Household incomes in New Zealand

The impact of the market, taxes and government spending, 1987/88–1997/98

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Abstract

How well have New Zealand households fared over a decade of extensive economic and social changes? This study compares household incomes in 1997/98 with household incomes in 1987/88, using the concept of "final income". Final income is a measure of the income accruing to households after adjusting for payments to, and benefits from, central government, whether these benefits are in cash or in kind. In particular, receipt of government health and education services is counted as adding to a household's income, and payment of consumption taxes is counted as taking away from a household's income. In all income deciles, the real final incomes of households were, on average, at least the same in 1997/98 as they were in 1987/88, and in most cases had increased. Government intervention, through taxes, cash benefits and social services, has maintained the incomes of less well-off households over a period of upheaval in New Zealand.

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1 Introduction

This study compares household incomes in 1997/98 with household incomes in 1987/88: two years separated by a decade of extensive economic and social changes. What distinguishes it from other New Zealand studies is the estimation of "final incomes". A household's final income is its income from wages, salaries, investments and self-employment, plus the government benefits it receives either in cash or in kind, and minus the income and consumption taxes it pays. The main source of data for the study is Statistics New Zealand's Household Economic Survey (HES).

Three main results are reported. Principally, the paper reports the amount of final income that different types of households received in 1997/98 compared to the amount these types of households received a decade earlier. In the body of the paper, household incomes are reported by decile of population, that is, for the least well-off 10% of the population (decile 1), the next most well-off 10% (decile 2), and so on up to decile 10. In addition, Appendix 2 reports household incomes in 1987/88 and 1997/98 by categories of households defined by composition and stage of the life-cycle.

Secondly, the paper reports the redistribution of income across different types of households. Redistribution occurs because some types of households pay more tax in a year than they receive in government benefits, while other households receive more in benefits than they pay in tax. Again, this effect is reported by deciles of income in the body of the paper and by household categories in Appendix 2. Finally, the paper looks at how the relative incomes of different deciles have changed between 1987/88 and 1997/98. Other studies have shown that household incomes in New Zealand became more unequally distributed over the 1980s and 1990s. This study considers whether, and to what extent, this has occurred when household income is defined using final income.

The paper is set out as follows. Section 2 contains a discussion of the measure of income used in the study; a summary of the economic, demographic and social policy changes over the 1980s and 1990s; and a discussion of other New Zealand studies of household incomes. The method by which the study was conducted follows in Section 3. The results of the study are presented in Section 4 and there is a discussion in Section 5.

2   Background

2.1   Measuring incomes

This section defines what is meant by "final household incomes". Firstly, this is a study of *household* incomes. A household is either a person living alone or a group of people who share a dwelling and have some sort of communal living arrangement. They need not be related to each other. Other New Zealand studies have looked at changes in individual incomes (Dixon 1998) and family incomes (Martin 2000).

This is also a study of *final* incomes. "Income" admits of a number of definitions. "Market income" is the income that households receive from wages and salaries, from investments and from people running their own businesses as sole traders or partnerships. "Gross income" is the income that households receive from all sources, namely their market income plus any cash benefits they receive from the government in the form of social welfare benefits or New Zealand Superannuation. "Disposable income" is what households actually receive in their hands to spend on goods and services, namely their gross income minus income tax.

Households also receive government-funded health and education services, which means that they do not have to pay for these out of their own pockets. Receipt of these services can therefore be considered a form of income—indirect government benefits, to be counted alongside the direct cash benefits they receive. Similarly, as well as paying income tax, households also pay consumption taxes when they spend money on goods and services. We can therefore define a household's "final income" as its market income plus benefits from government social expenditure (whether these benefits are in cash or in kind) and minus income and consumption taxes.

Final income and its components—market income, taxes and government benefits—are reported in this study in actual dollar amounts, rather than being "equivalised" to take account of differences in the demands on households' resources. This issue of equivalence is discussed in Section 3.8.

2.2   Economic, demographic and government policy changes

This section summarises the key economic, demographic and government policy changes in the period covered by the study (defined most widely as the period from April 1986 to March 1998)[1]. It provides a context for looking at the results of the study, but does not in itself explain why certain changes have occurred.

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[1] Interviews for the 1987/88 and 1997/98 HES surveys were conducted between 1 April and 31 March. Respondents were asked about their income over the previous 12 months so each study in fact collected information on incomes over a two-year period. For example, the first respondent in the 1987/88 study provided information from 1 April 1986 to 1 April 1987 and the last respondent provided information from 31 March 1987 to 31 March 1988 (or thereabouts).

The period of the study includes a significant portion of the decade of reform which began in New Zealand in 1984.[2] From the outset, government involvement in supporting and protecting local industries was reduced markedly. Together with other reforms, this opened the New Zealand economy to international competition. In the ensuing period of adjustment, many workers lost their jobs, particularly in the manufacturing sector. Jobs were also lost in a programme of corporatisation and privatisation of state assets. Unemployment reached a peak of 11% in 1991 and in 1998 was still higher than it was 12 years earlier. Participation in the labour force (being either employed or unemployed) was about the same in 1986 and 1998, although the overall participation rate disguises a rise in women's participation and a corresponding fall in men's participation. In 1998, a greater proportion of the population were employed in "white-collar" professional, technical, administrative and managerial occupations than a decade earlier and a lesser proportion were "blue-collar" workers in the primary and manufacturing industries.

The New Zealand economy stagnated in the late 1980s and early 1990s. As Figure 1 shows, real GDP per capita showed little or no growth, and in fact declined for a period, before picking up strongly again in 1993.

Figure 1 – Real GDP per capita, seasonally adjusted by quarter, 1986 to 1998
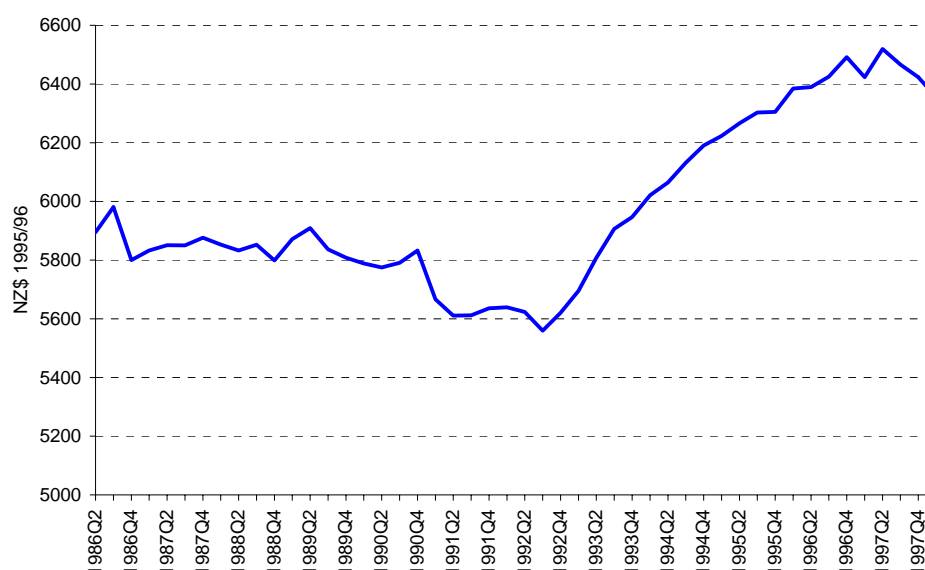
Source: Treasury series, using data from Statistics New Zealand.

Fiscal policy from 1984 until the early 1990s was directed at reducing large budget deficits. In 1993/94 a budget surplus was achieved, and has been maintained ever since. Tax reforms included the introduction of a comprehensive and uniform Goods and Services Tax (GST) in October 1986, and a reduction in the top personal income tax rate. Further income tax cuts occurred in 1997 and 1998. On the expenditure side, the National Government introduced spending cuts in 1991 which included reductions in social welfare benefits. The age at which people became eligible for Superannuation was raised from 60 to 65, and this change was gradually phased in between 1992 and 2001. Over the whole period, however, government social spending, and in particular health and education spending, increased as a proportion of total government spending and increased as a proportion of GDP. At the same time, explicit policy decisions were made to target some

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[2] Evans, Grimes, Wilkinson and Teece (1996), Silverstone, Bollard and Lattimore (1996), and Dalziel and Lattimore (2001) describe these reforms, and the performance of the New Zealand economy over this period.

areas of social spending at lower-income families, with relatively well-off individuals or families contributing more out of their own pockets.

Over the 1980s and 1990s the population became slightly older, with the proportion of New Zealanders aged 65 and over increasing from 10.4% in 1986 to 11.6% in 1998 (Statistics New Zealand 2001a). The birth rate and fertility rate grew as part of the "baby blip" at the turn of the decade, but by 1998 had fallen to significantly below what it was in 1986. There was also an increase in the proportion of families headed by only one parent,[3] and an increase in the proportion of households constituted by single people living alone or by couples without children. As a result, the average household size fell from 2.8 people as measured in the 1987/88 HES to 2.7 people as measured in the 1997/98 HES.

Figure 2 shows the changes in real government expenditure per household between 1987/88 and 1997/98. Government social spending per household, particularly in the health and education sectors, increased over this period, while debt servicing and other spending per household fell.

Figure 2 – Government expenditure per household by purpose, 1987/88 and 1997/98
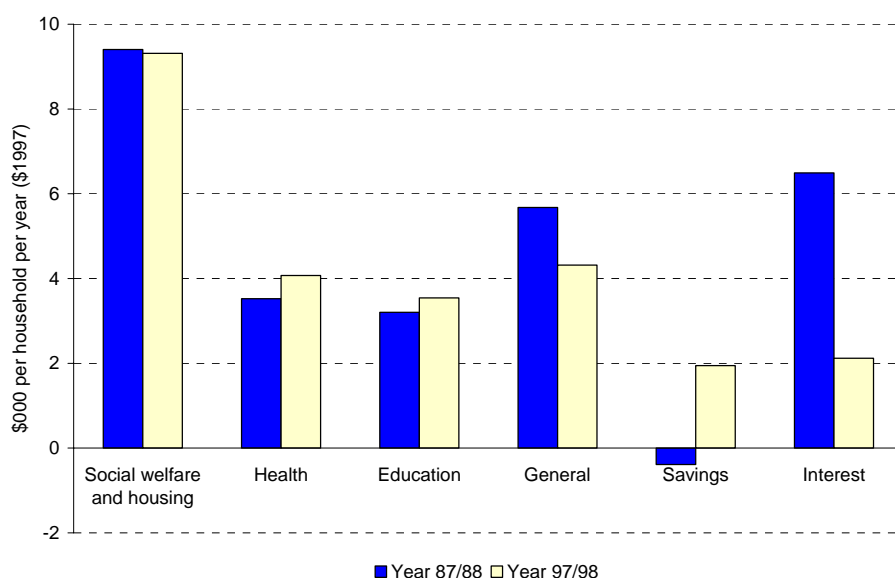
Source: Statistics New Zealand NZSNA, Crown Accounts Analysis, Tables 1 and 6. Expenditures are allocated to private households in proportion to the percentage of the population in private households.

2.3   Previous New Zealand studies

Studies of final household incomes, similar to this one, are regularly undertaken in some other countries including the United Kingdom (Lakin 2004), Australia (Australian Bureau of Statistics 2001) and the United States (DeNavas-Walt, Cleveland and Webster 2003). In contrast, there have been relatively few studies of final household incomes in New Zealand. The last were those undertaken by the Department of Statistics (1990), by the Income Distribution Group (1988) and by Brashares (1990), each studying the 1987/88 year. These three studies used a wide definition of final income, apportioning *all*

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[3] This trend is apparent in the analysis of households shown in Appendix Tables 2 and 3, but is less obvious there because about one in every three one-parent families lives in a household with other people and will therefore be included in the category of "other family types" (Statistics New Zealand 1998a).

government revenue and expenditure to households (see Section 3.5). Earlier in the 1980s, Snively (1986, 1988) pioneered the study of final household incomes in New Zealand.

