payment) process can be sub-divided into the assessment of well-being against a formula, and the assessment of well-being for the provision of one-off discretionary aid.

The central element in the operation of Family Support is the assessment of circumstances against a formula. Conceptually this is very similar to the assessment process for income tax. From this point of view there is little conflict involved in administering income tax and Family Support in the one agency, simply an increase in complexity as a result of the use of extra information and the issue of Eligibility Certificates. The second element in Family Support is the regular payment to individuals of income supplementation. Since non-cumulative PAYE income tax systems always need to provide for payments to taxpayers, this is not a totally new activity for Inland Revenue. So long as Family Support is provided via payments by employers it is hard to claim that this involves a substantial departure from the standard role of the Inland Revenue Department. If the role of Inland Revenue is described as assessing the relative circumstances of members of the community and collecting (or paying) taxes (or benefits), the addition of Family Support is directly in line with the Department's standard role.

When a similar approach is taken to the redistribution activities of the Department of Social Welfare and the Housing Corporation a different impression emerges. These two agencies both combine the assessment of means against a standard formula, and the assessment of well-being for the provision of discretionary aid. In order to assess the circumstances of a large number of people against a standard formula it is preferable to develop bulk information management systems, ideally incorporating comprehensive verification. However, for discretion to be properly exercised, there must be one-off judgements using specific information on the circumstances of each case.

Where there is a substantial number of discretionary payments or concessions made, there is an effective delegation of the Government's redistributive function, and a de facto amendment to the Government's formula for determining eligibility for aid. While it is true that the information used to determine eligibility in terms of a standard formula is likely to be useful as part of the information used for the exercise of discretion, it obviously can only be part of the story. So long as those exercising discretion can have access to the information used for the formula, it is not clear that those people who administer bulk systems are necessarily the most appropriate or only group to whom the Government should delegate the administration of discretionary aid. On the other hand,

it is clear that the administration of the two approaches in tandem must divide management attention between the smooth administration of bulk systems and the sensitive handling of individual cases.

Whether the existing organisations are too complex or whether they involve the optimal combination of functions is beyond the scope of this chapter. What we can conclude is that all the agencies involved in redistribution are complex.

Matching: The main area where mass matching of data is carried out is in the Inland Revenue Department. Personal tax returns are regularly matched against reports of income paid from employers and other institutions. Clearly these matches involve comparisons of information which was collected for closely related purposes and they would seem to meet the criteria for an acceptable match. The only other regular match that is carried out on a large scale is the mass matching of immigration cards. Given that departing passengers are not informed of this intended use of the information, and that it is not apparent that a departure card has anything to do with income or benefits, it could be that this match is in breach of the use limitation principle. At very least it would seem desirable that departing passengers be informed of this intended use of migration data.

Another match that is regularly carried out on a one-off basis is between different benefits administered by the Department of Social Welfare. There are currently different computer programs for each benefit, using a common social welfare number for each individual on any benefit administered by the Department. Department staff regularly search the Department's common index in order to establish the correct identity number for a beneficiary, and at times the enquiry may continue into an examination of the records that have been collected for another benefit. However, there is no regular Department-wide check to avoid duplicate applications for different benefits. When the Department has its new computer system in place this kind of internal matching will become easier and more common.

Because of the restrictions on the use of personal information in both the Inland Revenue Department and Department of Social Welfare, there is virtually no analytical matching carried out.

Identity Cards: Currently the only identity cards which are issued for redistribution purposes are relatively informal documents with very limited application. At present these cards would be easy to forge or to misuse, but because they are not significant documents this has not been a serious threat.

In Summary: The Government cannot be regarded as running an integrated redistribution information system. There is a high degree of duplication in the receipt of information and extremely little internal exchange of information, with virtually no matching carried out. Access to personal information by Government servants is very easy, and, as computerisation progresses, this may increase security risks unless adequate precautions are taken. The forms of identification that are currently issued are informal easily forged documents which would not be suitable for any more methodical identification process. The information that is collected seems to be about as simple as could be expected without abandoning the goal of identifying those in relative need. All of the institutions involved in redistribution are complex, with multiple and potentially conflicting goals.

- Requirements on Individuals

The flows of information from individuals are illustrated in Figure Three. The main impression from this diagrammatic representation is of the repeated supply of similar information to different agencies within the redistribution system. Again, the implications of this may be seen by looking at the criteria.

Control: It is in the nature of tax systems, and also of discriminatory redistribution systems, that people are obliged to supply information and this always implies a substantial loss of personal control. The major issue is whether the information, once supplied, is used only for the purpose for which it was provided. With the current separation within the redistribution system and the virtual absence of transfers of information or matching, the system as a general rule passes this use limitation test. The only major item which is not treated in accordance with the purpose for which it is collected is emigration information.

Identification: There is no generalised identification system. Any of the identity cards or documents that are issued are only used on a limited basis for specific purposes. The present system therefore does not violate the identification test.

Repetition: Individuals are frequently asked to supply similar information to three different agencies. This means that many individuals would face three returns each year, being the tax return, a housing return and either a Family Support or a Social Welfare form. Others on short-term benefits could be required to make more frequent returns as well as the housing and tax returns. Clearly there is a large degree of repetition at present.

Exposure: Many welfare benefits require repeated visits to the Department of Social Welfare, but Family Support and continued Housing Corporation assistance can both be handled through the mail. However, the need to provide continuing evidence of circumstances to the Housing Corporation means that employers must be approached each year for further evidence of the employee's situation. Similarly, the convenience of the Family Support system which offers income supplementation with the wage packet, has the drawback that employers must have some awareness of the individual's family position. Overall the existing systems involve repeated exposure of the fact that an individual is applying for assistance.

Effort: As noted above, the forms involved in the application or renewal of assistance, and for tax returns, can be very complex. The process of collecting adequate substantiating information requires individuals to lead tidy lives with efficient domestic records systems, or to go through a busy process of collecting substantiation each time returns are required. The agencies involved inform me that they have made no study of the time and effort involved in individual compliance. However, a recent study in Australia (Pope and Fayle, 1990, page 99) suggests that the average salary and wage earner spends 4.4 hours per year on tax affairs, with substantially longer times spent by those with business and investment income. When this is added to welfare applications, the cumulative effect is a significant and repeated effort from applicants.

FIGURE THREE: Information Flows From Individuals

In Summary: The main freedoms in terms of the individual's ability to control personal information and the lack of any generalised identity cards are preserved under our current structures. However, there are substantial costs in the form of repetitive disclosure, exposure of affairs and considerable personal effort to comply with information requirements.

- Third Party Requirements

The position of third parties who supply information on the circumstances of individuals in society is illustrated in Figure Four, which is an expansion of the relevant part of Figure One. Once again, the significance of the flows illustrated in this diagram may be seen by reference to the criteria.

Frequency: Employers and financial institutions must supply at least one report on payments made to each of their employees or clients every year. In addition, for any one employee or client, an institution may be required to provide information twice more during the year for housing or social welfare purposes. This extra information is virtually a repetition of the information previously supplied, but may relate to a different period. However, though there is repeated calls for information, it appears that it would not be possible to achieve even minimal verification with any fewer reports, and in order to reach a satisfactory degree of integrity in the verification process more frequent reports may be needed.

Enquiries: There are a substantial number of specific purpose enquiries made for Housing Corporation applicants and for Social Welfare beneficiaries. Reference to the workload management records for the Department of Social Welfare shows that 458,000 enquiries were directed to employers about the circumstances of beneficiaries during the past year. The records show that around ten percent of these requests are repeat enquiries (when the employer has failed to respond to the initial approach), so the total answers that employers provide are a little more than 400,000. In addition, a further 80,000 enquiries are made to banks about deposits held by beneficiaries.

On top of these Social Welfare enquiries the Housing Corporation's application and renewal process generates a large number of certificates of earnings which must be filled in by employers. The following figures, which relate to the year to 31 May 1990, were supplied by the Corporation. There are over 8,000 loan applications each year, all of which would have certificates of earnings attached, as well as another 23,000 applications for rental accommodation. There were 9,000 new tenants during the year, most of whom would have needed a further income test to set their rent level at the time of moving into the house. Over 60,000 state houses are let on an abated rent, which must be renewed each year, and there are some 53,000 loans out on an abated basis at present. Many of these tenants are beneficiaries without any other source of earnings, so no third party information is required, but for others a certificate of earnings is necessary.

Taken together, an estimate of at least 100,000 certificates of earnings each year seems conservative. Altogether the number of enquiry forms to be filled in by employers and other institutions, on top of the information supplied annually to the Department of Inland Revenue, is substantial. The responses provided by employers alone are estimated to be in excess of 500,000 per year.

FIGURE FOUR: Information Flows from Employers and Others

Accounts: Tax returns are designed to gather information on individuals for the March year. Even if this is not the financial year as used by any given enterprise this is the period for which wage and interest payments must be reported. For many employers and institutions this corresponds to the tax year, and for others it is a predictable need which systems can easily be designed to take account of.

Welfare returns, on the other hand, require information on current circumstances and income for the year prior to the date in question. Although employers could be expected to keep information on current income as part of the normal wage processing system, it is unlikely that many would have any occasion to keep easily accessible information on a rolling basis for the most recent 12 month period. Presumably such information can usually only be supplied as a rough approximation (in which case its usefulness for verification is reduced), or by a special search of the records for that individual.

Both tax and welfare demands can impose an extra requirement on business information systems. However, because the tax requirements are universal and regular, they can be planned for and accommodated within standard systems. One-off requests for data that is not immediately available impose a much higher cost.

In Summary: There is a steady flow of information from employers and other institutions into the different agencies of the Government's redistribution network. In total there are over half a million enquiries per year on top of the annual comprehensive flow of information to the Inland Revenue Department. These one-off enquiries do not generally relate closely to the accounting structures that employers (and maybe other institutions) are likely to use.

Conclusion

In some important respects, in particular to do with the freedom of individuals, the current information systems work as well as could be reasonably hoped. On the assumption that a discriminating redistribution system is going to be used it is inevitable that information must be supplied by individuals, and therefore the strict observation of the use limitation principle is the best that could be hoped for individual control of personal information. In addition, the lack of any generalised identification system is an important protection of the right of anonymity.

However, the system fails in several important respects.

- some information, especially monthly income which would give an idea of recent income, is not collected at all;
- information on current income, wealth and current employment status is not verified satisfactorily;
- information on past income, which is comprehensively verified by the Inland Revenue Department, is not used in the assessment of bankability or to verify the past earnings of long term or former beneficiaries;
- there are duplications in the flows of data which puts pressure on the Government redistribution system, individuals and third parties;
- the requests for data from third parties require information in a form that would commonly be difficult to assemble.

At present there appears to be a satisfactory security record across the different agencies involved in redistribution, but as computerisation is extended it will be necessary to develop appropriate safeguards against the increased risk of large-scale misuse of data.

Overall, the impression is of a system with repeated invasions of privacy and administrative duplication, but with inadequate collection of information and, in particular, very poor verification of the information used for welfare purposes. Chapter Ten discusses possible means of addressing these deficiencies.

CHAPTER TEN: ALTERNATIVE METHODS OF ADMINISTERING REDISTRIBUTION

Introduction

The discovery of significant weaknesses in existing systems for redistribution is not in itself sufficient basis for suggesting any change. For policy purposes it is necessary to explore alternative approaches in order to identify the preferred method of operation. In an imperfect world we must expect that all systems will have their weaknesses. The aim is to identify the approach which achieves the greatest success at the least cost; in terms of this work, the aim is to find the approach which best meets the criteria outlined in earlier chapters.

The problems identified in the previous chapter can be seen to fall into three main groups:

- inappropriate information is being collected. The major problems relate to gaps where some information is not collected at all and some other information is not adequately confirmed. There are also problems that some of the information is required in a form that can be difficult for the employers or other third parties to respond to;
- some information is not used as well as it might be. Though most of the information needed to assess income and bankability is collected somewhere in the redistribution system, the facts that are collected by one agency tend to remain with that agency and are not available elsewhere in the system. The main problem this causes is the lack of comprehensive verification of information supplied to welfare agencies;
- all of the redistribution agencies, especially the welfare agencies, have complex organisational structures. The process of managing the assessment of the circumstances of large numbers of people is a complex administrative problem requiring bulk information handling methods. This does not necessarily sit well with the sensitivity required for the administration of discretionary assistance, nor does it relate closely to the administration of a housing portfolio. In addition the split between redistribution agencies requires similar bulk administrative procedures to be carried out in several different agencies leading to duplication and repetition for the government, individuals and third parties.

This consideration of possible alternative approaches will examine each of these main problem areas in turn. This technique permits a more simple portrayal of the issues involved in each area. It also permits the exploration of policy approaches to address each problem in isolation. It would be possible to address the three areas individually, and a change in any one area need not imply a change in others. However, it is likely that an overall co-ordinated approach would provide the best opportunities to achieve a mutually supportive set of reforms which would best address the overall problems of redistribution. In order to identify the synergies between approaches and institutions, there will be an indicative outline of an integrated approach which draws together the issues discussed in each of the separate areas. The final section will include a brief critique of such a possible integrated set of reforms in order that possible changed systems may be compared with the existing approach.

Information Collection

In Chapter Nine major gaps were identified in the collection of data on recent income, especially employment income, and also a lack of verifying information on recent employment status and on wealth. Possible approaches to each of these issues will be considered in turn. In addition, the issue of the problems caused by one-off enquiries to employers about the income received by their employees over the last 12 months will be considered in comparison with other approaches to collecting information on recent incomes.

- Recent Earnings

At present one-off reports on the earnings of an individual over the past 12 months represent the nearest there is to information on recent income. It is probable that the supply of this information is costly as most employers would not record data on employees in this form.

An obvious alternative approach is to require every employer to make monthly (or quarterly) reports of all wages and salaries paid to all employees, identified by tax number. At first blush this seems an extreme approach which would add a substantial extra compliance burden. However, on close examination it appears that in some respects this approach would be easier than the current system. So long as the period chosen related closely to the employer's own cycle for the payment of wages there may not be substantial information management problems. For those with electronic systems it would be straight-forward to run off a report on the payments made to each individual at the time that wages are calculated. An ideal approach might be to require reports at least four-weekly, but to permit fortnightly (or maybe even weekly) reports from those who pay wages more frequently and who do not wish to aggregate payments. So long as the report could be made at the same frequency as the employer's own pay system it would at the most require one extra line per employee to be recorded at each pay period. This would be relatively straightforward even for manual systems.

Two obvious issues for consideration are whether frequent reports are possible and what they might cost. Clearly this system could be operated. Though tax information is usually collected annually there are examples of more frequent collection, especially for unemployment insurance purposes. For example, in the United States, federal law requires states to operate employment insurance systems that private sector employers contribute to. Because eligibility for insurance depends on recent income, these schemes require employers to report quarterly on wages paid to employees (see Appendix Two). From the point of view of the government the receipt of more frequent reports is possible. The computer upgrade report prepared by the New Zealand Inland Revenue Department suggested that their improved computer system which will begin to operate in the next few years would permit the receipt of more frequent reports from employers (IRD, 1989, section 5, page 20).

On the issue of cost, the answer is not so clear. It seems likely that on a return by return basis a regular four-weekly report on earnings per individual employee would be much cheaper than one-off searches for data on the income of nominated individuals over the last 12 months. However, whether the cumulative cost of 11 extra reports from all employers on every employee is enough to offset the cost of one-off searches for over 400,000 Social Welfare enquiries and over 100,000 Housing Corporation cases, and to

outweigh the gains from improved redistribution is not clear. The Tax Simplification Committee (1990) is concerned to ensure that tax information reports be minimised. This suggestion of monthly reports is in direct contradiction to the thinking of the Tax Simplification Report. However, it is necessary to take account of compliance costs for all aspects of redistribution, not just tax, before a judgement can be made.

In New Zealand there is a lack of any useful work on compliance costs. If we are to form an opinion on the relative virtues of different administrative systems it would be desirable to conduct a study of compliance costs of at least the scale undertaken by Sandford et al (1989) in the United Kingdom. That study covered all major taxes but still excluded the costs of providing information to the Department of Social Security. The main source used for those studies were postal surveys supplemented by a smaller number of telephone and face to face interviews with suppliers of tax information and some tax advisors. If we wish to make any useful progress in compliance issues a similar study would be desirable in New Zealand. Preferably it would also cover the costs imposed through the Social Welfare and Housing Corporation enquiry systems on individuals and third parties. It would also be desirable to conduct some time and motion studies of employers and individuals to get some extra insight on the actual effort involved in making a return. Any such work is outside the scope of this thesis.

In the absence of any useful information we may only surmise about the net desirability of a more frequent report of income. It seems likely that the total compliance cost would be increased by more frequent reporting so that such a system should only be contemplated in the context of an active policy to use the information as efficiently as possible across all parts of the redistribution system. It should also be accompanied by a flexible and active approach to assist employers to provide the data. As recommended by the Tax Simplification Committee, the Inland Revenue Department could offer software packages which might make it easier for employers to report on earnings more frequently (Tax Simplification Committee, 1990, page 44). In the context of the active and comprehensive use of data and a supportive approach for those supplying information, it might be worth incurring the cost of the extra reports.

- Employment Status

If a comprehensive system of monthly earnings reports were introduced, this would automatically provide information on employment status. On the other hand, if frequent earnings reports were seen to be excessive, an alternative approach would be to collect employment reports. Each year, through the annual returns to the Inland Revenue Department, employers report on every person who has been employed by that employer in the previous March year. It would be possible to extend this to require regular reports on every new employee at the time employment begins, and similarly a report when employment ends. Such reports would serve two purposes. The first is that welfare agencies offering assistance that is contingent on the employment status could check that applicants are in fact not holding an undeclared job. Similarly, any beneficiary that starts employment and fails to report the new job could quickly be identified by using these reports. The second purpose would be that welfare agencies needing a report on current income could accurately identify the employers that are (or were) employing a beneficiary and so approach that employer for information on earnings.

This system would add some bureaucratic complexity to the process of taking on staff and job separations, but it is clearly practical. In Australia it is already normal practice that a form similar to our IR 12 form is forwarded by employers at the time a new

employee is taken on. The form is then passed on to the Australian Department of Social Security where it is checked against their roll of beneficiaries. The Department of Social Security finds this system a very important method of identifying beneficiaries who are wrongly receiving benefits.

So long as each return were recorded in a recallable form, this approach would permit government agencies to check the employment status at a given time of each beneficiary. Since the reports would only be required at the time a job begins or ends it would be much simpler for most employers than a periodic comprehensive report on earnings. Some employers of casual labour could find the system onerous, but such employers could perhaps file monthly reports on their employees for the previous month. Whether the overall cost of these employment reports combined with the continued need for one-off reports on earnings is less than the possible cost of periodic income reports cannot be determined until work on compliance costs is carried out. However, if the periodic earnings report approach is too expensive (because the cost of regular reporting is high relative to one-off reports) then this approach would offer a less expensive means of acquiring comprehensive employment information and the employment address from which to gather earnings information.

- **Wealth**

The other item which is not collected is any systematic verifying information on wealth. At present, data is collected from (some) beneficiaries in the context of housing assistance. This requires a declaration of all forms of wealth. Though the Department of Social Welfare commonly issues enquiry forms to institutions in order that declared wealth holdings may be confirmed, there is no method of exposing undeclared holdings.

It would be theoretically possible to require direct reporting of many forms of wealth. Banks could report on deposit levels, share registrars could report on holdings of equity and debentures, and land registrars could report on real assets. However, the number of extra reports would be large and there is enormous potential for disagreement over valuations. It might be more simple (at least initially) to rely on reports of income from capital as being an indicator of most substantial forms of wealth. Such a system could be used to indicate the presence of most financial assets and possibly some income earning land holdings, but would be ineffective for other assets.

As a first step, rather than devising complex wealth reporting systems simply to assess the bankability of an applicant for welfare assistance, it seems better to rely on available information. At present the legal requirements are already in place for the reporting of interest and dividend payments, identified by tax number. The administrative systems are being put in place in order to begin such reports in the next couple of years. This seems an appropriate initial set of information to use to get a partial indicator of wealth holdings. If at some future time a government adopted a comprehensive capital gains tax or wealth tax, such taxes would involve the reporting of wealth holdings. Any such reports would be a potentially useful source for checking the wealth holdings of welfare applicants. If no new wealth-based taxes are introduced, it seems desirable to wait for an assessment of the effectiveness of the reporting of interest and dividends before any further wealth reporting system is considered.

- **In Summary**

The main suggested extra information is a regular four-weekly report of earnings to be supplied by all employers about every employee. Alternatively, it would be possible to

receive reports on the commencement and termination of all employment spells. Either approach would provide the basis for comprehensive checking of earnings and of employment status. No extra reports on wealth, or income from wealth, are proposed, but the returns on interest and dividends could be used as a partial indicator of wealth holdings.

Information Exchanges

Even if none of the suggested extra items of information were collected, there are some elements of information that are currently collected by one agency in the redistribution system but are not yet available for use more widely by other agencies that are also trying to assess the circumstances of individuals. In particular, the Inland Revenue Department holds information about past earnings and past employment. This information could be very useful both for retrospective checks on the income of beneficiaries and for the assessment of bankability.

- Current Information

The information currently held by the Inland Revenue Department is in a form which would be of limited use to welfare agencies. The electronic records contain an assessment of income for all taxpayers who file tax returns. However, this excludes a significant number of low income taxpayers with earnings lower than \$20,000. In the area of sources of income, the Inland Revenue computer currently holds around half of all employer-supplied information on wages and salaries and a limited number of other reports on sources of income. The Inland Revenue Department collects information from all employers (in the IR 12 reports) on the period of employment for each employee. However, this information is not currently entered into the Inland Revenue computer system.

There is no information available to the Inland Revenue Department until at least a couple of months after the end of the March year, and for many people (especially the self-employed) it can be many months later before an assessment is recorded on the file. A further complication is that for most people the assessment on the file is their self-assessment; it can be months or even years before the tax verification and audit processes may confirm or amend an assessment.

However, these problems are not fatal to the use of Inland Revenue Department information by other agencies. The critical issue in terms of the availability of information is whether the information is collected and whether it is worth the cost of further processing. For example, if more comprehensive information on sources of income and employment status were needed, there is no reason why the cost of transferring that information from the existing Inland Revenue Department paper files into electronic media should not be met by the welfare agencies that would use the information. Certainly it would be very much more desirable to have more timely information than that which is currently held by the Inland Revenue Department, but even old information has its value. Its first use could be for checking the bankability of new applicants for assistance. An applicant whose income in the last year was very high could be expected to account for the drastic change in circumstances which now renders him or her in need of short-term assistance. The second use could be for audits of benefits paid in the previous year. This could assist in identifying current beneficiaries whose benefits in the previous year had been at the wrong level and so identify them as a case to be checked

more closely in the current year to prevent continued mispayment. It would also be used to identify previous year income recipients who had been mispaid so that these people (even though possibly no longer beneficiaries) could be followed up for the recovery of funds or prosecution. While it is much more satisfactory to have information sufficiently soon that it is possible to prevent mispayment, or to stop continued mispayment, it is likely that the fact of mispayments being identified, even well after the event, could have some discouraging effect on those contemplating underdeclaring their income to welfare agencies. Obviously the disincentive effect is likely to be greater if any negative consequences can be expected to be felt quickly. However, it is also likely that the increased risk of getting caught (even well after the event) would act as some discouragement to fraud.

- **Methods of Accessing the Information**

Having established that there is information that could be useful, the question becomes how best to make it available. The most simple option could be to allow welfare agencies to have access to all information on past earnings and employment. This could either be achieved through the Inland Revenue Department entering all the necessary data onto electronic media and allowing welfare agencies to search the Inland Revenue files and conduct matches, or it could be done by giving the data in its current form to the welfare agencies for them to enter onto electronic systems. The difference between these approaches is trivial; if the Inland Revenue Department used funds from welfare agencies to pay for the cost of entering more data onto its computer there would in effect be no difference at all between the two systems. The relevant point is that the welfare agency would have total access to all Inland Revenue Department information on income and employment for all taxpayers. This might involve welfare clerks having on-line access to tax information (either on the Inland Revenue Department machine or on the welfare agency's own machine) or it might involve periodic matches of Inland Revenue data and welfare rolls which could be conducted by welfare staff or by Inland Revenue staff.

Whichever of these administrative options were preferred, there would be major conflicts with the use limitation principle, the security principle and the general aim of maximising individual control of personal information. In terms of security issues the problem is the increased number of people with access to personal information, and the increased likelihood of carelessness as information is passed between agencies. Currently the Inland Revenue Department maintains a very strong staff understanding that personal information must be treated with extreme care. Although tax affairs may be discussed within the office with other Inland Revenue staff, they must not be alluded to outside the office or to outsiders. Part of the reason why this approach has been successful in keeping tax information secure may be that all tax staff are aware of the complications and work involved in collecting data. As a result the staff involved see it as precious information which should not be threatened. It is possible that staff in any other agency, to whom the information may appear as more remote statistical information arriving in an apparently simple and painless way, would be less impressed by the need to preserve confidentiality. It is not that welfare staff are any less reliable, but that any person with less involvement in collecting the information is more likely to be careless in its use.

On top of the risks of leaks to the public, the prospect of welfare staff being able to see any tax file is itself a matter of concern. The personal circumstances of those taxpayers who are in no way involved with receiving assistance are no business of welfare staff.

Even if those staff do not repeat the information, any revelation to those staff is itself a disclosure of facts that are none of their business, and is therefore a breach of security.

If the data were used in data matching (either by Social Welfare or Inland Revenue staff) and only information on apparent mismatches made available to welfare staff, much of the security problem could be removed. However, in this case the use limitation principle would still apply. In Chapter Eight it was established that matching of data collected for different purposes must conflict with the use limitation principle. Although welfare assistance and income tax are two aspects of redistribution, it was established that it would be preferable for any match of such data to be carried out on a one-off basis. It would be possible to carry out one-off matching without allowing welfare staff access to tax files. To achieve this welfare staff would direct enquiries to Inland Revenue Department staff about nominated individuals. So long as the Inland Revenue Department had reorganised its method of holding data in order to facilitate information retrieval, this would be a straight-forward system which would overcome most of the security and bulk matching problems inherent in other approaches. This is the approach used in many European redistribution systems (see Appendix Two). However, the basic problem still remains that any transfer of this sort which is initiated by one agency, and responded to by another, must diminish the control of individuals over their personal information. The only means of providing individual control must involve the individual in the process of transferring the information. As a minimum the individual must agree to the transfer of information, and ideally the individual would initiate and give effect to the transfer.

One means of leaving some control with the individual is to require the agreement of the individual for any access by welfare agencies to tax information. This is the approach used in Canada. Revenue Canada will supply details of tax returns and assessments to anybody that is authorised by the taxpayer. In order to check eligibility for income-tested pensions the Department of Social Security requires all applicants to give their consent to a check of tax files. (See Appendix Two.)

However, for any who are sensitive about their affairs and suspicious of government systems, the fact that information exchanges are made, even with the consent of the individuals, may still be disquieting. To such an individual, the capacity and fact of any direct exchange of information may raise the fears of other (non-authorised) transfers. If the two agencies have an administrative system for the exchange of information, especially if it is a direct electronic transfer, there may be a lingering fear that some information is being exchanged that the individual does not know about. The present rules, which totally prohibit the use of tax information for other purposes, are very clear and simple, and serve to reassure most people. The presence of administrative systems to facilitate inter-agency transfers of data must increase the risk of inappropriate transfers and heighten the perception that such transfers might occur.

- Tax Reports

Ideally, if tax information is to be used for welfare verification, it is preferable that the information be given to the individual so that the individual can control its use. The welfare authorities could require that evidence of tax assessments and source deductions, as verified by the tax authorities, be supplied by the applicant as a condition of receiving assistance. Similar information is already required as a condition of

receiving assistance, but the current sources do not have the same reliability or disinterest that the Inland Revenue Department has.

It is quite possible, if administratively clumsy, to envisage a situation in which the Inland Revenue Department would supply a written tax report for taxpayers outlining recent assessments and information on sources of income and employment status. This might be supplied to all taxpayers at the time their assessment is completed, (but this could require a major change in current tax assessment practices as most returns are assessed before any verification takes place) or it could be supplied on a one-by-one basis as individuals request such reports. Applicants for welfare assistance could then produce this tax report in support of their claim. Such a system of individual tax reports would involve no generalised access to Inland Revenue Data, so it would create no systematic security problems through the welfare agency's involvement. Because the information is supplied to the individual, this approach removes any problem with the use limitation principle and it clearly rests control with the individual.

A difficulty with the tax report system, however, is that it can only be used to report to welfare agencies on the information held by Inland Revenue at the time of application for or renewal of assistance. That is, so long as the Inland Revenue Department still carries only past information it is only of use in assessing the past circumstances of applicants or long-term beneficiaries who are still receiving a benefit. Former beneficiaries would not still be dealing with the welfare agencies, and therefore would not supply the agencies with a tax report covering the period during which their benefit was received. Unless more recent income information is collected (as suggested in the previous section), the policing of former beneficiaries could only be achieved through data matching systems. However, for those items of information which are included in the tax report, the tax report approach would meet the need for adequate and verified information.

Although the use of such tax reports might address many problems, they would raise some other concerns. Information written on paper is liable to two threats; it may be easily read by the wrong person, and it may be forged. A tax report would presumably be a much-used and carried document. This must increase its risk of loss compared to current tax assessments. Those who illicitly acquire a tax report might either use the information against the individual concerned (including possible publication of its contents) or they might use it to assist their own attempts to pass themselves off as the owner of the report in various contexts, including the purchase of goods, accessing bank accounts or receiving welfare assistance. The second risk, forgery, may include substituting the name on the tax report in order to assume someone else's eligibility for assistance, or forging the numbers on the report in order to improve the applicant's case for assistance.

To get around the risks of misappropriation and forgery, the information may be supplied in a personalised and tamper-proof form.

Personalising involves the incorporation on the face of the report of some details about the holder. The purpose is to make it harder for someone else to pass themselves off as the owner of the report. The degree of personalising can range from basic data, such as eye colour, birth date and sex, as is shown on the driver's licence, through to a photo or even finger prints. Unfortunately, none of these would necessarily be successful in reducing impersonation. For most people the interpretation of the relevant data is very

vague. (See Bloemendal, 1989, pages 68 to 74, for a discussion of the ineffectiveness of such systems, especially photographs.) Finger prints are precise, but very few people have the expertise to make comparisons, even if the process were socially acceptable. As a result, it is possible that the inclusion of more personal data on the face of the report may have as much effect in making it possible for determined impersonators to present themselves plausibly, as it is in discouraging casual criminals from abusing the report.

The other possibility, tamper-proof reports, can involve many possible techniques. Most systems involve increasing the complexity of printing with intricate images. This might also include non-erasable signature panels, watermarks and holograms. Given sufficient funds and determination, any of these can be forged, but they are costly to copy accurately. The main problem, however, is that most people handling the reports might have insufficient training or time to distinguish even a mediocre copy from a genuine tax report. One means which has been developed to prevent any tampering with documents is the "light signature". This is a digitised image of a document in sufficient detail to show the paper fibres. The digitised strip is attached to the document. When presented, the digitised strip is compared with a new light reading of the document. For valuable documents that lead a secure life in a commercial office this is a very reliable approach. However, for a personal report that must survive the hurly-burly of the hip pocket it is likely to be less successful. Any stain, or even a severe crease, might lead to rejection of the report. It is possible to improve the protection against tampering of documents in everyday use, as is daily demonstrated by the wide circulation of bank notes. However, any system using visual media is likely to have severe limits on the degree of protection that it can offer.

On the other hand, as documents are both personalised and made tamper-resistant, they would become increasingly attractive to other agencies outside the redistribution system. If tamper-resistant personalised tax reports were issued to all taxpayers, or even only to all beneficiaries, they might be demanded by other agencies, including the police, as proof of identity. The risk is that, in attempting to provide people with control over their tax data but also making it available as verified reliable information for welfare purposes, the Government might inadvertently invent a general purpose identity card. Even if the police could be constrained from requiring it, it is possible that shopkeepers and bankers might demand it. This could raise the problem that, as well as causing the unwelcome introduction of an identity card, the report would also show sensitive information on income and employment. These practical considerations suggest that the option of producing a printed tax report for wider use might generate major problems.

- The Integrated Circuit Card

This discussion suggests that our ideal specification for the transfer of tax information is as follows:

- There should be verified information on income and employment.
- The data should be supplied in a report to the taxpayer in order to maximise individual control.
- The report should not be forgeable or liable to tampering.
- The report should be personalised so that no-one other than the taxpayer may present it.
- The report should not be readable by anyone other than authorised redistribution agencies and the taxpayer.

This listing may seem contradictory and to demand the use of science fiction techniques. However, there is a technology which can meet that list. The integrated circuit card (IC card or the smart card), which has been in commercial production for some years, provides a means of meeting all those requirements.

The capabilities and uses of the IC card are described in Appendix Four. From the information contained there we may conclude that the card is:

- portable;
- reliable in continued daily use;
- capable of storing large quantities of data;
- modifiable so that data can be updated;
- programmable, so that new applications can be added;
- secure against any illicit attempt to read information;
- non-forgable and resistant to any attempt to tamper with information;
- capable of encrypting information for communication.

While it is true that no technology can be regarded as perfectly secure, the IC card has had no security failure in spite of sustained attempts to compromise its systems. It has been used in many commercial applications and in some redistributive contexts. It has been used by populations who might seem unlikely to be comfortable with high-tech products, including the ill and the elderly. There can be no question that the IC card could operate to meet all the privacy and the liability problems outlined in this section, and also to increase the flexibility of the process of discrimination between individuals in the delivery of assistance.

One possible administrative system for an IC card-based information exchange system could be as follows:

- 1 The Inland Revenue Department would collect returns, source reports and assessments into a tax file for each person.
- 2 The latest information, as well as information from the tax file on a number of previous years, could be copied each year from the Inland Revenue Department host computer onto an IC card for each taxpayer.

- 3 The IC card could be delivered to every taxpayer using similar methods to the delivery of bank cards, including a secure and separate method for delivering a personalised identification number (PIN).
- 4 When applying for any income-tested assistance from state agencies, the applicant could present the card to be used at authorised card-reading machines.
- 5 The card's own program could check the authenticity of the reader, and also prove the authenticity of the card. It could then check the PIN entered by the applicant. Having established that all parties present are authorised to use the data, it could display the income data on a screen or printer attached to the card reader.
- 6 The data, which the welfare agency knows is a correct transcription of tax data, can be used in the assessment of eligibility for assistance, either through manual transcription of data shown on the reader or through electronic connection from the reader to the welfare agency's host computer.

There are several possible modifications that could be incorporated into this basic routine. They involve using the sophisticated power of IC cards in the secure updating and modification of data.

Because the card is capable of adding more information (or in some cases erasing and replacing information) it may not be necessary to send out a new card every year. Instead, when necessary, a card-holder could present the card at an on-line reader, connected to the Inland Revenue Department host computer. Having established the authenticity of the card and holder, data could be loaded into the card to update its files on recent income. If the Inland Revenue Department still collected only past information (as at present) these updates might only happen annually. However, if more fresh information were collected from employers, this could be transmitted onto the card as required. The power of the card to send and receive encrypted messages that are effectively impossible to decipher, means that such messages could be totally secure. Using this approach many taxpayers who do not need to use the card for welfare purposes might never need a tax report update, but those who do need the information could receive it easily. It would even be possible for the on-line Inland Revenue readers to be located in welfare offices to make welfare applications easier.

The internal security and capacity of the card is such that completely separate systems can be supported in a card without the two operating systems being able to read data related to the other use. This means that it would be possible for a bank IC card, issued in a normal commercial process to any account holder, to be used to carry Inland Revenue Department tax reports. It would not be possible for the bank to read the income data, or the Inland Revenue Department or welfare agencies to read the banking information. It would not even be possible for the card-holder to inadvertently authorise inappropriate access to the wrong area of the card, as each reader must be authorised for a particular use and the card can check that authority. This means that any authorised bank card could be presented at an on-line Inland Revenue reader to receive a tax report, and then presented to support an application for welfare assistance. This would both remove the complication of administering a secure card issuing system from the state's redistribution agencies, and also remove any stigma from the use of cards for welfare purposes because, to visual inspection, the card would be the same as any

other bank card. It should be noted that though there have been some multi-use cards developed and some limited applications have been used, there has not as yet been any large-scale application that is as sophisticated as the one envisaged here. However, there is nothing in the extensive experience of card use to date that would suggest major difficulties in adopting this type of system.

Another possibility is that the card could be used to keep track of the use of services that attract assistance. For example, at present in New Zealand each prescription must be paid for when the pharmaceuticals are collected at the chemist. Once a certain number of prescriptions have been collected in one year, further prescriptions are free. An IC card could keep track of pharmaceutical use, and signal when no further charge should be made. In addition, the card could permit the assistance to be adjusted so that the level of assistance was linked to income. High income patients might pay the full cost of all prescriptions up to a fixed percentage of income, but low income patients might pay nothing. The pharmacist would not need to have any knowledge of whether the state or the individual met the costs. The pharmacist would simply see a bank card being presented, and the transaction being authorised. During the course of the transaction the card could check its own data on income and pharmaceutical use, and so calculate the level of state and personal liability. The personal share could then be checked against the approval levels built into the banking part of the card. As with any other commercial transaction, the reader might need to go on-line to complete the transaction, but that need not affect either the card-holder or the pharmacist. The overall result would be a simple transaction with a carefully tailored delivery of assistance. The pharmacist could receive prompt reimbursement and the state could have a straightforward system for managing individualised assistance. Appendix Four contains several examples of IC cards in use, including the Carte Sesam which is a very similar health insurance reimbursement system.