No studies of final household incomes in New Zealand have been undertaken over the late 1980s and throughout the 1990s. Household income studies over this period have used one or more of the other definitions of income (see Section 2.1). The most extensive household-based studies have been conducted by Statistics New Zealand (1999), covering the period 1981/82 to 1995/96, and by Mowbray (2001), covering the period 1981/82 to 1997/98. Both studies use data from the HES and report changes in households' market income, gross income, disposable income and equivalent disposable income. They find that the average household income, however defined, fell from the early 1980s to reach a low point in the early 1990s, and then recovered throughout the rest of the 1990s (Figure 3). Whichever definition is used, Mowbray finds that the average household income rose between 1987/88 and 1997/98—the period which the current study covers.

Figure 3 – Average household income, by different definitions of income, 1981/82 to 1997/98
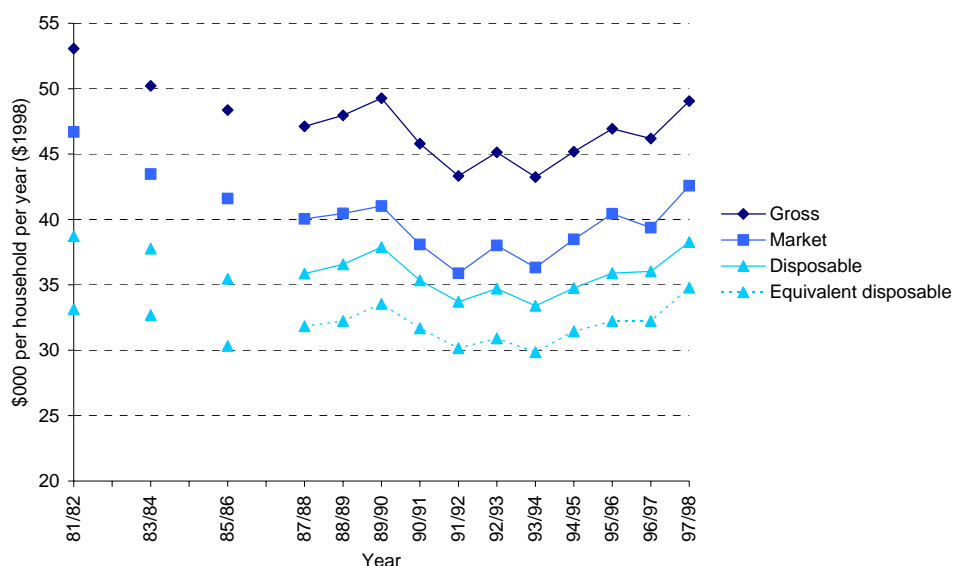
Source: Mowbray (2001), Tables A5 and A10.

The trends shown in Figure 3, however, disguise considerable changes in the distribution of income. Statistics New Zealand (1999) and Mowbray (2001) find that incomes, however defined, fell in most deciles between 1982 and the late 1990s. The notable exception was in decile 10, where incomes increased markedly (Figure 4). Mowbray finds that the average income in deciles 1, 8, 9 and 10 was higher in 1997/98 than it was in 1987/88.

Figure 4 – Average equivalent disposable income, by income decile, 1981/82 to 1997/98
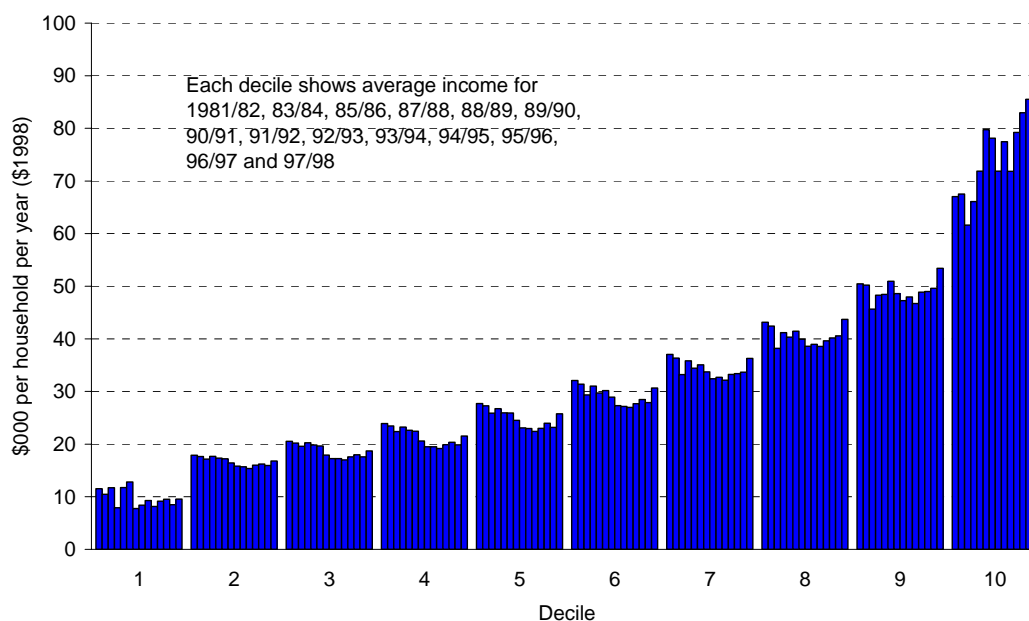
Source: Mowbray (2001), Table A10.

Statistics New Zealand (1999) measures changes in the relative income levels of different deciles using Gini coefficients.[4] The Gini coefficient for equivalent disposable income and for market income increased markedly between 1985/86 and 1990/91, but not during other time periods. The late 1980s and early 1990s therefore appears to have been a time of increasing income inequality in New Zealand.

Two recent New Zealand studies have attempted to explain changes in the distribution of household income over the 1980s and 1990s, using data from the HES. Podder and Chatterjee (2002) look at equivalised gross household income between 1983/84 and 1995/96 by decomposing changes in the Gini coefficient. They show that a change in the distribution of earned income was the main contributor to increased income inequality over this period. Podder and Chatterjee consider that high unemployment, nominal interest rate rises, the introduction of GST and cuts in welfare benefits may have contributed to rising income inequality. Hyslop and Maré (2001) look at changes in gross household income between 1982/83 and 1997/98. They find that changes in the proportions of different household types account for between 10% and one-third of the increase in income inequality over this period, depending on the specific measure of inequality used. Changing socio-demographic attributes of households, such as changes in the age-mix and educational qualifications of household members, account for a similar fraction of the observed changes. Hyslop and Maré find that job losses had only modest effects on overall income inequality.

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[4] The Gini coefficient is a statistical measure of inequality and ranges between 0 and 1. In a state of perfect equality, where every person has the same household income, the Gini coefficient would be 0. In contrast, in a state of complete inequality where only one household receives income, the Gini coefficient would be 1. An increase in the Gini coefficient indicates that income has become less equally distributed. Gini coefficients are a common summary measure in the literature on income distribution.

3   Methods

3.1   Introduction

The final incomes of households in New Zealand in 1997/98 were estimated by:

- obtaining market incomes, measured over a 12-month period, from the 1997/98 HES;

- using Treasury's TAXMOD model, and information on benefit receipt, to calculate households' entitlements to government cash benefits and to estimate payments of income and consumption taxes;

- apportioning government health and education spending to households on the basis of administrative data about the use of health and education services (where the benefit to a household is assumed to be the dollar cost of provision); and

- adjusting all figures proportionately to ensure consistency with the national accounts.

The Department of Statistics (1990) conducted a study of final household incomes in 1987/88, also based on the HES. The data from this earlier study were reanalysed and modified to make them comparable with the 1997/98 study. Wherever possible, the two HES datasets were treated in the same way and the same methods were used to attribute government expenditure and revenue to households. Income and expenditure figures from both studies were converted into 1997 dollars so that they could be meaningfully compared.

The following sections describe these methods in more detail.

3.2   Market incomes

Data on market incomes were obtained from the HES, which collects detailed income, expenditure and demographic information from New Zealand households.[5] In the HES, a household is defined as a person living alone, or a group of persons sharing a private dwelling for most of the reference period, who share consumption of food or contribute some portion of income towards the provision of essentials of living for the group as a whole. This definition excludes people living in non-private dwellings such as student hostels, army bases, prisons, religious institutions, boarding houses, motor camps and residential homes for the elderly. Overseas visitors are ineligible for the survey. In the 1997/98 HES, 92% of dwellings in New Zealand were estimated to contain a household eligible to participate. Around 2,900 randomly selected households participated in the survey in 1997/98 and around 4,400 households participated in 1987/88.

In the HES, all household members aged 15 and over were asked about their income and major items of expenditure over the previous 12 months. For regular commitments such as rent, electricity and rates they were asked for their latest payment, and were asked to keep a diary of expenditure over a 14-day period. Income in the HES does not include

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[5] The HES was conducted annually until 1997/98 after which it moved onto a three-year cycle. Before 1993/94 it was known as the Household Expenditure and Income Survey (HEIS).

irregular or non-recurring income such as bequests or lottery wins, capital gains, imputed rent from owning ones own home, or fringe benefits (Statistics New Zealand 1999). HES data from 1987/88 and 1997/98 were entered into TAXMOD, which is a Treasury model designed to forecast data and model policy changes in the areas of income, tax and transfers.

3.3 Receipt of government benefits

This study considers households' receipt of non-cash benefits (publicly-funded health services, education, and rental and mortgage subsidies) as well as cash benefits (social welfare transfers and Superannuation). The value of non-cash benefits to a household is assumed to be the cost to the government of providing these benefits: the cost, for example, of providing a year's primary school education. This assumption is necessary for practical purposes but it may overstate the value of health, education and housing services. Some households might well have chosen to spend the monetary value of these non-cash benefits in other areas, or on different health and education services, had they been given it in cash.

3.3.1 Social welfare transfers, Superannuation and housing assistance

The HES records income from social welfare benefits and Superannuation but this information was not used directly in the calculation of gross income, because of concerns about the accuracy of respondents' recall. Instead, for respondents who reported receiving a particular benefit, TAXMOD calculated their entitlement based on household size, composition and other relevant information. This method was applied to both the 1987/88 and 1997/98 data.

Housing assistance in 1997/98 was provided through a social welfare benefit—the Accommodation Supplement—which was available to low income families to subsidise the costs of rent, board and home purchase. Housing assistance in 1987/88, however, also included assistance from the Housing Corporation of New Zealand (HCNZ) in the form of implicit rental and mortgage subsidies, as well as the Accommodation Benefit (the forerunner of the Accommodation Supplement) which was available to people who did not live in state-owned houses. The value of HCNZ subsidies was calculated by the Department of Statistics in their 1990 study, using information on market rentals and mortgage interest rates. In this paper, all housing expenditure is included with social welfare benefits, although it is separately identified in the detailed tables in Appendix 2.

3.3.2 Education

Government expenditure on education in 1997/98 was allocated to households in the following way: first, the national average expenditure per student for different education programmes was estimated; and second, these national average expenditures were allocated to HES households that included students attending the various programmes. For each of the major education programmes—early childhood, primary, secondary and tertiary education—average expenditure per student was calculated by dividing national expenditure by the number of students attending. These data were obtained from Ministry of Education publications. The HES itself records whether any household members were at school, or had attended an educational programme, in the previous 12 months.