A further possible use for the IC card in the context of redistribution was suggested by Dilnot et al (1983, page 105). As well as its use in conveying information on income, it could also be used in the collection of data on individuals. An employee could present his or her card to the employer who would read the tax number (and, if appropriate, any tax code) into a processor. This processor could then be used to determine the PAYE tax liability for the individual, and also to inform the Inland Revenue Department of earnings and deductions. If this approach were adopted, the shift to more frequent reporting of earnings would not be a problem for employers, and the total process of collecting and reporting on PAYE payments would become easier than at present. Obviously the big issue to be explored in this kind of application is the cost of the card readers. For many employers, especially small employers, the capital outlay could be prohibitive. The issue then becomes a question of who should meet the cost. There would seem to be a case (as suggested by Dilnot et al) that the state could assist with the cost of collecting PAYE tax payments and reports on circumstances. It is not obvious why this extra cost should automatically fall on employers, since the gains from collecting the information cannot be said to be felt by them. The value of this approach, and the preferred allocation of costs, could only be determined after a thorough investigation of the costs.

- In Summary

It would be possible for existing information on past incomes and employment status to be transferred from the Inland Revenue Department to welfare agencies in order to check eligibility for assistance. The main concerns are possible risks to security and the

use limitation principle, and a loss of individual control of personal information. So long as we continue to have only past information collected by the tax system, it is not possible to avoid the loss of control as information on the past income of former beneficiaries could only be collected by data matching processes. However, in other cases and for more recent information, it would be possible to produce one-off data swapping systems which would give complete control of information to the individual concerned. By use of IC card technology the information could be made very secure and reliable.

The Agencies Involved in Redistribution

The previous chapter showed that at present each of the organisations that make up the redistribution system involves a complex amalgam of functions, and that there is substantial duplication between them. From the point of view of the improved operation of redistribution, this set of organisations appears inefficient. However, clearly such a system has not evolved by accident. The existing links between benefits, discretionary benefits and social work, as found in the Department of Social Welfare, and the link between rental and interest subsidies and the administration of a housing portfolio, as found in the Housing Corporation, must represent some synergies. Similarly, the separation of tax assessment from welfare assessment must represent some important differences. Before considering alternative forms, it is worthwhile to quickly traverse the history of how the present set of institutions has evolved to see whether the initial justification for their current form still stands, or whether changing circumstances now favour alternative organisational forms.

A clear aspect of the history of the evolution of tax offices, benefit departments and housing agencies is that they have evolved separately from different agencies and it is only recently that they could each be clearly seen as participating in a common redistribution function.

The collection of tax has long been an important function for governments, but the development of income tax is substantially an event of the late 19th and early 20th centuries. In New Zealand, as with most countries, the tax was initially designed to impact principally on higher income groups, and only a relatively small number of people were liable to pay tax. In the absence of PAYE collection, the whole burden of tax collection depended on end of year returns and assessments. In the sense that it was always intended that the income tax would fall on those who could most afford to pay, it has always been seen as redistributive. However, it has not had any close link with the other aspects of redistribution. On the introduction of social security in 1938, an extra social security tax was collected as part of the income tax, but there has never been a link between tax payments and eligibility for assistance. By the 1950s, when PAYE was introduced, income tax was established as the central means of tax collection with a mass coverage of income recipients. The mechanics of income tax collection, including the power of tax inspectors and the importance of maintaining the process of tax collection as a separate and secure activity, have derived from a theory and jurisprudence of tax that is separate from other government activities. The role of income tax includes redistribution, but it is not only redistributive. Its central element is as an essential aspect of government; without revenue governments fall, and all social advantages of the coercive and co-ordinating institutions of governments are lost. It is therefore not surprising that the powers to collect and protect tax information have

developed in many countries in similar ways (see Appendix Two). Having established the tradition that tax is "different", it is not surprising that it has kept aloof, and not become closely linked to other redistributive activities.

State-administered benefit payments in New Zealand started with the Old Age Pension in the 1890s, and expanded greatly with the introduction of social security in 1938 (Hanson, 1980, describes the history and goals of the 1938 reforms). Benefits were initially designed with an emphasis on universal entitlements for deserving groups. However, once the destitution of the elderly was addressed, it became apparent that there were other groups in need of assistance. These groups, especially the unemployed and those with young families, were in need not just because of their stage in the life-cycle, but because of their low incomes. It has always been apparent that some of those in difficulties face particular personal problems that are peculiar to them. For these cases some degree of discretion was necessary to allow the welfare agencies to address specific cases. However, it gradually became apparent, for example in the early 1970s with sole parents, that there were some groups that were sufficiently large as to need a defined policy response, and a new statutory benefit was introduced. As a result of this dynamic interaction between social change and policy reforms, discretionary assistance and formula-based benefits have tended to grow side by side. In addition, the provision of discretionary aid and the provision of social work services have been closely related, so an initial synergy was present in that area.

However, the clerical aspects of benefit administration have grown. As benefit policy has expanded to meet the needs of low income groups, so it has become necessary to enquire more closely into personal circumstances. As the number of people receiving income-tested benefits has grown rapidly in the '70s and '80s, so it has been necessary to institute large-scale clerical systems to streamline the process of enquiry and payment. The clerical processes involved in most benefits are significantly different from, and more streamlined than, the systems that may be needed for the administration of discretionary benefits, and may bear little relationship to the community development goals that are pursued by social workers. However, it is easy to understand how the process of evolution to a department that is largely focused on redistribution to those with low incomes has occurred within a department that administers universal pensions and social work systems. It is also clear why these activities have been separate from other redistribution agencies.

The involvement of the Government (at any level) in housing was also not initially seen as a redistributive issue. Concerns of public health and aesthetics, leading to a general concern with housing standards, and worries about housing shortages were major initial reasons for state involvement in house provision and subsidies. Slum clearance and the accommodation of workers were other motivations, as was the concern to increase the rate of private home ownership. These concerns were met by the establishment of a state lending agency in the 1890s and a state rental system that arrived with roughly its present functions in the 1930s. For many years the measure of success of these activities has been the growth in the stock of state housing and in the number of loans, rather than a careful concern to ensure that housing assistance was directed to those most in need. However, concerns with the stock and standard of housing have gradually given way to a concern that is focused more closely on the provision of housing assistance for those who would otherwise find it difficult to afford adequate accommodation.

This focus on housing assistance as a means of addressing need has required an increasing concern with income testing and formula-based assessment. In addition, largely as a response to the transition problems caused by significant recent rises in benchmark rent and interest rates that the Housing Corporation administers, and its historic role as a dominant provider of housing assistance, the Corporation has also offered additional discretionary aid through extra concessions on rent or interest. These two activities remain linked to house rental and mortgage lending that were the initial state roles in the housing market.

Different countries have seen different paths in the development of institutions and policies, but overall there is a remarkable commonality. As the size of governments has grown, and hence their demand for funds, so increasing technical sophistication has been used to extend income tax across the population and to have regular payments from all taxpayers that are finely tuned to relative ability to pay. Benefits are often dominated by social insurance schemes, but social security agencies frequently are also responsible for income-tested schemes which have been added on to meet the gaps left by contribution-based systems. Housing assistance is commonly carried out at local government level in other countries, but again the pattern of shifting from urban renewal to targeted assistance is frequently observed. In many countries the three different types of institution have evolved into aspects of a redistribution system, but a strong separation and duplication remains the normal characteristic of those agencies within this wider redistribution system.

- **The Elements of Redistribution Systems**

This discussion of past experience suggests that current institutions are substantially geared to meeting past objectives, and the increasingly significant overall goal of efficient and equitable redistribution has not had a major effect on organisational structures. Clearly, to the extent that the old objectives still apply, and to the extent that they are better met by existing approaches than by possible alternatives, the existing forms have a value which should not be discarded lightly. However, if the main goal of redistribution could be better met with an alternative structure, and other goals still met, some reform could be appropriate. In order to discuss organisational structures in more depth, it is necessary to identify the central functions involved in systematic redistribution. There are three main elements:

- **Information Management:** The collection and assessment of information.
- **Flows of Money and Services:** Collection of tax or provision of assistance.
- **Special Cases:** Provision of discretionary assistance and tax audits.

The first activity is information management. This involves the collection and assessment of information about people. When done well this activity is essentially similar across all areas of redistribution. The aim is to recognise the relevant characteristics of individuals as quickly as possible. This requires verified information on income and, where assistance on the basis of short-term income is envisaged, bankability. That needs timely reports on circumstances, to be supplied by third parties as well as individuals. Prior to the advent of computers these activities, though conducted on a large scale, were essentially local. Information reports could only be matched on a one-by-one basis and only at the level of precision and speed achievable

by individual bureaucrats. The notion of transferring information across different aspects of redistribution, or using one assessment for several purposes, was totally impractical when the information took the form of paper files requiring manual transcription and manual reading. Now that electronic processes are possible, economies of scale are achievable. There are clear savings to be made by the Government, individuals and third parties, if assessment could be carried out once, instead of multiple reconsideration as at present. It is in the nature of the cases that are handled by bulk methods that assessment is relatively simple. Junior staff, with little formal training, have always been used to determine the circumstances of those whose income comes from salary and wages and who do not have complex costs to account for. This mechanistic process of applying a formula to a simple statement of circumstances can generally be translated into a computer program with little difficulty. All the main redistribution agencies already have computerised processes for completing assessments. There would be nothing new, therefore, in any different system which relied on computers to achieve scale economies. The major manual cost that remains is the inputting of data; this is a substantial exercise for each agency and the place where error is most likely to occur. Since the data that is entered by each agency is essentially very similar, and the subsequent computerised assessment is similar, there seems very little point in continuing to carry it out three times by different agencies in an unwitting imitation of the limits of manual systems.

However, it should be realised that any scale economies would only be created if the same flow of data were to be used for each purpose. So long as we continue to have separate annual March year data alongside one-off enquiries for the last 12 months, there is little gain to be made in bringing systems together. In this context there are still two (or more) sets of data to be entered into the computer. It makes no odds whether the data is typed up in one agency or two if the job is still of the same size. So long as a decision were made to move to one set of data on sources of earnings, then there would be significant gains in reducing the duplication in the supply and processing of that data.

The second activity of redistribution agencies, being the receipt of taxes and the provision of assistance, is similar but not identical between the agencies. The aim here is to adopt payment methods that are simple, but responsive to the circumstances of individuals. Annual tax payments and once only welfare payments would be simple, but they would impose major problems on individuals.

In the tax area, PAYE has loaded extra work onto employers (but has given them a cash float) and removed most of the pressure from individuals. As the number of tax codes has been reduced, the work of employers has been largely standardised. The tax system does make some payments to taxpayers. It is an inevitable result of a non-cumulative PAYE deduction system that some taxpayers require a refund at the end of the year, once their annual tax liability is assessed. These payments, being once only amounts, can be readily made by separate cheques or bank transfers.

Benefit payments need to be sufficiently frequent and regular that they can be used to support low income households to maintain an adequate degree of security. This requires repeated payments to each individual, generally with the same payment for each period, but with the ability for rapid adjustment where there is a change in circumstances. This means that the process of calculating entitlements and making

payments is a much more frequent event for benefits than it is for tax. Regular, generally fortnightly, benefit payments are now made by automatic transfers into beneficiaries' bank accounts. Because of the high proportion of New Zealanders who have bank accounts, this is a very successful method of payment which has little risk of theft and few errors.

Family Support, which uses the PAYE system to deliver assistance to low income households, is an example of the use of the tax system as a two way flow. Clearly it has shown that the process can work, but the experience reported by the Tax Simplification Committee (1990) demonstrates that this has been at a major cost to employers. Instead of being able to treat each employee on a similar income in the same way, employers must apply a range of individual codes and abatement rates which reflect the household circumstances of any employee receiving Family Support payments. Because only a minority of any workforce receives Family Support, employers are not generally able to acquire sufficient expertise to streamline Family Support processes. It would seem that the attempt to integrate regular income support with PAYE is of only limited success. The problem is not in the area of assessment of the annual and periodic entitlements for support by the Inland Revenue Department, which they seem to be no less proficient at than the Department of Social Welfare would be, but the requirement on employers to make complex payments through the salary system.

Housing assistance is already provided through two agencies. Housing Corporation tenants and mortgagors receive their assistance through subsidised rent and interest. The payment flow, therefore, takes the form of regular rent and loan repayments which are discounted to reflect the circumstances of the household. For those low income households who are not clients of the Housing Corporation, the Department of Social Welfare offers an accommodation benefit. This is calculated periodically based on the housing costs of the household, and is paid with the benefit. Both systems seem straight-forward. So long as the state continues to offer loans and rental accommodation it will need to maintain a means of receiving payments for those services, so the issue of how to offer assistance does not seem to depend significantly on the question of administrative ease. It would be possible to provide all housing assistance in the form of an income-adjusted accommodation subsidy which could be received irrespective of the landlord. However, the grounds for adopting such an approach would not be the administrative ease of providing assistance.

It seems, then, that though conceptually the receipt of tax and the provision of assistance are two sides of the redistribution coin, it is not clear that there would be any important organisational gains in attempting to handle all such flows in one agency. The problems suffered by employers in administering Family Support suggest that a separation of the payment systems (but not assessment) seems to be desirable.

The third activity in redistribution systems is the assessment of special cases for discretionary assistance and the investigation of individual affairs in tax audits. At one level these two tasks are similar. Both require the collection of extra information on circumstances in order to arrive at an assessment. Both need trained and experienced staff who are capable of handling complex cases and of withstanding personal pressure from the parties concerned. However, at an operating level there are important differences.

A tax audit commonly involves difficult accounting issues, as unusual or complex forms of income are assessed. It involves the investigation of past affairs in order to ensure

that all appropriate information has been applied to the case. It may involve the application of arcane points of tax law, and debate with skilled professional advocates which can stretch over weeks or even months.

Decisions on discretionary assistance must be made quickly. If someone faces an urgent need, it must be met urgently or not at all. The information needed is very rarely to do with complexities of income, but more to do with household obligations. It involves a review of the people in the household and their needs, accommodation and other standing costs and any short-term pressures arising from daily life. It inevitably also involves a certain degree of moral judgement. Where an official considers that a particular situation is self-induced, and that extra cash would endorse careless behaviour, then the discretionary payment will be withheld. Where lack of an extra payment is judged to cause suffering to children and others who are unable to influence their position, it is more likely to be made.

Clearly, there would be little to be gained from putting the administration of special cases together. Tax inspectors and the providers of assistance work in different ways with different people. Their professional training is different, the nature of their cases and the problems in them is different, and the time period that they must respond in is different.

- **The Scope and Boundaries of Redistribution Agencies**

The discussion of redistribution activities suggests that there is a strong case for achieving efficiencies in the bulk assessment of circumstances by merging the activities that match people's position against a formula, but no case for collecting the flows of payments or special case assessments together. The other aspect for consideration is the question of synergies between these functions in the collection of tax or the provision of assistance and also any synergies to other non-redistributive activities.

Tax Agencies: Any tax agency must maintain for itself the ability to carry out objective assessments of the liabilities of any person for taxes owed to the state. This means that the tax office must have the power to monitor activities, to keep track of taxes received and to investigate areas of concern. It is in the nature of tax that any person is potentially liable, and liability must not be avoidable simply by neglecting to acknowledge it. This means that the ability to keep track of the relevant affairs of all members of the population is an essential power for a tax office: in the context of this discussion that means that bulk assessment with comprehensive verification is a necessary part of a tax organisation.

Having identified liability, it is also imperative that the tax office keep track of receipts in order that those who fail to meet their liabilities can be identified. This suggests a close link to the tax payment process.

Though the detailed information used in tax audits and investigations might not link closely to bulk assessment processes, the selection of those whose affairs need closer scrutiny is commonly made in the course of the normal checking of tax returns. The process of bulk assessment that provides an important indication of those who should be looked at more closely and the initial information on each case is therefore closely linked to the handling of special cases.

The three basic activities of a tax agency therefore have a high degree of interaction. Although, in theory, they could be separated, the degree of interaction between any such separated agencies, and the need to ensure that the three areas are closely responsive to each other's needs, would lead to a set of mutual understandings and obligations so complete as to replicate one agency.

In this discussion of the link between the three activities of a tax agency the particular tax involved has been ignored. There are of course several taxes, including direct and indirect taxes. It is possible to envisage different agencies, each administering a given tax, and it is common to find a split between inland revenue agencies and customs offices. However, it is likely that there are gains to be made from linking the administration of income tax to the administration of some other taxes. This clearly applies with particular force to those direct taxes that are closely related to income tax, such as the fringe benefit tax or any capital gains tax. The connection to indirect taxes, such as the Goods and Services Tax, is less clear. In the United Kingdom their equivalent, the Value Added Tax, is administered by Customs and Excise. That course could have been followed in New Zealand, but the advantages of a comprehensive coverage of enterprises suggested a strong link to Inland Revenue, leaving Customs to handle border control and duties on specific goods. Another general advantage for linking income tax administration to some other taxes is that all tax agencies require monitoring powers, and it may be preferable to minimise the number of agencies with a surveillance authority.

Welfare Agencies: A critical difference between welfare agencies and tax authorities is that, though tax is compulsory, receipt of assistance is not. Although welfare agencies must be concerned to maximise the take-up of their benefits among those who are eligible, there is less case for a comprehensive check on the affairs of every person. Instead a welfare agency needs reliable evidence on the circumstances of those who apply for its assistance. If that information could be supplied, or largely supplied, from another source, there would be little loss to the welfare agency from the removal of this clerical activity. That is, so long as reliable information is available on which to base assessments (or even reports which apply the formula for assistance and thus constitute assessments), an assistance providing agency could simply accept this information as the basis for its payments. Some ability to enquire into special circumstances might still be needed, or such matters could all be referred to those responsible for discretionary assistance.

The skills and methods involved in determining special assistance are not closely linked to those involved in running clerical bulk assessment, or the payment of benefits. It is important that those exercising judgements have access to the information used for formula assessment purposes and some means of making further enquiry. However, the set of information required is (or ought to be) always different from and additional to that needed for formula assessments. It could be that, where there are a large number of applications and approvals for discretionary benefits, the administration of special cases becomes another clerical process with application forms and rules for approval. In that case, the suggestion that discretion is significantly different from bulk assessment seems to be weak. However, if high volume discretionary systems appear, that is a sign of a problem either in the standard formula or the discretionary policy. If the formula does not give adequate effect to the Government's redistributive aims, so that officials must regularly offer more aid, the formula should be changed to offer more assistance. If, however, the Government judges the formula to be adequate but officials are

providing frequent and substantial additions, then the discretion is being misused and is effectively subverting Government policy. This suggests that the provision of discretionary assistance ought always to be a relatively small activity with specialised staff. They need access to the information held by those making formula assessments, but not a direct interaction or control over the bulk administration process. This discussion applies whether the discretion involves cash assistance or any other service such as housing.

The need for links between the assessment and provision of assistance to other non-redistributionary activities does not seem to be strong. The provision of social work services, ranging from community development to child protection, has little connection with the assessment of income. Similarly, the maintenance of a housing stock or a loan agency is not necessarily linked to personal assessments. There may be gains from delivering assistance (notably housing) in its present form, but clearly it is not inevitable that there be an institutional connection.

- **An Information Collection Agency**

The discussion of horizontal issues across generic redistribution activities, and vertical links within tax or welfare activities, suggests that the bulk assessment of circumstances could be largely severed from other activities in the welfare area and brought together to achieve economies of scale. One agency could collect information and verify it, and then supply it for use in tax, benefits or other social assistance. The agency would need adequate powers to collect the necessary information, and sufficient security to keep it safe. The provision of information for other functions would need to be carried out in a secure way and preferably under the control of the individual concerned.

However, because any tax authority would still need full information gathering powers in order to protect the state's revenue, and because there are close links between formula assessment, tax receipts and tax investigations, this bulk assessment agency would seem to be best located within the tax agency. The tax agency could then supply the information on income and bankability to other offices as required and as authorised by the individual concerned.

The main possible concern about locating the function in the tax office, is that its activities may be dominated solely by the needs of the collection of tax and could be insufficiently concerned with other redistribution activities. Clearly the culture that has developed in the Inland Revenue Department has tended to focus on the need to collect tax to the exclusion of other concerns. If this were to continue unchanged, it could seriously undermine the effectiveness of welfare systems. A pure tax orientation would continue to emphasise only annual March year information and only those elements of income as defined for tax purposes. A wider focus demands the collection of more frequent information plus knowledge of other cash flows such as maintenance payments.

Although any change is difficult in an organisation as large and as pressured as the Inland Revenue Department, experience demonstrates that tax offices are not immutable. The administration of Family Support has demonstrated that Inland Revenue can handle information at other times and on other items than is normally their concern. Revenue Canada has added questions to tax returns so that the necessary information for the determination of eligibility for income-tested age benefits can be collected and delivered to the relevant social agency. Clearly the adjustments can be made.

- In Summary

This discussion suggests that, so long as it were agreed to shift to one set of source data on income, the duplication of processes in bulk assessments could be minimised by consolidating onto one formula assessment agency. This agency would collect and collate data, and report as appropriate on individual circumstances. Because of the important links between tax functions, and the critical importance of tax powers for the survival of the Government, it is probably necessary that the bulk assessment function be carried out within the tax office.

An Integrated Approach

If the issues of information collection, information exchange and organisational form are brought together, it is possible to construct a different set of arrangements for assessing income and relative need. Instead of seeing tax, benefits and housing as three distinct issues that each have some income assessment process attached, we may instead construct an information management process which focuses on redistribution. The fact that redistribution takes several forms and occurs in different contexts need not blind us to the possibilities of reducing intrusion and inconvenience, improving individual control, and improving the quality of information.

This section briefly sketches a possible administrative structure and process that could replace the existing systems. It then uses the criteria defined in Chapter Eight to compare this alternative with the current approach. The gaps in our knowledge of costs, both the administrative costs to the Government and the compliance costs to individuals and third parties, means that we cannot unequivocally support or reject either approach, but the criteria do permit a preliminary assessment.

An integrated approach to the assessment of circumstances would have at its core one agency charged with collecting the information necessary to measure income and the financial aspects of bankability. This agency could collect frequent reports of earnings and other sources of income for comprehensive verification. The verified information would be securely conveyed to redistribution agencies in a designated area of a bank-issued IC card. The redistribution agency would then undertake any other aspects of enquiry (such as disabilities and family circumstances) and offer the appropriate support for the individual concerned.

The Inland Revenue Department would be the agency charged with collecting information. Annual returns from individuals would continue to be the core of the tax assessment process, and tax liability would continue to be substantially self assessed. The principal differences from the current system are that information from employers on the earnings paid to their employees would be collected more frequently, and the entering of information on sources of income would become comprehensive. All information provided from sources of income would be recorded and matched to individual taxpayers. At all times the information on an individual would be recorded in an electronic tax report. This would show:

- the assessed income for each of the last few years;
- income paid by each source to the individual in recent years;
- monthly (or quarterly) earnings received from employers over the last 12 months;

- employment status at all times in the previous couple of years.

The source of the sub-yearly information on earnings and employment status would be four weekly comprehensive reports from employers on every employee, identified by tax number.

The information in the tax report would automatically be available to Inland Revenue Department staff, and it would combine with other information available to the department to determine tax liability. All tax reports would remain with the Inland Revenue Department until each individual requested the release of his or her own information.

The request for information would be by means of an electronic on-line enquiry. The individual would insert a bank-issued IC card into an authorised on-line Inland Revenue terminal. Once the validity of the card and the holder have been determined, the holder can inspect his or her tax report, and request that it be written onto the card, or that the tax report already on the card be updated. The Inland Revenue report would be encrypted for transmission to the IC card.

Individuals would not be obliged to carry IC cards, nor would banks be compelled to offer the cards. However, the Inland Revenue Department and the welfare agencies would jointly issue a "standard" defining the necessary features of an IC card that would be authorised to carry a tax report. The standard would need to cover interface protocols, security systems, capacity of the tax report area, processing systems in the card, key management systems, and physical characteristics of the card. Obviously this standard would be produced in close consultation with the banks. Welfare agencies would then require that clients produce an IC card containing a tax report as a condition of receiving assistance. In order to ensure the card were available to welfare clients, the agencies might enter into contracts with some banks to meet the cost of issuing cards with a tax report capacity. The contract might also cover the issue of cards (which might not have a credit facility) to any welfare applicant.

Obviously the suggestion of using bank-issued IC cards depends on the banks deciding to adopt the IC card technology. So far there has been little interest from any bank in New Zealand, but experience in France and Norway, as well as smaller applications in other countries, suggests that the IC card is a likely future development. If the government were to pursue a major application like the transmittal of tax reports, that might help to encourage the banks to adopt the new technology. The principal effect of the Government's involvement would be to ensure a much faster spread of the IC card and a larger client base; in addition the banks might negotiate for some assistance with development costs.

Having received an IC card and gone through the process of updating the tax report on it, the individual could then produce the card at any redistribution agency to validate a claim for assistance. The redistribution agencies would all have readers authorised to access the card. On the basis of the information shown on the card, and any other relevant information such as family circumstances or the accommodation situation of the household, the appropriate level of assistance would be offered. For some forms of assistance that are offered on an annual basis (such as family support) eligibility might be determined by Inland Revenue Department staff and the net payment might be

through an end of year tax cheque. However, other forms of assistance would probably be paid directly via welfare agencies, either through regular bank transfers or as a discount on the cost of services. Those who continue to receive assistance for a lengthy period would be required to produce an updated tax report on the IC card at regular intervals, in order to establish their continued eligibility.

The three essential differences from the current system are:

- one agency would be responsible for collecting most information;
- information (especially on earnings) would be collected more frequently;
- information would pass between agencies using a bank-issued IC card held by the individual.

In order to get some idea of the value of these changes, we may rapidly review the criteria for appraising information systems used in redistribution, to see if these ideas represent an improvement over current systems.

- Feasibility

The feasibility of the current system is demonstrated by experience, but the feasibility of the possible alternative must be established. The new processes which must be checked against the criterion of feasibility are: the more frequent collection of data, the compilation of tax reports, the use of multi-function IC cards, and the transmission of encrypted data.

More Frequent Collection of Data: From the point of view of the suppliers of information, it seems reasonable to define feasibility as "possible within the range of information currently held." In theory, any frequency of reports could be provided. However, under this definition, only repeated reports up to the frequency at which income payments (wage packets) are calculated could be feasible. The information is available within the employer's system and its retrieval is a matter of marginal effort and cost rather than the need to investigate information beyond the detail that is normally used by the employer. If there are any employees on long period single payment retainers, this might require separate consideration, but for the vast majority of cases reports on a fortnightly or four weekly basis would seem to require only the addition of a line of (manual or electronic) processing for each employee.

From the point of view of the Government, the issue is the practicality of receiving and processing reports on something well in excess of a million jobs per month (or per fortnight if more frequent reports are accepted). Since at present only around half of all IR 68 reports from employers are entered onto the Inland Revenue computer, and they are received only once per year, it is clear that the data inputting flow for earnings alone would increase something around 25 times or more. At present only a small proportion of other "tickets" on interest or dividend payments are processed, though with the introduction of tax numbers on accounts this processing will expand.

The necessary information to be recorded from each report is:

- the tax number for the individual;
- the tax number for the source of payment;

- the nature of payment (earnings, interest, dividends);
- the amount of payment;
- the period for which the payment was made (start date and end date).

This amounts to around 35-40 characters per report. The difficulty of entering this data depends on how it is received. Most significant employers now have electronic systems for calculating wages, and those employers could be encouraged to provide their reports in electronic media compatible with the Inland Revenue Department system. It is even possible to use encryption systems that would permit telephone transfer of the data direct to the Inland Revenue computer. If the option of providing card-readers to every employer were pursued, the information could be received in a secure encrypted form without the need for any manual data inputting. For employers using paper reports, typewritten reports, or even an imprinting system, could be used so that the tax numbers could be optically read by machine readers. Since the nature of the payment and the dates covered would be uniform across most of the payments made by any one employer or other source in any one report, the number of characters to be entered for any one individual could be reduced to around 5 to 10, covering the amount received.

Though the use of on-line reporting, disks and tapes, and optical character recognition might reduce the amount of manual data entry (and so reduce the main source of error), it is still a massive administrative exercise to cope with the large flow of information. The experience of the banks and more recently the credit card companies demonstrates that it is possible to organise clerical systems to handle a huge information flow from different individuals, but it is a very large undertaking. The Inland Revenue Department is already moving towards a stream-lined system of data-capture using a small number of large data-entry offices. This system is designed to allow careful management of data flows and close checking for error. This structure would probably be the best basis from which to expand to cope with the larger flows of more frequent reports. In the department's own strategic plan for the new computer system, it is envisaged that the new computer will have the capacity (including potentially the data entry capacity) to cope with monthly reporting (IRD, 1989, section 5, page 20).

Clearly the provision and receipt of frequent reports is a large undertaking, and it would require a substantial gearing up of the Inland Revenue Department's systems. However, given the will to make that effort, the conclusion (which the Inland Revenue Department's report supports) is that such an increased information flow could be handled.

Tax Reports: The process of compiling tax reports is the second issue to be checked. This is essentially an issue of data-base management within the Inland Revenue Department's mainframe computer. It is clearly within existing data-base technology to compile any information that is tagged to a given tax number onto a single file. Within that file it is also possible to assemble information on past year assessments, recent reported earnings and employment status. The newly developing Inland Revenue computer system is already designed to include a more complete electronic file on each taxpayer in order to facilitate on-line enquiries for tax purposes. Clearly, in terms of technical developments, tax reports are feasible; however, in terms of practical application there are two major issues - security and capacity.

If the tax report allows access to information on the Inland Revenue mainframe computer from remote on-line terminals, what is the risk of individuals accessing more data than they were supposed to, or of hackers getting illegitimate access? The answer to both of these problems could be through IC card technology. The card is the necessary key for entry and, though they have been used for access control purposes in many sensitive contexts, IC card security has not been broken. A hacker would need to steal both the card and its PIN to gain access to one tax report. Attempts to go beyond that report would be blocked by the card. Because the card is preprogrammed for limited data it could not be used to collect other information. A further control is that only authorised readers would be able to access the host computer. A hacker could not use an ordinary modem to access the system, unless he or she had managed to steal the keys used for terminal security. Since those keys could be changed frequently even this would be a risk of limited duration. Since on-line terminals would be located in places with some degree of public view and official control, a hacker could not spend the many hours of experiment that would be needed to break a security system even if the initial access was achieved. It seems, therefore, that the technologies available are such that even with more open access, security would be as tight as at present.

The issue of capacity could be serious. If each tax report were large, with detailed data covering separate years, the amount of memory that had to be kept for on-line enquiries could be very large. Since it is envisaged that IC cards could be updated on-line, the data could not be stored on tapes. I do not have sufficient information, either on the amount of information that might need to be held, or on the problem of managing large on-line data bases, to be sure of the extent of possible problems in this area. However, there is a possible solution if on-line access to full tax reports is not practical. The tax report that is included on the IC card could be brief, perhaps containing only one year's past assessed income and a rolling last twelve months reported income. Any further data, on employment status, employer's name, period of employment, and a monthly breakdown of income, could be supplied direct to the welfare agency. The welfare agency would not have the right to request the data without the consent of the individual. That consent would be demonstrated by the production of the card and the entry of the PIN. The data could be provided within 24 hours using an overnight batch processing system. Individuals might also use the on-line terminals to request such a report from their own tax file when they wish. If this mixed on-line/off-line approach were adopted there would be a small loss in the ease of transactions, but clearly the system could be put in place with the existing technology.

IC Cards: The use of multi-function IC cards in a redistribution context is the next question. Appendix Four contains a full account of their use in a large number of contexts. There can be no serious doubt that IC cards are secure, flexible and effective. They have been found technically successful and socially acceptable in many applications including social welfare and health areas.

The main lack in the experience to date is multi-application cards. The reason for this gap, however, is not technical problems, but commercial issues. Experiments with small numbers of cards, and the example of the ASSET card in New Zealand, has shown that IC cards are capable of supporting multiple functions. The problem is that applications have so far been promoted by potential card issuers, rather than by possible major users of card applications. Those banks that have introduced cards have focused on the need to facilitate bank transactions, and have not placed a high priority on establishing

relationships with merchants or municipalities who might also use the card. Presented with a pre-designed card that does not necessarily fit into their own commercial strategy, those other users have not immediately sought to use the card.

The potential gains for card issuers from multi-use cards are obvious. It is essential that there be a return on the investment in readers and cards as soon as possible. Every major secondary application on a card increases the number of people holding and using cards, and so speeds up the pay-back on the investment. However, the complexities of negotiating access fees, reader costs, and card management strategies have seemed excessive in a context where most application managers were wary of the evolving technology and doubtful about making any major commitment to card suppliers or issuers. Given the existing investment in other technologies, and a lack of major fraud problems, it has not seemed worthwhile for the banks and other possible issuers to take on the risk involved in designing and marketing a new product.

An initiative from a major secondary application to be located within a bank-issued card, could be a means of breaking the logjam. If the Government were to introduce an application that could attract a large number of users from the outset, bankers would know that a customer base would be available. Even the existing low income customer base that would be linked with current redistribution applications could be attractive, but if new social support systems were funded through a card-based system there could be even more and wealthier customers holding cards. (See "Flexibility" below). The existence of a large customer base would make it easier for the banks to market IC card transaction systems to merchants.

Obviously the issues involved for the Government and the banks are very complex. The determination of a "redistribution application standard" would cover the technical problems, but there would still be major issues in sharing investment costs. One reason for suggesting a bank-based system is to encourage the banks to take on the investment, in exchange for reaping gains through quicker, cheaper and more intricate transaction systems in the future. If the complex negotiations for a multi-use card should fail, it would be possible to introduce a Government card, but clearly its uses would be restricted to redistribution and its possible wider social service functions might be more difficult to establish.

Encryption: Having established that a multi-function card is possible, the other issue is the encrypted transfer of data. This is fully covered in Appendix Four. There is no doubt that an IC card is capable of supporting highly secure communication systems. The only question mark is over the size of the tax report to be received. If it is possible that a full tax report might take up too much room on an IC card, it could instead be handled using the mixed on-line/off-line system that was suggested to reduce the capacity requirements on the mainframe computer. The question of the capacity of the IC card could only be fully assessed in the light of the details needed for bank and redistribution systems. It is clear, however, that a range of possible designs for cards, readers and hosts exists and that some option which achieves an appropriate balance of off-line and on-line transactions is possible. As card size rapidly expands, the possible complexity of card systems and card information also expands.

Overall: It is clear that the introduction of a new system could be complex, it would require a clear idea of the intended goal and the development of a precise user specification. Having achieved those basic management steps, the technology currently exists to support the system that is outlined above.

- **Timing**

The system of monthly reports on earnings would solve the problem of the adequacy of data on recent income. It would permit frequent and timely information to be used for assessing current income and bankability.

This approach would not improve the data on wealth, family circumstances or disabilities, but it would improve the data on employment status.

- **Verification**

All data available to the Inland Revenue Department would be available for welfare purposes, and therefore the verification of circumstances would be greatly improved under the alternative approach. There would still be gaps, especially in the area of wealth and family circumstances, and in the case of those assessments that have not been confirmed by Inland Revenue Department staff. However, those gaps would be much less than exist at present. In addition, the more frequent flow of reports would permit verification of recent income.

- **Flexibility**

The ability to make more detailed checks of circumstances for audit or special assistance purposes would not be reduced under the alternative system. Separate staff and possibly separate agencies would still exist for this purpose. Once the role of welfare agencies was clarified it is possible that some or all of the discretionary activities could be delegated, within a budget, to non-government agencies. These might include church groups, trade unions, iwi, service clubs, or any other organisation which expressed values that the government wished applied to discretionary aid and which could maintain accountability for the funds provided. The use of IC cards would make it easier for any approved organisation, government or otherwise, to have access to the information used in assessing the circumstances of individuals, if that were deemed necessary in every context.

Another aspect of flexibility that is an extension of the concept included in the criteria, is the flexibility to extend the redistribution system into other social services. At present many social services that are not pure public goods, such as health care services, are provided on a universal basis at a uniform price. A very crude form of targeting currently exists in pharmaceuticals. Prescriptions attract a fee, but prescriptions beyond a given number in any one year are free. The problem with this approach is that even in the unlikely event of the administrative system accurately recording the number of prescriptions per person, for some low income chronically ill patient the cash flow problems would be significant until the cut off number of prescriptions is reached. An IC card which records tax report information could be used as the basis of an income sensitive charging system, which could bring home the full cost of social services to those who can afford them, but charge a lower or zero cost to low income groups. Such a system could be completely confidential without any involvement of service providers in determining eligibility.

- **Simplicity**

There is nothing in the proposals that changes the nature of the information used, so it is neither more or less simple than the current approach.

- Duplication

The present range of repeated flows of similar information is eliminated. Figure 5 shows in stylised form the flows of data that would be involved in a new system. Instead of receiving substantially similar reports into three different parts of the redistribution system the government would receive the information once into the Inland Revenue Department, and it would need to be assessed just once. Having been verified the information could then be passed to other agencies using the IC card.

- Security

Though Inland Revenue data would be made available to more officials, and even sent out by telephone systems, the technical capabilities of the IC card are sufficient to maintain existing security and (depending on the security features incorporated in the various computers) could even increase overall security.

- Organisation

The range of multi-function organisations is reduced, and the duplication between a series of assessment agencies is eliminated. The issues of connections between the payment of benefits or the provision of housing assistance, and social work or the maintenance of a housing stock, could then be examined on a case-by-case basis to achieve the best synergies.

- Matching

The only mass data matching in this alternative approach occurs within the Inland Revenue Department, as at present. Other than that the approach permits only one-off enquiries.

- Identity Cards

The IC cards would not strictly be "identity cards" (see below) but the security of the cards is important. The card is clearly the most secure form of portable information currently available, and there is no risk of forgery or tampering. The problem with the system as outlined would be that individuals with multiple tax numbers could generate several tax reports and use an apparently low income identity to receive assistance. It is possible that the existence of a verified card might increase the likelihood of the welfare agency accepting what might otherwise seem to be an implausible story and so allow the applicant to defraud the welfare agency. In effect this is an issue of the integrity of the tax number system. The Inland Revenue Department is well aware of the need to maintain a high integrity number, and has already developed plans to improve the current system. This more secure numbering system should effectively eliminate this problem.

FIGURE FIVE: An Alternative System

- Control

A major feature of the IC card is the control it gives to the individual over personal information. Data does not simply flow from one agency to the other or from one application to another. If information is to be used in another context, the individual must be aware of that and concur in it, because he or she must be personally involved in the process by producing and verifying the card. This alternative approach offers the same complete control over the provision of information as is currently provided, without the cost of inconvenient and intrusive repetition.

- Identification

Though there would be many more people carrying cards, the IC card would not be able to be used as a general identity card. The face of the card need only carry very little information, just enough to permit the holder to recognise his or her own card and to remind the holder of its use. Some information could be contained in a freely inspectable area of the card's memory, largely so that lost cards could be returned to their owners. Any other data could be protected within the card, and unavailable for unauthorised inspection. This would prevent publicans from using the card to check the age of would be drinkers and would stop law enforcement officers using the card to check the identity of people in the street.

- Repetition

As shown in Figure 5 the flows of data from individuals are substantially reduced. The individual would still need to report his or her circumstances to the Inland Revenue Department in the annual tax return. On applying for any welfare assistance the information in that tax return would not need to be repeated as it, and verifying data from sources of income, would be contained within the card. The extra information that would still need to be supplied to the welfare agency would cover family circumstances and disabilities.

- Exposure

The process of applying for assistance could still involve reporting to a welfare office. Though this does involve some exposure, it is no more than at present and, since the process of information gathering is easier, there would probably be fewer visits. Since some personal contact is probably desirable in order to ensure that urgent cases are brought to the attention of welfare agencies, this may be a happy medium. The exposure to employers or others through one-off enquiries could be substantially eliminated. There might still need to be occasional queries over unusual cases, but as a general rule approaches to employers should be unnecessary.

- Effort

The time taken to gather information and fill in forms should be greatly reduced. In most cases the IC card would already contain (or provide access to) better information than any that would be provided manually by the applicant.

- Frequency

The total number of reports provided by employers would rise under this proposal. At present, according to figures supplied by the Inland Revenue Department, 4,171,640 jobs are reported on for tax purposes each year. A further 500,000 enquiries are made

for benefit and housing purposes. Since the total employed labour force is in the region of 1.25 million, it is clear that most of the jobs reported to Inland Revenue are short-term jobs, most of which would appear in only one monthly report. The incorporation of these transitory jobs would therefore impose no extra reporting requirement than employers already face. If we assume that the number of ongoing jobs requiring repeated reports is about 1.5 million, a monthly reporting system might see the total number of reports rise to around 18 - 20 million per year (at 1.5 million jobs x 12). However, the reports would all be simpler than the annual reports requested at present. If the option of issuing card readers to employers were pursued, there would be a large initial capital cost, but the process of calculating and reporting on tax liabilities would be made much easier than at present. The number of reports from other sources of income (bankers and share registrars) would not be changed.

- Enquiries

One-off enquiries would be substantially eliminated. There might be a need for occasional follow-ups of unusual cases, but as a general rule welfare enquiries would not be necessary.

- Accounts

Because information reporting on earnings would be linked to the pay period of the individual, there would be no problem with the accounting systems of employers. There would be a need for some redesign of wage reports to permit the production of a line about each employee, showing earnings received. However, this would require information that the employer was already collecting for commercial purposes. Reports on income from capital would continue to be on an annual basis and therefore would continue to be in line with the normal systems maintained by banks and share registrars.

- In Summary

The suggested alternative approach would provide more complete information, and would allow it to be verified more fully in every use including welfare applications. Though it would not permit a perfect understanding of relative well-being, it would make a substantial improvement in the accuracy of measuring current income and bankability. There would be a great enhancement of the control by the individuals over their personal information, with no loss of security or reliability. The current repetitive handling of similar information by the government, individuals and third parties would be removed. Organisational structures would be simplified, with a greater clarity of role for redistributive agencies. In terms of the list of criteria, the only substantial cost is the increased number of reports that employers would need to supply and that the government would need to process. All other criteria show an improvement over the current position.

Conclusion

This chapter has set out to explore alternatives to the present method of identifying who is in relative need. The main areas for possible change are the collection of information, the exchange of information, and the organisational structures used in the Government's redistribution system. When looked at in turn, possible reforms may be seen in each area. When brought together, an alternative system of assessing circumstances becomes apparent. This alternative would use a more frequent report of earnings, to be

collected by the Inland Revenue Department and passed onto welfare agencies through an IC card held by the individual.

In terms of the criteria that have been developed, the alternative appears superior to the current approach. However, we are not yet in a position to determine whether the alternative approach should be adopted. The problem is that we still have inadequate information on the costs of either system. The government could save on current manual systems, but at the expense of an increased ongoing data entry effort and a major capital investment in cards, terminals, and host computers. Individuals would appear to save through reduced reporting requirements. Third parties would save on the cost of one-off enquiries, but at the cost of the greatly increased number of reports from employers. It is quite possible that, at least in the short term, the administrative and compliance cost of the new system may be greater than that of the current system. If that is so, any such net increase in cost must be weighed against the gains from improved control for individuals and improved accuracy of determining relative need. Unless the increased cost of regular reporting is substantial, it seems that there is a strong case for a major administrative reform.

CONCLUSION

CHAPTER ELEVEN: CONCLUSION

This thesis has investigated the preferred way to manage personal information needed in a successful redistribution system. The conclusions that have been arrived at in the earlier chapters do not take the form of specific and detailed proposals for a reformed welfare state. Instead, the thesis has made substantial progress towards:

- a identifying the information that would best be collected for a fair redistribution system;
- b the constraints on its use in a liberal democracy; and
- c a means of handling the data which is efficient, fair and protective of individual rights.

The introduction identified three questions which need to be addressed in developing an answer to the overall question of the best way to use information in a successful redistribution system in a democratic society. Progress on these three can be assessed in turn to measure progress towards an overall answer.

- a **What is the nature of the information needed to run an effective and efficient redistribution system?**

The essential problem identified in Part One is the measurement of comparative well-being. Until we know who is better-off and who is worse-off we cannot determine from whom to take and to whom to give.

A review of basic theories of well-being, and of the various approaches that have been used to measure proxies for relative well-being, leads to the conclusion that no approach is without problems. The concept of the choice set is adopted as the idea which offers the most satisfactory philosophical basis for a redistribution policy. The idea that the relative well-being of people should be measured in terms of the options they face, and the extent to which they are in their current position as a result of deliberate choice, provides a conceptual underpinning to redistribution systems. The choice set is taken to be composed of some measure of control over resources, which for administrative purposes is proxied by income and assets.

This approach effectively provides a philosophical rationale for commonly used administration systems in tax and welfare. The difficulty lies in determining whether the same measure should be used as the base for all redistribution systems, or whether the common practice of different bases in different contexts is more appropriate. The particular area where this needs to be addressed is the period of assessment.

For the purposes of equity and efficiency the critical issue in determining the appropriate period of assessment for an individual is shown to be the time horizon for that person, and more especially any constraints on the time preferences of the individual. Those whose circumstances oblige them to take a short term view of life should have their affairs, in particular their income, assessed over a short period, while others should be assessed over a longer period.

Two methods to identify the presence of constraints are explored. Stigmatising administrative systems are likely to promote some self selection, but are also likely to be inaccurate and unable to be controlled with any precision. The alternative approach,

bankability, is devised as a means of identifying those who are relatively unable to use the capital market, and so are forced to live in the present.

The factors needed to assess control over resources and those needed to assess bankability combine into a list including measures of current income, past income, wealth, employment status, family circumstances and disabilities. These are the items of information that ought to be assessed in an effective and efficient redistribution system. The precise details of how each of these shall be measured need not concern us here, and it is likely that the fine tuning of policy would involve periodic adjustment of the threshold levels of the various factors. What we may conclude is that a policy which defines eligibility and liability in terms of these factors is likely to be successful in discriminating between those who should pay taxes and those who should receive assistance, and between those whose circumstances should be assessed over a long period and those for whom a shorter period is more appropriate.

b Should the Government have access to that information or should privacy interests moderate the Government's data collection and use?

The question of whether the state should have access to information on individuals in society goes to the heart of the roles of the individual and the government in a democratic society. There are many worthy activities that the government engages in, and it has exclusive authority to coerce citizens to assist in achieving its aims. The pursuit of a fair society, through redistribution in a welfare state, is one of those aims. There is great moral value in the elimination of poverty, and it seems highly reasonable for the state to collect the information it needs to run an effective and efficient redistribution system. However, another weighty goal is the protection of personal freedom. It is important that the state should serve the people and their needs, rather than command them to collectivist or centrist aims. If personal privacy is of significance to individuals, then the state should be cautious about making wholesale demands for personal information.

Privacy issues are explored in Part Two. The nature of privacy is taken to involve a combination of solitude, anonymity and secrecy, and the values of privacy are examined in the light of those attributes of privacy. Privacy is shown to be of value for personal development, personal interaction and for the protection of democracy. However, it is clear that perfect privacy would not support any of these goals, and it is shown that these same three areas also provide an explanation of the limits to the value of privacy. The first step then is that privacy is of significance to people, but it is not an absolute value.

In order that these values can be fostered in a social context, a statement of the rights to privacy is developed, using the values of privacy as a starting point. The essential point about these rights is that the individual may claim privacy except where his or her affairs are the legitimate business of another. In the context of voluntary exchanges this is straight-forward, as the individual who wishes to preserve privacy may withdraw from any interaction which requires excessive disclosure. However, because the state is an intrinsically coercive entity, the government is morally obliged to be particularly careful in its dealings with people, to ensure that its demands are within the legitimate role of the government.

The question of whether the government should have access to the information that is needed to run an effective and efficient redistribution system therefore depends on whether, and to what extent, redistribution is a legitimate role of government. The

answer to that question depends on one's view of the role of the government, which is basically a matter of ideology.

The fact that the issue depends on ideology need not halt policy analysis. The problem becomes one of divining an appropriate statement of the ideology that may properly be applied to this issue, in New Zealand, at this time. In the final analysis it is the function of Ministers to determine such a question. In the absence of any such definitive ruling, policy possibilities may be developed by reference to any apparent consensus that may exist.

An examination of the history of recent political debate suggests that there is a strong and wide consensus that a moderate degree of redistribution is a legitimate function for the government. However, the common law tradition, and the cultural values that reflect that tradition, requires that the government be cautious and modest in the demands it makes of individuals, and that the presumption must be that as much as possible personal information should remain in the control of individuals.

At a practical level the conclusion is that the government may collect personal information for redistribution purposes so long as the OECD privacy principles are respected, and so long as the information demands are restricted to those that are essential to a generally accepted redistribution policy.

c What systems for the collection and processing of data will establish an appropriate balance between redistribution and privacy interests?

The material explored in this thesis does not provide a definitive guide as to the appropriate balance between privacy and redistribution. Given the value judgements involved in both areas it is probably not possible to determine a single balancing point which is always appropriate. However, in the context of the understood prevailing ideologies in New Zealand, it is possible to construct a list of criteria against which to evaluate information collection and processing in redistribution systems.

The essence of the criteria that are developed in Part Three is:

- the information collected should accurately cover current income and bankability;
- the individual should have as much control over personal information as possible;
- general purpose identity cards should be avoided;
- duplication of information collection should be avoided;
- compliance and administration burdens should be minimised; and
- the whole system of information collection and use, and the institutions within it, should be as simple as possible.

The criteria do not provide a means to rate any system with an absolute index number, but they do assist in the comparison between systems. If a feasible alternative system can be found which compares favourably with existing systems, then the first stage has been made in an argument for change. The criteria alone are not definitive, as a full examination must be made of the financial costs and gains of the two systems to see whether the costs of a switch are higher than could be justified by the expected gains.

The existing systems as operating in New Zealand have been assessed in the light of the criteria, and three major problem areas are apparent. First, the information currently collected does not cover all that is necessary for an assessment of either current income or bankability; the main problems are a lack of comprehensive verification of data, and a void in the area of recent income. Second, there is a great deal of duplication in the data that is collected, with considerable extra burden on individuals and third parties, and with three substantial bureaucracies all covering similar work. Third, the organisations involved in redistribution, especially the welfare agencies, are complex institutions with multiple functions. On the other hand, the existing system has the major virtues of having no identification cards and of leaving individuals with effective control over the use of personal information.

An alternative system is developed to address these problems. Under this approach information would be collected by one agency, the Inland Revenue Department. Information on earnings would need to be supplied more frequently, probably four weekly, in order to have up to date comprehensive information on recent earnings and employment status. Income information from tax files would be provided to individuals using IC cards, in order to give protection against tampering and illicit reading of information. The individual would offer the card to welfare agencies as evidence of relevant circumstances.

When compared to the existing system in the light of the criteria, the alternative is superior in all respects, other than the extra number of regular reports required from employers. The cost to employers of these extra reports would depend on the degree of assistance offered by the government to support the provision of accurate and timely information.

Without a full investigation of the compliance and administration costs of both options it is not possible to be firm on whether it would be worthwhile to adopt the new approach, but on the basis of the criteria it seems preferable. The use of recent technologies would permit a new approach to the collection and use of information that would be both more effective and efficient in meeting redistribution goals, and provide continued protection for privacy interests.

d What is the preferred way to manage the personal information needed to run a successful redistribution system?

The overall question, as posed in the introduction, is the sum of the previous three questions. The mechanics of the information processes have been addressed in each section. It remains to reflect on the basic public policy conflict between the need to preserve individual freedoms and the need to provide the administrative structure for a welfare state.

A libertarian vision of individual rights would tend to emphasise the pre-eminence of the person rather than broader interests of society, and would assert that individual freedoms are the most important factor to be considered. A social welfarist view would emphasise the importance of social justice in the distribution of the means necessary to sustain an adequate life-style, and would assert that personal freedoms are empty without the means to exercise choices. The notion of a dialectic can be seen to have some dynamic substance in terms of a competition between these sets of ideas, and the quest for a system of administration that is sensitive to the need to defend different values.

Public policy analysis and administration in New Zealand must reflect a commitment to social justice, including a redistribution role for the state, and democracy, including a respect for personal freedom and privacy. Bureaucrats have a moral obligation to ensure that their advice and practices are in line with a broadly accepted balance of these ideals. In particular, as changes in technology create new opportunities and threats, the best means of achieving a successful balance requires continual review. Change for the sake of change is a suspect motive, but so is stasis for the sake of a quiet life.

Fifty years ago the answer to the question of the preferred approach to redistribution would have involved an acceptance that accuracy in assessments was severely limited by technical realities of information management, and would have used a system very similar to the one we currently have. The technical possibilities of electronic databases, digital communication, and card security now offer new possibilities to address the same balancing problem. The conceptual dialectic is the same, but we now have the means to improve the effectiveness and efficiency of redistribution while continuing to offer substantial protection of privacy rights. Subject to the detailed assessment of administration and compliance costs, this appears to be a very attractive possibility for a democratic welfare state.

APPENDICES

APPENDIX ONE: CURRENT INFORMATION SYSTEMS FOR REDISTRIBUTION

Introduction

This appendix contains descriptions of the systems currently used in New Zealand to collect and process personal information for redistributive purposes. These systems include programmes administered by the Inland Revenue Department, the Social Welfare Department and the Housing Corporation. A clear understanding of current systems is a necessary requirement for a critique of existing practices, and as the basis for comparing possible alternatives with present methods.

There are no descriptions of these systems currently available, and the following sections have each been produced after a substantial amount of field work to investigate administrative practices. The precise approach to these investigations varied depending on the best source of information in each agency, but the general approach remained similar in each case.

My initial contact was with the Chief Executive of each agency, seeking support for the overall project, permission to have access to information, and a nominee who could assist with accessing the information I needed. I then wrote to each nominee outlining the type of information I required, and posing a series of questions on processes used. After an interview with each nominee, based on my initial letters, I was referred to appropriate sources for further information. These sources varied between agencies; in some cases there was substantial written material available and in other cases I had to rely more on interviews with staff. All the substantial discussions are listed in the List of Interviews, in the section on references.

The Inland Revenue Department is a very streamlined operation with a high degree of central co-ordination. As a result I was able to get most of the information I needed from administrative manuals which lay out the procedure that districts are to follow. Social Welfare was also able to offer access to manuals, but this was supplemented by interviews with district and head office staff. In the Housing Corporation there is no manual, and therefore nearly all the information was collected from interviews and file searches at a branch office. These sources were complemented by a large number of forms used by each agency for the collection of data (see List of Forms, in the section on references).

I discussed my findings with staff of the relevant agency before completing my draft, in order to confirm my understanding of procedures. Once I had a completed draft, I referred my paper on each agency to my nominated contact for a departmental clearance. Each agency has confirmed that the descriptions are accurate.

The appendix is divided into sections by agency and within that, when appropriate, subdivided by programme. Each section describes the base used for assessment, the information collected to measure that base, and the process by which that information is collected and processed. In addition there is a brief section on the proposed reforms to information systems that are planned or underway in each agency. The first agency considered is Inland Revenue, with a description of income tax and Family Support. After that there is a description of the systems used for income-tested benefits by the Department of Social Welfare. Finally the Housing Corporation's systems for rental and interest subsidies are examined.

It should be noted that the field work was carried out in the middle of 1989, and these descriptions reflect the practices observed at that time. The overall approach is still similar as at June 1990, but the continuing process of policy change will inevitably cause changes in the months ahead.

Income Tax

The income tax system is administered by the Inland Revenue Department. It is the largest of the redistribution systems currently in operation in New Zealand, with the largest money flow and the greatest number of people affected. The system is commonly described as a voluntary compliance system. In fact, participation is compulsory, and the law specifies the information which must be made available. The voluntary concept refers to the fact that the department relies on a high degree of honesty among taxpayers and does not exhaustively check every return. However, selective checks are made, especially in areas where experience has demonstrated that mistakes or evasion are most likely to occur. These selective checks, combined with sweeping powers to inspect information on commercial transactions, encourage a considerable degree of compliance even from those who might otherwise have been reluctant to part with any of their income to the government.

- The Current Base for Assessment of Income Tax

Though New Zealand could not boast of a pure Haig-Simons comprehensive income tax, developments over the last five years have removed many of the deductions and exemptions that bedevil income tax systems around the world, and now New Zealand has a relatively broad base for income tax.

The principal items in the income tax base are as follows:

- all income from employment, with no deductions for the cost of earning wages or salaries;
- all income from interest and dividends (the \$200 exemption has now been removed, but there are still some residual exemptions for special forms of investment). New Zealand now has a 'full imputation' system, which means that taxes paid by companies attract an imputation tax credit which may be claimed by the taxpayer.
- all income from business activities. This includes rent, farming and any other business activities. From gross receipts, taxpayers are entitled to remove the costs of generating gross income, including depreciation, interest, changes in stock and repairs and maintenance;
- all income from trusts, estates and partnerships;
- profit realised on the sale of assets, land or shares, if the taxpayer bought the assets for the purposes of resale or if the taxpayer is in the business of trading in those assets.

The main gap in the comprehensive income tax base is the omission of imputed income from the value of owner occupied housing and any other imputed income from individual activities. There is also no generalised capital gains tax for those not involved in trading,

and for those who are trading there is no accruals basis for capital gains, but instead a realisation basis is used. Of the various exemptions which commonly have the effect of narrowing the tax base in other countries, New Zealand does not have any deductibility for mortgage payments and has now removed deductibility for payments into superannuation and life insurance schemes.

Having identified the tax base in legislation, the operation of the income tax system is aimed at eliciting the appropriate information to identify tax liability.

- Information Used in Assessing Tax Liability

The main source of information for assessing income tax liability is annual returns provided by taxpayers. Every taxpayer is required to complete a return unless they are salary and wage earners with a total income less than \$20,000 and zero provisional income. In addition, National Superannuitants who are liable for payment of the National Superannuation surcharge must produce a return as must all Family Support applicants who have had a Family Support Certificate issued in their name. The total number of personal income tax returns that are forwarded to the Inland Revenue Department is currently around two million per year. The information that must be provided in returns is not specifically outlined in legislation, instead the law requires that returns must be of a form required by the Commissioner.

There are two main categories of tax return. The IR5 return is for salary and wage earners, superannuitants and people on income-tested benefits including accident compensation earnings related benefits. There is provision in the IR5 return form to report some income from interest and dividends, but total provisional income must be less than \$3,000. The other main form is the IR3, which is for taxpayers with a provisional income of greater than \$3,000. Provisional income is all forms of income other than payments in the nature of wages, superannuation and benefits, from which source deductions are made. There is no basic difference between the two forms. Both forms of return lead to assessment on the same basis using the same tax scale. The purpose of the separate forms is to allow provisional taxpayers to have a fuller opportunity to report their income in its various different forms. Also IR3 returns may be provided a month later (7 July) than IR5 (7 June). Further, those IR3s that are prepared by tax agents (accountants) are commonly delivered at staggered dates through the year in order to spread the workload for public accountants and for Inland Revenue. This delayed provision is negotiated between the tax agent and Inland Revenue.

The information contained in the annual tax return is as follows:

- a IRD number. There is no separate statutory authority for the IRD number. It is administered within the Commissioner's general power to specify the form of declarations and returns.
- b a full declaration of all earnings under the following categories:
 - salary and wages;
 - accident compensation earnings related payments;
 - unemployment benefit and other income tested benefits;
 - youth allowance;
 - National Superannuation;
 - other New Zealand pensions or superannuation or annuities;
 - other income from which withholding tax has been paid.

For all of these categories the taxpayer must report the whole year's receipts and they should all be supported by the appropriate IR12 or IR13, form provided by the payer of the income, which should indicate the total amount paid and the amount of tax withheld as a source deduction.

- c The declaration of all interest and dividends received. This should include identification of the payer of the interest and the company paying the dividend, and also any imputation credits or withholding payment credits in respect of the dividends.
- d Any income from partnerships, estates or trusts must be declared, including identification of the relevant partnership or estate by name and by IRD number.
- e All business income must be reported. The taxpayer must show net profit or loss and also attach a copy of the financial accounts for each business which substantiate that profit or loss. The accounts need to identify gross receipts and itemise expenses. The return should include information on the sale of land or buildings and also the sale of shares or other property. This category of business income also includes any rental income including a schedule of expenditure for each property.
- f All other income must also be declared. This implies that cash receipts from tips or informal employment should be reported, as should overseas income.

The combination of these required categories is summed, to arrive at a gross income figure. From this income the taxpayer may claim the cost of preparing the tax return. These costs only include cash payments made for the preparation of the return and must be substantiated by a receipt.

In addition the taxpayer may claim for various rebates. There is a rebate for low income earners which may be paid in respect of every week that the taxpayer has worked over 20 hours, but the return does not require any information to be provided in respect of those hours. Similarly there is a rebate for taxpayers who are children in respect of whom a Family Benefit is paid, but again no evidence of this is required to be included in the tax return. Further rebates of up to \$200 for charitable donations, and up to \$310 for housekeeping or child-care costs may be claimed; claims for donations must be substantiated by receipts and the person to whom housekeeper or child-care payments are made must be identified.

In addition to the mandatory information the return also seeks information on the taxpayer's date of birth, occupation, and name and IRD number of spouse. This information is requested for identification, but may be omitted.

As well as the primary information received in the tax return the Inland Revenue Department also receives information from many other sources which it may use to verify tax returns.

The most important of these secondary sources is the PAYE returns from employers (IR68). These returns are forwarded at the end of the financial year and identify the names and IRD numbers of each person from whom PAYE payments were withheld and the total salary or wage payment made to that person.

The second major source is interest and dividend "tickets". These returns from financial institutions and regular payers of interest and dividends identify the total amount paid by name of individual and any withholding tax.

The other major secondary source of information is that revealed in audits and projects carried out by Inland Revenue. Audits are checks made of the books held by taxpayers in order to confirm that their returns honestly reflect the state of their activities. Projects are inspections of the books of any entity in order to identify the names of the recipients of various payments so that those recipients can be checked to see whether they declared that receipt. Under section 17 of the Inland Revenue Department Act the Commissioner of Inland Revenue has sweeping powers to acquire information "considered necessary or relevant for any purpose relating to the administration or enforcement of any Inland Revenue Act". These powers are regularly used to gain access to information which can be used to corroborate the returns provided by taxpayers. In addition, the taxpayer is obliged in terms of the Income Tax Act to keep evidence of receipts and payments for up to ten years in order to facilitate any audit that may become necessary. This means that all business commercial information is potentially available to the Inland Revenue Department as a source of information to be used in assessing income tax liability.

A further source of some information is anonymous or spontaneous reports. The Inland Revenue Department keeps a register of anonymous reports in order that it can use them to identify those taxpayers whose affairs should come under closer scrutiny.

The combination of an enormous number of returns being provided annually by all taxpayers and a very large number of possible sources for verifying returns means that the information management problems confronting the Inland Revenue Department are very complex and careful administration is necessary to ensure that all returns are promptly processed and that an adequate degree of scrutiny is maintained. The following section describes the bones of the system by which Inland Revenue maintains a rapid flow of assessments while also ensuring the integrity of returns.

- The Process of Assessment, and Post-Assessment Review

The assessment systems used by the Inland Revenue Department are designed on the understanding and experience that most taxpayers are honest and that their self assessments are correct. This means that the majority of returns may be accepted without question and processed as quickly as possible. However, the Inland Revenue Department also recognises that there is a significant likelihood of mistakes being made especially in some of the more complex parts of the tax reporting requirements. For this reason the Taxpayer Services Unit reviews a significant portion of returns in order to provide assistance for taxpayers and in order to develop experience which will help in the future design of more clear return forms and guide booklets. In addition, the Inland Revenue Department experience demonstrates that in any given year some taxpayers will feel tempted to under-declare their income or over-declare their costs and so evade their tax liabilities. Therefore the department has a thorough process of verification and review which is designed to pick up all the worst cases and to catch enough would-be evaders so that the department's abilities are experienced by many people in the community and so encourage compliance from those who might otherwise be inclined to stray into dishonesty.

The process by which the Inland Revenue assessments are carried out are described in various departmental manuals. These manuals outline the approaches to be followed and set down nationally consistent procedures. In addition, every year work plans are formulated and issued to the relevant sections in operations circulars which set the priorities and work standards that are to be observed. These manuals and circulars are confidential, because clearly they might be useful to those contemplating filing a misleading return. The Department has permitted me to view them, and the information in this note is drawn from them. However, since they are not available for general inspection I have not noted each source in detail; there is little point in that degree of detail as it would not effectively permit other researchers to check my sources since they remain confidential.

Rapid bulk handling processes characterise the pre-assessment systems, and a more thorough and deliberate scrutiny is involved in post-assessment review. The pre-assessment process is dominated by the Classification Unit, assisted principally by the Taxpayers Services Unit. The post-assessment area is largely the domain of the Verification Unit and the Audit Unit. Prior to both of these is the issuing and maintaining of IRD numbers for identification.

a IRD Numbers

A central part of the Inland Revenue Department's information management system is the IRD number. This is an eight digit number. One of the digits is a check digit; the other seven must be tested for mathematical conformity with the check digit. This allows immediate electronic recognition of an error or a fraudulent entry.

The authority for the use of the IRD number system is derived from the power of the Commissioner of Inland Revenue to specify the form of returns and declarations. Currently the Commissioner requires that each taxpayer must deliver to the employer a declaration which shall include the IRD number. Similarly, the Commissioner requires that tax returns shall show the IRD number. In effect this combination of requirements is what compels each taxpayer to have a number.

The basic logic of the IRD number identification system requires that each taxpayer should have only one number. Those wishing to have a new IRD number issued must fill in form IR595. This includes a question on whether this is the first time that the individual has asked for an IRD number. Any person over the age of 18 years completing an application is required to supply details to explain why they should need a new number. This might include returning to the workforce (in which case IRD will endeavour to re-allocate the old number) or arriving from overseas. The Department requires that those who claim to have been previously living overseas should produce their passport to establish the truth of this claim. Other applicants may be asked to produce such evidence as the district office considers necessary to establish proof of identification.

Once the Department has checked its central name and address file the number may be forwarded to the applicant by mail.

The normal circumstances where a new IRD number would be issued would include an individual entering employment for the first time, commencing self-employment (where a number has not previously been issued), incorporation of company, commencement of a partnership, commencement of income earning trusts and estates.

It is the practice of the New Zealand system to use the same IRD number for all taxes which the Department administers. For example a single number would be used for a self-employed person who employs persons, is liable for Fringe Benefit Tax, Goods and Services Tax and Land Tax.

Though the Department now has procedures in place regarding the issuing of new numbers and the confirming of previous numbers, in earlier years the allocation of numbers was not strictly controlled. There are now nearly six million allocated IRD numbers. It is apparent that some people have had more than one number issued and this poses a tax evasion problem. Improvements to the process of issuing numbers, and the review of existing numbers, will lead to an increased reliability for IRD numbers. The department considers this will change the numbers from mere "account numbers" to "high integrity numbers", suitable for any numbering purpose needing a reliable base (New Zealand Inland Revenue Department 1990, page 2).

The main use of IRD numbers is in the identification of employers' source deductions. The Inland Revenue Department estimate that around 6.8 percent of all source deductions are now made at the non-declaration rate, which is applicable to those who have not provided their IRD number. All other source deductions are identified by number, but an unknown percentage of these relates to the fraudulent use of second IRD numbers.

b Pre-Assessment

All returns initially go to the Classification Unit. The Classification Unit is set up as a clerical clearing house which aims to categorise returns as quickly as possible. The manual of the Classification Unit states that the underlying concept of the unit is that the taxpayer is basically honest, and in most cases information may be accepted for assessment at face value. The unit carries out only those actions necessary for assessment input and to identify those returns requiring more in depth examination or verification. In selecting returns for closer scrutiny the criteria are intended to be easy to operate since the staff of the Classification Unit do not have technical experience.

The staff of the Classification Unit quickly check the contents of each return and ensure that all the required information is attached. Most returns are found to be clear and are batched for lodgement in the IRD computer system and immediate assessment. If the return is adequate except for one gap then the Classification Unit takes responsibility for requesting that the taxpayer provide the extra information by means of a form letter. Once this information is incorporated the return is assessed.

Where any return has more than one gap, or where information provided in the return requires more careful scrutiny, the return is forwarded to the Taxpayer Services Unit. That unit follows up these more complicated enquiries with the taxpayer. The Taxpayer Services Unit Manual makes it clear that the role of the unit is not to extract the maximum tax from the taxpayer, but to establish the correct amount of tax payable, and to isolate problem areas in return forms and guides. In effect the function is to help the taxpayer to correctly complete tax returns.

Where the Classification Unit find that information provided is outside certain bounds, the return may be "pre-selected" for verification. The verification process involves a pre-assessment check that the taxpayer has provided adequate proof of income or deductions. This may be completed by means of a scrutiny of the information attached to the return or may involve contacting the taxpayer for further evidence. The process of

verification is not intended to be a complete check of all aspects of the return; rather it is aimed to find errors or suppressions of information, and to make the verification process apparent to taxpayers. The selection process is aimed at identifying returns that are most likely to need further review, and not all of those which meet the pre-selection criteria are reviewed by the Verification Unit. Instead they are all put aside and a senior member of the Verification Unit staff reviews them every day and selects from those on hand in order to achieve a good coverage of occupations and lines of business, and those which seem on first glance to require more supporting information.

Once the Verification Unit has completed its review of the returns referred to it, and once the Taxpayer Services Unit has completed its work on returns, they are all returned to the Classification Unit as clear returns to be lodged for assessment.

The overwhelming majority of returns are therefore subjected to only a very preliminary check before they are accepted for assessment. The only essential is that all information that is necessary to be coded onto the computer is complete on the face of the return. Provided that information is available, the assessment may be made and the taxpayer receives either a bill for final tax or a refund.

c Post-Assessment Review

Once the assessment is made, a proportion are returned to the Taxpayer Services Unit to scrutinise those with any substantial fluctuation in tax liability. In addition a random selection are checked by managers in the Classification Unit and the Taxpayer Services Unit. This random check is basically a quality control, and an internal audit to identify any cases of staff fraud.

The element of post assessment activity that would affect most taxpayers is verification. The Verification Unit uses information from various secondary sources in order to cross check the information provided on returns. The main sources for this information are source deduction returns from employers and also 'tickets' from institutions paying interest or dividends.

Employers' source deductions are reported in the annual IR68 return. About as many as half of all reported source deductions for employment are entered into the computer system to be matched against reported IR12 declarations attached to taxpayers' returns. Each Verification Unit is required to continue matching until it meets an annually specified target match rate. Any mismatch in this area, outside narrow tolerance bounds set by the annual operations circular, can lead to a reopening of the assessment of an individual's tax. Information on interest and dividends is handled similarly. The Inland Revenue Department encourages financial institutions and share registrars to provide their information on electronic media in order to facilitate as wide a matching as can be achieved between payments of interest and dividends and the amounts reported in taxpayers' returns of income. Similarly, any mismatch between the reported payments of interest and reported receipt as shown in returns can lead to a reopening of the assessment.

Another significant source of information is the projects carried out by each Verification Unit around the country. Annual operations circulars direct the Verification Unit as to the type of activity to be investigated. For example, in one year local bodies throughout the country might have their payments to contractors examined. This review would cover the current year and a specified number of previous years. The local Verification Units are

required to match to individuals at least a substantial target percentage of all payments revealed by such records. In this way they may identify some individuals who have not made a return but who should have. Such people are contacted as quickly as possible. Others who have made a return will be required to demonstrate that the particular payment concerned has been included in the return they have already made. Once again, if it becomes apparent that a payment was not included in the return of income then the assessment may be reopened by the Verification Unit. A further source of information for the Verification Unit is payment information contained in other tax returns. This could involve cross checking between GST returns and income tax returns to ensure that there is some compatibility, or drawing links between company tax returns and the returns from major shareholders. The Verification Unit does not aim to completely reassess the return from the taxpayer but simply issues a reassessment to take account of any errors which become apparent. If it seems from the areas that they have examined that a particular taxpayer might be participating in a significant fraud, then the case is passed on to the audit and inspection groups.

The Audit Unit uses both desk audits and field audits to carry on its work. The desk audit involves a review of a number of years of income and expenditure accounts provided with business returns, in order to ensure that the assessment was compatible with the information that is available. If there is anything of concern in the return, or if it is particularly complex, a field audit will also be carried out. This involves searching the receipts and payment records of the business. Once again part of the point of carrying out a field audit is to be seen to be thorough. However, it is by no means a pro-forma exercise, and the tax auditor is required to demand adequate proof of the financial activities of the business. If the audit reveals any irregularity or error, the Inland Revenue Department may reassess liability for income tax up to ten years in arrears. In particularly complex cases specialist tax inspectors are called in. If the audit process reveals major irregularities prosecutions may follow.

The information storage and retrieval system involves retention of the paper return forms filed by taxpayers, including attached documentation, and the record of any assessment or verification that has accrued. In addition, the computerised ledger records the annual income assessed, and tax liability. Any Inland Revenue staff member has access to terminals which may be used to view individual ledger records, or could call for the returns on a particular taxpayer. The only exception relates to the returns of staff members and some groups that are judged to be sensitive, including the judiciary. These returns are handled at the Masterton office, and are not available to other staff of the Department. The Inland Revenue Act requires that information given to the Department be closely held, and may not be used for other purposes. The Department places a high priority on protecting the information it receives and, though information is technically freely available within the Department, staff are actively counselled to be extremely circumspect about any use of the information. This ethos of information protection permeates the Department, and is recognised by staff as critical to the success of "voluntary compliance".

- Planned Reforms to the Information Management Systems

The computing hardware that the Inland Revenue Department currently uses is becoming overstretched. The programmes have developed over a series of years and are not always compatible. In the income tax area the main function performed by the mainframe computer is the maintenance of the tax ledger. This records the current assessed income and tax liability of each taxpayer, and their payment of provisional and

final tax. In effect, this is a recording of what has been a largely manual process of data management and assessment.

Over the last couple of years the Inland Revenue Department has conducted a major review of its information handling systems and the Government has agreed to a substantial upgrade of its computer facilities and a rewriting of its information management systems. A description of the intended changes is included in the Inland Revenue Department's Information Systems Plan. This plan has not been released publicly, but I have been permitted access to it in order that I might understand the intended changes.