Expenditure on youth training and industry training programmes were allocated by demographic groups. Full details of the methodology are provided by Sutton (1999a).

For 1987/88 education expenditure, the Department of Statistics (1990) results were used, although these were reconciled to revised totals from the System of National Accounts (see Section 3.7.1). This earlier work used the same methodology as in 1997/98, differing only by allocating early childhood expenditure on the basis of age rather than actual participation.

3.3.3 Health

Government expenditure on health services in 1997/98 was allocated to households in the following way: first, the national average expenditure per person, in different categories and for different health services, was estimated; and second, these national average expenditures were allocated to HES households that included people in the various categories. Categories were defined by age, sex, and, depending on the service, either ethnicity or eligibility for a Community Services Card (CSC). So, for example, a 65-69 year old female Maori with a CSC would be allocated the national average health expenditure on people in this demographic category. Government health expenditure in 1997/98 was obtained from Ministry of Health publications. The calculation of national average expenditures was performed differently for each different type of health service, depending on what data were available. Full details of the methodology are provided by Sutton (1998, 1999b).

This method of allocating health expenditures by demographic groups, rather than by the individuals' use of health services, is equivalent to allocating the cost of a group risk-related insurance premium. Since the actual use of publicly-funded health services is likely to be negatively correlated with income (Howden-Chapman and Tobias 2000), analyses by income decile may overstate the health benefits received by households in higher deciles and understate those received by households in lower deciles.

For 1987/88 health expenditure, the Department of Statistics (1990) results were used, although these were reconciled to revised totals from the System of National Accounts (see Section 3.7.1). This earlier work used a similar methodology to that used in 1997/98, but defined categories only by age and sex.

3.4   Taxation

On the basis of each person's gross income in the survey year, TAXMOD calculated income tax liabilities and assigned these to households, also taking into account household composition and other available information. The amount of tax calculated by TAXMOD may, however, differ from the amount of tax that a household actually paid. One reason is that, for business and investment income, tax payments may have depended on income earned in past years as well as in the survey year.

The total consumption tax take, consisting principally of Goods and Services Tax (GST) and excise duties, was obtained from the System of National Accounts and allocated to households in proportion to their expenditure over the survey period. Excise duties were *not* allocated according to expenditure on specific products (alcohol, cigarettes, petrol, etc).[6]

These methods were applied to both the 1987/88 and 1997/98 data.

3.5   Government spending and taxes not included

This study allocates those government benefits and taxes that can reasonably be attributed to households. It does not attempt to allocate "non-social" government expenditure such as roading, defence and debt repayment to households; nor does it attempt to allocate company tax to households. Around three-quarters of tax revenue and two-thirds of government spending are included in the analysis, however, which means that, on average, households will be seen as paying more in attributable tax than they receive in attributable benefits. This is an approach which is common to many other studies of final household incomes.

There is a tradition of studies, however, which do attempt to allocate all government expenditure and all government revenue to households (eg, Gillespie 1965, Musgrave, Case and Leonard 1974, Ruggles and O'Higgins 1981). A number of these types of studies were conducted in New Zealand in the 1980s (eg, Snively 1986, Income Distribution Group 1988, Department of Statistics 1990).[7] Other studies are also differentiated by including local government taxes and expenditure in their analysis of final income (O'Higgins and Ruggles 1981) or by including other forms of non-cash income such as imputed rent to owner-occupiers (Smeeding, Saunders, Coder, Jenkins, Fritzell, Hagenaars, Hauser and Wolfson 1993, DeNavas-Walt *et al* 2003).

This study does not include these wider benefits and taxes, chiefly because there is no clear conceptual basis for allocating many types of benefits and taxes to individual households. In other cases, while there might be a conceptual basis for allocation there is no data available from the HES or other sources to enable this to happen. Some taxes and benefits also fall on people who do not live in private households, such as publicly-funded long-term residential care for the elderly.

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[6] This method was used in the Department of Statistics (1990) study, but the HES data on relevant expenditures for excise duties is unreliable. In any event, the distributional results for excise duties in the Department of Statistics study appear to be little different from the results for GST.

[7] In order to replicate the results of the Department of Statistics (1990) study, Crawford (2003) extends the analyses of the current study to allocate all government expenditure and revenue to households, using the Department of Statistics methodology.

3.6   Population estimates

The steps outlined above provide information on final incomes for households in the HES, but this information needs to be translated into estimates for the whole population of New Zealand. This translation requires weighting the different types of households in the survey to reflect their prevalence in the population. In preference to earlier weightings used in the HES and in TAXMOD, a new set of "integrated weights", developed by Statistics New Zealand, was applied to both the 1987/88 and 1997/98 results. Integrated weighting is described in detail in Statistics New Zealand (2001b).[8]

Population estimates are subject to sampling errors but these have not been calculated for all of the results reported in this paper. Using replicated sampling techniques, TAXMOD was used to construct a selection of confidence intervals for estimates from the 1997/98 HES. As expected, this analysis suggests that more reliance can be placed on changes in broad summary measures than on changes in particular deciles or household types. Results indicating relatively small differences between deciles or household types need to be interpreted with caution.

3.7   Other adjustments

3.7.1 Consistency with the Crown accounts

All government expenditure and revenue data used in the study for both 1987/88 and 1997/98 were reconciled to the Crown Accounts Analysis produced by Statistics New Zealand as part of the New Zealand System of National Accounts. Across the different types of expenditure or taxes, relative allocations per household were pro-rated upwards or downwards to make the population totals equal the official national figures.

The HES is a survey of private households and excludes individuals in non-private dwellings. Expenditure and taxation, however, covers the whole population. Census data from 1986 and 2001 were used to allocate expenditure and taxes to individuals living in non-private dwellings, according to their age, income and assumed eligibility for government services. This expenditure and tax was subtracted from the national totals before the study results for private households were pro-rated.[9]

3.7.2 Price adjustments

In order to get an accurate comparison across time, all money figures were adjusted to the December quarter of 1997, using the All Groups Consumer Price Index. Income and expenditure in 1987/88 were inflated by a factor of 1.364.

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[8] The choice of weights does influence population estimates. Using integrated weights led to an estimate of mean household market income in 1987/88 of $30,510, compared to the corresponding figures of $30,145 using the standard HES weights and $30,050 using the weights applied in the Department of Statistics (1990) study.

[9] The results of analyses of non-private dwellings are not reported in this paper but are available in Crawford (2003).

3.8   Income deciles and equivalence scales

This study reports a number of results by income decile. A single ranking-and-dividing system is required so that "decile 3", for example, refers to the same group of people and households, regardless of whether the analysis is of market income, government benefits, tax payments, gross income, disposable income or final income. For this purpose, the study used equivalent disposable income as the measure by which deciles were constructed. Disposable income is a household's income from all sources after income tax has been deducted—it is a household's "cash in hand". Equivalising this income takes account of differences in the demands on households' resources. This study uses the LIS(0.5) equivalence scale, which scales down household disposable income according to the square root of the number of individuals in the household, regardless of whether they are adults or children (Atkinson, Rainwater and Smeeding 1995).[10] Equivalent disposable income roughly corresponds to common ideas in the community about who is better off and worse off and is therefore a proxy for people's level of welfare.

In constructing deciles of equivalent disposable income, households were weighted by their number of occupants, so that a household of six people "counts" six times as much as a single-person household. To do this, individuals were ranked by their household's income (where all members of a household have the same rank) and divided into ten even groups. Decile 1 therefore contains the least well-off 10% of the population and decile 10 contains the most well-off 10% of the population. Deciles of equivalised disposable income are used in all the tables and figures in the paper (apart from when calculating Gini coefficients in Table 3). Weighting households by size means that the economic welfare of each individual in society counts equally when measuring income distribution (Danziger and Taussig 1979). The alternative, which is to give each household equal weight, reveals something about the economic differences between households but begs the question of the number of people affected by those differences.[11] Weighting households by size also makes for consistent comparisons over time, since the size of households in different deciles has changed between 1987/88 and 1997/98 (see Appendix Tables 6 and 7).

Equivalised income is used only to rank people for the purposes of creating deciles. All of the monetary values shown in this paper are actual dollars and are not equivalised. This is because the LIS(0.5), and other equivalence scales, have been designed to adjust for the demands on households' disposable incomes—the housing, clothing, food, and other needs of different types of households. Households' disposable incomes do not have to pay for publicly-funded education and health services, and therefore the education and medical needs of different types of households are not (at least in theory) reflected in ordinary equivalence scales. Therefore it may not be appropriate to use ordinary equivalence scales to adjust household incomes that include notional income from the receipt of government education and health benefits (Radner 1997). In other words, just as the relative incomes of different groups of households change when health and education benefits are included in the definition of income, the relative needs of different groups of households also change and equivalence scales should change. It is beyond the capacity of this study to develop an equivalence scale for final income, and therefore

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[10] On this scale, for example, a household of two adults and three children with a disposable income of $70,000, would have an equivalent disposable income of $31,300 – equivalent, that is, to a single person household with a disposable income of $31,300.

[11] In practice, it may make little difference which ranking system is used. O'Higgins (1985), for example, argues and empirically demonstrates that for the UK the details of inequality are similar whether ranking is done by equivalent income per family or by equivalent income per individual.

the dollar figures for income are left unadjusted for household needs.[12] However, while household incomes are not equivalised, Appendix 2 presents the results of the study by various different categories of households at different stages of the life-cycle, and thus provides a partial equivalisation analysis.

Other final income studies use a variety of ways of weighting, measuring and rank-ordering household incomes. The various possibilities are discussed in O'Higgins, Schmaus and Stephenson (1989). Ranking according to equivalised disposable income, but reporting actual final income, as this study does, follows the same methodology as the annual studies conducted in the United Kingdom by the Office for National Statistics (Lakin 2004).

3.9   Household types

Appendix 2 contains a series of tables showing the components of final household income by categories of households. These "life-cycle" household types are those previously included in the Department of Statistics (1990) study with minor changes to reflect an increase in the age of eligibility for Superannuation: the 1987/88 analyses refer to people aged 60 or more but this has been changed to age 63 or more in the 1997/98 analyses. In this classification, "other family group" refers to households which include a family together with one or more other people, and "non-family household" refers to households in which none of the occupants of the household are related to each other.[13] "Children" means dependent children who are under 18 years of age, are not receiving a benefit, and are not in full-time work. The number of households in each category in 1987/88 and 1997/98 is shown in Appendix Tables 2 and 3.

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[12] Some studies adjust disposable incomes using an equivalence scale and then add per capita benefits in kind and consumption taxes (Department of Statistics 1990, Smeeding *et al* 1993, Landt, Percival, Schofield and Wilson 1995). This does not adjust for differences in education and health needs, though. Another alternative is simply to ignore benefits in kind by assuming that the education and medical needs of households are reflected in the distribution of benefits, so that all is square.

[13] From an inspection of project documentation, it appears that the definitions of "other family group" and "non-family household" set out on page 11 of Department of Statistics (1990) differ from those actually used. This study follows the definitions actually used.

4   Results

4.1   Introduction

This study estimates the average final incomes of households in different deciles, measured in 1987/88 and in 1997/98.[14] A household's final income is composed of its market income, plus the government benefits it receives either in cash or in kind, and minus the tax it pays. The following sections therefore look in turn at:

- changes in the market incomes of households in different deciles (Section 4.2);

- changes in the government social benefits received by households in different deciles (Section 4.3), where these are broken down into changes in cash benefits, education benefits and health benefits;

- changes in the tax paid by households in different deciles (Section 4.4), where this is broken down into changes in income tax and consumption tax payments; and

- changes in the final incomes of households in different deciles (Section 4.5).

Some comment is made on possible reasons for these changes, but a full decomposition or explanation of trends in household income is beyond the scope of this paper.

Section 4.6 looks specifically at the redistribution of income from households in higher deciles to households in lower deciles, and how this has changed between 1987/88 and 1997/98. Finally, Section 4.7 looks at whether the distribution of final income has become more or less unequal from 1987/88 to 1997/98. Appendix 2 contains the data for the figures presented in the following sections and also contains analyses of income, benefit and tax changes by household type.

4.2   Market incomes

Households report a wide range of market income in the HES, from negative incomes (reflecting losses by sole traders and partnerships) through the very low market incomes of beneficiaries to household incomes of well over $200,000 per year. The lowest deciles of household income are characterised by a relatively high number of beneficiaries and superannuitants, and relatively few wage and salary earners. Most of the households in the bottom two deciles are either retired people, especially those living alone, or sole parents and their children. In addition, a significant proportion of people in decile 1 are self-employed, a few of whom have large negative incomes. Younger couples with children tend to be in the middle deciles. Older couples with children, as well as working-age couples without children, tend to be in the higher income deciles. These patterns are shown in Appendix Tables 6 and 7.

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[14] Strictly speaking, the study determines the average final household income of *individuals* in each decile or, put another way, the average final household income of households, weighted by household size (see Section 3.8).

Between 1987/88 and 1997/98, average market incomes rose in the higher deciles and fell in the lower deciles, with the exception of decile 1, where the average market income was negative in 1987/88 (Figure 5, I). Notably, average market incomes in decile 10 rose by 29% between 1987/88 and 1997/98, while average market incomes in decile 2 fell by 38%.

Households in decile 10 took a larger share of total market income in 1997/98 than they did a decade earlier: in 1997/98 a third of the total market income in New Zealand was earned by the top 10% of earners (Figure 5, II). No other deciles increased their share of total market income, with the exception of decile 1. Results for decile 1 should be interpreted with care, since the people in this decile are a heterogeneous group including self-employed people reporting business losses (but who may not be suffering hardship) and people receiving benefits and Superannuation who have no, or very little, other income.

Figure 5 – Market income by income decile, 1987/88 and 1997/98

I. Average market income ($)
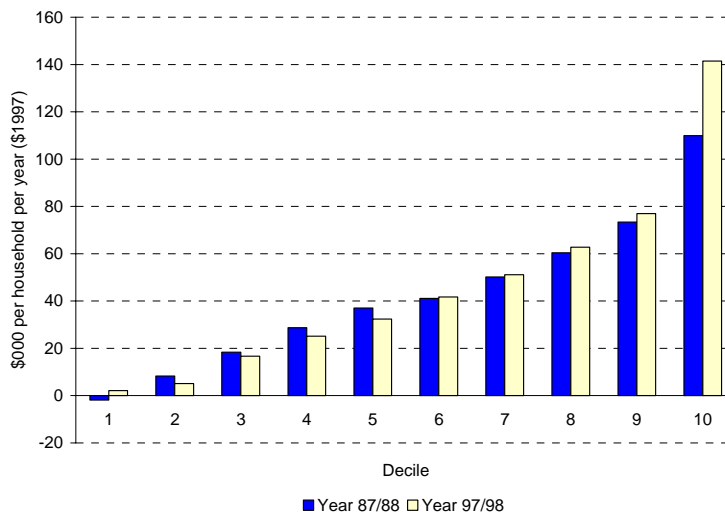
II. Share of total market income (%)
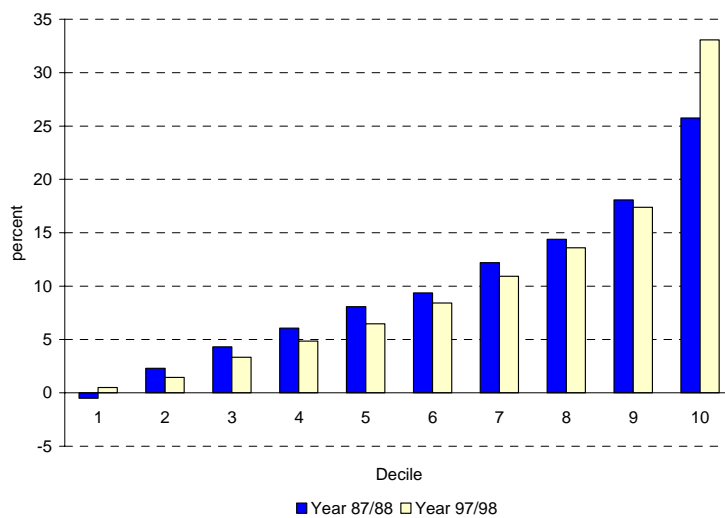
Explaining changes in market income is not easy since a wide range of social, demographic and economic trends can affect the composition of the deciles. These include, for example, changes in population characteristics such as the age structure of the population, proportions of different household types in the population (eg, the proportion headed by a single parent), and the proportion of people with educational qualifications. Incomes will also be affected by changes in the labour market returns to these population characteristics, such as the wage rate associated with having a university degree or having School Certificate. O'Dea (2000) discusses these and other drivers of change in income and income dispersion in New Zealand.

4.3   Receipt of government benefits

4.3.1 Social welfare transfers, Superannuation and housing assistance

Cash benefits were more concentrated amongst lower-income households in 1997/98 than in 1987/88, as Figure 6 shows. Households in the lowest five deciles received more on average in 1997/98 than their counterparts did in 1987/88, and households in the highest deciles received less. Changes in the receipt of cash benefits will have been affected by, amongst other things, the number of people eligible for assistance, the rate of benefits, the targeting of these benefits, and changes in population characteristics. For example, there was an increase over this period in the proportion of the population receiving the Unemployment Benefit, the Domestic Purposes Benefit and other taxable benefits, and the people receiving these benefits were concentrated in the lower deciles. Targeting of payments to families also intensified in this period, with the abolition of the universal Family Benefit and the expansion of the income-tested Family Support Tax Credit.

Figure 6 – Average receipt of cash benefits, by income decile, 1987/88 and 1997/98
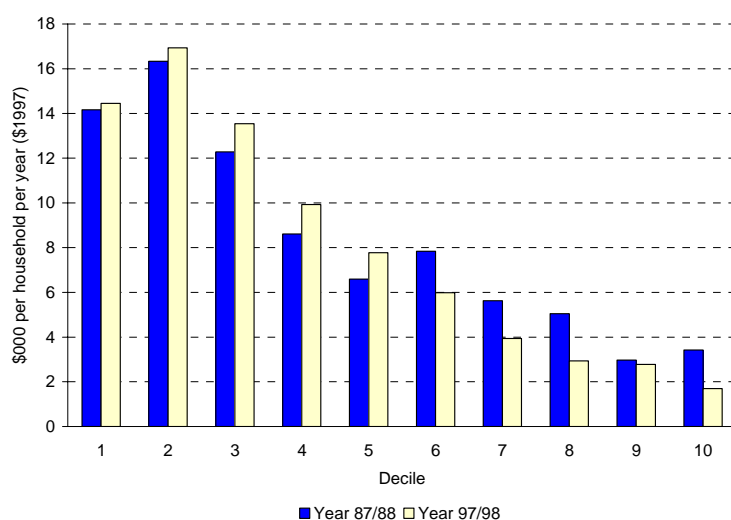
Note: Cash benefits comprise social welfare transfers, Superannuation and housing assistance.

4.3.2 Education

There is less of a clear pattern to the receipt of education benefits across deciles, as Figure 7 shows. This is largely because all households with children benefit from education spending and households with children are distributed across the income deciles (see Appendix Tables 4 and 5). Average receipt of education benefits increased between 1987/88 and 1997/98 in all of the lower deciles, but not in some of the higher deciles.

Figure 7 – Average receipt of education benefits, by income decile, 1987/88 and 1997/98
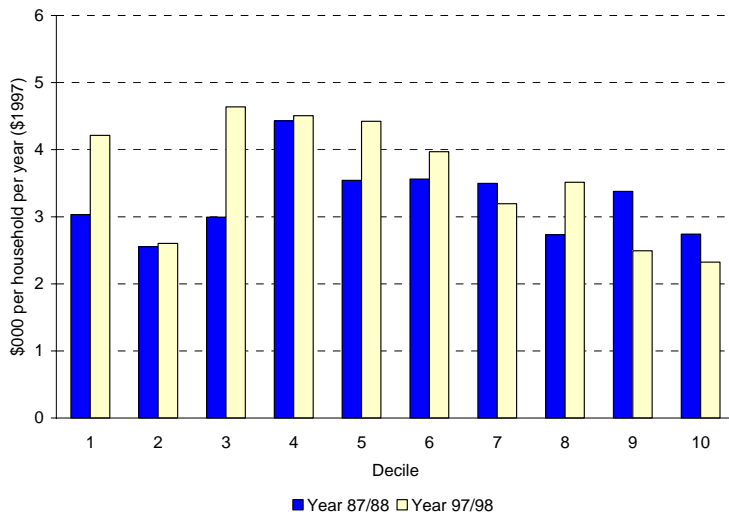
Some of this change in receipt of benefits will be due to changes in the composition of deciles and in particular the proportion of each decile constituted by households with children or households containing tertiary students. This is accounted for in Figure 8, which shows the receipt of education benefits per person aged 3-22 years. Average benefit per person was more even in 1997/98 than it was a decade earlier, with significant increases in the lower deciles, and in decile 8. These changes may in part be due to strong increases in tertiary education participation, particularly amongst people from lower-income families, together with the targeting of student support on the basis of family income. Changes are difficult to interpret by decile, however, because students from reasonably well-off families may nevertheless be flatting in low-income, "non-family" households. For this household type, there was a 43% increase in real average education expenditures (Appendix Tables 23 and 29).

Figure 8 – Receipt of education benefits per occupant aged between 3 and 22 years, by income decile, 1987/88 and 1997/98
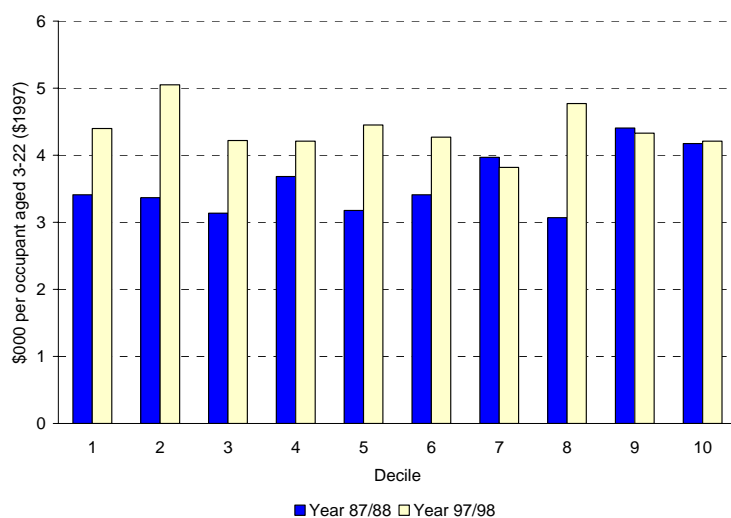
Government spending on secondary education per household fell in most deciles between 1987/88 and 1997/98, reflecting a decline in the overall number of secondary students. On the other hand, early childhood education expenditure grew markedly, particularly for households in the lower half of the distribution, but this spending accounts for only a small proportion of overall education spending (Appendix Tables 9 and 16).