A basic overview of the main features of the intended redevelopment are:

- a mainframe data storage environment which provides a common client identification system for all tax collections based on the taxation number system. This will enable client profiles for all revenue types and will ensure minimal movement of paper files and greatly improved facilities for management reporting;
- enhanced data capture facilities which will minimise the amount of keying required by using equipment such as character recognition machinery, allowing electronic funds transfer and allowing extensive receipt of income data from institutions on electronic media;
- department-wide availability of workstation terminals to individual staff, linked as required to main data bases for on-line editing and updating, on-line access to main data bases and client data and on-line support services such as tax rulings, expert systems, project management systems and word processing facilities for standard letters.

The conceptual flow of assessment and post-assessment review will continue with the new information management system. The main difference is that classification units around the country and data entry points around the country will become unnecessary, and instead there will be a small number of large data entry centres that will handle all of the initial bulk handling of returns. This will ensure that all returns are quickly on the system and district offices will then be able to carry out the more technical review and verification that is needed. In the district offices staff will have on-line access to several years of client history which they may use to support any of their verification or audit activities.

A major improvement that the new computing system will offer is an increased capacity for matching of both wage earner returns and interest and dividend payments. With the improved data capture systems it is likely that a very high proportion of source deductions and payments will be able to be matched against individual taxpayers. The efficiency of this process is likely to increase to the point that a much more frequent matching could be undertaken. In particular, the systems plan envisages that it would be technically possible and probably economically attractive to request source deduction information from employers, and maybe financial institutions, on a monthly basis rather than annually as at present. If this were pursued it would clearly change significantly the information held by the Inland Revenue Department.

Another major benefit of the new information management system will be the ability to use computerised selection systems for verification and review. Selection criteria could be readily applied to all returns, and those which appear to be the most significant could be rapidly identified for district office review. In addition, computerised systems will be able to improve the case management systems used in verification and audit. Overall the more comprehensive and accessible recording of information, combined with methodical management of selection and processing of cases, is intended to reduce the time involved in handling returns and improve the department's ability in identifying any cases of misreporting of income.

The ability to access information on taxpayers more easily raises questions of data security. It is envisaged that the system will log access and subsequent use of the system by staff. The system can automatically monitor the frequency of access by each user to different system functions to ensure that users on the system only access files on a "need to know" basis. It is also intended to ensure that adequate audit trails are available for recording any data base updates. Access to the system will be through menus presenting only those application functions that a particular user needs. Passwords are intended to be used to control initial entry of the user onto the system. In order to protect the network against any outside monitoring, it is proposed to use encryption devices both for the transmittal of information and possibly for the recording of sensitive data.

- Conclusion

This description of the Inland Revenue Department's information handling system demonstrates that the Department has access to (and uses) a comprehensive set of information on income. As well as the elaborate information that taxpayers are required to provide annually in their returns, the Department accesses secondary information on sources of income from a variety of places.

The Family Support Tax Credit

The second major component of the present set of redistribution policies is the Family Support programme. This is administered by the Inland Revenue Department. As its formal name implies it is technically part of the tax system and is constituted within tax legislation.

- The Base for Assessment of Eligibility

The base for Family Support is a development of the income tax base. It is both more comprehensive in terms of its coverage of sources of cash and less comprehensive in terms of some non cash income.

Areas where the Family Support scheme is more comprehensive than income tax include maintenance payments, and receipts and payments received to help with education. In both cases receipts are added to taxable income, and payments of maintenance are subtracted from taxable income to assess eligibility for Family Support assistance.

Some other income spreading and accrual items are added back to taxable income for Family Support purposes. In particular depreciation on buildings, losses brought forward from previous years, income which has been 'spread' away from the particular year in question and farming, fishing or forestry development expenditure which has been

deducted for tax purposes must all be added back in for Family Support assessment. Likewise any income which is spread to the year in question is removed in the assessment of Family Support eligibility. In addition recipients can not deduct business losses from other incomes when calculating total income for Family Support eligibility.

In effect the Family Support base is a short term base which aims to get a complete cover of cash flows to the individual.

- Information Used for Assessment

The assessment for the eligibility for Family Support is a two stage process. Before the beginning of the relevant financial year households may apply for a family support eligibility certificate. These certificates are then given to the employer so that PAYE deductions may be altered to take account of the tax credit.

The application (FS1) must be filled in by both parents in a two parent family. The application must include the Family Benefit number of each parent and the full names and date of birth of every child who is entitled to receive family benefit. The application must show the primary employment of both parents and their secondary employment, as well as the number of hours work in each job per week. In addition the application should show an estimate of income for each parent from salary and wages.

National Superannuation and other pensions, income tested benefit, maintenance received from a former spouse, interest and dividends, business and partnership income and any other income. The application should also show any maintenance paid to a former spouse. To substantiate the estimate of salary and wages, each parent is required to attach a payslip for the previous four weeks or similar evidence from the employer. Information about maintenance payments must include the name of the person who is paying the maintenance or the person to whom the maintenance is paid.

After the end of the financial year the Family Support Tax Credit is calculated as part of the overall income tax calculation process. Those who have received the tax credit are required to submit their tax returns in tandem with their spouse. At the same time they are required to submit a family support declaration, FS2. This FS2 calls for the same family information that was provided in the application form as well as more detailed particulars. The parents must report whether they have married, separated or changed family circumstances during the year and the date of any such change. They must report whether custody is shared and say who it is that shares the custody. In addition, in order to establish eligibility for Guaranteed Minimum Family Income (which is administered as a subset of the Family Support scheme) both parents are required to report on the number of hours work each week and the number of weeks of unpaid leave during the year. Finally, as well as reporting details of maintenance received and paid, both parents must report any payments received to help with their education.

In terms of secondary sources of information the Inland Revenue Department relies on the same sources as are used for income tax. No extra reports on hours are called for from employers as a general rule. Information on benefits and the Family Benefit eligibility is checked with the Social Welfare Department. There is no comprehensive source of information on maintenance payments but some can be cross-checked from other returns and others could be checked on a one-off basis by approaching the person who is identified as the payer.

- The Process of Assessing Family Support Eligibility

There is no separate section within Inland Revenue to cope with Family Support. Instead the same sections which process income tax handle Family Support as part of the overall assessment flow. In essence the same flow of classification, taxpayer services, verification and audit applies as is found in the income tax system.

The major difference relates to the issuing of certificates of eligibility. The Inland Revenue Department aims to encourage most applicants to have returned their FS1 application forms by Christmas in order to be sure of getting eligibility certificates out well before the beginning of the financial year. A major task for the Classification Unit and the Taxpayer Services Units through that period is checking these applications and ensuring that adequate information is available. In particular there are complications relating to subdividing applications between the parents (and between those with different shares of custody responsibility) in order to ensure that the appropriate eligibility is recorded on each certificate.

The only difference in the handling of declarations relates to the greater complexity of Family Support payments and therefore the higher proportion which are referred to the Taxpayer Services Unit for checking. At the time of the end of year assessment of Family Support based on the FS2 Family Support Declaration, the staff in the Classification Unit and the Taxpayer Services Unit normally calculate the eligibility for each Family Support recipient. This is not necessarily done in the case of other income tax returns during the pre-assessment process but is normal for Family Support. This is partly a reflection of the greater complexity of Family Support declarations. The post assessment process is however the same as for income tax.

Social Welfare Benefits

The most important set of income maintenance payments in New Zealand is the range of Social Welfare benefits. These are periodic cash benefit payments made to eligible recipients after assessment by the staff of the Social Welfare Department.

In total the Social Welfare Department administers around 60 different benefits. Together they represent a very significant part of New Zealand's redistribution system with payments of nearly \$9 billion in the year 1988/89.

Each of the different benefits has its own sets of rules and criteria. Rather than examining every benefit it is helpful to classify the benefits into six groups.

- a **Non Income Tested Benefits:** These are National Superannuation (now known as the Guaranteed Retirement Income, but generally referred to as National Superannuation in this thesis) which is available on a non income tested basis from age 60 and the Family Benefit which is payable to all parents of children aged under 15. Because these benefits do not involve any income testing they are not of direct concern in this assessment of redistribution systems, and therefore they will not be examined.
- b **Annual Income Tested Benefits:** These are benefits which are paid on a long term basis and which are based on an assessment of annual income. They include the Domestic Purposes Benefit and its closely complimentary benefit the Emergency Maintenance Allowance. In addition there are three other benefits that are commonly bracketed together under the title "four-weekly" benefits. These are

Invalids Benefit, the Orphans Benefit and the Widows Benefit. The term "four-weekly" refers to the fact that these benefits used to be paid every four weeks. Now all of the annual benefits are paid on a fortnightly basis and, though there are differences in the eligibility for different benefits, their administration is the same. Another benefit in this category is the Dependent Spouse Allowance that is paid with National Superannuation.

- c **Short Term Benefits:** These are benefits paid to groups who are currently unable to support themselves but for whom there is an expectation that they will shortly be able to meet their own needs. These include the Unemployment Benefit and the Sickness Benefit. This class of benefit involves both a shorter period of eligibility and a more frequent cycle of reassessment.
- d **Youth Allowances:** These are short term benefits paid to people under twenty who are unemployed or in full-time education. They are in a category by themselves because they are tested both against personal circumstances, and family circumstances.
- e **Supplementary Benefits:** There is an extensive range of specialist benefits available for particular circumstances. Many of these are available to supplement the incomes of beneficiaries in particular circumstances (such as the Accommodation Benefit or the Disability Allowance). Many others are designed to assist households or individuals with particular costs, as in the case of the Child-care Subsidy, the Rest Home Subsidy, and the Handicapped Child Allowance. Others are available on a discretionary basis so that Social Welfare staff may offer assistance to meet particular needs; these include the Special Benefit and the Special Needs Grants. Most of the payments under these benefits go to people holding a "parent" benefit, but that is not a requirement for receiving supplementary assistance; many of these benefits, including the Accommodation Benefit, the Special Benefit and the Special Needs Grant, may be paid to people in employment if their circumstances warrant it. In total there are over 25 benefits in this category. Only some of the more important of these, in particular the Accommodation Benefit and the Special Benefit, will be focused on.
- f **Specific Purpose Benefits:** There are a total of 21 different forms of war pension and also three types of miners' benefits. In the overall scheme of things these benefits are relatively insignificant and will not be considered further in this paper.

Though there are many different benefits which raise differences in detail of administration, overall there is considerable similarity between the different forms of income tested benefits. The discussion in this paper will therefore treat them together, but draw out the significant differences between the annual and short term benefits and also the supplementary benefits where appropriate.

A full account of the administration of all Social Welfare benefits is contained in a very comprehensive set of manuals. However, for the purposes of this appendix those manuals have been used very little as a source. Instead this analysis has been drawn from discussions with Head Office and District Office staff, and from a review of training manuals prepared within the Social Welfare department and an analysis of application and administration forms used in the operation of the system.

- The Base for Assessment of Social Welfare Benefits

Each of the many Social Welfare Benefits has its own set of rules to establish eligibility. In each case it is necessary to establish that the applicant meets the requirements necessary to be part of the "category" that the benefit is directed towards.

An example of these tests is the set applied to the Domestic Purposes Benefit. A DPB recipient must be aged 16 years and over and be a sole parent. The beneficiary must be caring for a dependent child and be living apart from his or her spouse, or from the other parent of the children. If the child was not born in New Zealand to parents normally living in New Zealand at the time of the birth, the applicant needs to meet a residence test. Finally all DPB recipients must meet an income test.

Though this set of criteria may seem restrictive it is a feature of the range of Social Welfare benefit options that where one benefit is inappropriate another may meet the needs. In the case of the Domestic Purposes Benefit a closely associated benefit is the Emergency Maintenance Allowance. This applies essentially similar criteria and offers similar assistance except that it is available to applicants who are unable to qualify for the statutory Domestic Purposes Benefit because they are unable to meet the minimum age requirement or residence test. It is also used to provide assistance to sole parents who stop work to care for their children during the school holidays.

Another example is the Unemployment Benefit. This too has a residence and age requirement, but its unique requirement is the work test. Under the work test the applicant must be unemployed, must be capable and willing to take on work or willing to train, and must have taken adequate steps to find work. The minimum evidence of taking adequate steps is to register with the Department of Labour. An important detail of the work test is that the applicant must have been unemployed for long enough to meet the benefit "stand down" requirements. There is normally a 14 day waiting period before the benefit begins, and in some cases the benefit date may be postponed for up to six weeks. However, though eligibility for the unemployment benefit may be delayed, where there is hardship it is possible to qualify for emergency assistance by way of a Special Needs Grant, irrespective of the time delays that would normally apply.

On top of the standard tests of eligibility for the various benefits, there are certain requirements on beneficiaries that may affect their eligibility or the level of benefit. One sensitive example is the requirement on applicants for the Domestic Purposes Benefit to identify the other parent (ie the father). The purpose of this identification is to enable the Department to take action against the father in order to require him to pay the Liable Parent Contribution. Unless there are particular reasons to waive the requirement, if an applicant refuses to identify the father, her benefit must be reduced by the equivalent weekly amount to that which is paid for a second and subsequent child under Family Support (ie \$16 per week). In effect, the disclosure requirement is an eligibility test for the Domestic Purposes Benefit and is significant in establishing the weekly rate of benefit.

The most important aspect of the tests for eligibility for the purposes of this paper is the income test. The forms of income that are taken into account for each benefit are essentially similar, but there are minor points of detail that differentiate various areas. The general rule is that all forms of income should be taken into account. This includes wages and salaries, self-employed income, interest, rent, dividends, and compensation

payments from the Accident Compensation Commission. Excluded are the Family Benefit, a War Disability or War Widows Pension, any tax free dividends, gifts, a Handicapped Child Allowance, a Disability Allowance, and redundancy pay. Similarly, capital payments are not regarded as income. At a more idiosyncratic level, the income test includes a two dollar per week disregard in respect of any benefit being received from a "friendly or like" society.

Though the forms of income that are used in testing eligibility for benefits are essentially similar, the important distinction between the annual benefits and the short term benefits is the period of time that is taken into account. For the Domestic Purposes Benefit, and for all other annual benefits, the income test is applied as a 12 month test and eligibility is expressed in terms of a 12 month eligibility divided into 26 fortnightly payments. For the Sickness and Unemployment Benefits, however, the income test is applied over the previous four weeks of income, and the eligibility is expressed as a weekly rate, to be paid weekly, and reviewed every four weeks.

An example of the effect of this is the income disregard. All Social Welfare benefits allow an exempt income which may be earned before there is any abatement of benefit. For the DPB, and for other annual benefits, this exempt income is expressed as \$3,120 per year, but for the Sickness and Unemployment Benefits it is expressed as \$50 per week for beneficiaries without dependent children and \$60 per week for beneficiaries with dependent children.

The operation of the 12-month income test may vary depending on the expected fluctuations in income. In different circumstances it may be backward looking (based on actual income) or forward looking (based on prospective income). In either case it is clear that the intention is to focus on a full year's income. However, one departure from this yearly rule is an exemption for child-care costs. Any DPB recipient may claim up to \$20 per week of child-care costs incurred in order to permit the beneficiary to undertake paid employment. This exemption is assessed on a weekly basis and cannot be taken as an annual lump sum.

The other major type of benefit that needs to be considered is the supplementary benefits that are made available for various purposes. Commonly these benefits, including the Accommodation Benefit and the Special Benefit are paid in association with a "parent" benefit. That is, most recipients of the Accommodation Benefit are already recipients of one of the major statutory benefits. The significance of this is that though the Accommodation Benefit, the Special Benefit and other supplementary benefits are each established with their own provisions, the administration of the tests of eligibility tend to vary a little depending on which type of parent benefit the individual is receiving. However, whichever benefit the Accommodation Benefit is attached to, it is calculated on a weekly basis. These supplementary benefits do not need to be paid in association with another benefit, and even people in full-time employment receive them if they meet the income and expenditure requirements.

The critical test for the supplementary benefits is generally evidence of expenditure of particular forms. The Accommodation Benefit, for example, requires evidence of rent, mortgage or other housing outgoings beyond a minimum amount per week. Any accommodation costs above the minimum level can attract payment of the Accommodation Benefit up to a maximum of \$40 per week or \$65 per week for couples

or sole parents. The Accommodation Benefit is not available to Housing Corporation tenants. The level of Accommodation Benefit is also subject to abatement against non benefit income, with no exempt level of income. That is, the Accommodation Benefit begins to abate from the first dollar that is earned.

Conceptually the special benefit may be seen to be similar, as it is intended to assist beneficiaries to meet costs of living that are beyond their means under the standard benefit level. As with the Accommodation Benefit evidence of costs is expected. However, unlike the Accommodation Benefit the Special Benefit is open ended with no specific type of spending to be included and no formula being established by statute. However, the level of payment is established under guidelines issued by head office. The application form for the Special Benefit gives an idea of the kind of costs that Social Welfare staff expect to need to take into account in establishing the situation of the applicant. The Wellington office of the Department of Social Welfare has prepared its own form in which applicants are expected to outline their payments on tax, rent, rates, insurances, superannuation, power, telephone, television, child-care, maintenance payments, accommodation payments, visits to children, travel costs, food, clothing, medical, and hire purchase details. Once fixed costs are subtracted the remaining income is compared to the "standard income" as set out in Head Office Circulars. For couples this level is set at 70 percent of the relevant benefit rate, and the single person rate is set at 55 percent of the couple rate. If income net of fixed costs is below the standard income a Special Benefit is issued to bridge the difference. District offices have discretion in these payments; if necessary Special Benefits may be withheld, or paid at a higher rate. However, I understand from district office staff that the result of the formula is generally accepted as the rate for payment.

The Special Needs Grant is even more flexible. This is paid on a one-off instant payment basis for any person who is unable to meet a reasonable payment. It requires a combination of an income test and an examination of expenditure. Payment is not automatic, and there is no formula. District office staff make these payments on a discretionary basis. Staff report that in these cases and in considering Special Benefits, a guiding principle is that any error should favour the beneficiary. Clearly with any of these discretionary benefits it is not possible to describe the base for assessment in any precise terms, but the overriding consideration remains the level of income.

In summary, all benefits require applicants to meet a series of criteria in order to establish eligibility. In particular the annual, the four weekly, and the specific benefits all have a requirement of an income test. The definition of income is broad, with some specific detailed differences between some benefits. The most significant difference is that the annual benefits focus on 12 months of income and the short term benefits focus on a month to six weeks of income.

- The Information Used to Assess Eligibility for Benefits

The information sources used in the assessment of benefit levels are essentially similar across each of the types of benefit. The primary source is the application that is filled in by the person seeking a benefit, supported by extensive verification of circumstances and income. The Department has little access to independent corroborative material that might expose false claims, but spontaneous reports from the community about the circumstances of beneficiaries are an important source of information.

The first step in the process of application is establishing identity. All applicants are required to produce some form of identification, and preferably two separate items of identity. These may include a drivers license, bank book, birth certificate, insurance forms or passport. Whichever documentation is supplied, the Department requires that it be at least two years old, in order to make it more difficult for fraudulent claimants to establish a fictitious identity.

Every different benefit has a separate application form. These include, for example, the application for Domestic Purposes Benefit (DPB 1) the application for the Unemployment Benefit (UB 1), and the application for Sickness Benefit (SB 1). Similar forms exist for other benefits. Before any benefit can be paid the applicant is required to answer every question on the application form.

There are a series of items which occur on virtually all Social Welfare application forms. These include:

- name (and alternative name) and addresses;
- IRD number;
- place and date of birth, and sex;
- period in New Zealand;
- marital status and name and IRD number of partner;
- the birth date of the partner, the place and time of marriage and the partner's address;
- names, age, sex, relationship to applicant, and whereabouts of all dependent children;
- statement of income itemising salary and wages, business or property income and other income. Where circumstances are complex the application form may be supplemented by the statement of income or property (SW4) which calls for a more detailed breakdown of forms of income and assets. In addition the sources of income, including the names of employers, must be given;
- the bank account number (for payment of benefits);
- all applications must be signed as being true and correct. There is no longer any requirement for a statutory declaration.

Having outlined the core requirements that occur in all applications there are differences between applications that relate to the particular characteristics of each benefit. For example, annual benefits require a statement of assets. This includes itemisation of any land and buildings other than the house that the beneficiary is currently living in, any loans or bank accounts and any shares and other assets. In addition the annual benefit application requires some form of estimate of expected income for the next 12 months.

The Domestic Purposes Benefit application calls for details on when any marital relationship or partnership ended and also the name of the father of each dependent child. The Unemployment Benefit application requires the former occupation, the last employer, the date when employment finished and the reason for leaving that job. The Sickness Benefit application calls for information on the nature of sickness or injury, whether there is any sickness insurance and any accident compensation payments being received.

Applications for supplementary benefits generally accompany the application for the main benefit. This means that there may be no need to repeat information on income, but the application for the Accommodation Benefit, for example, requires information on the current level of rent (and the landlord's name) or information on any property outgoings over the last 12 months. It also calls for a statement of assets.

When a benefit has been paid for a sufficient period of time (12 months for annual benefits and four weeks for short-term benefits) the beneficiary is asked to renew the benefit. This does not involve filling in the initial application forms again but uses separate renewal forms.

For the annual benefits an application for renewal form (SW 7) is used. This is a detailed form. The applicant must again provide the name and whereabouts of every child and information on any income received in respect of each child. A detailed statement of income for the previous 12 months is required, including the identity of each organisation from which income was received. The present rate of income must also be provided.

For short run benefits a more simple application for continuation (SU 110) is used. This form must identify the income received from work or other sources by the beneficiary or partner. Any work income must be itemised for each week, showing the employer's name and the amount received. Other than that, the form only requires the number of children, and a statement that circumstances have not otherwise changed.

Having elicited information from the applicant using the application process, including interviews to confirm any ambiguous statements on the forms, the department then attempts to verify all significant points. Much of the verification is supplied by the applicant. For example, the application forms ask the applicant to bring in:

- the last pay slip or IR 12 form;
- business accounts for self-employed;
- evidence of accommodation costs, including rent book, letter from landlord or mortgage papers.

Once again, for different benefits other forms of verification may be needed. For the DPB the applicant should produce birth certificates for each of the children. For the Unemployment Benefit the applicant must produce a notice of enrolment from the Department of Labour. For the Sickness Benefit a medical certificate from a doctor is required.

On top of the documentary evidence supplied by the applicant, the department also makes extensive use of an inquiry process in order to confirm the statements made. There are a large number of inquiry forms that are used for different types of information.

There is a series of documents sent to the Justice Department in order that Registrars of Births, Deaths and Marriages may confirm details against their records. (SW 2A, SW 2B and SW 2C.) These are generally only used if the applicant has not been able to produce the relevant certificate.

There is a large number of inquiry forms that are used to verify details of income.

Particulars of Account (SW 5)

- This is sent to banks and other financial intermediaries, nominating an account number for a benefit applicant and requesting details of that applicant's accounts and the partner's accounts. The level of balances, the interest rate and interest credited over the last 12 months is sought.

Certificate of Earnings (SW 8)

- This is a substantial form which requires employers to give details of previous work experience. The items included are:
 - gross weekly wage (including overtime);
 - PAYE and superannuation deductions;
 - regularity of overtime;
 - income over previous 52 weeks;
 - period of employment;
 - last day of work, holiday pay and the number of days it represents, any lump sum severance payments;
 - any free board or company car.

Verification of Employment (UB 5)

- This is a simpler form that is sent to past employers of applicants for the Unemployment Benefit. It calls for:
 - the period of employment and the last day of work;
 - gross wage in the last four weeks and 12 months;
 - any last day pay and the period it covered;
 - the reason for the individual leaving the job.

Verification of Stocks and Shares (SW 8B)

- This is sent to the administrators of share registers. It asks for confirmation of the level of shares or debentures held and the payments made in the last 52 weeks.

Verification of Rent (SW 8C)

- This is designed to be sent to a tenant of a beneficiary. The tenant is asked to confirm the level of rent and the payments made over the previous 12 months. In fact, most of these forms are sent to the landlord of the beneficiary, and are used to confirm the rent paid by the beneficiary, for the assessment of eligibility for Accommodation Benefit.

Verification of Superannuation (SW 8D)

- This asks administrators of superannuation funds to confirm the rate of superannuation payable to a benefit applicant.

Verification of Mortgage (SW 9)

- This is usually sent to lawyers, and could be used either as part of an income test or to confirm outgoings in an application for Accommodation Benefit. It confirms the principal outstanding on a mortgage and the rate of interest. It also shows interest and principal payments for the previous 12 months.

As well as this specific list of income inquiries there is a more general "confidential declaration" which is used to confirm circumstances. The applicant may be asked to nominate someone to confirm details of their personal circumstances. For example, in the context of applications for the Widows' Benefit a form (WB 7) may be sent to a potential referee who is not related to the applicant. The form asks for confirmation of the number of children, whether the applicant maintains those children, and her residence in New Zealand.

On top of the inquiry forms, which are intended to corroborate particular claims and to investigate those forms of income which the applicant has declared, the next possible type of information is independent data which might reveal circumstances that the applicant has not mentioned. Although the Social Welfare Department has powers similar to the Inland Revenue Department's, these are not used in any general way and random searches of employer records are only used rarely. Generally it would only occur if the Department had reason to believe that a problem existed. The only form of random information that is used as a general rule is the Immigration Division departure cards. These record details on every person leaving New Zealand. The Social Welfare Department uses this information to identify beneficiaries whose eligibility for benefits is affected by their period out of New Zealand.

The final source of information about beneficiaries is spontaneous reports from the general public. These are a very important source of information. Many people provide information on the work or domestic circumstances of applicants which are relevant to their eligibility for benefit. In its initial form the information is sometimes vague, but it can be frequently followed up with inquiry forms and an interview with the beneficiary in order to assess the real situation.

In summary, the main information sources used by the Department of Social Welfare for establishing eligibility for benefit and the appropriate level of benefit are the application forms and enquiry forms. These are supplemented by reports from the general public and reference to Immigration Division departure cards.

- The Process of Establishing Eligibility for Benefits

The benefit staff in the districts are organised into sections which specialise in different groups of benefits. For example, in some districts all Invalids and Widows Benefits are administered by a "four-weekly" section, and another section specialises in the Unemployment Benefit. At any given time some staff may be focusing more on renewals than on initial applications, or on front counter work rather than assessments. However, as a general rule the section responsible for a particular type of benefit will carry out all the normal work associated with administration of that benefit.

This split in the administration of different benefits permits some degree of specialisation in line with the differences between benefits, but as a general rule the process of assessing eligibility and striking levels of benefit is similar for all benefits. This discussion will therefore largely ignore different benefits.

Once an application has been received the first step is to allocate a Social Welfare number. The staff refer through on-line terminals to the common index system to see whether that person has already been issued a Social Welfare number. The same number is used for each beneficiary in whatever context that they deal with the department. For many applicants for benefits, in particular the Domestic Purposes Benefit, a number has already been issued for a Family Benefit. That number is then used for any later benefits. If there is no existing Social Welfare number, the staff complete an input form so that data on the applicant can be keyed in to the main computer by the staff in the pay section. The information is then referred to the data processing centre where a number is allocated. This number is a unique 9 digit identifier.

The other important opening step in the process is to open a file on the applicant. Each benefit section that the beneficiary deals with will maintain a separate file.

Having organised the administrative formalities the staff review the content of the application. The applicant is interviewed to clarify any points of confusion, to make any necessary "contract" for the verification of information and to explain the requirements of the benefit. At this stage enquiry forms are issued. As a general rule the aim is to use documentation supplied by the beneficiary rather than to pursue secondary sources. However, independent verification is commonly used especially to confirm the final day of work including the number of days of holiday pay.

Once sufficient information has been collected to determine the question of eligibility and level of benefit, the process of decision making is recorded using a Disposal of Application form. These occur in various forms including the DBP/IB/WB2 for annual benefits, the SU3 for Sickness and Unemployment Benefit or the SW229 for the Accommodation Benefit. These forms act as a summary sheet which record the process of decision making. The staff must fill in the name of the applicant, the date of birth, and the date the application was received. The benefit number and the IRD number are recorded, as are details on dependents and spouse. In a summary work table the form makes provision to estimate the chargeable income (that is the income which may affect the level of benefit that the applicant will receive) and to deduct exempt income. There is also provision to calculate the maximum benefit and, by use of look up charts, the staff may calculate the amount to deduct from the maximum benefit to arrive at the net benefit that is payable to the beneficiary. In many straight-forward cases the calculation

of the benefit payable may be carried out using the computer programme but in others it is a manual process. In either case, the outcome is recorded on the Disposal of Application form. A further panel on the form records whether the benefit was granted or declined and a few lines are available to explain the reason. Once completed some forms are randomly selected for checking by another staff member. Some district offices have a policy of checking every form, but it is more usual to take a sample.

This Disposal of Application form is critically important, as it is a central record of the Department's handling of each applicant. Ideally it should be at the top of each file summarising the papers below, which will include any verifying information and will begin with the initial application.

Once it is determined that a benefit will be issued and its level, the data is inputted into whichever of the various computer systems is appropriate to that benefit. This is done by filling in a data input sheet which is referred to the pay section for keying into the computer. These input sheets make provision for recording the name, address and social welfare number of the applicant and spouse, and the sex and birth date of the applicant. It also records the entitlement date and the level of chargeable income. There is a small amount of room for entering additional details but only limited descriptive information may be entered onto the computer. As each of the benefits is supported by a different computer programme the precise details which are inputted will vary from case to case but in general the information will be at this skeletal level.

Once the data has been inputted by the pay section, the process of payment can begin with automatic payments into the beneficiary's bank account. The computer can then generate requests for review of the benefit at the appropriate time.

The process of renewing benefits is a straight-forward check that circumstances have not changed, and this is not normally recorded on a disposal form, but instead the application for renewal is annotated as approved. Reviewing benefits is essentially similar to the initial application process. Again it is based on the relevant application forms which are analysed on a "Certificate of Review" (SW23 or SU4). The central element of this task is to keep the assessment of circumstances up to date, and to take into account any change in circumstances. The aim is to calculate accurately the payments which are due and the due dates.

A central feature of the initial benefit approval and future renewals is that it is a centralised clerical task carried out by Social Welfare staff. Beneficiaries do not calculate their own entitlement and instead they provide the detailed information necessary for Social Welfare staff to prepare their own summaries of the situation and to then calculate the due amount. Information is not taken for granted, and is checked at every point preferably from independent sources.

There are several processes of checking which are intended to reduce staff error and avoid fraud and abuse from beneficiaries. The initial calculation of entitlement is intended to be checked in every case. The preparation of computer input forms is also subject to checking, as is the input stage. On top of these checking processes there is an internal monitoring system which is the responsibility of a senior executive officer in each district office. That person is responsible to ensure that a random audit of benefits is carried on a steadily rotating basis. A main area of focus in these audits is to check that the appropriate verification has been used before a benefit is issued. This avoids staff members colluding with beneficiaries to issue unjustified benefits.

There is also a nationally organised programme of internal audit. This involves staff making periodic reviews of the activities of district offices. The focus of these reviews is mostly on the processes that are being followed to ensure that all appropriate steps are used. At the same time individual cases are examined and any irregularity is followed up.

The second major form of checking is the work of the Benefit Control Units. These are located in several district offices around the country and their number is expanding. Their aim is to identify any fraud and abuse of the benefit system. The unit can check files at random and can visit employers on a random basis using the powers of the Social Welfare Act to identify anyone receiving income that has not been declared to the Social Welfare Department. However, it is unusual for these units to work on a random basis, instead they have quite sufficient work to do following up information which is offered from the public or referred from the Social Welfare staff. Claims that a neighbour or relative is not entitled to the benefit that is being received, or referral of irregular applications, are followed up, and a significant number of incorrect payments are uncovered. Most of these involve the continued receipt of benefits beyond the period of entitlement; usually this is because the beneficiary has started work or entered into a relationship and failed to inform Social Welfare. In many cases an interview with the beneficiary is sufficient to confirm the irregularity, but often verification is sought by a reference to the employer. Depending on the severity of the case the Social Welfare Department will normally try to recover any excessive benefit payments and will occasionally prosecute where the case appears to reveal deliberate and significant fraud.

The third major form of checking is the review of Immigration Division departure cards. All of these cards go to the data processing centre in Wellington where the names on the card are compared with those on the common index system. If the card demonstrates that a beneficiary (such as an unemployment beneficiary) who is not entitled to any payment when out of the country has left, then the data processing centre stops payment of benefit immediately and informs the district office of the action. In other cases where a finite period overseas is permitted before the benefit is halted, the data processing centre informs the district of the individual's departure and it is over to the district to follow up to check whether the beneficiary has returned before the due date.

Though substantial elements of the system are computerised, including the automatic payments and the initiation of reviews, the central process of assessing eligibility is largely manual and the information is mostly on paper. The history of each benefit is held on paper files, with summary information available on the on-line computer system. The National Superannuation and Family Benefit systems do not maintain separate paper files on each recipient. Instead a print-out of all transactions for each day is kept as a "batch file". A summarised computer record keeps track of when each transaction occurred, and the detail must be found by looking up the daily print-out. However, any person receiving one of these benefits who also receives any income tested benefit would have a personal file kept for them.

All staff members have access to files whether on the computer or paper files. The only normal restraint is that any staff member is entitled to ask that any file that may allude to his or her own previous benefit history, or that of their family, may be removed from

general access. The Social Welfare Act requires that the data used in assessing benefits be kept private and the Department endeavours to ensure that staff are aware of that responsibility.

- Proposed Reforms to Social Welfare Information Systems

The current data processing systems used by the Social Welfare Department are inadequate. There are a series of different programmes that have been designed for the various different benefits. These different programmes use incompatible coding systems and data cannot be transferred from one system to another as beneficiaries use different benefits. The hardware and programmes are now old and problems continually occur which require substantial maintenance. The system is unreliable and response times are poor.

After a lengthy review of information management options the Government has approved a major investment in a new computer system for the Social Welfare Department. This system will be supported by the Government Computer Service. A new set of programmes will be developed which will allow greater ease of use and improved uniformity across the different benefits.

It is anticipated that the new information system will be considerably more efficient and accurate. A major reason for this is the more uniform coding systems. This will reduce confusion among staff and so cut down on error. It will also permit the direct transfer of information on a beneficiary from one benefit file to another; this too will save time and reduce error.

The Social Welfare Department considers that the new information system will increase flexibility. In their report proposing the reforms, the Department identified several forms of improved flexibility including the means of meeting possible Government policy changes, such as the following:

- the new system will be able to interface with the Inland Revenue computer system;
- payment via alternative institutions would be possible if it is decided to contract out the administration of Social Welfare benefits;
- the new system will be able to support different payment processes, including payment by means of smart cards.

- Conclusion

The basis for assessing eligibility for Social Welfare benefits is essentially based on income, supplemented by different qualifications needed to receive categorical benefits. The information for assessment is drawn mostly from applications, supplemented by verification from documents produced by the applicant or from approaches to those institutions paying income to the applicant. The process of assessment is conceptually straight-forward, but involves complex detail; the assessment is carried out entirely by Social Welfare staff rather than by the applicant. The assessment process depends critically on trust, as the Department has few means of discovering information which is not willingly offered. The information management systems used by the Department at present are inadequate, but the process of developing a more efficient and flexible system is underway.

Housing Assistance

The major form of in-kind assistance which is provided on an income targeted basis is housing assistance. There are three main forms of state assistance: subsidised state rental accommodation, state mortgages at concessionary interest rates and the Accommodation Benefit. The benefit is provided by the Department of Social Welfare and is described in the section on Social Welfare assistance. The other two are administered by the Housing Corporation of New Zealand.

The Housing Corporation uses a decentralised management approach, with many decisions being taken at a local level. Though formulas are set by the Government which control the provision of assistance, the Housing Corporation emphasises the flexibility that each branch has in the administration of those policies. This decentralisation has reached the point that in 1988 the Housing Corporation abolished the sets of manuals that previously provided a systemised central control.

This decentralised management makes it difficult to gather a comprehensive picture of Corporation procedures because they vary around the country. However, the nature of the formulas and the continued practice of issuing circulars from Head Office ensure some consistency. The information for this section of the paper has been gathered from discussions with Head Office staff, reference in some cases to the now outdated manual, a review of circulars issued over the last five years (over 500 all together) and discussions with management staff at the Porirua Branch Office (which covers Wellington City and Porirua). The procedures described here will therefore reflect in particular the operations of the Wellington District and will not necessarily be identical with practices found across the country, but it is my understanding that there is a substantial similarity between the methods used in various different offices.

State Rental Accommodation

There are over 65,000 state rental houses and home units that are let to tenants around New Zealand. The administration of these properties is in the hands of the Housing Corporation. The prime criterion for eligibility to occupy a state house and for the setting of rental levels is income, and a significant part of the work of the rental staff of the Corporation relates to identifying income and assessing the appropriate rent.

- The Base for Assessment of Rent Levels

There are two different contexts where the circumstances of households are assessed in the management of state rental tenancies. The first is during the process of applying to become a state tenant and the second is during the regular reviews of rent levels.

In each district the Housing Corporation operates a waiting list of prospective state tenants. The position in the queue is determined by a points system. The largest single component (30 out of a total of 90 points) is for income. All households receiving less than or equal to the equivalent income level that they would be offered were they on a Social Welfare benefit get the maximum number of points. For every five dollars per week above that level the household loses one point, so that points abate over a range of \$7,800 per year. The assessment of household income is based on the post-tax income of the principal earner and partner plus Family Support payments. From this is subtracted any child-care costs.

A second major part of the points system also relates to income, as it assesses the "affordability" of existing payments. An additional 20 points is available for this category. The entitlement to these points is calculated by comparing the present rent (net of any accommodation benefit being received by the household) with the rent that would be payable if that household were Housing Corporation tenants. Each of those rents is expressed as a percentage of the applicant household's income, and a point is awarded for each two percentage points that the current rent (as a percentage of income) exceeds the Housing Corporation rent (as a percentage of income).

There are other factors which are also considered in the points system that do not have any direct relationship to income. These include up to 20 points in respect of the quality of existing accommodation, five points for ill health and a further point for every consecutive six months in poor accommodation up to a maximum of five points. A further ten points can be allocated on a discretionary basis to reflect problems caused by family friction or other exceptional circumstances.

In summary, the base for assessing eligibility for state housing is substantially dependent on net income (minus child-care costs) and a series of factors related to current accommodation and housing need.

Once a tenant has been allocated a state house or home unit the base for assessing rental levels is a combination of the net income of the household and market rents. That is, the rent level (and therefore assistance with rent) is calculated in line with income, subject to a market rent ceiling. The rent is struck as the lesser of either a market rent, calculated as the amount which Housing Corporation valuers believe that property would attract on the open rental market, or a rate calculated using an income based formula. The income based formula is as follows:

- 25¢ per dollar of net income up to the net rate received by a married couple in receipt of National Superannuation;
- 55¢ per dollar of additional net income up to and including the level of the average net weekly wage;
- 65¢ per dollar of additional net income.

Rent increases upon annual reviews are limited to:

- \$10.00 if assessable net income is up to and including the net income received by a married couple in receipt of National Superannuation;
- \$15.00 if assessable net income is between this level and the net average weekly wage;
- no limit, if assessable net income is above the net average weekly wage.

The base for calculating net income is outlined in a circular of 15 October 1986 (Circular No 100/1986). Income is regarded as gross taxable income less tax. In this calculation some elements of income are excluded; these exclusions include Family Benefit, Family Support, War Pensions and other non-taxable incomes. In addition, the first 500 dollars of income from "interest - dividends etc" is to be disregarded. Once this net of tax calculation has been made 25 percent of any Family Support payments

received by the household are added to the net rent figure. Any child-care costs paid by the household are then subtracted from income to arrive at the net income to be used in the formula outlined above.

For the purposes of this calculation the household is composed of the principal income earner and his or her partner. If there are any other adults aged 20 or above living in the household a 15 dollar boarding allowance is added to the rent that was calculated for the household.

Apart from the \$500 disregard for interest income, the formula is intended to apply to income from all sources, including business income. In assessing the income of the self-employed, Corporation staff may refer either to drawings or to profits as revealed by annual accounts.

Though the formula might appear to be cut and dried, there is considerable room for flexibility in its application. In a circular of 17 July 1987 (circular number 66/1987) it was stated that "branch managers have total discretion to reduce rentals in cases of severe hardship" (emphasis in original). Branches were directed to take a flexible approach in applying the formula. I understand that in most cases this flexibility was used principally as a transition measure to cover the switch from the lower rents that prevailed under the old formula. However, from discussion with Wellington Branch staff, I get the impression that somewhere in the region of 2½ to 5 percent of tenants in that district are still having their rent discounted below the level that the formula would have implied. Obviously it is not possible to precisely outline the assessment base that is being used in a discretionary assessment system. However, I understand that the major factors taken into account by the Porirua office include costs of travel to work and cost of hire-purchase commitments. In a small number of cases the discretionary consideration might include a review of a full budget of the household including allowances for food, and clothing.

A particular aspect of the discretion which makes the base an ambiguous matter, is the period of assessment. The aim appears to be an assessment of "continuing" income. As is outlined later it is unclear and variable as to whether this implies a focus on current weekly income or income for the year.

- Information Used for Assessing Rent

The Housing Corporation's main source of information is the application forms filled out by potential tenants, supplemented by earnings certificates filled in by employers as well as interviews and inspections of properties (for assessing points).

A significant aspect of the information requirements on applicants is the lack of any call for evidence of identity. At no point is there any requirement to produce any form of identification to establish that the applicant is who he or she claims to be.

All applicants are required to fill in an Application For Rental Accommodation form [H1/1(3/88)]. The form calls for the names of all tenants; that is the principal income earner and partner. It also requires the names, sex, age and relationship to the tenants of all other people who will be housed. Information on the present accommodation (to be verified by an inspection) and the health of the applicants (to be verified by a medical certificate from an appropriate health professional) is requested.

For the assessment of income the applicant is asked to provide an estimate of weekly income. This involves information on the ordinary time wage, an estimate of average weekly bonuses and information on secondary employment. Any Social Welfare benefit received must be identified and the benefit number supplied. Similarly Family Support receipts must be identified. Income from interest or business profits are required as well as any other income (eg maintenance is specified as a possible other income).

In addition to the income figures, the applicants are also required to provide a statement of their combined assets and liabilities. Assets are to include money (in hand and bank), property, car, furniture, investments and other assets. Liabilities are to include the outstanding liability on the hire-purchase of car or furniture and the weekly outgoings on those hire-purchases as well as any other debts. Child-care costs incurred for the care of children to enable either parent to work is to be specified on a weekly basis.

Further to the simple statement of the value of assets, the applicants are required to declare any interest in any house, flat or other property with living accommodation in New Zealand or overseas; if there is such property the applicants must give reasons why they can't live there. If the applicants have sold any interests in any accommodation, details of the settlement are requested. The applicants are required to declare any previous applications for a Corporation tenancy and whether either applicant has been a previous Housing Corporation tenant.

If either applicant is separated or divorced from a former partner, the name of that partner is required. In addition, any payments that will be received by either applicant by way of a matrimonial property settlement in terms of a separation agreement is required to be explained in a covering letter.

Though the information on assets, liabilities, housing interests and marital situation are not directly related to the points system they are used as part of the general enquiry into the circumstances of the applicants to decide whether they can be admitted to the waiting list. Similarly, information on previous tenancy is necessary to check whether the applicant has previous debts to the Corporation or a record of damaging Corporation property.

Applicants are also required to state their period of residence in New Zealand and also whether there are any special reasons for needing a Corporation tenancy.

The application is then signed by the applicants as being true and correct in every detail. Until March 1988 Statutory Declarations were required for these applications. However the Corporation found that the statutory provisions were rarely invoked, other financial institutions did not rely on this process and remedies for fraud are still available on the basis of a signed application. Accordingly the more simple personal declaration is now used.

The other main application form, the Application for Rent Rebate (H 7/2) is used during the process of rent reviews. It calls for the names, age and sex of all persons living in the property including the tenants. In addition there is to be a statement of income of the household for the past twelve months. This is to include wage and salary income of the principal earner and partner plus other income and investments. In addition, child-care costs, being the actual payments currently incurred to enable principal earner or partner

to work, must be specified and the person to whom the payments are made must be identified. Any benefit paid to the principal earner or to the partner must be specified including the type of benefit, the benefit number and the weekly amount. Family Support receipts should be shown for each partner. Again this application is signed as true and correct by both tenants.

The principal supplementary source of information, which is provided by the applicant along with the application, is the Certificate of Earnings (J1/25). This certificate is used for rental house applications, rent reviews and also for loan applications. Applicants are required to take the certificate to their employer so that the employer may declare income received during the relevant period. The employer is required to show both current weekly gross earnings and total gross earnings through the period (usually a year if the applicant has been with that employer for the whole period). The employer must separately identify ordinary wages, overtime, bonuses, and other taxable income or allowances. These are summed to show total gross earnings. The tax code is identified and the tax deductions are shown to arrive at net earnings. To this is added Family Support to arrive at a total net income.

Though the Housing Corporation has no legal power to require employers to fill in the Certificate of Earnings, the staff of the Corporation said it was most unusual for employers to object. This may be because in most cases (unlike Social Welfare beneficiaries) the applicant is still working for the employer, and (unlike tax payments) the employer knows that filling in the form is in the interest of the employee. Corporation staff did report that employers commonly seem to understate current weekly earnings, often by excluding overtime or bonuses, but this is usually apparent from the statement of gross earnings over the period. This seems to suggest that though some employers are prepared to attempt to be less than frank if they think that it is in their employee's interest, they will not often write down details that are untrue.

In terms of other areas of income, the Corporation has no systematic means of confirming the applicant's position. The Corporation does not approach banks or other businesses for details of the applicant's position. The exception is in the case of the self-employed, where a full statement of accounts is required. This is generally regarded as being the same set of accounts as were submitted to the Inland Revenue and the Corporation would normally require that they be prepared by an accountant. In discussion, staff could recall the occasional case where a self-employed person would present an amateurish statement of position which gave little idea of the true success of the business. However, in these cases the incompetence revealed by the amateurishness of the presentation was a precursor of business collapse and the applicant's status had quickly changed from self-employed to unemployed. In those cases the Corporation had ignored the previous business history of the applicant.

There is no formalised process of checking with the Department of Social Welfare on the circumstances of beneficiaries who are applying for rental assistance. In some branches there is a regular policy of checking with the Social Welfare Department but in the Porirua Branch, if a Social Welfare benefit number is quoted, that is normally accepted as evidence of receipt of benefit. Generally if the applicant quotes a benefit level which is not in line with the benefit entitlement the Corporation staff will simply amend the application to the normal figure. Occasionally, if there are difficulties with the application, the Corporation staff will ring the staff of the Social Welfare Department to confirm the information.

A further source of information is spontaneous reports from the community. These are comparatively rare in the Housing Corporation and because of the Corporation's limited ability to collect substantiating evidence on such allegations they are not always useful. However, if they appear to have any substance they are followed up with the tenant.

- The Process of Assessing Eligibility and Rent Levels

Once an application for rental accommodation is received it is reviewed to assess general eligibility and, depending on the policy of the branch, some preliminary enquiries with Social Welfare may be undertaken. The applicant is then called in for an interview. The length and depth of the interview may vary a little depending on branch practice, but its purpose is to explain the points system and to gather all the information required to assess the circumstances of the applicants. This is followed by a visit to the applicant to assess the current housing circumstances. Once information on income, rent, housing circumstances, health, time in need and other relevant circumstances is collected, Housing Corporation staff make an assessment of the applicant's points. These are then made available to the applicant as the provisional points estimate. These provisional points are referred to the local Housing Allocation Committee who arrive at the confirmed points. These confirmed points determine the position of the applicant in the waiting list. The points remain the same until the applicant's circumstances change or until they are reviewed after a year on the waiting list.

As state rental accommodation becomes available, in the district and of the size that is needed, the applicant with the highest points who has been waiting longest is offered accommodation. If income has been assessed within the previous two months then that information is used as the basis for assessing the rent level. If the information is older than that, then the new tenant is required to fill in a further declaration on the income of both partners, supported by new Certificates of Earnings from the employers. If there is some delay in receiving this information the rent can be struck on a provisional basis and confirmed or amended when the new information is available.

The rent which is assessed for the property is in every case the market rent, and then the income related formula is used to arrive at a rebated rent figure.

In assessing income, the Corporation aims to assess the usual income of the household. This means that the weekly current income is the main basis for assessment unless the gross earnings for the previous year are inconsistent with those revealed for the current situation. In that situation the gross annual figure is used as the basis unless there is information to show that circumstances have changed. Sometimes employers will provide a letter confirming that overtime earned earlier in the year was an exception which will not continue. In that case the Corporation will usually accept the current earnings figure. In some circumstances where the position has changed and the future position is uncertain the Corporation can make a temporary assessment and require a reassessment after three months.

The rent of every property is reviewed each year. 60 days before the end of the year the tenant is sent a letter saying that the market rent will apply from the beginning of the next period unless an application for rent rebate is received and approved. The 60 day notice period is as required in the Residential Tenancy Act. If an application for rebate is received that can be used to assess the level of rent and the maximum level of

increase that may be applied in terms of the formula. In cases where the Housing Corporation staff have knowledge of the tenants, and in particular where they know the tenants are beneficiaries, the staff will normally contact the tenant if no application for rebate has been received by a couple of weeks before the rent review date.

Though this procedure of announcing an increase unless information becomes available caused some concern when it was first introduced, the Corporation staff consider that most tenants are now familiar with the system and they think that most tenants are not unduly alarmed by the annual notice of rent increases.

Once the information on the income and circumstances of the tenants is received the specific process of assessing the rent varies from office to office. In most offices there are now micro computer programmes which are used to determine the rent and to produce a letter to the applicants explaining the result of the calculation. These micro programmes usually produce a statement of the information to be entered into the Housing Corporation's centralised computer ledger system (CHARMS). That data is then inputted to the national computer, using terminals at the local branches. The CHARMS system is then used to keep track of receipts and liabilities of the tenant and to produce the notification of rent review times once 12 months is approaching.

The responsibility for storing information on each tenant and their circumstances is held by the branch. In most cases the information is stored in paper files. In some districts the paperless office concept is in place, using micro computer networks. There is no national system of accessing information on individual tenants, and this can only be found at a local level. In order to permit some national statistical analysis a 10 percent sample of all new applications is referred to Head Office so that some information on the people holding state tenancies can be recorded and analysed.

Housing Corporation Interest Subsidies

The Housing Corporation is a major lender of home mortgage finance. In the year to 31 March 1989 the Corporation received over 50,000 applications and approved some 44,000 applications for around 45 different programmes of lending. Many of these are administered on an agency bases for other institutions and others are very small schemes. The most important schemes are the modest income lending, loans to Corporation tenants (to enable the purchase of a home), refinance and second chance lending, home improvement loans and equity sharing. The single most important scheme is the modest income lending which saw a total of 9400 loans of \$400 million being issued in 1988/89. This is the principal income based scheme and the discussion which follows will focus on that scheme. The other schemes have some different aspects to them which lead to slightly different administrative systems and different assessment bases, but a focus on the modest income lending will give an adequate understanding of the Housing Corporation approach.

Housing Corporation mortgages are issued on a table basis, generally for a period of 25 - 30 years. The level of interest is normally at the "prime rate" which is intended to be set in the region of the rates prevailing at that time among market lenders. However, when the loan is issued the recipient is income tested and the interest is struck at a lower rate if income is low. The policy is intended to ensure that housing costs do not account for too high a proportion of the income of modest income borrowers.

- The Base for Assessment of Interest Assistance

Income is assessed both for determining whether an applicant is eligible to receive a Housing Corporation loan, and also to determine the level of interest on that loan. The basis for assessment is the same in these two cases.

For lending purposes income is defined as follows:

"the gross income of the principal income earner and spouse/de facto spouse including when applicable, Social Welfare benefits grossed up (but excluding Family Support) plus a fixed sum of \$30 per week for each extra adult aged 18 years and over" (Circular No 58/1986).

The detail of the items to be included in the gross benefit was outlined more fully in the old manual. There it was suggested that household income would include:

"Overtime, bonuses, shift allowances, travelling time, income from secondary employment (and related earnings and allowances), unemployment or sickness benefit and a pension or Social Welfare Benefit being received as a result of disability. Excluded are Family Support, Family Benefit, War Disability, Blind or War Widows Pension, Accommodation Benefit, and Income from assets that are to be disposed of to contribute to the housing proposition (eg, interest on savings)" (HCNZ Manual, M.2/7, paragraph 5.2).

The use of income from both partners is to apply irrespective of whether the loan is to be in joint names or a sole name.

Having assessed joint income, actual maintenance payments paid (up to to a maximum of \$100 a year or two dollars per week per child) may be excluded from income or deducted from the income of the liable parent. Day-care costs are not to be deducted to assess loan eligibility, but branch managers have some discretion to take account of child-care costs if income is higher than would normally permit the offer of a loan.

The manual directs that current gross weekly income is to be used unless weekly income at the time of the application would be unfair in which case the average of the last 12 months may be used.

The relationship between gross income and interest rates is as follows (August 1989):

Income (\$ per week)	Interest Rate
0-250	7
251-330	9
331-380	11
381-430	13
431-480	15
480+	15.1

The base is further adjusted for those who have severe disability or paraplegia. In those cases the relevant income brackets are reduced by \$10.00 in each case in assessing the interest rate.

On the issue of a new loan, eligibility depends on an affordability test. This requires that housing outgoings at the assessed rate be not more than 30 percent of gross income.

Prior to July 1989 the interest income relationship applied at the time of the issue of the loan, but on review the changing circumstances of the borrower were reflected in the "affordable outgoings" test. Under that test not more than 25 percent of all household income was to be used for housing outgoings. If on review it transpired that the interest rate would lead to an excessive charge the policy was to reduce the interest rate to the nearest half-percent below the amount necessary to conform to the 25 percent test, but not lower than the rate payable before the loan was reviewed. For most purposes these complications will no longer be necessary, but even under the new policy borrowers may ask for relief on the basis that the income tested formula still leaves them unable to afford their payments. In these cases the notion of housing outgoings would appear to be still relevant. These are defined to include:

"Rates, houseowners insurance premiums, lease payments and all mortgage payments where the loan was raised to buy the home or to carry out essential additions or repairs to it" (Circular No 88/1986).

Where this affordability test suggests that further relief is needed the Corporation will still capitalise interest payments on an equity sharing payments basis.

- **Information Used in Assessing Interest Rates**

The sources of information used in the lending side of the Housing Corporation's activity are essentially the same as those used for rental. The application form and the Certificate of Earnings are the principal sources of information. In addition, because the loans are to be secured over the borrower's property the Corporation needs some information about that property. Generally, unless the mortgage is a very low percentage of the sale price, the Corporation will require a valuation of the property. If the borrower offers a valuation prepared by a registered valuer the Corporation will generally accept that, but in most cases the Corporation carries out its own valuation. Now that the housing outgoings test is largely unused this valuation has little direct relationship to the payments made by the borrower. For that purpose the principal information is income and, though here we are using gross rather than net income, the sources of information are as for rental assessments.

- **The Process of Assessing Interest Rates**

The staff handling lending matters are organised in a distinct section, separate from those involved in rental work. They have their own management hierarchy which only comes together at the branch management level. However, the bones of the assessment process are similar in both lending and rental, with the main differences relating to the process of purchase.

Once an application for a new loan has been received and assessed, and the necessary interviews completed, the Corporation issues the borrower with a home loan certificate. This certificate indicates the level of loan that the potential borrowers are eligible for (based on the 30 percent affordability test) and the initial interest rate that will apply. Using that certificate, the potential purchaser can look for a property and make a conditional bid on it. At that point the purchaser returns to the Corporation with a house proposition. This indicates the address of the property, its price and the proposed financing arrangements including details of any other mortgages. Once the Corporation has assured itself as to the value of the property and the viability of the overall financing

arrangements, the loan can be confirmed and the sale proceed. In assessing the client's ability to service the loan the 30 percent affordability test may be applied. However this is not rigid, and if the would-be purchaser can show that rent payments were at a similar level or higher than the proposed mortgage outgoings then the Corporation will not normally refuse to lend. Where there is some question about the affordability of the payments, a detailed budget can be requested including information on the household incomes and regular expenses for mortgage payments, food, power, telephone, insurances, hire purchase, personal loans, clothing, transport, medical, housing and maintenance, and superannuation costs. In addition some allowance for gifts, education, entertainment and holidays can be specified. However, this detailed budgeting is not usually embarked upon.

In order to arrive at a view on the acceptability of a loan proposition the Housing Corporation staff prepare a "vetting" form. This summarises the assessed income, the current rental and the affordable outgoings. It outlines the financing and payment arrangements and concludes with a recommendation on whether the loan should proceed. The loan is then confirmed at a more senior level. Similarly, the level of interest relief may be calculated at a relatively junior level (possibly a 101 clerk) but policy guidelines suggest they should be approved by a manager at grade 105 (Circular No 14/1986). However, branch managers have discretion in their delegations and in the Porirua Office standard applications may be approved at grades 101 to 103.

The frequency of review of mortgages depends on provisions of each mortgage. Some of the older Housing Corporation mortgages still contain a five year or three year review clause. Many of the more recent ones are based on an annual review. The most recent mortgages contain a provision permitting the Corporation to review the interest rate as necessary with notice of at least 60 days or, more recently, 30 days. In fact, mortgages are normally reviewed annually unless the provision of the mortgage prevent that. The process of reviewing the mortgage interest rate involves sending a letter to the borrower indicating that the rate will rise to the prime rate from the review date unless an application for interest relief is received. Clients seeking interest relief have 14 days to submit a certificate of income or else to accept an adjustment to the prime rate. As with the operation of the rental system, the Housing Corporation staff consider that most of their clients understand the review process and that the receipt of a letter suggesting that the interest rate will rise to the prime rate does not necessarily cause major disquiet in low income households.

Once all information is received by the lending section the process of assessment, recording and informing the individual of the outcome is similar to that in the rental area and varies from branch to branch. Once the assessment is completed the outcome is recorded on the CHARMS system which records the liabilities of the borrowers and any receipts. It also keeps track of the review periods so that reviews are carried out at the appropriate time.

- Information Management Systems and Possible Reforms

The only major Information Management System used throughout the Housing Corporation is CHARMS. This is little more than a ledger system. It records the liabilities

of tenants and borrowers and keeps track of payments as they are received. It also ensures that reviews are carried out at the appropriate time. It includes no detailed information on the circumstances of borrowers or any explanation as to why a given interest rate or rent is being charged.

Detailed information on borrowers and tenants is held at the district level. In most cases paper files are the basis for the recording system but in some cases electronic systems using micro networks have been introduced. The systems used in different branches have been developed autonomously and it is likely that the procedures are not always compatible with those used in other branches. A major review of the Corporation's systems, the data and information management project is now underway. It is likely that proposals for substantial reform in the Corporation's systems will be generated through this review.

APPENDIX TWO: INFORMATION EXCHANGES BETWEEN AGENCIES FOR REDISTRIBUTION PURPOSES IN DIFFERENT COUNTRIES

Introduction

This paper describes information systems used for redistribution purposes in and between various agencies in different countries. The subject area is divided into three parts:

- Common numbering systems;
- Identity cards (ID cards); and
- Information exchanges.

These three areas are distinct, and the use of one system in any given country does not necessarily require or imply the use of the other systems.

The main source of information for this note is my visits to North America and Britain, late in 1989. Interviews were conducted in the United States, Canada and the United Kingdom with officials from tax and social security agencies. The main discussions are included in the List of Interviews, in the section on references. For other countries my main sources are the OECD (1989, please note that this draft report is still restricted by the OECD, and should not be quoted in any public use), and interviews with delegates from OECD member countries at a meeting in November 1989 of the Working Party on Social Policy in Paris (also included in the List of Interviews). These sources have been supplemented by information collected by members of the Working Party on Common Numbering Systems during visits to North America and Europe in March 1990, and Australia in May 1990.

Common Numbering

All systems of redistribution involve identifying which individual or family group is in a position to contribute through taxes or entitled to assistance through the benefit system. This involves deploying information about individuals and, as a result, the identity of each individual is critical. It is therefore a general characteristic of redistribution systems that individual identifiers are recorded. The issue for discussion is what sort of identifiers are used.

The most obvious identifier is the name of the person concerned, and for most individuals this would be the most comfortable identifier to use. For administrative purposes the problem with a name is the likelihood of duplication and confusion between different individuals. For record keeping purposes it is therefore common to assign a number to each individual. This number might in itself convey information (such as date and place of birth or sex) or it can be an abstract sequential identifier.

The most significant issue in the use of a number is the range of different institutions that may use the same number to identify an individual. The possibilities range from the use of separate numbering systems by each individual agency, to the use of numbering systems across a series of agencies within the same field, and on to the adoption of a unique personal identification number (PIN) for all administrative purposes. These options are canvassed in reverse order in the following paragraphs.

- Universal Unique ID

The development of national registers, and unique national number systems, can be traced back to the local and parish registers that have existed for many years. By the beginning of the twentieth century many Western European countries had systematic registration systems, recording name, residence, age, sex and marital status. These were administered at a municipal, county or province level. During the middle of this century, partly coinciding with the introduction of mass liability for income tax and social insurance schemes, central population registers were introduced in several countries. In order to keep track of individuals in a nationwide data base, unique numbering systems were introduced (Lunde, 1980, page 1).

The archetypal example of a country using a universal identification number for all of the population is Sweden. A number is issued for all individuals at birth or on immigration. This number is recorded in the national identification register which is available as a document accessible to the public. The number is used for all occasions when the individual is dealing with the State, and is also used by many private sector institutions to keep track of their clients.

The nation-wide PIN was introduced in 1947. It is a ten digit number which includes data on the birthdate and sex of the individual, as well as a check digit. The number is used for all tax and social insurance purposes, military service, health services, civil defense, school registers, passports, and motor registration (Lunde, 1980, page 6). It is also used for many other purposes, for example university students all register using their PIN and the number appears on all telephone bills. The PIN is also recorded on a driver's licence and it is shown on bank cheques (Flaherty, 1989, page 98). Banks and insurance companies use the number for client records, and employers use it to for employee records (Lunde, 1980, page 7). Similar systems are used in Norway and Denmark to maintain national unique identifiers of general application in public and private contexts (Lunde, 1980, pages 15-22 and Datacentralen 1989a & b).

In France also a national identifier is issued at birth. This too is used as the basis of a national identification register. This system was begun during the Vichy period and is now administered by the National Institute of Statistics and Economic Studies (Flaherty 1989, page 229). A thirteen digit number is issued to all newborns and is effectively a national identifier. By the 1970s it was being used by local mayors for the production of electoral registers, and by the military, and commonly the police and taxation authorities to trace people. The taxation, education and social security administrations all use the number to organise their files.

Another country operating a similar system is Belgium. A unique ID, based on the birth date and other personal information, is issued at birth. This is used as the basis for a national register that is used for a range of administrative purposes (Hazell & Neeson, 1986, page C17).

Some other countries have given active consideration to the use of national identity numbers and have rejected them. For example, in West Germany during the 70s there was a national debate about the possible introduction of a national identifier but this was seen as too intrusive and was rejected. A number does exist for each person, but it is not used as a universal identifier, and each agency is expected to use its own identifying system. The issue was considered again in 1983 when it was proposed to have a

census using information drawn from administrative sources on each individual. In order for this method of census to work every agency would need to use a common number system. The Supreme Court of Administration ruled that the census was unconstitutional and therefore this common numbering proposal also lapsed (interview with Gassman, September 1989).

- Social Security and Tax Common Identification Systems

Countries which run a social insurance approach to social security need to track contributors so they can maintain records of accumulated entitlements for individuals. This process has led to the introduction of social security numbers for individuals in many countries. The collection of contributions is often a very similar administrative process to the collection of withholding taxes on income, and therefore many countries have started to use the tax agency as the collection agency for social security contributions. These overlaps in administration have led several countries to use a common social security and tax number, which in some cases has been extended out to other uses as well.

In the United States the social security number (SSN) was first issued as a means of recording contributions for social security in 1938. In the 1950s, as income tax came to be a mass phenomenon with payments from most of the population, more sophisticated tax administration was needed and the social security number was adopted for tax purposes. Technically the Internal Revenue Service uses a tax identification number (TIN); however this TIN is the social security number in virtually every case. Exceptions include the Amish, who refuse to participate in social security for religious reasons. The use of the SSN has now extended to many parts of American daily life so that now "an overwhelming majority of the public and private sector agencies in the United States use SSNs as a normal part of their operations" (Kusserow, 1988, page 6).

The number of people who need to have an SSN has expanded steadily. Initially it was only required for those in employment who were eligible for social security. This excluded all federal employees who were covered by their own employment based superannuation. It also excluded everybody not in paid employment. However, a series of legal and administrative changes has extended its use. In 1943 the SSNs were established by executive order as a new system of permanent numbering for employees of any federal agency. In 1961 the SSN was issued to all taxpayers. In 1965 with the introduction of Medicare most individuals aged 65 and over needed to have an SSN and in 1967 the Department of Defense replaced military service numbers with the SSN. In 1975 the SSN became one of the conditions for eligibility for AFDC (Assistance to Families with Dependent Children, similar to our Domestic Purposes Benefit). In 1986 all tax returns including a claim for a child allowance in respect of any child aged five or over were required to include a SSN for each child. (Kusserow, 1988, page 2.)

In addition to these specifically federally mandated uses of the SSN, most states use the SSN for many administrative purposes and many of them include the SSN on the driver's licence issued by the State. It is also understood that many private sector agencies, including banks and credit bureaus as well as health care providers, use the SSN.

In spite of this widespread use of one number, the Social Security Administration and the Federal Government in general claim that the SSN does not represent a national identity number. One example which supports this claim is that though the bureaus of

vital statistics record the SSN on death records, virtually none of them use the SSN for birth, marriage or divorce records (Kusserow, 1988, page 6). Similarly a significant number of enforcement agencies and licensing agencies do not use SSNs for any purpose. However, for every purpose directly relevant to redistribution the SSN is a critical common identifier.

As the number of non-social security uses for the SSN has increased, so it has become increasingly important that each person have just one unique ID. When the system was introduced many people misplaced their number, and a large number of duplicates and wrong numbers were recorded. In a pension system this can lead to administrative confusion, but is not necessarily fatal to the integrity of the scheme as mix ups can be corrected over time (but it is important to prevent any person claiming two benefits). However, when the numbers are used for other purposes it is more critical that they are accurate. Over the last ten years the Social Security Administration devoted increasing resources to improve the integrity of the SSN, largely because it implicitly acknowledges its significance as a common number. (GAO, 1988b)

In Canada the Social Insurance Number (SIN) has spread in a similar way but recent federal initiatives are attempting to roll back this widespread use. The first numbering system was an unemployment insurance number which was introduced in 1941 and this was replaced in 1964 by the Social Insurance Number. The SIN is still administered by the Department of Employment and Immigration and was designed to provide an identifier for the Unemployment Insurance Scheme and for the Canada and Quebec Pension Plans.

The SIN is a nine digit number composed of an eight digit random number plus a check digit. When the SIN was introduced in 1965 there was an intensive advertising campaign to get all eligible persons to provide appropriate identifying material within a thirty day period so that the new numbering system could operate. By early 1966 there was near universal coverage of those in employment (Office of the Privacy Commissioner, 1988, pages 1-2). Though efforts are still needed to keep the register accurate, this clean introduction has resulted in fewer long term problems than the US system has endured. In 1967 the use of the SIN was extended to National Revenue Canada for the administration of personal income tax. Through the '70s and '80s, uses of the SIN expanded rapidly so that by 1987 a Parliamentary Committee reported that Canadians were "constantly being asked for their SIN". They reported its use by funeral homes in order to obtain a burial permit, by security teams controlling access to federal buildings and by credit bureaus and insurance companies (Standing Committee on Justice, 1987, page 45).

For federal purposes the Government has now decided to limit the use of the SIN. It may now only be used for formally approved purposes. By statute this will still include election purposes, student loans, the administration of the Wheat Board Act, Gasoline Excise Tax and racetrack supervision, among other applications. Other authorised uses include the National Registry of Radiation Exposure and the Rural and Native Housing Program.

Other than these previously authorised uses, continuing use of the SIN in federal agencies will be restricted to tax, social security and income-tested benefits. This follows an extensive review by the Treasury Board of Canada who are the Department responsible for the application of privacy principles in the federal administration. They concluded that this range of tax and benefit issues made a sensible linked set of uses

that could justify a single numbering system. A large number of other existing federal uses of the SIN are being phased out. These include fishing licensing systems, national scholarship programmes, workers compensation systems, military service numbers, applications for citizenship, security intelligence investigations, and all federal employee number systems. At this stage the Federal Government does not have any authority to direct provinces or private users to restrict their use of the SIN but the issues are being discussed with the provinces (Treasury Board of Canada 1989).

- Numbers Used Solely for Tax Purposes

As well as those countries which use more generally applicable numbering systems, the OECD report that all member countries other than Japan and Switzerland have a tax numbering system. In Switzerland taxes are administered at a canton level so there is no call for a national numbering approach, but there is a national number that is used exclusively for social insurance purposes (Australia Card Secretariat, 1986, page 66). The OECD understands that Japan has no national means of identification for taxpayers (this is confirmed by Lunde, 1980, page 46).

The newly introduced Tax File Number in Australia is intended to be used solely for tax related purposes. Following the reforms instituted in the aftermath of the Australia Card fiasco, the Australian Tax Office issues a tax number to all taxpayers, which must be used for any purpose connected with the receipt of income including benefits. The Australian Privacy Commissioner is empowered to consider other uses of the number, and can make binding orders prohibiting its misuse (O'Connor 1989, page 2). The Australian Social Security Department collects the number, but uses it solely for income tax purposes. A separate social security number is issued to every recipient of benefits on each occasion that a new benefit is issued (interview with Murphy, June 1990).

New Zealand is one of the countries that issues tax numbers to all taxpayers, but allows them to be used only for tax purposes.

Identity Cards

This section does not report a comprehensive review of identity cards. National ID cards are not necessarily a central part of any discussion of redistribution systems, but identity systems and security control can call for identification cards. A brief discussion of some aspects of international uses of cards is therefore included. Three types of situation may be identified; a national ID card, specific purpose ID cards, and unofficial ID systems.

- National Identity Cards

A national identity card is any multipurpose identification document which is issued by the state to all citizens (usually only adults) for use in a variety of contexts, generally including policing purposes. Such cards are not generally found in countries with a common law tradition, but various forms of card are used in some other OECD countries.

One of the best known examples of a society in which universal ID cards are used is France. There every adult is issued with an ID card which is intended to be carried. Police have the right to ask for evidence of identity of any person during the course of their work, but this need not be the identity card. After some debate a more

technologically advanced card has been issued in order to avoid counterfeiting. However the Government has agreed to restrict the use of the card so that it cannot be directly linked into existing databases. (Flaherty, 1989, page 228)

Belgium is another western state that issues a universal ID card. The card shows the name, date of birth, marital status, address, photograph and signature of the holder. The card is issued to all nationals at the age of twelve, and it must be carried from the age of fifteen. The card must be produced at the request of any national or municipal authority requiring evidence of identity. Cards are not required to be produced if requested for a private purpose, but it is common practice to show the card at times such as opening a bank account. (Hazell & Neeson, 1986, pages C15-16.)

Denmark is another western country issuing a universal ID card. The card shows the name, number, date of birth, sex, and address, and is used for many purposes. All government departments call for it, including for tax and welfare purposes. It is also commonly required for commercial uses, including banking (Australia Card Secretariat, 1986, page 63).

West Germany also issues a national identity card which must be carried by all citizens over sixteen years. The card carries a name, number, date of birth and a photograph. However, this card is intended to be used for immigration and police screening purposes, and not for administrative purposes like redistribution (Australia Card Secretariat 1986, page 61).

- **Specific Purpose Identity Cards**

Many agencies issue cards as a means of identifying the clients of that agency. This can include societies, banks and government social welfare agencies. The most common government issued identity card is a driver's licence. The issue of a licence to identify those who are entitled to drive appears to be virtually universal and the requirement for it to be produced when asked by a traffic enforcement officer (or within a few days as in New Zealand) is general.

Several societies that do not issue a formal ID card include a unique number on the drivers licence, so increasing its similarity to an ID document. In Sweden the PIN is shown on the drivers licence, along with a photograph (Hazell & Neeson, 1986, page C23). In several states of the USA the SSN is shown on the drivers licence, generally with the name and birth date also shown.

Though there are several social welfare agencies that administer identity card systems for their clients, I am not aware of any which require the production of a card in order to receive benefits. Alternative methods of identification would seem generally to be acceptable. For example, though the National Insurance number is issued on a plastic card in Britain, there is no need to produce the card for any purpose; it is compulsory to quote one's number on taking a job, and for other National Insurance purposes, but the card need not be shown. Similarly, most tax administrations accept the tax number provided by a taxpayer without the use of a card. However, in Austria and in Turkey the OECD (1989) reports that a card is issued to taxpayers and this should be produced when taking a job.

- Unofficial Identity Cards

Demands for some secure form of identification are commonly made, frequently by private sector institutions and often in the context of issuing credit. Often the private sector agencies prefer a Government issued identity document in the hope that it represents a more secure identification and will have been closely checked against evidence of birth or marriage. It is on this basis that in the United States the driver's licence is requested in a great many contexts. Because the driver's licence frequently includes the social security number, it is often claimed to be becoming a de facto national identity card. (Interview with Lerman, October 1989.)

The social security number itself is not issued in the form of an identity card. Although the number is generally passed to the recipient on a card, the card itself contains the words "not an identification card". In the context of the need to control immigration from Mexico there have recently been proposals to issue secure identity cards based on the social security number system, but these have been rejected in order to ensure that America does not develop a national identification card. (GAO, 1988b.)

In many other countries private sector groups needing identification systems do not rely on state-issued documents, but instead produce their own. For example, in Britain it is virtually impossible to pass a cheque without the support of a cheque guarantee card, issued by the appropriate bank. Using this approach the identification focuses not on the name and address of the individual (which may be of limited use in many small transactions), but instead focuses on credit worthiness and the security of the transaction.