4.3.3 Health

Health benefits, like cash benefits, were more concentrated amongst lower-income households in 1997/98 than in 1987/88 (Figure 9). In particular, younger households with children (who tend to be located in the lower income deciles) appear to have markedly increased their receipt of health benefits over this decade, while households without children have in some cases reduced their average receipt of health benefits (Appendix Tables 24 and 30). In part, this trend is a result of differences in methodology between the current study, which allocates maternity expenditure to infants, and the Department of Statistics (1990) study, which allocated maternity expenditure to women of child-bearing age. This is unlikely to explain all of the differences between 1987/88 and 1997/98, however, since maternity expenditure is only a small part of total health expenditure.

Increased targeting of some health expenditures may have contributed to the trend shown in Figure 9. Government funding for general practitioner visits, pharmaceuticals, and some other health services became more targeted over the late 1980s and early 1990s through the use of the Community Services Card, held by low-income families and individuals. Population ageing may also have contributed, since elderly people attract much higher rates of health expenditure than younger people and are also concentrated in the lower half of the income distribution.

Figure 9 – Average receipt of health benefits, by income decile, 1987/88 and 1997/98
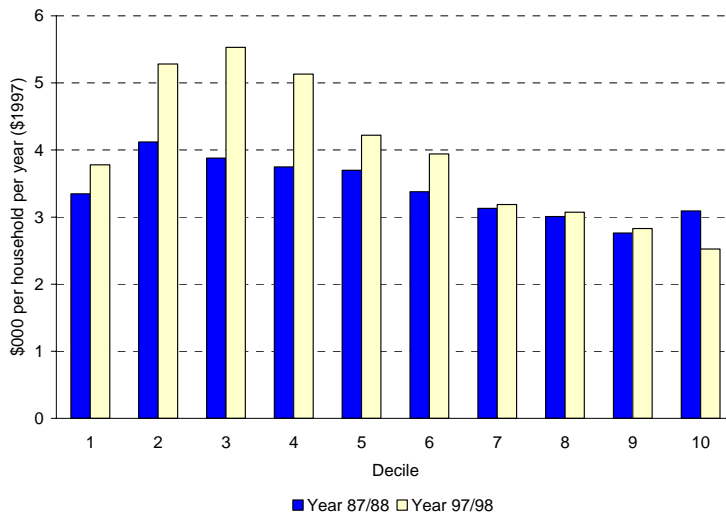
4.3.4 Total government benefits

Adding together cash benefits (Figure 6), education benefits (Figure 7) and health benefits (Figure 9) gives total government benefits by decile, which are shown in Figure 10. Average receipt of government benefits increased in the bottom five deciles and decreased in the top five deciles (Figure 10, I). The greatest percentage increase was in decile 3 (a 24% increase) and the greatest percentage decrease was in decile 10 (a 29% decrease). The bottom five deciles also increased their *share* of total social policy expenditure between 1987/88 and 1997/98 (Figure 10, II).

Figure 10 – Receipt of government benefits, by income decile, 1987/88 and 1997/98

I. Average receipt of government benefits ($)
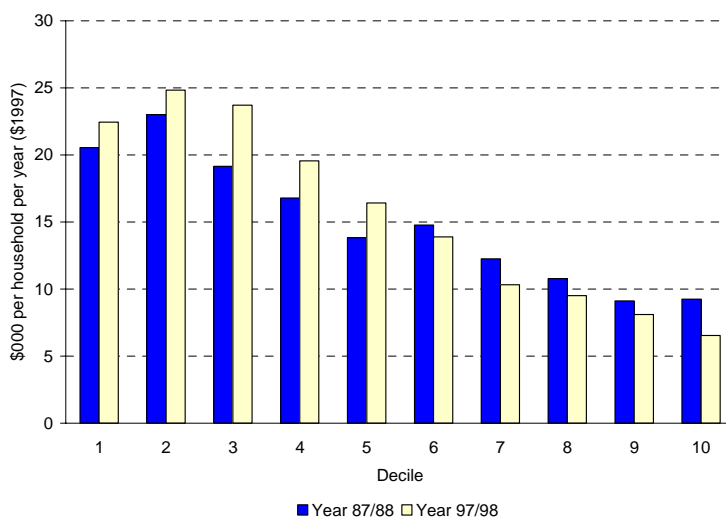
II. Share of total government benefits (%)

percent

Decile

■ Year 87/88 □ Year 97/98
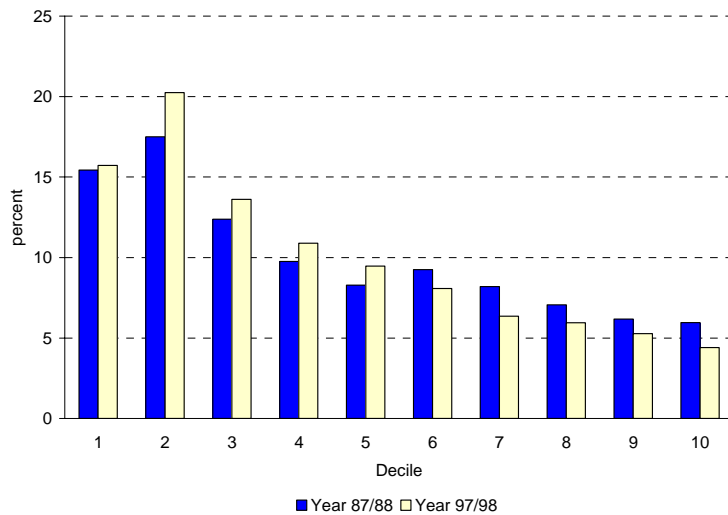
4.4   Taxation

4.4.1   Income tax

Changes in tax payments result from changes in income and changes in tax rates. Figure 11 shows that in all deciles, with the exception of decile 10, average income tax payments were lower in 1997/98 than they were a decade earlier. This reflects a series of reductions in income tax rates, and changes in thresholds, over the period covered by the study. Table 1 shows the income tax rates and thresholds in 1986/87 and in 1997/98. Despite reductions in the top income tax rate, households in decile 10 paid more income tax in 1997/98 because they received considerably more gross (taxable) income in this year than comparable households did in 1987/88 (see Appendix Figure 1).

Figure 11 – Average income tax payments, by income decile, 1987/88 and 1997/98

$000 per household per year ($1997)

Decile

■ Year 87/88 □ Year 97/98
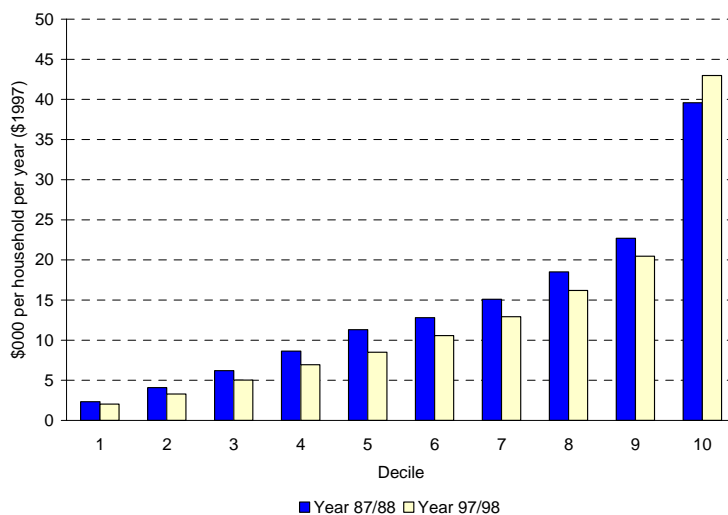
Table 1 – Personal income tax rates, 1986/87 and 1997/98

Taxable income ($1997)	Basic tax rate (%)
Year ending 31 March 1987	
0—8,184	17.50
8,185—12,958	24.00
12,959—34,100	31.50
34,101—40,920	37.55
40,921—51,832	52.05
over 51,832	57.00
Year ending 30 June 1998	
0—9,557	15.00
9,558—34,405	21.50
over 34,405	33.00

Sources: Department of Statistics (1987) and Statistics New Zealand
(1998b). Income thresholds have been adjusted for
inflation. Tax rates are for the full year.

4.4.2 Consumption tax

In all deciles, with the exception of decile 2, average consumption tax payments were higher in 1997/98 than they were a decade earlier (Figure 12). This reflects an increase in GST from 10% to 12.5% in 1989 and, to a lesser degree, increases in tobacco, alcohol and petrol excises. The increase in consumption tax payments was highest in decile 10 because disposable income in this decile was much greater in 1997/98 than it was in 1987/88, and households therefore had more money to spend on goods and services (see Appendix Figure 2). Conversely, disposable income in decile 2 was lower in 1997/98 than it was in 1987/8, and the average consumption tax payment was about the same in both years.

Figure 12 – Average consumption tax payments, by income decile, 1987/88 and 1997/98
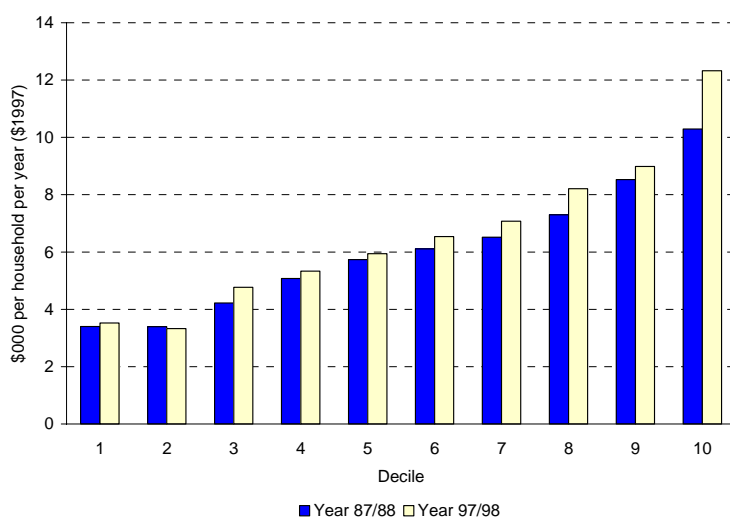
4.4.3 Tax payments in total

Adding together income tax payments (Figure 11) and consumption tax payments (Figure 12) gives total tax payments by decile, which are shown in Figure 13. In deciles 1 to 9, households paid less tax in 1997/98 than comparable households did a decade earlier. In decile 10, tax payments increased (Figure 13, I). Changes in the *share* of tax follows a similar pattern, with households in the top decile paying 30% of total taxes in 1997/98 compared to 24% in 1987/88 (Figure 13, II).