In New Zealand some welfare agencies have issued some forms of identity documentation. For example, the Housing Corporation issues eligible home loan applicants with an introductory card which records the name of the individual and his or her loan eligibility. Similarly, the Department of Labour has issued cards to unemployed job seekers to introduce them to employers and inform the employer of potential subsidies that could be received if that individual were to be given a job. These examples, and the general acceptability of bank-issued identification documentation, demonstrates that New Zealand does have some ID cards, but generally there is a very informal system of identification for both Government and private transactions.

The Collection and Transfer of Information

The main focus of this section is on the transfer of information from tax collecting agencies to various social security and social welfare agencies. In order to give some context to this, it is useful first to give a very brief review of the nature of information collected by tax agencies, and then to examine the various different systems used for transferring or withholding information to other agencies.

- The Collection of Tax Information

All OECD countries have an income tax system, and this quick review of the information collections used for that income tax is drawn from OECD sources.

There are two distinct types of sources for tax information. The first is as provided by the individual in returns to the tax department, and the second is evidence supplied by third-party sources such as employers, bankers and others with knowledge of payments made to the taxpayer.

All OECD countries except Austria, Ireland, Portugal and the United Kingdom have regular returns from the majority of taxpayers, and even in those countries returns are required from taxpayers with high incomes or predominantly non-wage and salary incomes. In every country except France and Switzerland there is a withholding tax on wages and salaries, and a large proportion of countries have withholding taxes on interest and other forms of capital income. All countries require employers to report employee income and tax deductions on that income, and many require banks and agencies such as company share registrars to report on payments to taxpayers. Even where there is no regular requirement for these agencies to report to the tax authorities, all countries have retained the power for the tax authorities to inquire into all relevant income information. In all countries tax authorities may view the taxpayers' records, and in most countries they may require third parties to provide relevant information. These powers may include the rights to enter premises, including dwellings, sometimes even without a warrant as is the case in New Zealand. In most countries the tax authorities may also review payments made by and information held by other Government agencies, but in New Zealand that does not include the right to inspect information held by the Department of Statistics.

The general picture then is that tax authorities have a comprehensive power to collect information, and that in most countries there are substantial regular flows of information on all major payments to taxpayers which allow corroboration of income. However, in most cases this information does not pass to the tax authorities until after the end of the relevant tax year. For example, in the United States the W2 form, which records employers' payments to employees, is not forwarded to the Internal Revenue Service until the beginning of the following year. The same approach is followed in Canada, and in New Zealand. This means that in these countries, as with virtually any other country using a return-based system, the information received by the tax authorities comes in the form of returns from individuals and reports from paying institutions, both of which are forwarded during the period after the completion of the relevant tax year. In the United Kingdom, where there is a cumulative tax payment system which means that tax liability is continually adjusted through the year as income accrues, for most wage and salary earners there is no need for an end of year settle up and therefore no tax return. In addition, the Inland Revenue Department does not receive the cards showing the records of income received and taxes paid by each taxpayer until after the end of the tax year.

One area where a tax authority commonly has information before the end of the tax year is the commencement of some forms of employment. For example, in Australia when an individual takes on employment with an employer, the employer forwards a form to that effect, including a record of the tax number of the employee, to the tax authorities. This provides a flow of information through the year on who is in employment. A similar example occurs in several countries where anyone beginning a new business is required to notify the tax authorities of the establishment of a new tax liable enterprise. This means that tax authorities may be aware of all new self-employed people during the year.

- Free Availability of Tax Information

Having established the nature of the information that tax authorities may hold, the next question is to explore access to that information and the rules surrounding its availability for other groups. One approach is to regard tax information as non-sensitive administrative data which may be generally available.

In Sweden tax data is public. The national register of names and addresses provides a central clearing house on information about any person in Sweden. It is available for use by private and public authorities. It contains a full list of the population with data including name, personal identification number, address, citizenship, marital status, assessed income, taxable capital and real property. Information on this register is updated by the tax authorities and other authorities as it becomes available. The register is not only available for general use, but the information within it is actively marketed to the private sector (Flaherty, 1989, page 150).

Although there has never been a central register, and tax information has never been promoted as a commercial product, in the United States tax information was publicly available until the 1950s. In earlier years income tax was only paid by a small proportion of the population and the issue was not seen to be sensitive. However, as increasing numbers of people were included in comprehensive tax systems so the Government has found it necessary to restrict access to tax information. (Wilson and Smith 1984)

- Tax Information for Income Testing

Although most countries describe their tax information systems as being very restrictive, in many cases there are systems which allow various social welfare agencies to check the eligibility of their clients against tax information. There are two main approaches. The first is an administrative system, generally relying on one-off comparisons for individual cases. The second approach is data matching, by which records of all beneficiaries may be compared with those for all taxpayers in order to find any contradictions in reported income or circumstances.

The first system is commonly found in Europe. For example, in the Federal Republic of Germany there are four separate social security schemes covering unemployment, sickness, accident and old age. These are administered through a large number of state and federal corporations which handle different aspects of the schemes. Between them these institutions run many different personal information systems which are regulated by the "social code". (Flaherty 1989, page 70.) The social code prohibits data matching, but it does not prevent one-off comparisons. The usual means for making these comparisons is not necessarily directly with the tax authorities but may make use of local registers.

Everyone in Germany is required to inform their local authorities of their whereabouts in order to be included on the register. The register includes details on the name and age of the individual, data on the family, including spouse and dependents, and also on the income and tax exempt income of the individual (Flaherty, 1989, page 418). Local or federal benefit paying agencies may check with these registers in order to confirm the circumstances of individuals who are applying for benefit support. (Interview with Rosenberg, November 1989.)

.. In France data matching appears not to have been a significant issue as yet. Benefit

In Belgium the situation is similar. Social Welfare benefits are administered by local community groups. Because these groups usually have close community ties through language and religion, there is often little need to access remote substantiating information into an individual's circumstances. However, where there is some question, the communal authorities do have the power to access tax information. (Interview with Clotuche, November 1989.)

A similar general approach appears to occur in Japan. Although there is no formal arrangement for passing tax information to social welfare authorities (OECD, 1989) it appears that in fact tax information is used. Where an applicant requests support, this is contingent on a return from the tax authorities to the effect that the individual's income is below the taxation threshold. Having issued such a document for an individual, the tax authorities then stay in touch with the relevant welfare authority and if the tax authority becomes aware that the individual's circumstances have changed the welfare authorities are informed. (Interview with Onishi, November 1989.)

Australia is another country which follows this type of approach. There is no general right for welfare agencies to access data from the Australian Tax Office, but transfers of information do occur. The most important is the regular supply of certificates from employers, at the time a new employee begins work. These are tax forms, but they are forwarded on to the Department of Social Security which uses them to check the eligibility of beneficiaries. Generally they arrive at the Department of Social Security about two months after the new job begins. (Interview with Murphy, June, 1990). Another example is the calculation of income support for tertiary students. Eligibility for support depends on family circumstances, and the Tax Office provides assistance to the education authorities to check on the means of parents (information supplied to NZ officials from the Youth Benefit working party, 1988). A rather different case is the new Child Support Agency, of the Tax Office. In order to collect maintenance payments from defaulting parents (virtually always the father), the Australian Tax Office is empowered to use the income tax system to impose a special deduction code and surcharge on the income of a liable parent. The money that is collected, and information on whom it is to be paid to, is forwarded to the Department of Social Security in the following month. The Social Security Department makes the payment using automatic deposits, and also uses the information on maintenance receipts to adjust the benefit payments according to an abatement formula (DSS, 1990, Chapter 37, and Child Support Agency, 1990).

Matching of tax information is used in North America. In the United States data matching is extremely widespread, and is also significant in Canada. In both cases rules have recently been introduced to regulate the approvals for and processes of data matching.

In the United States the first significant administrative example of data matching for redistribution purposes was "Project Match" launched by the Department of Health, Education and Welfare under the Carter administration in 1977. It would seem that linking data from unrelated sources is contrary to the provisions of the Privacy Act. However, it was during the time of Project Match that an opportunistic interpretation of the "routine use" provisions of the Act was developed. Under the Act, information may be used for routine uses. It is now common for departments to notify new routine uses in the Federal Register and, having notified them and described them as routine, they then proceed with matches.

Project Match demonstrated that there were significant numbers of people receiving welfare assistance that, according to other sources of information, were not entitled to

that assistance. The Government Accounting Office (GAO) has undertaken a series of statistical experiments matching different welfare rolls with income information from other sources, commonly income tax, and has demonstrated time and again that fraudulent or accidental claimants can be frequently identified using computer matching techniques (Interview with Brier, October 1989). In 1984, under the Deficit Reduction Act, Congress directed that a large number of federal and state agencies using federal funds for welfare purposes must match their welfare rolls with tax data.

The use of matching has now spread to many different agencies. In a recent survey of the operation of the Privacy Act, the Government Accounting Office (1986) discovered that of a large number of federal agencies surveyed only the Tennessee Valley Authority and the Coast Guard did not undertake any statistical matching. Many of the matches are between databases with no intuitively obvious connection. For example, the Department of Health and Human Services Office of Child Support Enforcement has linked its database with the Selective Service database in order to find the addresses of absent parents (Flaherty, 1989, page 351).

As an example of the extent of current matching, the Social Security Administration matches its roll of recipients of Supplementary Security Income (an income-tested pension) with ten different databases. Five of these are various federal pension funds, the others include a roll of incarcerated prisoners in federal prisons, the W2 wage deduction data which is provided by employers for tax and social security purposes, Inland Revenue Service interest and dividend data, and a Social Security Administration duplicate payments file. In addition, like all Social Security Administration schemes this roll is checked against a "dead register" which is maintained from data in state and county vital statistics bureaus. (Interview with Dence, October 1989.) From a total Supplementary Security Income spending of around \$14 billion per year paid to 4 million recipients, the matching programme is estimated to save in the region of \$2 - 300 million per year. During 1988/89 around 500,000 apparent "hits" were investigated relating to 400,000 beneficiaries, or 10 percent of the total number. Of the Internal Revenue data that is received, the most important source of information is the interest and dividend receipts, which demonstrate that many beneficiaries have financial capital holdings above the allowed level. (Interview with Cooper, October 1989.)

Because the programme is a long-term scheme, with elderly recipients continuing to be eligible for several years, the one year lag for tax information does not completely remove its usefulness. However, because eligibility is determined on a monthly basis, the annual data is of reduced use, and the Social Security Administration now intend to match their records against state unemployment insurance data. Employers are required to notify the unemployment insurance schemes of their employees' incomes on a quarterly basis. This provides more timely information and more precise data. (Interview with Dence, October 1989.)

As the number of matches being carried out by state and federal agencies has increased, so there has been some concern about threats to privacy. For example, the Office of Technology Assistance (OTA, 1986) saw that the rapidly growing web of interlinking data matches was creating "a de facto national data centre or national recipient system". (OTA, 1986, page 58.) In addition, especially with some of the relatively early matches, there have been some embarrassing mistakes made in the administration of matches. Some beneficiaries have had their benefits cut on the basis of apparent computer hits, but on further investigation it has become clear that they were entitled to the payments they were receiving.

In order to address the generalised concern about invasions to privacy, and to make sure that adequate administration systems are in place, Congress recently passed the Computer Matching Privacy Protection Act 1988 which took effect at the beginning of 1990. This Act requires every federal agency involved in any inter-agency transfers of personal data to set up a Data Integrity Board. The function of the Data Integrity Board is to enter into contracts with any agency to which data is to be passed. The contract must specify the protections that should be placed on the data and should confirm that the intended uses of the data are a suitable use both in terms of the content of the data and the purpose for which it was collected. The agreement must spell out the procedures that must be followed and security arrangements. The Act requires that the procedures include notice periods to any apparent abuser of benefit schemes before any action is taken as the result of a match, and that appeal processes are in place to allow beneficiaries to seek a reinstatement of their entitlement.

In addition, any new match must only proceed after a cost benefit analysis has demonstrated that it is worthwhile. The provisions of the Computer Matching Act relate to matches to establish and verify eligibility for programmes or to recoup debts under such programmes. They do not cover statistical matches, research matches, law enforcement matches, security matches, foreign intelligence matches or tax matches. (Flaherty, 1989, page 358.)

The Computer Matching Act and the Privacy Act both provide a backdrop against which data matching can occur, but any use of Internal Revenue data must be specifically mandated by legislation. The most important single provision is the Deficit Reduction Act 1984 which added a very large number of institutions that are required to match their records against the Internal Revenue income data. Other institutions tend to be added one by one as the General Accounting Office completes its statistical surveys to demonstrate the cost savings to be made by reducing fraud in each benefit scheme. The most recent example is veterans benefits where the GAO report established misreporting of income by about 10 percent of beneficiaries (interview with Brier, October 1989). The next (and last major) agency that the GAO will report on is Housing. They expect that here too they will find substantial misreporting of income, and Congress will then require federal and local agencies to check their information against IRS information.

In Canada inter-agency matching can also be carried out, but it is much less common than in the United States, and recent Treasury Board policies have introduced a systematic set of controls. By statute there are a series of exchanges of information from Revenue Canada. These include providing information to provinces for tax purposes, to departments for benefit checking and to Finance Canada (the equivalent to the New Zealand Treasury) for policy analysis. There are also several schemes under which individuals may be required to sign waivers which allow an institution to access their records at the tax office. One significant example is the student loan scheme in Ontario. This scheme does not give the education authorities an ability to match against tax data but simply to check the income of the individual who signed the waiver. (Interview with Fortier, October 1989.)

This individual waiver process extends to the checking procedures for substantial income tested benefits. For example, the Guaranteed Income Supplement, which abates against income, involves a check by matching assessments of income against Revenue Canada assessments. Each applicant is required to concur in this match to be eligible for benefit support. Since the definition of income for the benefit is very similar to that

used for tax the match is relatively straightforward. In order to ensure that the match is as accurate as possible, the tax return includes details on those other areas of income that are relevant to the Guaranteed Income Supplement. (Interview with Fortier, October 1989.)

There are a series of provincial schemes under the Canada Assistance Plan which are 50 percent funded by the federal government. All of these schemes must be targeted on need with a one for one abatement against income. Because the tests are for a short period of income and the turnover on the programmes is rapid there is no matching with revenue data carried out as a normal requirement for these schemes.

The Treasury Board of Canada, which is responsible for the privacy and data protection practices of federal agencies, has recently promulgated new rules to cover all administrative matching of data. These new rules will apply to any transfers of data from Revenue Canada for administrative purposes. Under these rules the agencies are required to assess the advantages of the matching programme against alternative control or management schemes. They must verify that the programme relates to an operating programme of the institution and must consider whether the information could preferably be obtained directly from the individual to whom it relates. They must determine whether individuals should be informed of the match and justify why any such notification would not be required in terms of the potential collection of inaccurate information or the prejudice of the purpose for which the information was collected. They must outline the means of ensuring that the data is up to date and accurate. They must consider whether the consent of individuals is required for the match, and if not they must demonstrate that the match corresponds to the purpose for which the information was collected. The usual test is whether the match is within the range of uses that a reasonable person could have expected when supplying the data; that depends on the data being matched and the notices supplied at the time the information is collected. There must be a cost benefit assessment of the data matching and all the procedures required to carry out the match. At least 60 days before the first match is carried out, the Privacy Commissioner must be informed in order to give the office of the Privacy Commissioner time to lodge any complaints against the match.

Any transfers of information from Revenue Canada are always carried out in terms of a bilateral contract between the department and the receiving agency. (Interview with Hostsetter, October 1989.) This contract outlines the security precautions that the receiving agency will take and the purposes for which the data will be used. Overall, the effect of these contracts and the Treasury Board rules appears similar to the system that has been developed under the Computer Matching Act in the United States, but the presence of a Privacy Commissioner to comment on any inappropriate matches would seem to add an important extra element of protection.

- **No Tax Information for Income Testing Purposes**

A third group of countries is those that do not permit tax information to be used for any income testing purposes. An important example of this is the United Kingdom. Data on income is readily transferred between Inland Revenue and the Department of Social Security in terms of the collections of Social Security contributions. This information allows the Social Security Department to know which individuals have paid their contributions. In addition, the Inland Revenue Department informs Social Security of

each individual who sets up in self employment, as the Social Security Department needs to collect contributions directly from such people. This information is not available for the Social Security Department to use to check against the rolls of people collecting income tested benefits. (Interview with Robson, December 1989.)

Since the enforcement agents who administer the income tested benefits are the same staff as those who check on Social Security contributions it is possible that at the district level some Inland Revenue sourced information may be used to assist in enquiries into benefit fraud. However, any such activity would be on a limited and haphazard basis, and Inland Revenue evidence could not be used by itself to remove a benefit or to take any other action against a beneficiary. (Interview with Urry, December 1989.)

A similar approach is used in the Netherlands. The tax authorities pass information to the Social Security Fund on contributions, and this can be used to determine long-term eligibility for Social Security. However, no information is made available for short term income testing purposes. Agencies paying income tested benefits must do their own checking. (Interview with Pierek, November 1989.)

New Zealand is within this group of countries. The Social Welfare Department has no access to Inland Revenue data. Data can be passed from Inland Revenue to the Department of Statistics solely for statistical analysis purposes, and it must be protected to ensure that individuals cannot be identified. The only other significant transfer of information for administrative purposes is from Inland Revenue to the Accident Compensation Corporation. As with other social insurance schemes the purpose of this is to provide information on which employers have paid their contributions, and on the income of employees who become eligible for earnings related benefits.

Conclusion

In each of the three areas of common number systems, identity cards and information exchanges there is a wide range of different patterns that prevail in different countries. In each case New Zealand is among the countries that are the most protective of the privacy of individuals. There would appear to be no country which passes less tax information from its tax authorities to other agencies.

APPENDIX THREE: TAX COMPLIANCE AND THE USE OF TAX INFORMATION¹

Introduction

As governments introduce various income tested welfare schemes it becomes necessary for welfare administrations to monitor the income of beneficiaries. Many welfare departments do not have the power to acquire the information necessary to verify the income that their clients claim, and others do not have the expertise to carry the task out adequately. Income tax information, held by the tax office, is often seen as a simple source of accurate information.

It is common for tax administrations to object strongly to the use of tax information for other purposes. Having followed a tradition of defending income tax information against other parts of the Government, including the police, tax administrators are often alarmed at the prospect of sharing their information with welfare departments. I have found in my discussions around the world that officials from every tax office that I have had discussions with have taken a similar line. The grounds claimed by tax administrators to defend their information generally falls into one of three types.

- **Legal prohibition:** Tax statutes in many administrations prevent the disclosure of tax information for any purpose other than those specifically authorised. Analytically this is an uninteresting defence; if policy were to change the statute could also be changed to reflect the new policy.
- **Privacy:** The use for welfare purposes of information collected for tax purposes could be a breach of the internationally accepted principle that information should only be used for the purpose for which it was collected. This is an important argument which must be addressed in any discussion of the policy of tax information. However, this issue is not special to tax, and the issues that need to be addressed in considering whether there are appropriate procedures for the collection and use of data that might permit its application in welfare, are no different in the tax area than they are in any other.
- **Compliance:** It is often alleged that if tax information is used for another purpose voluntary compliance will be impaired and tax revenue reduced. This argument suggests that any saving in benefit administration (or even crime control) is insignificant beside the losses that could result from such reduced tax compliance. This argument is the only one that applies particularly to tax and it is central to this appendix.

This appendix uses simple theory to explore the possible grounds for a claim that compliance will be affected by the disclosure of tax information, and to illuminate the nature of the responses that are implicitly hypothesised. This note does not construct a full theoretical model. Such a model is not necessary for the exposition, and the basic theory of compliance has been elaborated elsewhere in the literature. (See especially Allingham and Sandmo (1972), Skinner and Slemrod (1985), Reinganum and Wilde (1985), Border and Sobel (1987), and Klepper and Nagin (1989)). After the theoretical discussion there is also some informal analysis of some United States tax data, to explore the likelihood that tax evasion has been significantly linked to the disclosure of tax information to welfare authorities.

¹ This appendix has been published as an article in the June 1990 issue of the *Australian Tax Forum*.

The first section is a theoretical discussion of the view that compliance will be directly reduced by taxpayers' wish to protect privacy. The following section explores a case of those taxpayers who have been or intend to be involved in welfare fraud. The final section briefly discusses some empirical evidence.

The General Privacy and Non-Compliance Case

At its most simple, the argument against using tax information for welfare purposes is that taxpayers object to any dissemination of personal information, and defend their privacy by reducing their tax compliance. In simple terms this can be expressed as the relationship between compliance (c), privacy (p), and the disclosure of tax information (d). Compliance may be seen to be related to the level of privacy, with an increase in privacy promoting an increase in compliance.

$$\begin{aligned} 1 \quad & c = c(p) \\ & \partial c / \partial p > 0 \end{aligned}$$

Privacy is related to disclosure, with an increase in disclosure leading to a drop in privacy.

$$\begin{aligned} 2 \quad & p = p(d) \\ & \partial p / \partial d < 0 \end{aligned}$$

By construction from equations 1 and 2 the argument asserts that an increase in the disclosure of tax information must be related to a decrease in tax compliance.

In this general form, the reduction in compliance could be related to changes in the overall level of disclosure, or could be a reaction to disclosure to a particular programme that is seen as especially intrusive in some way. However, this does not apply to the case where the individual is concerned to hide welfare fraud; this is covered in the next section.

So far as it goes this hypothesised relationship between disclosure, privacy and tax compliance seems reasonable. The problem with the argument is that it leaves out other influences on compliance that have been clearly established. The factor that has been established most clearly in the literature as promoting tax compliance is an increase in the risk in getting caught. (Dubin and Wilde (1985), Dubin, Graetz and Wilde (1987), and Klepper and Nagin (1989).) The risk of getting caught is generally related to the probability of any given case been audited, and more importantly the ability of the tax authorities to check income claims against independent sources.

"We do not regard it as accidental that the highest estimated rates of compliance under the income tax, apparently about 99 percent, involve wages from which taxes can effectively be withheld. In effect, income tax withholding makes involuntary the income tax reporting and collection process." (Graetz and Wilde, 1985, p361)

The risk of getting caught for tax evasion is not just related to formal audits, it is also likely to be affected by every administrative use of tax information. The more agencies that have access to tax information and analyse it for income testing purposes, the greater is the likelihood that anomalies will show up which could lead to the case being selected for audit. Klepper and Nagin (1989) put forward evidence that taxpayers are

aware that false entries in one line of the tax return can increase the likelihood of audits of other entries; it seems similarly possible that they will be aware of the risk caused by anomalies appearing between agencies that share information. This suggests that any attempt to model the factors influencing compliance must include risk (r).

It now seems reasonable to suggest that compliance is a function of privacy and risk, with compliance increasing both with an increase in the risk of getting caught and with increases in privacy.

$$\begin{aligned} 3 \quad & c = c(p, r) \\ & \partial c / \partial p > 0 \\ & \partial c / \partial r > 0 \end{aligned}$$

The complicating factor is that both privacy and risk are related to disclosure. The relationship between privacy and disclosure is as outlined in equation 2. The disclosure of tax information and the risk of getting caught for tax evasion are related such that as disclosure increases, risk can be expected to increase.

$$\begin{aligned} 4 \quad & r = r(d) \\ & \partial r / \partial d > 0 \end{aligned}$$

From equations 2 and 3 we would expect an increase in disclosure to lead to reduced privacy and hence reduced compliance. However, from equations 4 and 3 we expect an increase in disclosure to lead to increased risk and so to increased tax compliance. With privacy and risk pushing compliance in opposite directions it is not possible to use theory to claim that increased disclosure will necessarily lead to reduced tax compliance.

Without repeating the steps, it is possible to envisage other factors that could directly affect compliance in similarly confused ways. The other item which is sometimes referred to in the literature is complexity. (For example, see the Frank Malanga Conference 1988.) Generally it appears that increased complexity leads to reduced compliance. This is either because of confusion or because of the extra opportunity for evasion that complexity can offer. It is possible that increased disclosure of tax information could be associated with reduced complexity, depending on how it is administered. If this were so, complexity would be another factor offsetting the privacy pressure on tax compliance.

Overall it does not seem likely that we can use theory to sustain an argument that increased disclosure of tax information to welfare agencies will necessarily lead to reduced tax compliance.

Welfare Fraud and Tax Compliance

An alternative argument, sometimes put forward by tax authorities, is that attempts to use tax information as a medicine to treat welfare fraud may rebound and infect the tax system. If welfare cheats become aware that tax information will be used to check their story, they may change the information offered to the tax authorities in order to cover their tracks.

To analyse this case we need to add a further argument in the compliance function, being the gains from evasion or fraud (g). Now that both welfare and tax activities are involved it is also necessary to identify the two different activities with the subscripts w and t . Tax compliance must now be understood to be related to privacy, risk of getting

caught, and the gains that can be made from fraud and evasion. As the gains from fraud and evasion increase, so tax compliance can be expected to decrease. The relationships between compliance and risk and privacy are as outlined in the previous equations.

$$\begin{aligned}
 5 \quad c_t &= c(p, r_i, g_i) && \text{where } i = t, w \\
 &\partial c / \partial p > 0 \\
 &\partial c / \partial r > 0 \\
 &\partial c / \partial g < 0
 \end{aligned}$$

The argument against disclosing tax information is that where an individual is engaged in welfare fraud the total gain from non-compliance ($g_t + g_w$) is clearly greater than g_t . If there were no disclosure of tax information, g_t is the only amount that would be at risk for the taxpayer and therefore compliance may remain high. However, once illicit welfare gains are also at risk the gains to be made from evasion are increased and therefore tax compliance may reduce. Since in these cases welfare fraud already exists we may assume that the marginal increased risk of being caught for tax evasion becomes trivial when put alongside the increased incentive to withhold correct information from the tax (and welfare) authorities.

By itself this argument about the relative gains from fraud is clearly correct, and it can be expected to reduce compliance, all other things being equal. However, the likelihood of reduced tax compliance is less clear when the other factors, especially risk, are examined.

To look at the overall response of welfare cheats we need to envisage two populations. The first is those whose income is earned from sources that can be closely monitored by tax authorities, and the second is those receiving income from less easily monitored sources. The difference between these two groups becomes clear when the effect of r_t (the risk of getting caught for tax evasion) is considered. Prior to the sharing of tax information r_w (the risk of getting caught for welfare fraud) is less than r_t . With the sharing of tax data, r_w rises to equal r_t .

For those whose income is derived from closely monitored sources, the risk of being caught for tax evasion is effectively one ($r_t = 1$). For this group the potential gain from fraud is entirely academic as net profit once enforcement is completed is likely to be zero or less than zero. This means that tax compliance for this group stays near 100 percent whether or not welfare fraud is involved.

For those deriving their income from less easily monitored sources, some non-compliance will occur. Given the extra gains now to be made from non-compliance as a result of welfare fraud the level of non-compliance from this group is likely to increase. When the two groups are added together there is likely to be a net increase in non-compliance, but the reduction in tax is probably small as there are few welfare beneficiaries deriving significant income from sources that are not closely monitored.

Though the tax take may be reduced, the overall fiscal position also includes the change in spending on benefits. For all those beneficiaries whose sources of income can be closely monitored, an increase in the disclosure of tax information immediately leads to a virtually 100 percent chance of being caught for welfare fraud, and therefore a significant cut in welfare costs. For beneficiaries with income from non-monitorable

sources there is also likely to be some saving in benefits. This is because the risk of getting caught has increased. Even though tax authorities cannot ensure a 100 percent risk of getting caught for non-monitorable income, the discovery rate is significantly higher by tax authorities with their more comprehensive and effective auditing programmes than they are by welfare authorities.

The overall fiscal position is the sum of approximately zero tax change for those with monitorable income and a substantial reduction in benefits for that group, a modest reduction in benefits for those with non-monitorable incomes and some reduction in tax for the same group. Since welfare recipients are dominated by those with monitorable incomes, the overall effect is probably a significant saving for the Government.

As an aside a similar argument could be raised in connection with other agencies, like police, seeking access to tax information. Instead of a single fiscal balance, in this case it would be necessary to balance the social gains from increased crime detection against the loss in taxes.

Empirical Evidence

Though in the case of the person involved in welfare fraud it seems clear that the Government is likely to make a saving by making tax information accessible to welfare agencies, the analysis in Section I was less clear on the likely tax compliance effect of disclosure. It would appear to be an empirical question as to whether disclosure will reduce tax compliance. Since most administrations have been very cautious in the use of tax information it is not easy to gather any empirical evidence. In New Zealand no tax information is available. In Australia the major "non-tax" use of tax information is in child support payments; however, this scheme is too recent for any significant compliance effects to be apparent. One regime where there has been substantial sharing of information is the United States. During the last decade computer matching of IRS information with welfare rolls has become the norm. During that same period the IRS has claimed that tax compliance has dramatically deteriorated in the United States (IRS, 1983). However, it does not seem possible to connect this to the increased disclosure of tax information for the following reasons:

- many factors are likely to be involved including tax law, social norms and tax administration. No testing has been done to find whether tax disclosure is connected to the change in compliance;
- the reduction in compliance may be associated with reduced rates of tax audit over the relevant period (Dubin, Graetz, and Wilde, 1987);
- the IRS has more recently reduced its estimates of non-compliance (IRS, 1988).

Overall, it is possible that the American experience of extensive matching using tax information could be affecting compliance, but there is no obvious evidence of this.

Another more specific American experience is the Federal Tax Refund Offset Program. This programme requires the IRS to withhold any tax refunds that are owing to taxpayers, if that taxpayer owes a debt to the Government under any of several different programmes. The most important source of refund offsets has been for maintenance payments from delinquent fathers. The IRS have been concerned about this programme and have monitored it closely in order to assess its effect on taxpayer behaviour. Their

initial assessment (IRS Research Division, 1986) showed that taxpayers who had suffered a refund offset were less likely to file their return on time in the following year than other taxpayers. From this, the IRS concluded that the refunds were harming compliance behaviour. However, the Government Accounting Office (GAO, 1988) reviewed the IRS assessment and pointed out that it was conceptually flawed by the use of an inappropriate control group. Since then, both the GAO (1988 and 1989) and the IRS (Research Division, 1989 a and b) have reviewed the experience more closely. They both now agree that when the behaviour of taxpayers subjected to refund offsets is monitored over a period of years before and after the offset, it is apparent that this group is always less likely to comply with their tax obligations than other taxpayers. Both agencies agree that the Debtor Refund Offset Program provides no evidence of non-compliance.

This result is remarkable, as delinquent fathers would seem to be one of the most vigorous non-payers of any group. In order to be liable for a refund offset the father has to have resisted previous debt gathering methods. If, in spite of this demonstrated aversion to making maintenance payments, the father continues to comply with tax liabilities, it would seem that tax compliance is remarkably robust.

Conclusion

The claim that tax compliance will be severely affected by the disclosure of tax information to welfare agencies is not easy to substantiate. If the concern is a general reaction to a loss of privacy, this may be offset by the increased risks of detection when income information is shared. In the limit of this argument, it should be noted that in Sweden all tax information is public and it is not apparent that Sweden has a particularly severe tax compliance problem. In the case of those involved in welfare fraud, it is likely that tax receipts may be slightly reduced, but overall the fiscal position will probably be significantly improved by a sharing of tax information with welfare agencies.

Any effect on tax compliance from the disclosure of information is likely to be marginal at most. The total effect is probably dominated by the general attitude to tax and issues of social cohesion. Clearly, any general policy for the sharing of tax information would need to be carefully developed and sensitively handled.

It should be noted that these conclusions about the effects of income disclosure on tax compliance do not constitute a justification for the sharing of tax information. Any such sharing of information still requires that privacy arguments be addressed. What this appendix does suggest is that risks of reduced tax compliance are at best unproven and may be insignificant.

APPENDIX FOUR: A REVIEW OF INTEGRATED CIRCUIT CARDS: IS IT SMART TO USE A SMART CARD?

Introduction

This appendix provides an introductory review of the present state of development of integrated circuit cards (IC cards) and some of the uses that have been made of them. This is not a technical review for experts in computer technology, rather it is intended to be a discussion for the lay person in order to outline some of the issues that need to be considered when contemplating using IC cards.

This appendix is intended to be a background discussion which may inform the analysis elsewhere in the thesis. As different methods for administering redistribution systems are considered, it is necessary to have an understanding of the potential of IC card technology. It is critical to acknowledge at the outset that the appropriate means of choosing a technology for redistribution is first to decide the goals of the redistribution system, then to define the information flows that will best achieve those goals, and only after that to consider which technology would best support those information flows. If the technological issues are considered first, there is a danger that the whole analysis may be subverted so that technology drives policy. However, it is also true that if the policy discussion is carried out without any knowledge of the potential of current technologies, there is a risk that the policy options could be unnecessarily conservative on the one hand, or unrealistically contemplate science fiction on the other hand. By reviewing the uses of cards, and in particular IC cards, it is hoped to inform the reader of the practical options for the next decade.

The sources of information on the IC card are diffuse. It is a relatively new technology which has developed quickly in the last few years. The number of trials and commercial applications is increasing rapidly every year, and any single source is likely to be out of date. There are a few books in this area (notably Svigals, 1985), but I have found the most useful source of information be the international liaison group INTAMIC, supplemented by manufacturers and users. In particular I have been interested in users in social welfare type applications including those groups who are contemplating the possible future adoption of IC card systems. Information has been derived from interviews with people from each of these groups (included in the List of Interviews) and various pamphlets and papers produced by their organisations.

This review is divided into a series of sections. The first is a brief sketch of the nature of the IC card, including contrasting it with other forms of plastic memory cards. In the following section there is a brief description of the history of the development of the IC card. The next section describes a typical transaction using an IC card in order to illustrate basic elements of its working. Following this there is a section describing the information functions which an IC card may perform. The next section gives an account of some ways in which the IC card has been used and shows how the information functions may be applied in a variety of contexts. The last major section is an assessment of IC cards; it includes both a discussion of the public acceptability of cards and some of the economics of card use. This section is not an exhaustive review of the pros and cons of IC card use in any given context. It is only possible to determine the wisdom of IC card use on a case by case basis. Instead it is intended, in this appendix, to outline the issues that need to be considered when contemplating an IC card application and some of the general parameters that have become clear.

Though at various stages the possible use of IC cards in an integrated redistribution system will be mentioned, it must be emphasised that this appendix does not make the case for IC card use; any such case could only be made once the information needs of the redistribution system are determined. The references in this appendix are simply meant to be illustrative of the possibilities.

What is the IC Card?

The plastic credit card, with embossed lettering and often with a magnetic stripe, has become an item of personal property that is nearly as familiar as the cheque book or the bank note. The essential functions of these cards can be understood from a visual inspection of a plastic card. The plastic card conveys information from its colour printing which shows the name of the issuing bank and the credit card company. The embossed lettering shows the name of the holder, and account number and dates indicating the validity of the card. The signature strip shows a typical signature of the holder in order to allow personal identification. The card is essentially a personalised record. Though one could conceive of adding more information (presumably by embossing more letters) the card is essentially static. The information which is recorded is intended to remain the same in each use, and any calculation or manipulation that needs to be carried out in order to complete a transaction must be done elsewhere. The card is a memory but not a processor.

Though it is opaque to visual inspection, the magnetic stripe is basically similar in its concept. The stripe contains a record of information including the number of the bank, the account number and the card holder. This record can only be read with the assistance of a magnetic stripe reader. For further security it is possible for the data to be encrypted, and for the reader to include the formula to decrypt the data. It is technically possible for some magnetic stripe readers to have a writing capacity so that records may be added to the magnetic stripe and it is possible to use one of the three tracks contained within the magnetic stripe as a variable record to take account of ongoing transactions. However, the calculation of the transaction and the new balances must be carried out by the reader or on a host computer, connected through a network line. The magnetic stripe itself is simply a record or memory, it is not a processor.

The magnetic stripe can contain more information than would normally be possible simply with embossed letters. Using the internationally accepted three track magnetic stripe, it is possible to place just over 200 characters on the stripe. For any complicated record this is clearly a very small amount of information, and more sophisticated memory cards have been developed. In terms of information capacity the laser card which has been developed in America by Drexler Corporation, would seem to be the most spectacular. The face of a laser card is covered with a shiny surface, which is a high resolution photographic emulsion. Within this area microscopic dots are written. A light sensitive reader can then decipher these dots to read the information contained on the card. Cards with a capacity of over two megabytes are already in commercial production and substantially larger cards are likely to be possible. As with the magnetic stripe it is possible for the information to be encrypted so that the reader needs to know the code in order to understand the information contained on the card. It is also possible for a laser card reader to act as a writer and so add information to the card. However, as with the plastic card and the magnetic stripe, the record area is essentially static. Any calculation must be carried out off the card and the card can contain only the results of that calculation.

The essential characteristic of the integrated circuit card is the inclusion of a processor as well as memory. At a minimum this permits the card to react to transactions and to amend its own record to show a new balance of value on the card. The simplest of such cards are called "hard-wired" cards because they permit one type of transaction which is built into the circuitry of the microchip as the card is constructed. These are used, for example, as prepaid electronic tokens for use in telephones or transport systems. As the holder uses the relevant service the card "burns" part of the memory until the value of the card is consumed. Though this approach is useful it does not contain the flexibility that might be required for many transactions, especially in the context of redistribution.

The true IC card, or smart card, is a self programmable one chip microcard (SPOM). (A simple introduction to the IC card may be found in INTAMIC, 1985.) Within one microchip there is a processor and a memory. The memory contains a read only memory (ROM) commonly of around 1.5 to 2 kilobytes. This ROM contains the intelligence of the card in the form of programmes to calculate, encrypt and record data. The functioning of most cards is controlled by a "mask" which is akin to the operating system of a computer, but which is etched onto the microchip during its manufacturing. This mask can design the chip for a specific application or can permit the programming of different applications. It sets up the housekeeping systems to maintain the memory and may incorporate an encryption algorithm. The programmes in the ROM are operated by the processor, or central processing unit (CPU), which is commonly about eight bits. The result of the calculations are recorded in the record space which is known as the electronically programmable read only memory (EPROM). The capacity of the EPROM may vary; cards currently on the market range from around eight kilobits to 64 kilobits. Larger cards are under development.

The ROM, CPU and the EPROM are all contained within the same microchip. This chip is encased within a plastic card. The plastic card is constructed as a laminated sheet which is then milled to cut a hole for the chip. The chip, having been pre-sealed and having had all but the six contacts that are necessary for its function destroyed, is then glued into the card. A contact disk is then glued over the chip to seal the circuitry in place.

The card and the chip are built to exacting standards outlined by the International Standards Organisation. When the cards were first developed there were many problems of chips popping out as a result of glue failure or excessive flexing of the plastic. The day to day use of cards can be very rough, including scraping ice off the windows of motor cars in Scandinavia. Svigal's list of common uses includes "A car window scraper, a shoe horn, a door latch opener." (1985, page 31). The card is designed to withstand repeated bending and twisting. In addition the card has to avoid overheating by the microchip during operation.

As a result of its design and construction the IC card is extraordinarily secure. Because all information is contained within the same chip as the processor it is possible to devise very tight logical security. It is not possible to access the EPROM without going through the processor and this will only allow access in terms of the programmes that have been recorded in the ROM. The normal design of the programmes requires a personal identification number (PIN) before confidential data can be accessed. The PIN itself, and various other passwords included in the card are all concealed within a "secret area". This area can only be accessed by the card's own processor and the information

contained in it is not passed to a card reader. Other information in the confidential area can be accessed by the reader so long as appropriate passwords and the PIN are provided to the processor. Further information, such as the name of the holder, may be included in an open area of the card which can be accessed by an authorised reader without any password or PIN.

IC cards have now been used in enough contexts, including extensive commercial applications in France, that the general claims of physical robustness and logical security have been extensively tested. So far nobody has managed to forge a card or to illegally read its contents. For a period of years, beginning in 1984, Mastercard International conducted a series of exhaustive tests designed to test the security of the card and the systems for handling it. Teams were assembled, including engineers familiar with point of sale technology, and staff familiar with merchant and banker procedures. In addition, the card was examined from the point of view of the intelligent user, and submitted to the delicate attentions of "the conventional hacker group". These checks revealed some possibilities for fraud by collusion between staff of different organisations, and some of the procedures and key systems were altered to prevent that (INTAMIC, 1986, page 42). The tests also involved constructing very sophisticated equipment to break open a card and read its contents. At most, the technicians were able to read only a very small part of the information on the chip. They were never able to read enough to copy or fabricate a working IC card (INTAMIC, February 1989, page 13-14). Since that time card manufacturers have developed stronger encapsulation processes so that the chip is now even more secure than it was in 1984. Physical tests by Mastercard and INTAMIC also confirmed that the card is extremely robust and can withstand any likely physical, humidity, magnetic, x-ray, ultra-violet, chemical or electrical risk (INTAMIC 1986, page 40-41). Overall Mastercard concluded that the IC card is definitely capable of a three year life in the field (Ladouceur, 1987, page 18).

The History of the IC Card

The essential precursor of the integrated circuit card was the development of micro-electronics and the emergence from the laboratory of the electronic microchip in 1966 (Svigals 1987, page 12). As this technology evolved, some initial patents relevant to the encapsulation of a chip in a plastic card were taken out in Japan during the 1960s. However, it is generally accepted that the central idea of placing an electronic memory chip in a plastic card and using it for transaction purposes was developed by Roland Moreno in 1974. His company INNOVATRON holds the basic patent for the idea. Its development into a functioning micro computer card took several years. In 1977 Michel Ugon, an engineer at Bull, developed the idea further by proposing the inclusion of a processor as well as memory. Bull then went on to develop a working integrated circuit card, incorporating chips produced by Motorola, which was demonstrated in 1979.

The French government took an active interest in the development of the card and encouraged manufacturers to participate. By 1982 cards were available from Bull, Phillips and Flonic-Schlumberger. Under the direction of the Carte a Memoire joint venture group of French banks, a trial was conducted in Caen, Lyons and Blois, using each of these three cards. A total of 65,000 cards were issued, for use at 500 merchant or banker locations. After identifying some technical problems which were addressed, these experiments established the IC card as a functioning technology (INTAMIC, 1986, page 14). At the end of the trial the French banks selected Bull as the card they preferred.

In 1985 Carte Bancaire announced that they intended to develop a nation-wide payment system based on IC cards. Similarly during the mid 1980s PTT, the French Telecom System, adopted prepaid IC cards for public telephone calls. Following an important experiment at Lillestrom, which demonstrated the market acceptance of cards in a non-French environment, the Norwegian banking system has also adopted an IC card based transaction system. IC card telephone and electronic payment systems are now in use in several European countries.

Though the initial development of the IC card can be largely credited to Bull, there are now several manufacturers in the field. Bull has so far managed to dominate the market for financial cards (largely because of their contract with Carte Bancaire) and delivered their 10 millionth IC card in 1989. Schlumberger also produce a wide range of cards including multipurpose cards and electronic token cards. They have dominated the telephone card market and by 1989 had delivered over 40 million cards. Phillips are another important manufacturer, who have entered into some significant joint development contracts with Bull.

GEC are also in the market, and they have developed a "contactless" card. This does not have an external contact and instead the chip is connected to an aerial which forms a loop inside the upper half of the card, in the area away from the embossed lettering. Communication between the reader and the card is achieved by placing the card in any position in the proximity of the reader. They also claim greater flexibility in card use, as each card is designed in a similar basic format, without the purpose specific mask of other manufacturers.

All of these firms have cards in commercial production. In addition, there are several Japanese firms, including Toshiba, Dainihon, Daiei, Mitsubishi Electronic, and Matsushita, producing a range of cards, some of which are already or will shortly be considerably larger in capacity than the European cards.

The IC Card in Use

"The smart card information protocols respond to the following questions.

Identification: Who are you? How do I talk to you? Who issued your card? To whom do I send the transaction details for billing and reconciliation?

Security: How do I know you are whom you say you are? How much has this card been used recently? To what value amount? Can I believe the value bearing elements of the transaction record?

Services and Limits: What services do you want? What am I authorised to let you have? For how much? Under what conditions?

Audit and Journal: How do we both capture the details for further processing and further reference? How do we protect the journal entries from tampering?" (Svignals, 1985, pages 72-73.)

In order to see how the processor and memory interact with the reader and host to facilitate secure transactions, it is useful to describe a typical transaction using an IC card.

There are many different ways that a transaction could be constructed, but most normal uses would include the steps outlined in this example. This case is drawn from a schema developed by INTAMIC (August 1987, page 9).

- 1 **Insert the card.** Though this seems similar to inserting a magnetic stripe card into a reader, in this case the reader contains contacts that will align with the contacts on the IC card. In addition, the magnetic stripe reader is normally on-line to a host computer but the IC reader can commonly operate in an off-line mode and the whole transaction may be completed off-line.
- 2 **Authenticate the card.** The card generates a message to the reader which demonstrates that the card is a valid IC card. The card does not need to transmit any secret data. Instead the card can encrypt its message using the algorithm in the card to combine a random number (generated by the card or the reader) and the manufacturer or application code that has been programmed into the card. The reader may compare this message with its own encrypted result using the same random number and codes to ensure that the card is a valid card. The ability to generate an individual coded message for each transaction is unique to the IC card. Having identified the card as a valid card, the reader may then compare it with a blacklist of stolen cards, or any other cards that have been used for improper purposes. If the card is identified as one of those, the reader may lock the card so that it can no longer be used. The card could only be unlocked by the card issuer, using code keys that can be recognised by the card.
- 3 **Authenticate the Reader.** The reader also generates a message to the card (probably encrypted) which the card can check to establish the bona fides of the reader. If it does not recognise the reader, then the processor on the card will not permit the reader any access to the card's memory. This ability to distinguish between readers is unique to the IC card.
- 4 **Select the application.** A display on the reader will offer the card-holder a range of alternative uses for the card. This is similar to the choices offered by an automatic teller machine when a magnetic stripe card is inserted, but the differences are that the IC card may be able to offer a wider range of applications and that the applications are included within the card rather than being offered by a host computer.
- 5 **Identify the security requirements.** Once the application is selected, the card is able to define the security requirements for that application. The card can recognise and enforce different levels of security for different applications.
- 6 **Personal identification.** The card can, through the reader, request the card-holder to insert a personal identification number (PIN).
- 7 **Authenticate the card-holder.** Once the PIN has been received by the card it compares this number with the PIN concealed in its own secret area. If there is a match then the card-holder is authenticated. It is possible to use other forms of identification (fingerprints, retina scan, signature dynamics). However, the space required to make the comparison can be considerable and, therefore, in this case the card may need to transmit its digitised version of the biometric data to the reader in order that the reader may make the comparison. The ability of the IC card to compare PINs (or the ability of some future larger card to compare biometric data) is unique to the IC card and it has the advantage of meaning that the stored PIN need never be transmitted even as far as the reader.

- 8 **Key in the transaction value.** The card-holder then enters the information on the transaction into the reader and this is conveyed to the card.
- 9 **Check and authorise the transaction.** Using parameters already stored within the card, and comparing with the balance recorded after previous transactions, the card is able to check that the transaction is within the bounds permitted to the card-holder and authorise the transaction. Depending on the "floor limits" that are established within the card, this authority may be given without the card going on-line to any host computer. However, if the level of the transaction is too high, if the balance shown on the card is too low, or if the number of transactions that have been carried out on the card without on-line authority is too great, then the card can initiate an on-line contact to the host computer.
- 10 **Authority from the terminal.** As well as the need for the card to check and authorise the transaction, the terminal also needs to ensure that the transaction is within the limits set for that particular merchant or reader. If the transaction is too large then the reader goes on-line to the host computer.
- 11 **Derive a certificate on the transaction.** Having approved the transaction the processor in the card then generates a "certificate" which describes and authorises the transaction, and this is sent to the reader. This certificate would contain the information on the transaction and would often also include a message authentication code (MAC). The MAC is a number generated by multiplying the parameters of the transaction by a code within the card and the PIN. When decoded the MAC proves that the transaction was for the amount specified, the card was present, the reader was authorised, and the card-holder was present. The reader can then store the transaction certificate with its MAC to be downloaded to the host computer at some later time. In addition the reader may print a written version of the certificate as a written record for the card-holder and the merchant.
- 12 **Store the data.** Having carried out the transaction, the processor then changes the balances shown in the card and writes a record of the transaction to the card. For cards using EPROM the previous record is unerasable, and the record of the new transaction is shown as a new line. Some cards using electronically erasable programmable read only memory (EEPROM or E-squared-PROM) can delete previous information and write new data in the old space. This has the advantage of allowing the card to be used for longer before it is filled up, but the disadvantage of possibly destroying audit trails. In this appendix it is generally assumed that EPROM would be used, but the pros and cons of each would need to be examined before a final choice were made.

The most important characteristics of the transaction as described above are:

- i The whole transaction will often be completed without any recourse to the host computer.
- ii Secret data on the card remains secret and is never even revealed to the card reader.

The transaction process outlined above would be appropriate for almost all IC cards, but an alternative method would be likely for the "super-smart" card being developed by Visa International. This card would include a display and keyboard on the card. It could be used to allow direct calculation of the transaction and the reader display of a message authentication code could be relayed either visually (in a shop), or over the telephone, to authorise a transaction. For this appendix, however, it is assumed that an ordinary IC card is in use, rather than one with its own keyboard.

The Information Functions of the IC Card

Different versions of the IC card may be described as financial transaction cards, health cards or discount cards. However, these concepts confuse the application with the basic technology. As a microcomputer encased in plastic, the fundamental operations of the card are various forms of information transmission, manipulation and recording. Before looking at particular applications that have been developed for the IC card it is useful first to examine these information functions in order that we may understand the uses that are made of these functions in different applications. There are various different ways that the functions may be classified. The following list is a development of a list outlined by Ugon (1989, Page 3).

- File Maintenance and Data Protection

The heart of any computer system is the ability to process and to store data. The IC card has this capacity. However, the one chip architecture of the card makes it possible to incorporate very secure systems to protect the data. There is physically no means of directly accessing the data on the card, as all the terminals that remain when the card is constructed lead through the processor. Therefore, even though the card may be stolen and thus relatively easily removed to a very insecure environment, it is extremely costly to devise any means of reading the data on the card other than by quoting the various passwords that the card may require in order to prove the identity of the enquirer. Although in theory nothing can be regarded as perfectly secure, so far nobody has managed to decipher the contents of a card and the cost of doing so is prohibitive.

"As with any other security there is no 100 percent. Given money, expertise, time, laboratories and equipment (eg electron microscopes), it is possible that data in the secret area could be read or altered. [However, it is reasonable to assume] that the secret area can be made sufficiently secure to deter would-be attackers (who would either not have access to the necessary means of attack or, more likely, would not find the exercise profitable)." (Malecki, 1987, page 16.)

Though these caveats on the absolute security of the IC card might raise some alarm, they should be compared to the magnetic stripe which has been described as "readable, alterable, modifiable, replaceable, refreshable (the original contents can be replaced), skimmable (can be quickly and illegally read), counterfeitable, erasable, simulatable." (Svigals, 1985, page 35.)

- Authentication

A critical ability of the IC card is to identify any of the parties involved in a transaction and to determine whether or not that party is valid. This can apply to the card reader, the host computer and the card-holder. In addition, the card can provide data for the

host computer and the card reader which will prove its own authority. The central necessity for this authentication process is the security of the files in the secret area of the card.

The power of the card can be put in perspective by comparing it with the abilities of a magnetic stripe card. The stripe too can contain a personal identification number and a card number. These could be encrypted to make them harder to read. Though the card itself could not carry out any comparison, a card reader could verify that the numbers on the card were compatible with its own number and with the PIN typed in by the cardholder. By this means authorisation can be accomplished.

However, there are several inherent weaknesses in the magnetic stripe technology. The first is that the stripe itself is relatively easy to read. It has been estimated that a device to read and capture the information written on a magnetic stripe and then to transfer it to a counterfeit card could be constructed for around US\$100.00 (OTA, 1988, page 15). If the data is encrypted, this offers some extra protection, but because the card is a passive record it would need to be encrypted using the same algorithm and key as every other card using that application. Accordingly, it could be worthwhile for a determined thief to invest in breaking the code in order to raid the data on a large number of magnetic striped cards. Once the code has been illegally acquired the criminal could either steal cards or construct a fraudulent reader for use at some commercial outlet.

Because the IC card is effectively unreadable it is not subject to the same risks of fraudulent authorisation. As a result, not only is it more secure in day-to-day transactions, but it is also possible to use it to validate and authorise the transfers of very large sums of money.

- Certification

Certification is used to prove that a given item of information has been correctly conveyed. It renders a transfer secure against accidental or deliberate alteration of the numbers or the address.

Because of its processing capacity, it is possible for the IC card to generate a unique message authentication code (MAC) for every transaction. In an on-line application a host computer can send a random number to the IC card. The IC card can then use that random number, its hidden key, and a sequence number which keeps track of the number of transactions that it has had with the host computer, to combine with the parameters of the transaction and the encryption algorithm stored in the card. When combined together these factors produce a unique number. The host computer carries out the same calculation using the same data to ensure that the message was validly sent. In such a case none of the identifying codes are sent on any network, and therefore they cannot be captured by anybody tapping the system. Similarly, nobody could fraudulently generate the appropriate number other than by illegal access to the host computer. The security area of the host computer can be kept separate and closely guarded, thus ensuring the integrity of the whole system. This concept of certification can be used to establish that particular values are recorded in the right place correctly, to generate an electronic signature to validate given transactions, or to produce "secure writing" which refers to the secured downloading of an item of information such as an order to load the cryptographic keys in the card.

- Encryption and Decryption

The processing power of the IC card permits it to encrypt and decrypt data. This provides a powerful means of securing sensitive communications. If, for example, it is necessary to check the income of an applicant for some form of social assistance, it would be possible for a card to be used to initiate the inquiry. The host computer, having verified that the card is valid and that the card-holder is present, could send an encrypted message on the present income status. The message would not be intelligible to the card reader, but would be received in the card itself. The card could then compare the income against the eligibility parameters for that social assistance application and could declare whether the holder was entitled to receive assistance or not. No information on the income would need to be given directly to the provider of the service, and the provider would have no way of reading such information. This concept of transmitting encrypted data all the way from the host computer direct to the card is known as end-to-end encryption.

There is no such thing as a perfect code. Given a large enough computer and enough processing time, in theory any code can be broken. However, the science of cryptology has progressed considerably in recent years and algorithms now exist which are extremely difficult to break. It is possible either to use one of the publicly known algorithms, such as the data encryption standard (DES) algorithm, or a secret proprietary algorithm. The advantage of the publicly known algorithms is that many mathematicians have attempted to decipher them, and have demonstrated that they are extremely robust. The proprietary algorithms have not been subjected to this degree of public check, but because they have been kept secret they have the advantage of a smaller number of mathematicians available who understand their structure. Either approach has its advantages and the selection of one or the other would seem to depend on a commercial decision in the context of any given application.

- Key Management

Any encryption system (either using a public algorithm or a proprietary algorithm) depends on the use of secret keys to transmit or decipher messages. Some algorithms, the asymmetrical algorithms, use a different key for encryption and decryption. One of these keys may be public but the other must be secret.

A complication in any sophisticated transaction system is that there will be a number of different transactions using one network, or even using one card. Some of these transactions need to be intelligible to some parties but not to others. A critical problem of key management is to load the keys into the cards and to convey them to appropriate parties without the wrong person acquiring the wrong key. The power of the IC card is such that secure key management can be achieved.

One process of establishing a hierarchy of keys has been outlined by INTAMIC (February 1989, Page 56 - 59). The parties involved include the card manufacturer, the card issuer and the application manager. The card manufacturer is the firm which constructs the card, the issuer is the bank or agency providing the card and the application manager could be a separate firm (or Government agency) using space on the card which needs to be kept separate from that used by the issuer and secret from the issuer. To achieve this, the card manufacturer incorporates a card production key. This is a temporary key which is made known to the card issuer for use during

personalisation. The issuer first loads an issuer control key which is necessary to control the loading and any future amendment of keys. The issuer then loads those keys which are necessary for authentication, certification and encipherment. In addition, the card issuer loads an application allocation key. This includes an issuer exchange key which is a further temporary key which is made known to the application supplier. The application supplier may then use this issuer exchange key to load an application control key. This permits the loading of any further application keys including authentication, certification and encipherment keys. At each step the issuer and then the application manager deletes the temporary key once their own control keys are in place. As a result of this hierarchy the manufacturer is unable to read the issuer's key and both the manufacturer and the issuer are unable to read the application manager's key.

At the other end of the transaction, IC cards can be used to assist in the management of keys in the host computer or in readers. If the key resides within the computer or reader it is possible that an attempt could be made to fraudulently read the key. Alternatively the key can be loaded into various IC cards for use by those who are authorised to operate the keys. A considerable degree of sophistication can be achieved by this means so that some professionals may be authorised to access various different parts of a card or so that several different officials may need to work together in order to access certain keys. In each of these cases the person with the authorising card need not know more than a relatively straight-forward personal identification number. The more complex keys can be concealed within the card.

This classification has identified five critical information management functions of the IC card: file maintenance and protection, authentication, certification, encryption and decryption, and key management. Taken together these are the functions which are at the heart of the IC card's ability to provide a secure remote access system for many different applications.

What the IC Card is Used For

The functions described in the previous section provide the means of maintaining secure records and making secure communications. Using a card small enough to slip into a wallet, and a reader that can be easily contained on a shop or bank counter, it is possible to authoritatively identify an individual, validate a transaction and securely communicate its contents. These abilities have been used in a variety of contexts. For the purposes of this quick review of some of the places where cards have been used they are broken into three main areas. These are financial applications, mobile record systems and access control systems.

- Financial Applications

The essential feature of any financial application is the overall integrity of the payment system. Where a payment goes from one account into another, it is critical that the right person authorises the payment and the right person receives it. Similarly where a given amount is deducted from or added to an account, it is essential that the right amount is deducted and that it is not possible for account holders to fraudulently add value to an account. These criteria have been addressed and met in three main financial applications. These are the electronic cheque, prepaid systems and tele-banking.

The electronic cheque relates to that range of payment systems which depend on some later or simultaneous draw down of a deposit balance. This covers the systems that are

akin to both debit cards and credit cards and also electronic messages establishing a cheque payment equivalent to manual cheques.

The most important application in this area is the Carte Bancaire. Following an agreement between the Carte Bleue (Visa) syndicate and the Carte Verte (Mastercard) syndicate all the major French banks have aligned together in the Carte Bancaire syndicate. Since 1987 that syndicate has been steadily extending the use of IC cards across France area by area. By 1991 it is envisaged that all French bank cards will be IC cards, with a total of around 15 million cards and 350,000 merchants. A feature of the French system is that small merchants can continue to operate on a paper based system, using a small cheap off-line reader called the certificateur to validate the card. The same cards can also be used for telephone calls, making this still the only mass-use multi-application card. The progressive investment in cards and readers has been straightforward and the cards have been very well received. (Bouley, 1987.)

The other major nation-wide system of electronic cheque transactions is in Norway. There the Bergen Bank has lead the introduction of IC cards. By 1990 they expect to issue 600,000 IC cards to their customers, in a country with a population of 4 million. Again it is understood that the cards have been well received and there has been little difficulty in the operation of the system. (Lindmo, 1987.)

One of the most sophisticated banking systems using IC cards was the Asset card in New Zealand. This offered customers both the opportunity to make Mastercard transactions and to access a credit or debit account set up for each card (INTAMIC June 1988, page 53). Technically the card system was successful, but because Fay Richwhite as the issuing bank did not have a substantial customer base and because LD Nathans was the only retailer involved in the system, the number of accounts never rose to a commercially sustainably level.

In North Italy 12 banks have grouped together to offer a joint electronic cheque system. So far 65,000 cards have been issued (Bull, CP8, 1989a, page 25). In Switzerland the DTT Bank has linked with a major retailer, Migros, to issue cards to 40,000 customers, and this is now being extended across all cantons with a further order for 550,000 IC cards. (La Lettre, January and July 1989.)

On top of these commercial applications which are (or were) intended to be permanent, there have been a great many trials of IC cards in various cities around the world. One example is the Mirai experiment in Tokyo. There 4000 cards were issued to account holders of four different banks for use in some 20 retailers in a central area of Tokyo (INTAMIC, June 1988, page 37). Once again the experiment demonstrated the technical capability of the system and its ease of use for retailers and card holders. Another Japanese experiment led by Mitsubishi Bank involved other service companies, to explore the possibilities for multi-application cards (Bank of Japan, 1986). By 1987 there had been a total of twenty-two IC card projects for financial applications in Japan.

From the point of view of the card holder, the IC card is very similar in use to a magnetic stripe card used on-line for EFTPOS or in an automatic teller machine (ATM). It is therefore interesting to report that in Maryland the Social Security Administration (SSA) is experimenting with the payment of supplementary benefits using magnetic stripe cards. The regular benefit payments are made direct to an account at the First Maryland

Bank and the beneficiary is able to draw on the account at various ATM outlets and at EFTPOS terminals at a supermarket. This experiment, the Securecard, has so far operated without major hitch and is due for completion in mid-1990. (SSA, 1989, page 3, and interview with Bill Farrell, October 1989.)

The second financial application for the IC card is the prepaid card. On receipt of payment the card issuer provides an IC card with a value recorded in it. Alternatively an area of a card used for another purpose, perhaps for electronic cheques, may be set aside for prepayment uses. The most commonly identified prepayment uses are:

- The Electronic Wallet. This involves amounts of money which are transferred between the purchaser and the retailer without detailed accounting back to the individual account, but which are big enough to require the security of using the card holders PIN.
- The Electronic Purse. This is for small sums of cash to be offered for small transactions. The sums involved are small enough that no PIN is necessary.
- The Electronic Token. These are prepaid entitlements to particular services such as transport, phone calls, film admissions or car parking.

So far electronic wallet and coin purses have not been utilised in any significant commercial applications. The difficulty with this application is there needs to be a widespread availability of readers at small retailers for the card to be sufficiently convenient to displace coins or notes. However there have been many significant applications using electronic tokens. The most important of these is the French telephone system. The prepaid card is attractive to the telephone network because it offers a financial float, and is also meeting wide acceptance from French users who see the card as convenient and easy to use (Schnabel, 1987). Similar technologies are in use in West Germany and Spain.

Another multipurpose electronic token concept is the city card which is being developed in France (INTAMIC, June 1988, page 25). The proposal is that a city authority would issue cards to its citizens. The cards could be prepaid from rates, thus representing a public service entitlement, or could be topped up by individual payments at authorised outlets, thus offering a fee for service user paid system. Applications that are envisaged include car parking, public transport, school meals, library fees, and admission to concerts.

In Blois the public transport system has adopted the "ticket puce". This is a card which is acquired for a period of time on payment of a deposit and used for rides on the urban transport network. When the period of eligibility is near expiry the user inserts the card into a reader, which displays the debt owing on the card. The user types in the PIN to accept the bill, and the money is drawn from the user's bank account. This is a half prepaid, half electronic cheque system. (Schnabel, 1987, page 31.)

Another example of the use of electronic tokens has been the experiments conducted by the Wellington Regional Council on a bus service in the Mana area. Prepaid hard-wired cards, supplied by Dai Nippon, have been used in a manner equivalent to a prepaid concession card. Further experiments will involve the use of different cards from different manufacturers, and the results are still being evaluated. (Interview with Cortens, March 1990.)

The possible use for electronic tokens in social policy is tied payments, like food stamps. An experiment using magnetic stripe technology with terminals in retailers to debit customers' food stamp benefit accounts began in 1985 in Reading, Pennsylvania, and others have been planned by the US Food and Nutrition Service. The complexity of the reimbursement process for this type of programme makes it an attractive candidate for some automation. (OTA, 1988, pages 7-8.)

The third financial application is telebanking. This implies remote access through the telephone network to bank accounts, and the shifting of cash from one account to another, either between two accounts owned by the same individual or a payment from one individual to another. The Carte Bancaire has already offered this system for card-holders using the French minitel telephone system. Because the minitel incorporates a screen in the telephone it can be readily adapted to act as a remote terminal for the on-line host (Schnabel, 1987, page 29).

However, of perhaps greater significance is the systems that have been implemented in several countries to facilitate the transfers of substantial sums between corporate customers. In Belgium the Trasec system permits customers to access accounts and initiate transfers. The transaction is protected by a message authentication code (MAC) generated by the IC card (Van Heurck, 1987). The major banks of Norway, Sweden, Finland and Denmark have also adopted a network system using IC cards. Each bank issues its own card to the account holders, and in this way keys are kept distinct. However, the account holder may select an individual PIN, and it is expected that the account holder will adopt the same PIN for all accounts. This provides a combination of bank security, which permits the banks to share a network, while maintaining account holder ease and flexibility. Again all transactions are secured using MACs (INTAMIC, June 1988, page 61). The Royal Bank of Canada (Braidwood, 1987), Credit Suisse and Citibank all offer IC cards to permit secure remote banking for large customers (Malecki, 1987).

The security of these telebanking systems, and the ability of the IC card to screen its communications from all except the intended recipient, demonstrates that income information held by Inland Revenue or a social agency could be transferred to other agencies under complete security if that were wished.

- Portable Records Systems

Because the IC card is small and secure, it offers a straight-forward means for individuals to carry personal information which may be sensitive or valuable and to provide it under secure circumstances to authorised individuals. The individual holding the card has a tangible protection against unauthorised or unexpected use because without the card the information cannot be accessed. The issuer of the card knows that the individual cannot change the information on it because the card cannot be tampered with. This combination of features addresses many of the concerns in record keeping in sensitive areas.

The most commonly mentioned use in the area of portable records is various kinds of health cards. Information on the health of individuals is commonly seen to be sensitive, but it also needs to be available to doctors and other health professionals. Health cards have been used either to provide a record on the health of the individual or to keep track of administrative entitlements for individual care.

One of the most complete health card applications is the Care Card (Hopkins, 1989a & b, and Bull 1989a). This an experiment currently underway at Exmouth, in Devon. Nine thousand cards have been issued to all the patients in one general practice, the young and the elderly in another general practice, and to all diabetics in the town. Card readers are located in the general practices, the pharmacies, one dental practice and at the emergency rooms of the local Exmouth hospital and the regional hospital at nearby Exeter. The card has been designed in order to take account of all of the information needs in medical care. It carries a coded record of the health of the individual and prescriptions. It also permits practitioners and administrators to identify data necessary for costing the overall administration of health care.

Different practitioners have different cards which are entered into the reader alongside the patient card. Depending on the practitioner card, different information can be displayed. Pharmacists' cards provide more limited data, and specialists have the data presented to them in forms more relevant to their specialism. In effect this means that the Care Card is a multi application card but, unlike most multi applications the data are not separated into different parts of the card. Instead there is a special search routine coded into the card which allows it to find the appropriate data and present it without revealing the other data on the card.

Apart from some technical problems largely caused by the British postal system's automatic sorting machines which apply an extremely heavy weight to envelopes containing IC cards, the experiment so far seems to be successful. There is a high degree of acceptance of the cards among patients and doctors. The main problems reflect the traditional reluctance of hospital practitioners to utilise information provided by general practitioners, and the inefficiency of centralised hospital information systems. The card itself is working well and practitioners are finding it useful (Hopkins, 1989c, and interview with Robin Hopkins, November 1989).

There are many other health cards already in use. In France the Carte Sante started in Blois in 1985. The French Ministry of Social Affairs and Employment has issued the card to provide a means of recording medical information for the young and the old. A development of this has been Biocarte which is being issued in the Pas de Calais area. Another French medical card application is the Transvie. This is issued by the Brest Blood Transfusion system to keep track of all blood donors in the city. (All described in INTAMIC, July 1989, and Hopkins, 1989a). The Carte Santal (Bull CP8, 1989b) has been issued to all patients at St Nazare Hospital. So far some 30,000 cards have been issued. Again there has been a positive response, including a 50 percent uptake when a postal offer was made to elderly users, with the response required to be by post also. Given the traditional poor response to postal approaches, and the likely reluctance of this group to accept high tech information systems, this seems a good initial response.

A different health industry application is the Carte Sesam. This is a funding card system issued by the Social Security Administration in France. The patient, the doctor and the pharmacist all have cards. When the patient visits the doctor the two cards are both inserted into the reader and the doctor records the events of the visit and adds cost. Later, at the pharmacist, the prescription including the relevant pharmaceutical codes are also entered into the card. At the end of the day the doctor and the pharmacist's readers both go on-line over night to the Social Security System in order that they might receive payment for their services and the cost of the service can be divided between the individual patient and the Social Security Administration depending on the circumstances of each case. (INTAMIC, July 1989, pages 11-12.)

There are several other health card systems operating in other countries. In Belgium the Medi Card has been issued to all patients with pacemakers. It is envisaged that in the future this card will be developed to incorporate bank card applications (INTAMIC, July 1989, pages 15-17). In Pontypridd, Wales, in 1986 250,000 patients in one GP practice were issued with the Medlock Card. This experiment demonstrated the potential of card systems and the links between doctors and pharmacists (Stevens and Crabbe, 1987). Two other card systems in operation are the Sanacard in Switzerland (La Lettre, May 1989) and the Salus card in Lombardy, Italy (La Lettre, July 1989).

In another experiment with an associated technology, in Maryland in 1988 Blue Cross issued memory cards to a number of its patients. Once the experiment was evaluated Blue Cross decided not to proceed with the cards at this time. They found that most doctors were not prepared to use the card while the patient was in the room, preferring to collect the case history anew each time from the patient (SSA, 1989, page 8). This experience demonstrates that card applications have to be carefully developed if they are to succeed.

As well as health records there are many other cases where portable files have been found to be useful. One example is university records. (All examples in this paragraph are from La Lettre, May 1989). Students commonly need to access data on the courses they have sat and the progress they are making. One early application was at the University of Paris No XII where students were issued with cards which carried the whole academic record of the student. A similar card was developed in Lille University where it was used for various administrative record purposes. One of the more complex examples was at the University of Rome where all students were issued with "La Sapienza". This IC card contains full details on the academic record. All examination and internal test records were updated onto a central host computer and terminals throughout the campus could be used by students to access the data and update their own card. Academics are being issued with cards enabling them to enter exam results as they are completed. This system has slashed administration and enrolment times for staff and students.

Another attraction of university cards is that they offer an opportunity to develop financial applications alongside record keeping uses, as there is a concentrated market of customers and merchants on the one campus. GEC has attempted to develop this opportunity by use of its contactless card. A rail based study centre, the Cardiff Travelling College, issues GEC cards to all students for use in the various facilities on the train (Topic, June 1989). Trials have also taken place in the halls of residence at Auckland University, and GEC are discussing more permanent uses on that campus (Interview with Cortens, March 1990).

Another much quoted example of the IC card in action, is the peanut sales system in America. The US Department of Agriculture operates an entitlement system under which peanut farmers are allowed to sell a certain tonnage each year. After extensive tests in 1986 and 1987 the USDA has now adopted IC cards to maintain running records of sales by all peanut farmers. Under the previous manual records systems it was impossible to keep track of sales as they occurred during the harvest period, so peanuts were regularly over sold. Under the new IC card system it is very difficult for any farmer to sell more than his or her entitlement. (SSA, 1989, page 7.)

A rather different example in America is the Michigan Opportunity Card. The state of Michigan has issued cards to some 5,000 unemployed people. The card contains a

profile of the individual and can be used to access records on job or training opportunities. The individual's characteristics are matched against the host computer's data on opportunities in order to present the most appropriate options for the individual's choice. (SSA, 1989, page 5, and Smart Card Communications, May 1989.)

A further American system is the US Navy Generic Electronic Manifest System (GEMS). The Navy was having extreme difficulty keeping track of stores on various vessels and bases. The card now obliges suppliers to provide full information on all deliveries which can be checked for validity on arrival, and can directly update the electronic record of supplies on hand (SSA, 1989, page 6). A final example of the IC card being used as a portable record is the Turkish driver's licence. Turkish drivers' licences will now be issued as IC cards, and all traffic police will carry readers. The reader will allow the policeman to positively identify the driver and to discover any relevant information on the driver. The reader will also have the capacity to carry a list (equivalent to the black list in the financial applications) of any driver needed in connection with an offence. (SSA, 1989, page 9.)

The widespread use of IC cards for portable record systems supports the assertion that cards could be used by welfare recipients to verify their entitlement to assistance if that were desired. The card could contain a confidential record of income or expenditure on qualified goods which could be used by the processor to determine eligibility for assistance. The content of the card would not need to be revealed to suppliers of services, but would presumably need to be accessible to appropriate Social Welfare officials.

- Access Control

As well as its use in transactions, the authentication capacity of an IC card can also be used to offer direct security both for physical access or logical access. The Danish Customs has now issued IC cards to all employees. These cards are used to log hours of work for payment purposes, but are also used to ensure that only authorised officials enter into customs spaces (La Lettre, May 1989). In Luxembourg access to telephone exchanges is limited to those employees holding the appropriate IC card (Bull CP8, 1989a, page 27). The US Airforce is also using IC cards to control entry to various bases in California (SSA, 1989, page 6).

A more complex application has been developed by the Bank of America in San Francisco. All employees are issued with an IC card which must be entered into a reader to access staff areas in the building. For more sensitive work areas a PIN must also be entered. For the most sensitive work areas a finger print reader is used to compare the digitised finger print record in the card with that of the card-holder. (Bull CP8, 1989a, page 30.)

A less sensitive example of physical access control is incorporated in the Darlington Country Club card which Barclays and Bull are using as an experiment in the UK at the moment. Club members can use the card to enter the club out of hours, and to access various facilities in the club such as squash courts. The card is also used as an electronic token so that the use of various facilities may be prepaid. In addition the club has programmed discounts into the card to reward frequent use. This is an example of a simple access card being developed into a sophisticated commercial application. (Honeywell Bull/Barclays, 1989.)

As well as physical control the IC card can be used to offer logical control so that unauthorised people cannot have access to electronic data. The US National Security Agency uses IC cards to ensure that only authorised employees may access data (SSA, 1989, page 4). At Morges in Switzerland police records are protected by IC cards. Only authorised police personnel may access criminal records (Bull CP8, 1989a, page 24).

As with physical access, so may logical access be set to various different levels. The Banque National de Paris has issued IC cards to control access to its computer system. They have established seven different levels of access for different types of data and issued cards with the appropriate authorities to their 40,000 staff (Bull CP8, 1989a, page 18). In a social welfare context, the Social Services Department in Bordeaux has issued IC cards to control access to personal records. This means that social work files and child welfare records can only be accessed by appropriate staff (Bull CP8, 1989a, page 19).