Figure 13 – Tax payments, by income decile, 1987/88 and 1997/98

I. Average tax payments ($)
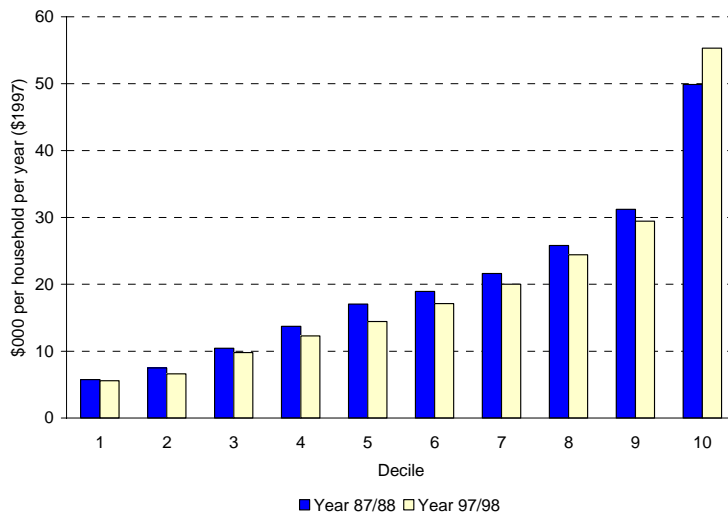
II. Share of total tax payments (%)
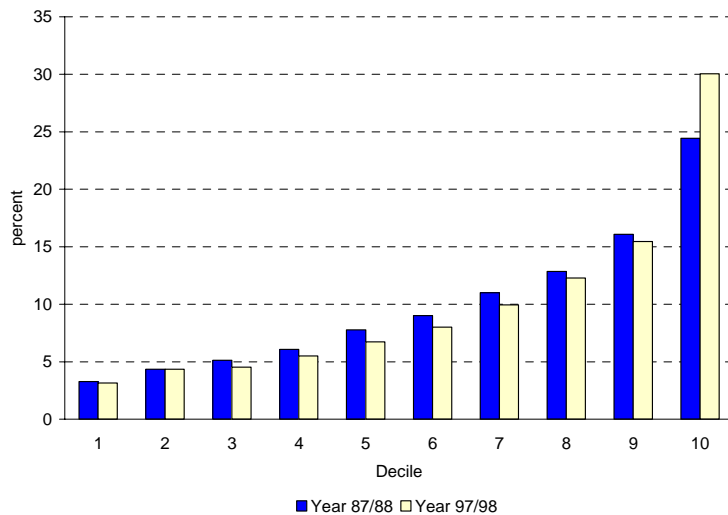
4.5   Final incomes

Adding together market income (Figure 5) and total government benefits (Figure 10), then taking away total tax payments (Figure 13), gives final income by decile, which is shown in Figure 14. In deciles 2, 4, 5, and 7, average final income was about the same in 1997/98 as it was in 1987/88.[15] In all other deciles, average final income was higher in 1997/98. In deciles 1 and 10, households experienced the largest growth in final incomes, increasing by 46% and 34% respectively between 1987/88 and 1997/98. These deciles were also the only ones to increase their *share* of total final income (Figure 14, II). For the reasons given in Section 4.2, however, results for decile 1 should be treated with some caution.

Figure 14 – Final income, by income decile, 1987/88 and 1997/98

I. Average final income ($)
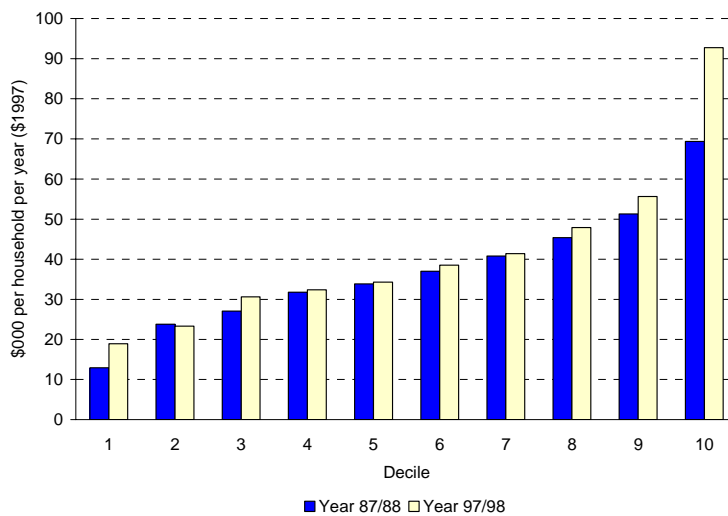
II. Share of total final income (%)

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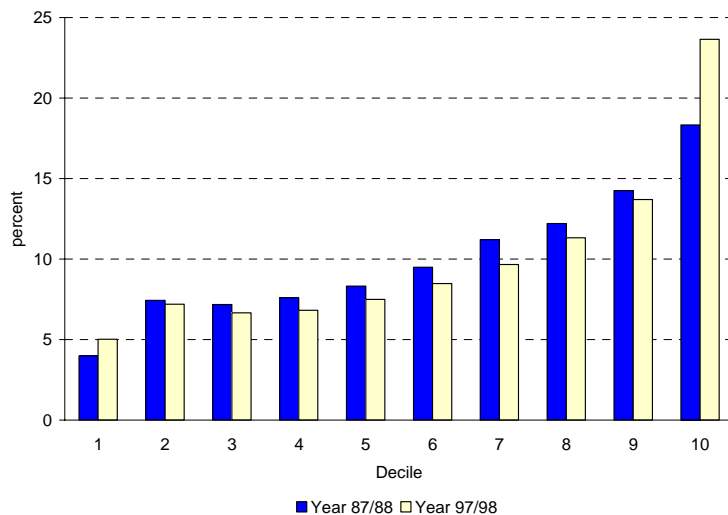
[15] In these four deciles, the average final income in 1997/98 was within 2% of the corresponding figure for 1987/88.

4.6   Redistribution of income

Redistribution occurs because better-off households pay more tax than poorer households, receive less of their income as cash benefits, and tend to use government services, particularly health services, to a lesser extent. Taking total tax payments (Figure 13) away from total government benefits (Figure 10) reveals the extent of this redistribution, which is shown in Figure 15. In other words, Figure 15 shows the net effect of households' payments to, and benefits from, central government, whether these benefits are in cash or in kind.

Figure 15 – Average receipt of government benefits minus tax payments, by income decile, 1987/88 and 1997/98
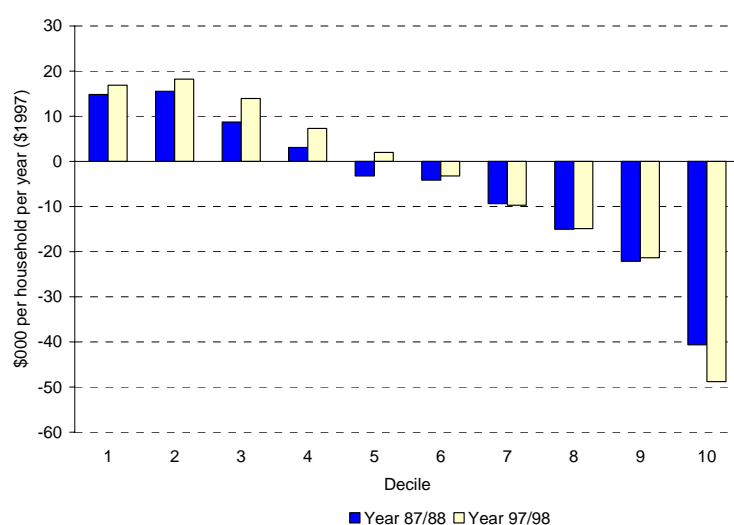
In 1997/98, households in deciles 1 to 5 received more in government benefits, on average, than they paid in tax. This net "gain" from redistribution also increased from 1987/88 to 1997/98. On the other hand, households in deciles 6 to 10 received *less* in government benefits, on average, than they paid in tax. For deciles 6 to 9, this net "loss" from redistribution was about the same in 1997/98 as it was in 1987/88. For households in decile 10, however, the net "loss" was markedly greater in 1997/98. Overall, the average household, across all deciles, paid slightly more in tax than it received in cash or in-kind benefits. This average "overpayment", which is an artefact of the study methodology (see Section 3.5), was $4,751 in 1987/88 and $3,770 in 1997/98.

Figure 16 depicts this redistribution in a slightly different way by showing, for both 1987/88 and 1997/98, how market income is modified by income tax payments and receipt of cash benefits to produce disposable income, and then by consumption tax payments and receipt of other government benefits to produce final income. This shows the scale of redistribution relative to market incomes, which for many deciles is considerable. The final income of a household in decile 10, for example, is on average a third lower than its market income. The final income of a household in decile 1, on the other hand, is on average nine times higher than its market income. For deciles 5 and 6, in the middle of the distribution, market income and final income are very similar, showing that these households pay as much in tax, on average, as they receive in government benefits. Individual households within each of these deciles, however, will differ in the extent to which they pay taxes and receive government benefits, particularly those benefits which are not directly linked to a household's income, such as education and health services.

Figure 16 – Redistribution of income, by income decile, 1987/88 and 1997/98

I. Redistribution in 1987/88

Market income ■ Disposable income ■ Final income □

II. Redistribution in 1997/98
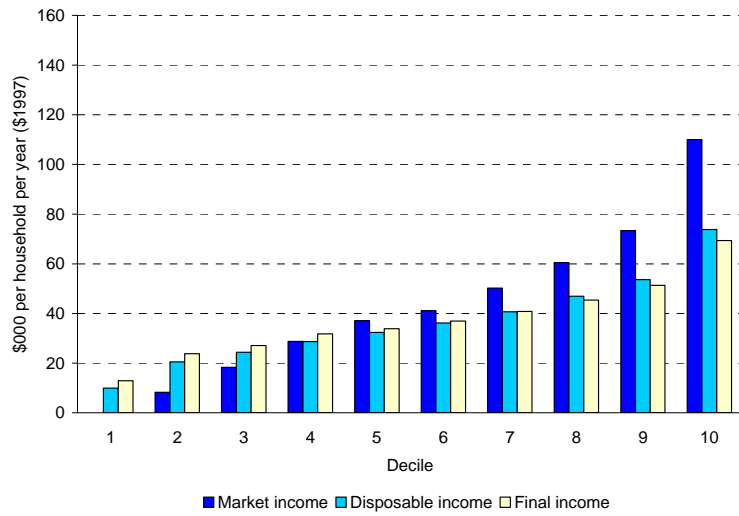
Market income ■ Disposable income ■ Final income □
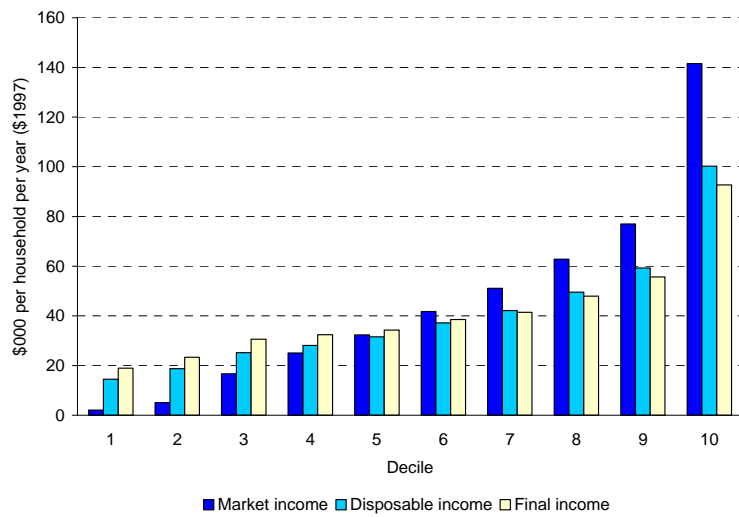
Table 2 shows final income as a proportion of market income, for each income decile and in both years. In all deciles this proportion was at least as high or higher in 1997/98 as in 1987/88, and strongly so in the first five deciles.

Table 2 – Final income as a proportion of market income, by income decile, 1987/88 and 1997/98

Decile	1987/88	1997/98
One	—	9.16
Two	2.87	4.57
Three	1.48	1.83
Four	1.11	1.29
Five	0.91	1.06
Six	0.90	0.92
Seven	0.81	0.81
Eight	0.75	0.76
Nine	0.70	0.72
Ten	0.63	0.66

4.7   Income inequality

Each decile's share of total market, disposable and final income, in both 1987/88 and 1997/98, is shown in Table 3. This Table also shows the Gini coefficients associated with each measure of income. Previous New Zealand studies have established that household market income, or disposable income, became more unequally distributed over the 1980s and 1990s. Table 3 adds two findings. Firstly, it shows that final income is more equally distributed than disposable income (the Gini for final income was lower than the Gini for disposable income in both 1987/88 and in 1997/98). Secondly, it shows that final household income became more unequally distributed over this period (the Gini for final income was higher in 1997/98 than it was in 1987/88). It is notable, however, that the growth in inequality of final incomes is relatively small—a 0.023 difference in Gini coefficients between 1987/88 and 1997/98—and is considerably less than the growth in inequality of either market incomes or of final incomes.[16]

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[16] Statistics New Zealand (1999) estimates that its Gini coefficient for household equivalent disposable income, calculated using HES data, has a standard error of 0.033. Standard errors have not been calculated in this study but small differences in Gini coefficients should be treated with caution.

Table 3 – Share of total income, by income decile, 1987/88 and 1997/98

Decile [a]	Share of total income (%) where income is defined as:					
	Market income		Disposable income		Final income	
	1987/88	1997/98	1987/88	1997/98	1987/88	1997/98
One	-0.5	0.5	3.1	3.9	4.0	5.0
Two	2.3	1.4	6.5	5.9	7.4	7.2
Three	4.3	3.3	6.6	5.6	7.2	6.7
Four	6.1	4.8	7.0	6.1	7.6	6.8
Five	8.1	6.5	8.1	7.1	8.3	7.5
Six	9.4	8.4	9.4	8.4	9.5	8.5
Seven	12.2	10.9	11.4	10.0	11.2	9.7
Eight	14.4	13.6	12.8	12.0	12.2	11.3
Nine	18.1	17.4	15.2	14.9	14.3	13.7
Ten	25.7	33.1	19.9	26.1	18.3	23.7
Gini coefficient [b]	0.424	0.485	0.302	0.352	0.272	0.295
difference		0.061		0.050		0.023

[a] These are deciles of equivalent disposable income, as used in the other tables and figures in this paper.

[b] In calculating Gini coefficients, individuals have been re-ranked for each different definition of income, that is, they have been ranked by market income for the market income Gini, and so on. They have *not* been ranked by equivalent disposable income.

5   Discussion

The starting point in this paper, looking at final household incomes in New Zealand, is to consider market incomes, and then to see how the tax and benefit system redistributes this income. Market incomes do not, however, represent a "natural state" of income which would exist if there were no taxes or government benefits. The existence of taxes and benefits clearly affects people's participation in the workforce and the amount of money they are prepared to earn. Market incomes differ significantly across households, for a variety of reasons. Income differences are to a large extent due to the changing patterns of earnings over the life-cycle. Individuals tend to earn more as they get older and gain more work experience. Couples who both work can bring in a large annual income, although this is significantly reduced if one leaves work to look after young children. On retirement, market income drops considerably although many older people still have income from investments. Some people inherit wealth, from which they can gain income, and inherit characteristics, such as intelligence, dedication and perseverance, which make them more productive and better-paid workers. Others choose to develop their skills, work long hours, take risks, or do unpleasant work for greater pay. Some people suffer ill-fortune and others in contrast are just plain lucky.

This study found, as other New Zealand studies have also found, that market income increased, on average, for households in the top deciles, especially in decile 10, between 1987/88 and 1997/98. Market income decreased for households in most of the lower deciles. As discussed in Section 4.2, these trends are not easy to explain, and the role of government policy in influencing them is unclear. Since household market income varies with age, marital status and family formation, for example, demographic and social trends will influence the distribution of income in New Zealand. Some of these trends, such as the ageing of the population, are clearly independent of any policy reforms of the time. Others, such as the number of sole parent families, or trends in unemployment, might be directly or indirectly influenced by changes in government policy. The government might also have an influence on the returns to some population characteristics, for example by stipulating a minimum wage, but no influence on many others. Changes in tax policy, particularly the difference between the top income tax rate and the company tax rate, might have an effect on how much market income was reported by households, especially households at the upper end of the income distribution.

The key finding which this study reaches, however, is that government intervention—through taxes and social expenditure—has maintained the incomes of less well-off households. While market incomes in lower deciles declined, net government benefits have increased by at least the same amount. Between 1987/88 and 1997/98, redistribution became more favourable toward households in the low income deciles. A part of this increase in redistribution is automatic—households earning more income pay more tax, for example, but are unlikely to receive more in government benefits—but a part of the increase is also likely to be a result of specific government policy changes. As a result of this change in redistribution, real incomes were maintained for all income deciles between 1987/88 and 1997/98. While there will undoubtedly have been individual households which suffered financial hardship and declining circumstances, all deciles were, on average, doing at least as well in 1997/98 as they were ten years previously, and in most cases were doing better.

As measured by Gini coefficients, final household income was more unequally distributed in 1997/98 than it was in 1987/88. This growth in inequality of final incomes was relatively small, however, and considerably less than the growth in inequality of market incomes or disposable incomes. This paper makes no judgement about whether, or to what extent, increases in income inequality are desirable, tolerable or otherwise.

Other New Zealand studies have examined changes in household income during the 1980s and 1990s, although none has used final income as a measure. What does the estimation of final income add to what is already known? Estimating final income, rather than just disposable income, reveals further redistribution from more well-off households to less well-off households. This redistribution is especially evident in 1997/98. In all deciles, the average final income was at least maintained between 1987/88 and 1997/98, but in some deciles the average disposable income fell (see Appendix Table 2). Final incomes are more equally distributed than disposable incomes. Using final income as the measure of household income therefore provides a richer picture of incomes and income distribution in New Zealand. It is arguably a less intuitive measure than disposable income, however, not least because households which are heavy users of publicly-funded education and health services are not obviously better off than households which are not (household members are likely to be sicker, for a start).[17]

More generally, this study is in the broad tradition of studies which measure incomes, by decile, over a period of time and attempt to make sense of the observed changes. It is worth considering what these types of studies do and do not tell us. Firstly, households in each income decile are not homogeneous with regard to their circumstances, and are likely to vary widely in terms of household expenses and household wealth. In the lower deciles of income, for example, retired people who have paid off their home and accumulated savings are likely to live much more comfortably than sole parent families with young children. Incomes are only one element of people's material standard of living, which in turn is only one element of their overall standard of living or quality of life.

Secondly, studies compare two or more cross-sectional "snapshots" of incomes and therefore cannot show how the incomes of particular individuals or households change over time. The distribution of people's lifetime income is more equal than the distribution of personal income at a given point in time (Creedy 1997), and this is likely to be the case for household income as well. Since the current study only compares a snapshot of incomes in 1987/88 with another snapshot in 1997/98 it is not possible to say whether *individual* households were better or worse off in 1997/98 than they were in 1987/88. Over this ten-year period, individual households may have moved between income deciles several times, as their circumstances change. At one point in time a household may be a net "winner" from fiscal policy and at another, a net "loser". How these benefits and losses accumulate over the life cycle is only loosely covered in this study through the analysis of households by life-cycle stages which are presented in Appendix 2.[18]

Thirdly, studies of income changes between two points in time will show different results depending on exactly which two points are chosen. The New Zealand economy was deep in recession in 1992 (Figure 1) and if the second reference point had been 1992/93, rather than 1997/98, the results may well have shown a reduction in final incomes for all deciles.

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[17] However they are better off than if, under the same circumstances, they had to provide for these benefits out of their disposable income. These considerations lead back to the issue of appropriate equivalence scales to adjust for differences in the needs of households (see Section 3.8).

[18] Income transitions for individuals in New Zealand are discussed in Barker (1996) and Creedy (1997). Income transitions for families in New Zealand are discussed in Maloney and Barker (1999).

On the other hand, if the 2000/01 HES had been used as the second year of the study,[19] the results may well have shown a strong increase in final incomes for all deciles, given the strong economic growth which has occurred in New Zealand since late 1999.

Finally, it is easy to speculate (as admittedly, this paper does) on the reasons for observed trends in household income and to link these trends to particular government policies. It is quite another matter, though, to demonstrate that these really *are* major contributing factors. Little rigorous analysis on the reasons for income changes has been undertaken in New Zealand and what has been done does not always accord with commonly-held beliefs. Hyslop and Maré (2001) show, for example, that job losses in the late 1980s and early 1990s, although substantial, had only a small net effect on overall income inequality. Income studies by decile also do not reveal what would happen if tax or expenditure policies changed in the future, although they may allow some "first-round" predictions to be made. That is, such studies do not predict longer-term behavioural responses to government fiscal policy. For example, if the government reduced the level of New Zealand Superannuation paid to elderly people we would not simply find that the incomes of older people declined, but rather that, after a period of adjustment, older people might stay in the workforce longer, earning more income, or save more during their working lives to give themselves more investment income in their retirement.[20]

These considerations should be borne in mind when interpreting the results of this study, and others like it. For example, it may or may not be true, as some commentators assert, that "the rich are getting richer", but this study cannot prove or disprove this assertion because it does not track individual households over time. Many of the households who were in the top decile in 1987/88 will be in lower deciles a decade on (as people retire, for example) and, similarly, some households which were in low income deciles will be in decile 9 or 10 in 1997/98. What the study does show is that the top 10% of households in 1997/98 had higher final incomes, on average, than the top 10% of households in 1987/88, but this is a slightly different finding. Similarly, the study shows that, on average, final household incomes in the lowest income deciles were maintained over the decade, but this does not reveal whether the proportion of the population facing genuine hardship has grown or diminished. The contribution of this study is to show that redistribution through taxes, cash benefits and social services has maintained the final incomes of less well-off households in New Zealand over a decade of extensive policy reforms and significant economic fluctuations.

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[19] These results were not available when the current study commenced.

[20] Snively (1986) discusses at some length the difference between general equilibrium models of government budget changes and the "first-round" predictions offered by fiscal incidence studies such as this one. However, it should be borne in mind that these two types of studies are essentially trying to perform different tasks.

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Appendix 1   Gross income and disposable income

Two other commonly-reported measures of household income can be calculated in this study. Gross income is the cash income that households receive from all sources, namely their market income plus any cash benefits they receive from the government in the form of Superannuation and social welfare benefits. Appendix Figure 1 shows that gross income declined, on average, for households in deciles 2 to 7, but increased, in particular, for households in decile 1 and decile 10.

Appendix Figure 1 – Average gross income by income decile, 1987/88 and 1997/98
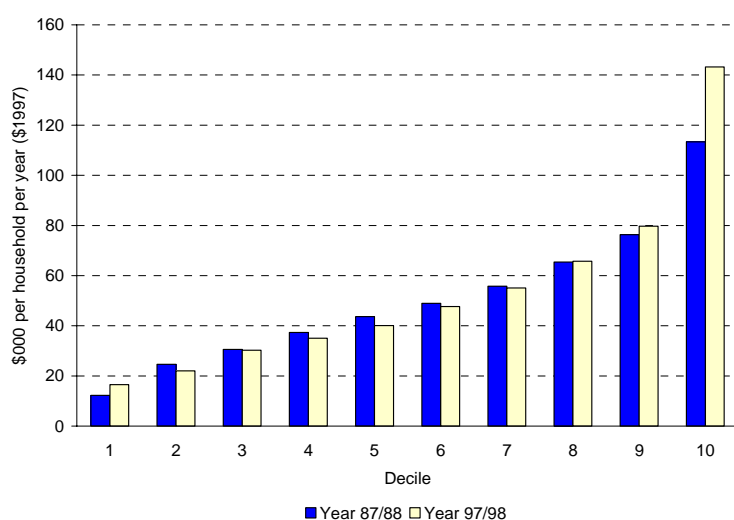
Disposable income is what households receive in their hands to spend on goods and services, namely their gross income minus the tax they pay on their various sources of income. This is shown in Appendix Figure 2. Households in most, but not all, deciles experienced an increase in disposable income, on average, between 1987/88 and 1997/98.