At a rather less sensitive level, logical security can also be used to ensure that commercial services are only accessed by those who have purchased them. The Sky TV in the UK is using IC cards for this purpose (SSA, 1989, page 9). Similarly the COMCO International Business Information Network also uses IC cards for this access control purpose (La Lettre, July 1989).

As with other uses of IC cards it is apparent that logical access control might be useful for sensitive information used in redistribution. For example, access by staff in social welfare agencies to information on income could be limited to authorised staff.

Factors in the Assessment of the IC Card

When the IC card is being considered for use in any application the criteria of most significance will depend on the specific use that the card will be put to. However, whatever context is involved three main areas need always to be considered.

These are the technical capabilities of an IC card system, the acceptability of the cards to users, and the economics of an IC card system compared to alternative approaches.

- The Technical Capabilities of the Card

The technical issues of an IC card system revolve around issues of information capacity, security and reliability.

It is unlikely that IC cards will develop the capacity to store very large amounts of information in the next few years. If it is essential to have a portable record with long and complex files, then the laser card is likely to be superior to an IC card. However, it is unusual for there to be a need to transport complex records in the pockets and purses of individuals. For most purposes IC cards are already on the market with sufficient capacity to handle transactions for at least a couple of years. If it is necessary to access more complex records, this could either be done through an electronic network using the security communications systems that the IC card makes possible, or by references in the IC card to files held in manual record systems.

The reliability of an IC card system relates to the durability of the cards and their quality control, the success of card readers, the reliability of the communication network and the reliability of the host computer. These may each be considered as separate items as decisions on one need not necessarily affect the approach taken to another.

The question of the reliability of the host computer is not intrinsic to an IC card system but is similar to the significance of a reliable mainframe computer for any information system. A magnetic stripe-based system, or even a paper-based system, generally relies on a host computer which must be dependable if a continuing service is to be offered. Because many IC card transactions can be completed off-line, an IC card-based system with a host computer of equivalent reliability is marginally more robust than on-line magnetic stripe or manual telephone checking systems.

The reliability of the communication network is also an important issue for any distributed access system. Once again, because magnetic stripe requires continuous on-line access, and manual systems also rely on good telephone access, the IC card is rather more independent and therefore less at risk of network failure. Like manual systems, the inherent record storage capacity of the IC card provides a (limited) back-up in the event of temporary communication failure. This is akin to the back-up provided by paper records in a plastic card system. In either case if the communication system is out of action for a long time, then the integrity of the whole system is threatened. However, given the generally reliable record of the New Zealand Telecom system, it seems likely that a sufficiently robust communication network can be sustained.

In terms of the cards themselves it is clear that the cards are physically more robust, and will function longer than the present capacity of the cards is likely to support. Similarly the readers, being a simpler static contact system rather than one needing a mechanical swipe to read the card, can be simpler and less likely to malfunction than mag stripe readers. GEC claim that their contactless systems are even more reliable, not even needing the periodic clean that can be needed for the reader heads on a contact system (interview with Cortens, March 1990).

As to the question of security, it is clear from the design of the card and from the experience in many different applications that the IC card offers the most secure distributed access system yet devised.

Although there will inevitably continue to be improvements in their operation, it seems safe to assert that IC cards already work. The initial problems of card reliability have been resolved through improvements in the encapsulation process and development of adequate plastic cards and fixing systems. Readers have been developed which can reliably communicate with the card and with a system network. The range of readers of different sizes and detail is certain to increase, but this is simply a result of addressing different market needs. Basically the IC card and associated equipment may be regarded as proven technology. Or, in the opinion of Mastercard, "the technology is mature, the technology is solid, the technology is ready for mass roll out." (Ladouceur, 1987, page 12.)

- The Acceptability of the IC Card

In any application of the IC card, a critical determinant of its success is the social acceptability of the card. If users resent the power and secrecy of the card, then they may passively or actively resist using the card and so undermine the system. Although plastic cards are already familiar to many New Zealanders, it is necessary to be particularly careful when contemplating introducing a high technology system for redistribution. The elderly or those who are relatively disadvantaged in society may be

less familiar with micro-electronic technology and therefore less happy to deal with the mysterious card and the demanding screen and keyboard of the card reader.

The variety of card experiments and commercial applications that have occurred mean that there is now a good range of experience in the public reaction to IC cards. One basic test of IC card acceptability is the extent to which card-holders carry the card with them. The success of a portable record system depends on card-holders viewing the card as being sufficiently valuable and useful to justify being carried on a regular basis. Attempts to monitor card carrying have demonstrated a classic learning curve; from an early relatively low carrying rate there is a steep rise over a period of months so that after a year or so most holders do carry the card and after that there is a slower rise as others also acquire the habit until a very high carrying rate can be achieved for a successful system. For example, in Brest there are a variety of cards that have been issued to the population on a single use per card basis. This means that each card is relatively less convenient than the kind of multipurpose cards that we may hope to see in the future. After a period of three years, street corner surveys, stopping people on a random basis, showed that card carriers are now well over 90 percent of the population (Interview with Robin Hopkins, November 1989). Similarly, the experience with Carte Bancaire, Bergen Bank and others, demonstrates that most card-holders are prepared to carry and use the IC card.

For possible use in a redistribution system, it is more interesting to know whether commercially less sophisticated groups in the population are prepared to handle IC cards. The most similar area where there has been a large number of uses of IC cards is the health sector. In the Exmouth Care Card experiment card use has shown a typical learning curve, so that after nine months of the experiment for most purposes over 90 percent of patients were carrying and volunteering their cards. The result in this experiment depended critically on the behaviour of the relevant professional at the beginning of the experiment. Those who were less keen on the use of cards did not encourage patients to produce them and did not show an active interest in their use. Patients returning to those professionals have learned from their experience and are much less likely to carry or produce a card. However, where the card has been welcomed from the outset it is now regarded by the patient and the professional as a normal part of the business (interview with Robin Hopkins, November 1989).

Undoubtedly a major problem for consumer acceptance of IC cards is the need for personal identification. The traditional signature is generally accepted in a literate society, but the PIN is rather a different matter, and often more foreign to card holders. Allowing individuals to choose their own PINs is a useful step in improving acceptability and operating success (Ladouceur, 1987, page 17). Alternative systems that aim to overcome the lapses of memory that can plague PIN systems involve various biometric measures. This involves a comparison of some aspect of the person with a digitised electronic record (which could be contained in an IC card) of that person's characteristics. Very reliable systems have been devised to compare fingerprints, palm prints or retina scans. However, systems using these techniques tend to provoke a strong emotional reaction which might significantly discourage card use, or prevent their introduction; no such system has ever been used for a mass use public application. An alternative approach is signature dynamics. This involves the comparison of the way a signature is written on a sensitive pad with records of previous signatures by the card-holder. The natural variation in signatures causes problems for this system. False rejections or acceptances run at about one to two percent, presumably concentrated

among some unlucky people with irregular, or easily copied, signatures (Dunkley, 1987). A further problem is that all biometric comparisons, including signature dynamics, require expensive readers (Beatson, 1986). In effect, any identification system is sensitive, and in order to be reliable the system must be intrusive and expensive. At present the PIN seems the most useful approach, but it must be carefully introduced and monitored, especially for any group that seems less likely to be able to cope with the number.

From the point of view of card-holders, IC cards are very similar to magnetic stripe cards. They are both opaque to the naked eye and both require use of a PIN, keyboard and screen. The Office of Technology Assistance (1988, Pages 6 and 7) has reviewed experience in New York state using Medic Aid eligibility verification cards, in Minnesota using automatic teller machines to issue cash for public assistance programmes and in Pennsylvania using magnetic stripe cards for food stamps. They concluded that these experiments have shown that card systems can work and be acceptable to the target population. "Recent pilot projects have demonstrated the technical feasibility and relatively high acceptance of electronic benefits systems". (Page 7.)

However, it is noticeable that in trials in particular there is commonly a special office to provide cards and to introduce card-holders to the mysteries of the use of cards. These offices are often staffed by relatively highly motivated people who are interested in the success of the experiment and these people may transmit their enthusiasm to new card-holders. For example, in the Secure Card experiment in Maryland a special office was established to service the needs of card-holders (interview with Bill Dillman, October 1989). This suggests that if new IC card applications are to be successful they depend on sufficient support for card-holders.

As well as the potential card-holders, it may also be necessary to encourage merchants, banks and service providers to participate. This group needs to be sure of a reasonable return on their investment. Any one business may be reluctant to take on the cost of developing the market for an IC card application, only to lose its market share when others begin to offer the card to an already educated population. In France the bank syndicate resolved this problem by using an area by area plan for the introduction of the IC card. There is an agreement that for each area after a given date no bank will guarantee payments made using an IC card which have not been processed on the merchant's card reader. This approach has assured each bank and merchant that there will be sufficient investment in each area to make the card viable, and therefore their own investment is worthwhile. (Bouley, 1987, page 5.)

INTAMIC (February 1989, Pages 118 - 124) have assembled notes on points that are necessary in order to achieve a successful trial, and some other thoughts on issues that should be addressed when implementing an ongoing system. From these notes it is possible to derive a series of points that should be kept in mind in order to encourage new card-holders in the use of cards and also to persuade retailers and other distributors to participate in an IC card system.

- There must be careful liaison between all groups. Before any application is underway, and from as early in the design of the system as is reasonably possible, there should be a committee set up representing all groups likely to be involved including banks, retailers, union groups and, if possible, consumer groups. Among other issues, this group should consider the means of transmitting information to future participants in the IC card system.

- All participants in the IC card system should be trained in its use. This is particularly important for retailers and bankers who will be at the front end dealing with customers in the future, but should also be extended to card-holders.
- There should be as many readers as possible in many different locations in order to make the IC card as convenient as possible to use.
- It is often advisable to start with a relatively simple application and later add other applications, rather than attempting to launch a multipurpose card among a population that is not familiar with the technology.
- The services offered by the card should be at least as good as those that were available under previous manual systems.
- The time between the installation of readers and network connections and the beginning of use of the system should be as short as possible so that those who need to make an investment in the system can get a return.
- There must be careful consideration of the distribution of the benefits of any IC card technology. If the card issuer attempts to capture all the gains from the new technology it is unlikely that other parties, either retailers or card-holders will be attracted to using the system.

Another issue to ensure the acceptability of cards is attention to the civil rights of participants. For example, in its description of the Carte Santal, Bull CP8 (1989b) explained that the authorities administering the system sought specific endorsement from the French National Commission on Data Processing and Civil Rights. This endorsement was forthcoming because the system met some basic tests. Use of the card in the system is voluntary. All participants in the system can have access to the data about them on the card by requesting the use of a reader, and data on the card will be changed at the request of the user if it is found to be incorrect. These rules, which are consistent with the recognised international privacy principles, seem to be a minimum set of protections for individuals. Without these protections it is likely that public opposition to an IC card system would drastically reduce its effectiveness.

Clearly the IC card offers substantial benefits to users, including flexibility and privacy.

"Since the user controls his smart card use, the user has direct control and protection of his private information. User controlled information is a significant achievement in this era of database accessibility," (Svigals, 1985, page 182).

However, the inherent mysteriousness and power of the card may be too threatening for many potential users. This might be especially so for many of those who would place most store on the privacy protecting powers that the IC card can offer.

Overall, it is apparent from the experience in several countries that IC card systems can be made acceptable to users, including those who are likely to be involved in redistribution systems. However, any new IC card system must be carefully planned and sensitively supported to ensure that all card-holders are happy to have a card and are comfortable with its use.

- The Economics of IC Card Systems

The economics of the IC card depend on the context of any particular application. There can be no definite general answer as to whether an investment in an IC card system is worthwhile. The attractiveness of the rate of return will depend on what other investments have already been made in communication or magnetic stripe technologies, and the risks that are being addressed by the adoption of an IC card. However, although there are no specific answers which can be immediately applied to assess the value of the IC card, there are several lessons which can be drawn from experience in the use and assessment of IC card systems.

The first important lesson is that any assessment of IC cards must look at the whole system, not just the cards. Focusing first on the hardware, the assessment should also take account of the costs of readers, the network systems and the use of the host computer.

A critical issue in evaluating the card itself is the life expectancy of each card. Because the contacts on the IC card are more robust than a magnetic stripe it is possible for an IC card to survive longer in the hurly-burly of the user's pocket. However, if a small capacity card is used, it might be quickly filled with the transactions that the user undertakes and therefore extra issues could be required.

The cost of readers is steadily dropping, and because of the intrinsic simplicity of a static contact with the card compared with the need to read along a magnetic stripe, combined with the need to build extra security into a magnetic stripe reader, it is likely that in the future IC card readers will be substantially cheaper than magnetic stripe readers and GEC claim their contactless readers are even cheaper (GEC, 1986, page 5). At present IC card readers are often quoted at prices above those for magnetic stripe readers. This is probably because of a combination of relatively small runs for IC readers and the need to incorporate dual magnetic stripe/IC capability into IC readers. Malecki (1987, page 21) suggests that for planning purposes it is reasonable to think of a magnetic stripe reader costing hundreds of pounds, and a comparable IC reader costing tens of pounds.

In terms of the host computer, it is possible that an IC card system might use less host computer capacity because it is possible to plan for fewer on line transactions. However, the cards themselves are generally quoted at prices starting about five times more than magnetic striped cards.

As well as the hardware costs it is also important to take account of administration systems, including the cost of training staff and card-holders in the new technology. It is likely that administration costs will be increased in the short term as the foreign technology is introduced, but the ability to reduce the number of manual authorisations and to facilitate billing systems may reduce administration costs in the long term.

There are a series of benefits that may be achieved using IC card systems. As well as possible operating efficiencies there is also likely to be a reduction in fraud costs or other gains from increased security. In addition, the sophistication of the card allows marketing advantages to be gained by combining uses of the card and by offering carefully tailored discounts which recognise use of the card. A further potential gain is the possible financial float which may accrue to one or other participant in the system, depending on the method by which payments are settled up.

A summary of some of the major economic issues involved in IC cards and their application for financial purposes has been brought together by INTAMIC (August 1987). They report (pages 12-20) that Mastercard have prepared an analysis of the likely increases and decreases in costs from different factors in integrated circuitry or magnetic stripe systems. In terms of the card itself Mastercard anticipates an increased cost of cards, increased personalisation costs (as each card is embossed and encoded for each individual account) and start-up costs in altering/issuing equipment and marketing the new product. On the other hand, given the ability to electronically adjust the contents of the card, they anticipate that postage and other card administration procedures may be reduced. At the terminal, Mastercard expects extra costs as more complex applications are devised and merchants need to be issued with cards in order to establish their position in the network as bona fide operators of the card readers. In addition there will be start-up costs of installing the new systems and producing operating guides.

In terms of the operations of the new system, any electronic system, whether using IC cards or magnetic striped cards, can reduce paper forms, and warning bulletins about fraudulent behaviour, and can also reduce the number of errors in statements. In addition, because of the reduction in the number of on-line authorisations there can be a reduced communication cost and a smaller number of staff and hardware at the authorisation centre. Because of the ability to adjust the authorisation limits on cards, and even to lock cards if necessary, Mastercard expects that the costs of reviewing each transaction, collections for bad debt, and even recovering old cards can all be reduced. Depending on the magnitude and nature of the problems before the system is introduced, there can be substantial savings through reducing counterfeiting, reducing stolen card fraud and also reducing merchant fraud. In addition the ability to manage credit limits can significantly reduce credit losses. All of these gains can only be achieved after a significant investment in system modifications.

Some of the gains that Mastercard identified include the ability to offer cards to a wider proportion of the population. The ability to manage credit allows cards to be offered to more marginal customers which generates a higher turnover. The reduced number of on line transactions can lead to lower operating costs and can therefore make the use of IC cards attractive to merchants with a lower turnover, and so increase the total number of transactions on the system. This ability to extend cards to more merchants and more card-holders combines to lead to a substantial potential for greater numbers of transactions and revenue. When the card is then combined with multi-functional capabilities to increase its attractiveness to card-holders and so increase their likelihood of offering the card, the number of transactions can be expected to increase even further.

As with almost all other new investments, this Mastercard analysis suggests that there are likely to be many gains from the use of IC cards but a substantial investment can be called for and some increased operating costs. In order to estimate the likely outcome of these different factors Visa joined with some other banking groups to construct scenarios for the use of IC cards. INTAMIC (August 1987, page 28) reports that the Visa Group found three critical variables that significantly affected the results. These variables were:

- the degree of market penetration of IC card reading devices;

- the degree of penetration of IC card reading devices into those parts of the market that have a high risk of fraudulent transactions;
- the operating life of each IC card.

In order to significantly reduce fraud losses the Visa Group considered that card readers had to be available in almost all attractive outlets because criminals can quickly learn to avoid using the secure outlet and will instead shift their attentions to other areas of the market. The Visa Group's overall conclusion was that IC cards could not at that time break even solely on the gains made from reducing fraud. It was felt that the ability to produce multi-function cards, and so increase turnover, was the factor which could permit IC card systems to break even. (INTAMIC, August 1987, page 28.)

By contrast, the Bergin Bank in Norway has produced a comparison with magnetic stripe card system costs and an IC card system cost using off line operation. Both the scenarios envisage one million cards with 200 million transactions per year with 10,000 participating merchants. The annual cost of the IC card system was estimated at US\$24.2 million per year compared US\$30.3 million per year for the magnetic stripe system (Lindmo, 1987, Page 26). This result was arrived at even when the IC card was assumed to have only a one year capacity but the magnetic stripe was considered to have a two year life. Given these assumptions, the IC cards cost around three times the annual cost for magnetic stripe cards, and the cost for terminals was roughly similar. However the central processing costs for IC cards was about 25 percent less than that for a magnetic stripe system, and the telecommunication costs for an off line IC card system was only one-fifth of that of the magnetic stripe system. This analysis took no account of the expected gains from reductions in fraud or expanded turnover in an IC card system. However, in Germany, partly because users of leased telecom lines do not pay on a per transaction basis, each transaction was estimated in 1987 to cost 10.7 pfennings using a magnetic stripe card, and 18.7 pfennings with an IC card (Dierkes 1987, page 35).

These different conclusions demonstrate that the viability of an IC card operation cannot be assumed, but must be established through careful analysis of the particular application. To assist in establishing the sensitivity of some parameters, INTAMIC (August 1987) have published comparisons of the likely relative costs of different numbers and types of cards. INTAMIC estimate that 10 million cards will cost 20 percent more per card than 100 million cards of the same type. When comparing different types and capacities INTAMIC (August 1987, pages 29-30) suggest the following relativities:

Card Capacity	Cost Index
EPROM 8K	100
EPROM 16K	125
EPROM 64K	200
EEPROM 16K	260
EEPROM 32K	350

Although these comparisons of card costs can be helpful, INTAMIC emphasise that the environment is likely to be the most important determinant of the economic viability of an IC card proposal. This involves issues such as whether the telephone network is reliable or expensive, whether the market is likely to be a high turnover market, and whether the particular card application is one in which international standards have been clarified so

that the risk of an investment becoming obsolete by decisions taken overseas can be reduced. INTAMIC (August 1987, page 36) suggest that where there are very high telephone costs, or a poor telephone network, or where there is a high incidence of bankcard-related fraud, then an IC card system is likely to be relatively attractive. However, where there is already a substantial investment in magnetic stripes and where the telephone network is reliable and cheap, and where fraud is not a major problem, then probably the magnetic stripe system will continue to be more attractive. Malecki (1987 page 31) considers that the IC card is clearly superior for remote transactions with large sums. However, for public access small transaction applications the cost advantage of cheaper terminals and communications, combined with improved security, must be weighed in each case against the existing investment in magnetic stripe technology. Lindmo (1987, page 27) points out that the sunk cost in magnetic stripe systems may be overrated. When considering a mass introduction of IC cards one is often contemplating replacing a few hundred or thousand existing ATM and EFTPOS terminals with many thousands of IC readers, and the potential loss from staying with the magnetic stripe machinery dominates any write off of existing investments.

When it comes to considering the economics of different technologies for social service systems, there is less experience to call on. However, the US Office of Technology Assistance (1988, Page 7) suggests that pilots using magnetic stripe technology had not yet demonstrated the cost effectiveness of electronic systems for governments. Some systems that are underway have relied on sharing computer time with existing systems in order to reduce costs. Here, as with financial card applications, the economic attractiveness of an application will depend on what service is being delivered and what the circumstances are surrounding the decision.

Overall it seems that IC cards cannot yet be assumed to be an economically superior option. It is significant that Bull are still reporting losses for every year of IC card sales (Bull CP8, 1989, page 32). I gather that losses are also being made by other manufacturers (interview with John Tunstall, October 1989). However, as more applications are developed the global strength of the IC industry can be expected to improve, and IC cards are likely to become increasingly more attractive in an increasing range of applications.

Conclusion

This paper is not designed to make any case for or against integrated card systems for redistribution, but to outline the present state of development and use of these cards. From the examples and descriptions above it is clear that it would be technically possible to use the IC cards in a variety of ways in a redistribution network. For example, it would be possible to:

- send sensitive income data from a tax or other office to Social Welfare offices to confirm eligibility for assistance (assuming the tax office already holds such data);
- send information to a card presented at a reader located in the office of a social service provider in order to confirm eligibility for assistance, without the provider knowing any details of the information;
- securely record income data on an IC card so that an applicant could produce the card to establish eligibility. Again, the provider of the service need not know any detail of the income data;

- use IC cards to establish the identity of users of services so that a host computer could establish costs and assign them either to the user or to the state, depending on the income of the user and the rate of expenditure on qualifying social services;
- control access to sensitive personal databases on Government computers in order to protect confidentiality;
- issue specific purpose-based cash assistance (such as the accommodation benefit or child-care assistance) as a prepaid electronic token on an IC card which could be redeemed at a service provider;
- all the above services could be on a separate system or could be incorporated in secure space on a private bank administered card system. The bank would have no means of reading the data either on the card or as it is transmitted between the card and the Government's host computers.

None of these applications are science fiction. All could be carried out now with existing technology and in some form or other are being used in some part of the world. To establish whether an IC card system ought to be used we must review the goals of redistribution and identify the information flows that are needed. The desirable degree of security and the likely extent of the risks need to be established. From these points it is possible to define the appropriate information system, and it is then possible to assess the different technologies which might be used to see which should be most preferred.

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LIST OF INTERVIEWS

Adams, Sandy Principal, Methods of Payment Policy Department of Social Security, UK	Date: 15-Dec-1989
Adeane, Peter Assistant Secretary, Methods of Payment Policy Department of Social Security, UK	Date: 15-Dec-1989
Angus, Felicity Senior Executive Officer, Work Measurement NZ Department of Social Welfare	Date: 2-May-1989
Angus, Felicity	Date: 9-May-1989
Angus, Felicity	Date: 14-Jun-1989
Askew, Mike Project Manager, EDP Development NZ Department of Social Welfare	Date: 11-Apr-1989
Aspas, Jon-Olaf Head of Division Ministry of Health and Social Affairs, Norway	Date: 21-Nov-1989
Atrostic, B K Analyst, Office of Tax Analysis The Treasury (USA)	Date: 23-Oct-1989
Bethell, Gerry Director, Information Management Practices Treasury Board Canada	Date: 27-Oct-1989
Birnie, Dianne Executive Officer, Work Measurement NZ Department of Social Welfare	Date: 1-Jun-1990
Bosch, Frank Director of Policy and Research NZ Inland Revenue Department	Date: 15-Mar-1989
Bosch, Frank	Date: 5-Apr-1989
Bovenberg, Lans Senior Economist, Tax Policy Division International Monetary Fund	Date: 25-Oct-1989
Bowdler, John Deputy Secretary, Department of Social Security, Australia	Date: 22-Nov-1989
Brier, Dan Assistant Director, Welfare, Human Resources Division Government Accounting Office (USA)	Date: 25-Oct-1989
Briet, Raoul Chef du Service des Affaires Sociales Commissariat General du Plan, France	Date: 22-Nov-1989

Busing, Norm Senior Executive Officer Benefits, Wellington NZ Department of Social Welfare	Date: 24-Jul-1989
Busing, Norm	Date: 23-Aug-1989
Carran, Colin Managing Director Microcard Technology (NZ)	Date: 16-Jun-1988
Carter, Robert Chief Executive Housing Corporation of New Zealand	Date: 4-Apr-1989
Clotuche, Gabrielle Directeur General Ministere, Prevoyance Sociale, Belgium	Date: 21-Nov-1989
Cobham, Alan Executive Officer, Benefits, Wellington NZ Department of Social Welfare	Date: 23-Aug-1989
Cooper, Beverly Chief, Internal Control and Security Branch Social Security Administration (USA)	Date: 24-Oct-1989
Cortens, Peter Manager, Systems and Special Products Avery New Zealand Ltd	Date: 8-Feb-1990
Cossar, David Assistant Director, Benefits, Wellington NZ Department of Social Welfare	Date: 21-Jul-1989
Cox, Geoff Manager, Loans, Porirua Branch Housing Corporation of New Zealand	Date: 31-Jul-1989
Delisle, Julien Investigator Office of the Privacy Commissioner, Canada	Date: 26-Oct-1989
Dence, Gareth Chief, Programme Quality Branch Social Security Administration (USA)	Date: 24-Oct-1989
Dillman, Don Chief, Technology Assessment Branch Social Security Administration (USA)	Date: 24-Oct-1989
Donnelly, Vida Higher Executive Officer, Benefits Policy Department of Social Security, UK	Date: 14-Dec-1989
Doolan, Cathy Chief, Security Programs, Income Security Department of Health and Welfare, Canada	Date: 27-Oct-1989

du Chene, Arnaud Smart Cards Strategy Manager Schlumberger Smart Cards and Systems, Paris	Date: 21-Sep-1989
Farrell, Bill Fiscal Management Analyst, Securecard Experiment Social Security Administration (USA)	Date: 24-Oct-1989
Fortier, Pierre Director-General, Income Security Department of Health and Welfare, Canada	Date: 27-Oct-1989
Gassman, Hans Head of Information, Computer and Communication Policy Division OECD	Date: 21-Sep-1989
Gillion, Colin Head of Social Affairs and Industrial Relations Division OECD	Date: 22-Sep-1989
Glass, Norman Chief Economic Advisor Department of Social Security (UK)	Date: 27-Sep-1989
Grace, John Privacy Commissioner Office of the Privacy Commissioner, Canada	Date: 26-Oct-1989
Grant, John Chief Executive NZ Department of Social Welfare	Date: 31-Mar-1989
Grey, George Director of EDP NZ Inland Revenue Department	Date: 5-May-1989
Grey, Neil Assistant Director, Rental, Policy Division Housing Corporation of New Zealand	Date: 14-Aug-1989
Groombridge, Jeremy Principal, Benefits Policy Department of Social Security, UK	Date: 14-Dec-1989
Guignerie, Giles Director, Access to Information and Privacy Division Revenue Canada	Date: 26-Oct-1989
Hall, Michael Senior Lecturer Exeter Care Card Project	Date: 10-Nov-1989
Halter, Richard Audit Manager, Philadelphia Office Government Accounting Office (USA)	Date: 25-Oct-1989

Hodgins, Ross Project Officer, Information Management Treasury Board Canada	Date:	27-Oct-1989
Holland, Graham Consultant, Tax Administration Division International Monetary Fund	Date:	25-Oct-1989
Hopkins, Robin Research Fellow Exeter Care Card Project	Date:	10-Nov-1989
Hostsetter, Fred Director, Statistical Services Division Revenue Canada	Date:	26-Oct-1989
Hughes, Peter Director of Operations NZ Department of Social Welfare	Date:	7-Apr-1989
Hughes, Peter	Date:	27-Apr-1989
Hughes, Peter	Date:	9-Feb-1990
Hughes, Peter	Date:	27-Apr-1990
Hughes, Peter	Date:	30-May-1990
Hunt, Steve Assistant Director, Lending, Policy Division Housing Corporation of New Zealand	Date:	11-Aug-1989
Hutton, John Evaluator-in Charge, Referral Offset Studies, Tax and Admin Div Government Accounting Office (USA)	Date:	25-Oct-1989
Jones, Ron Assistant Manager, Debtor Master File Internal Revenue Service (USA)	Date:	23-Oct-1989
King, Jerome Manager, Rentals, Porirua Branch Housing Corporation of New Zealand	Date:	31-Jul-1989
Lefbom, Bill Chairman, Taxpayer Compliance Measurement Committee, Research Div Internal Revenue Service (USA)	Date:	23-Oct-1989
Lerman, Alan Assistant Director, Office of Tax Analysis The Treasury (USA)	Date:	23-Oct-1989
Marshall, Stuart Advisory Officer, Information Centre Housing Corporation of New Zealand	Date:	18-Jun-1990
Mason, Kenneth Chairman, Common Number Working Party Retired Judge	Date:	15-Feb-1990

Mathews, Barry Principal, Methods of Payment Policy Department of Social Security, UK	Date: 15-Dec-1989
McCann, John Chief, Appeals, Income Security Department of Health and Welfare, Canada	Date: 27-Oct-1989
McKee, Bill Senior Economic Advisor Inland Revenue Department, UK	Date: 28-Nov-1989
Morrison, Vivienne Acting Director, Policy and Research NZ Inland Revenue Department	Date: 23-Aug-1989
Murphy, Trevor Director, Benefits Control Branch Department of Social Security, Australia	Date: 6-Jun-1990
Nahkies, Graeme Assistant Director General, Policy Housing Corporation of New Zealand	Date: 11-Apr-1989
Onishi, Takao Director, International Affairs Division Ministry of Health and Welfare, Japan	Date: 21-Nov-1989
Owens, Jeffrey Head of Fiscal Affairs Division OECD	Date: 22-Sep-1989
Patchel, Bryre Manager, Revenue Assessment NZ Inland Revenue Department	Date: 11-Jun-1990
Pierik, Jan Directorate of Social Security, Social Affairs and Employment Ministry, Netherlands	Date: 20-Nov-1989
Preston, David Assistant Director General, Benefit Policy NZ Department of Social Welfare	Date: 31-Mar-1989
Richardson, Charles Senior Executive Officer, Methods of Payment Policy Department of Social Security, UK	Date: 15-Dec-1989
Roberts, John Higher Executive Officer, Contributions Policy Department of Social Security, UK	Date: 15-Dec-1989
Robertson, John Director-General, Compliance Research and Investigation Revenue Canada	Date: 26-Oct-1989
Robson, Mark Economic Advisor Inland Revenue Department, UK	Date: 28-Nov-1989

Rosenberg, Peter Ministerialdirigent Bundesministerium Arbeit und Sozialordnung, F.R.G.	Date: 20-Nov-1989
Rouhaud, Pierre International Sales Manager Schlumberger Smart Cards and Systems, Paris	Date: 20-Sep-1989
Salagi, John Project Analyst, Matching, Research Division Internal Revenue Service (USA)	Date: 23-Oct-1989
Scott, Cathy Research Officer, Policy Division Housing Corporation of New Zealand	Date: 17-Apr-1989
Searle, Bob Senior Analyst, Statistical Services Revenue Canada	Date: 26-Oct-1989
Sharp, Kevin Analyst, Research Division Internal Revenue Service (USA)	Date: 23-Oct-1989
Shipley, Jenny Spokesperson on Social Welfare NZ National Party, MP for Ashburton	Date: 20-Jun-1990
Smee, Clive Chief Economic Advisor Department of Health (UK)	Date: 19-Sep-1989
Smith, Wayne Section Head, Benefits Enforcement Department of Social Security, Australia	Date: 6-Jun-1990
Stephenson, David Director of International Sales Bull CP8, Paris	Date: 20-Sep-1989
Stevenson, Jon Senior Property Consultant, Porirua Branch Housing Corporation of New Zealand	Date: 31-Jul-1989
Tame, Jan Senior Executive Officer, Compliance NZ Department of Social Welfare	Date: 22-Jun-1989
Thomas, Russell Consultant, Marketing Bull CP8 (UK)	Date: 18-Sep-1989
Tunstall, John Secretary-General INTAMIC	Date: 19-Oct-1989

Upton, Simon Associate Spokesperson on Finance (Social Policy) NZ National Party, MP for Raglan	Date:	12-Jun-1990
Urry, Bill Higher Executive Officer, Contributions Policy Department of Social Security, UK	Date:	15-Dec-1989
Vallance, Pat Director of Research Databank Systems, NZ	Date:	24-Feb-1989
Vallance, Pat Manager, Group Information Systems Westpac, NZ	Date:	11-Jun-1990
Van Berkel, Gerry General Counsel Office of the Privacy Commissioner, Canada	Date:	26-Oct-1989
Van Palanen, Anna Executive Officer, Benefits, Wellington NZ Department of Social Welfare	Date:	23-Aug-1989
Weise, Monica Chief, Special Taxation Statistics Revenue Canada	Date:	26-Oct-1989
Whalen, Christine Senior Executive Officer, Work Measurement NZ Inland Revenue Department	Date:	3-May-1989
Whalen, Christine	Date:	11-May-1989
Wilson, Oliver Program Analyst, Research Division Internal Revenue Service (USA)	Date:	23-Oct-1989
Wylomanski, Didier Product Manager Schlumberger Smart Cards and Systems, Paris	Date:	20-Sep-1989

LIST OF FORMS

IRD Family Support Application: for 1 April 1989 - 31 March 1990	Number:	FS 1 90
IRD Family Support Declaration: for the year ended 31 March 1989	Number:	FS 2 89
IRD Income Tax Return: 1 April 1988 - 31 March 1989: Salary and Wages	Number:	IR 5 89
IRD Income Tax Return: 1 April 1988 - 31 March 1989: Business etc	Number:	IR 3 89
IRD Schedule of Rental Income and Expenditure	Number:	IR 3R 88
IRD Supplementary Business or Professional Return of Income	Number:	IR 3B 88
IRD PAYE Tax Deduction Certificate: 1 April 1989 - 31 March 1990	Number:	IR 12
IRD Withholding Payments Tax Deduction Certificate	Number:	IR 13
DSW Notice to Establish Social Security Master Record	Number:	SW 310
DSW Change of Address (Wellington Office Form)	Number:	(NA)
DSW Employment Verification Form for Sickness Benefit	Number:	SB 10
DSW Application for Domestic Purposes Benefit	Number:	DPB 1
DSW Verification of Birth Entry	Number:	SW 2A
DSW Verification of Marriage	Number:	SW 2B
DSW Verification of Death	Number:	SW 2C
DSW Particulars of Account	Number:	SW 5
DSW Certificate of Earnings	Number:	SW 8
DSW Verification of Stock, Shares and Debentures	Number:	SW 8B
DSW Verification of Rent	Number:	SW 8C
DSW Certificate of Disposal of Application	Number:	DPB/IB/WB 2

DSW Verification of Superannuation	Number:	SW 8C
DSW Verification of Mortgage	Number:	SW 9
DSW Confidential Declaration	Number:	WB 7
DSW Application for Renewal	Number:	SW 7
DSW Notice to Pay a Default-Assessed Contribution Towards a DPB	Number:	LPC 1B
DSW Statement of Income and Property	Number:	SW 4
DSW Application for Orphan's Benefit	Number:	OB 1
DSW Statement of Adult Dependent	Number:	LPC 5
DSW Application for Special Benefit	Number:	SW 236
DSW Application for Special Benefit (Wellington Office Form)	Number:	(NA)
DSW Application for Accommodation Benefit	Number:	SW 228
DSW Application for Childcare Subsidy	Number:	SW 647
DSW Notice of Authority for Payment to a Bank Account	Number:	SW 96
DSW Certificate of Earnings - Childcare Subsidy	Number:	SW 652
DSW Rest Home Subsidy Application	Number:	SW 491
DSW Application for Immediate Payment	Number:	SW 456
DSW Application for Increased Payment While in Hospital	Number:	SW 47
DSW Application/Renewal for Home Help	Number:	SW 464
DSW Application for National Superannuation	Number:	NS 1
DSW Return to New Zealand (Wellington Office Form)	Number:	(NA)

DSW	Number:	FB 1
Application for Family Benefit/Increase in Family Benefit		
DSW	Number:	FB 47a
Application for Payment of Family Benefit in Advance		
DSW	Number:	SW 81
Statement [of circumstances for various benefits]		
DSW	Number:	UB 1
Application for Unemployment Benefit		
DSW	Number:	SB 1
Application for Sickness Benefit		
DSW	Number:	UB 5
Verification of Employment		
DSW	Number:	SU 110
Application for Continuation of ... (for short term benefits)		
DSW	Number:	SU 111
Medical Certificate Renewal		
DSW	Number:	(NA)
Notification of Return to Work (Wellington Office Form		
HCNZ	Number:	J 1/25
Certificate of Earnings		
HCNZ	Number:	(NA)
Vetting Form (For loan applicants - Porirua Office)		
HCNZ	Number:	(NA)
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HCNZ	Number:	(NA)
Home Loan Certificate		
HCNZ	Number:	(NA)
Home Loan Certificate - House Proposition		
HCNZ	Number:	(NA)
Application For Home Loan Certificate		
HCNZ	Number:	(NA)
Application For Interest Relief		
HCNZ	Number:	J 1/32
Application For Home Improvement Finance		
HCNZ	Number:	J 1/7
Application For Refinance		
HCNZ	Number:	H 1/1
Application for Rental Accommodation		

HCNZ Rental Points Assessment Summary Sheet (Porirua Office)	Number:	(NA)
HCNZ Declaration By Applicant for Corporation Assistance	Number:	H 1/2
HCNZ Application for Rent Rebate	Number:	H 7/2