Appendix Figure 2 – Average disposable income, by income decile, 1987/88 and 1997/98
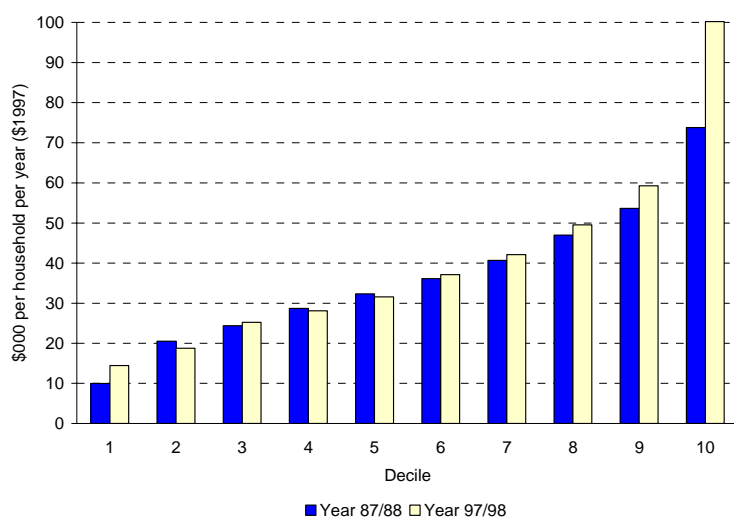
Mowbray (2001) also calculates household disposable incomes by decile for 1987/88 and 1997/98, based on the HES, and it is a useful check on the results of this study to compare them with the corresponding figures from Mowbray. The main differences between the studies are that Mowbray equivalises income and uses different weightings. Her results are shown in Appendix Figure 3. These show a very similar pattern to the results in Appendix Figure 2.

Appendix Figure 3 – Average equivalent disposable income, by income decile, 1987/88 and 1997/98, from Mowbray
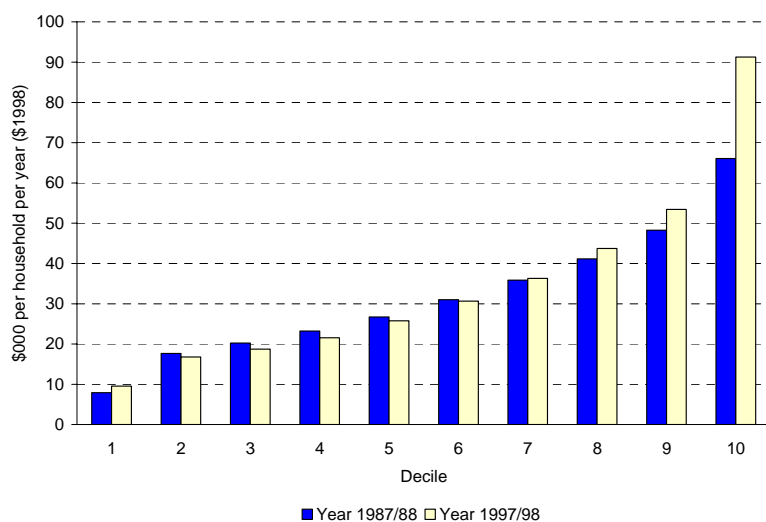
Source: Mowbray (2001), Table A10.

Appendix 2 Detailed tables

The deciles referred to in the following tables are deciles of equivalent disposable income, and are constructed to contain equal numbers of individuals, not equal numbers of households (see Section 3.8). Quintiles of equivalent disposable income are also occasionally used—these are groups of 20% of the population. Households are those in private dwellings and do not include institutions such as student hostels, army bases and residential homes for the elderly (see Section 3.2). Household types are discussed in Section 3.9.

Characteristics of households and deciles

Appendix Table 1 – Number of households, by income decile, 1987/88 and 1997/98

Decile	1987/88		1997/98	
	Number	Percentage	Number	Percentage
First	127,529	11.4	144,609	11.0
Second	129,188	11.5	168,281	12.8
Third	109,797	9.8	118,556	9.0
Fourth	98,689	8.8	114,863	8.7
Fifth	101,692	9.1	119,126	9.1
Sixth	106,243	9.5	119,922	9.1
Seventh	113,542	10.1	127,167	9.7
Eighth	111,182	9.9	128,812	9.8
Ninth	114,991	10.2	134,302	10.2
Tenth	109,300	9.7	139,015	10.6
All households	1,122,155	100.0	1,314,653	100.0

Appendix Table 2 – Number of households, by household type, 1987/88 and 1997/98, using 1987/88 age cut-offs

Household type	Age	1987/88		1997/98	
		Number	Percentage	Number	Percentage
Single	<40	48,497	4.3	54,759	4.2
person	40-59	56,296	5.0	81,195	6.2
	60	125,659	11.2	151,774	11.5
Couple without	<40	84,609	7.5	91,331	6.9
children	40-59	87,179	7.8	131,100	10.0
	60	101,789	9.1	118,334	9.0
Couple with	<30	77,530	6.9	51,921	3.9
children	30-34	77,864	6.9	70,071	5.3
	35-39	79,566	7.1	96,081	7.3
	40-44	70,793	6.3	78,121	5.9
	45-49	48,944	4.4	60,031	4.6
	50+	50,304	4.5	57,671	4.4
Sole parents		87,219	7.8	106,587	8.1
Other family types		67,697	6.0	110,272	8.4
Non-family households		58,207	5.2	55,404	4.2
All households		1,122,153	100.0	1,314,652	100.0

Appendix Table 3 – Number of households, by household type, 1987/88 and 1997/98, using 1997/98 age cut-offs

Household type	Age	1987/88		1997/98	
		Number	Percentage	Number	Percentage
Single	<40	48,497	4.3	54,759	4.2
person	40-62	67,962	6.1	89,782	6.8
	63+	113,993	10.2	143,186	10.9
Couple without	<40	84,609	7.5	91,331	6.9
children	40-62	115,267	10.3	154,194	11.7
	63+	73,701	6.6	95,241	7.2
Couple with	<30	77,530	6.9	51,921	3.9
children	30-34	77,864	6.9	70,071	5.3
	35-39	79,566	7.1	96,081	7.3
	40-44	70,793	6.3	78,121	5.9
	45-49	48,944	4.4	60,031	4.6
	50+	50,304	4.5	57,671	4.4
Sole parents		87,219	7.8	106,587	8.1
Other family types		67,697	6.0	110,272	8.4
Non-family households		58,207	5.2	55,404	4.2
All households		1,122,153	100.0	1,314,652	100.0

Appendix Table 4 – Characteristics of households, 1987/88

Household type	Age	Total number of households in population	equivalent disposable income quintile 1	equivalent disposable income quintile 2	equivalent disposable income quintile 3	equivalent disposable income quintile 4	equivalent disposable income quintile 5
					Percentage of households which are in		
Single	<40	48,497	12.8	17.5	17.9	27.7	24.1
person	40-59	56,296	31.2	10.5	16.8	22.9	18.7
	60+	125,659	61.8	17.3	12.4	6.6	1.8
Couple without	<40	84,609	3.7	4.4	9.1	28.6	54.1
children	40-59	87,179	14.3	16.0	16.8	25.0	28.0
	60+	101,789	23.9	27.8	23.4	15.5	9.4
Couple with	<30	77,530	32.5	31.8	21.8	10.7	3.3
children	30-34	77,864	20.4	31.6	27.5	11.5	9.1
	35-39	79,566	15.1	21.2	26.4	25.8	11.5
	40-44	70,793	8.0	12.4	25.0	29.6	25.2
	45-49	48,944	6.9	14.0	18.5	22.2	38.4
	50+	50,304	7.5	9.7	10.5	25.5	46.8
Sole parents		87,219	47.8	21.4	13.6	11.1	6.1
Other family types		67,697	7.7	20.7	23.7	25.1	22.8
Non-family households		58,207	4.6	12.2	15.1	33.0	35.1

Appendix Table 5 – Characteristics of households, 1997/98

Household type	Age	Total number of households in population	equivalent disposable income quintile 1	equivalent disposable income quintile 2	equivalent disposable income quintile 3	equivalent disposable income quintile 4	equivalent disposable income quintile 5
					Percentage of households which are in		
Single	<40	54,759	20.7	14.9	22.7	25.5	16.2
person	40-62	89,782	25.2	10.0	15.1	20.7	29.1
	63+	143,186	58.9	19.1	13.9	5.2	2.9
Couple without	<40	91,331	3.5	6.2	10.0	29.5	50.9
children	40-62	154,194	17.5	10.3	15.9	24.4	32.0
	63+	95,241	37.2	22.8	17.2	10.4	12.4
Couple with	<30	51,921	25.8	36.0	26.6	9.1	2.4
children	30-34	70,071	17.5	29.9	26.9	20.6	5.0
	35-39	96,081	8.9	25.0	24.0	25.5	16.6
	40-44	78,121	9.6	12.8	24.7	27.5	25.4
	45-49	60,031	6.6	12.2	12.2	27.9	41.1
	50+	57,671	9.7	18.7	25.9	18.1	27.7
Sole parents		106,587	53.3	21.0	9.7	12.2	3.8
Other family types		110,272	11.9	19.6	24.4	21.6	22.5
Non-family households		55,404	14.0	18.2	15.6	22.5	29.6

Appendix Table 6 – Characteristics of occupants of households, by income decile, 1987/88

Decile	Mean occupants per household	Percentage of occupants who are						
		earning wages and salaries	self employed	performing household duties	retired	receiving unemployment benefit	receiving other taxable benefits	aged under 15
First	2.4	5.1	11.7	13.3	13.2	2.4	9.7	37.3
Second	2.4	9.7	2.3	14.8	24.7	2.1	9.1	33.4
Third	2.8	15.6	3.5	17.2	16.7	1.8	5.3	33.5
Fourth	3.1	24.1	3.5	15.6	11.1	0.5	3.3	33.9
Fifth	3.1	27.2	5.4	17.2	9.3	0.7	2.0	31.6
Sixth	2.9	34.0	3.2	16.3	10.6	1.6	2.6	22.6
Seventh	2.7	44.0	4.7	13.0	8.6	1.0	1.3	17.0
Eighth	2.8	50.2	4.9	11.7	7.7	0.4	1.9	15.6
Ninth	2.7	59.8	5.2	11.1	4.2	0.7	0.5	8.8
Tenth	2.8	61.7	7.7	9.3	5.0	0.3	0.3	8.3
Average	2.8	33.1	5.2	14.0	11.1	1.2	3.6	24.2

Appendix Table 7 – Characteristics of occupants of households, by income decile, 1997/98

Decile	Mean occupants per household	Percentage of occupants who are						
		earning wages and salaries	self employed	performing household duties	retired	receiving unemployment benefit	receiving other taxable benefits	aged under 15
First	2.5	4.1	7.2	8.7	10.3	4.5	16.3	37.1
Second	2.1	5.5	2.0	8.2	38.1	6.1	9.6	23.2
Third	3.0	13.4	5.7	10.6	15.4	3.3	6.7	33.0
Fourth	3.1	19.3	3.5	14.4	13.1	2.8	5.0	31.9
Fifth	3.0	23.7	5.5	11.3	13.9	1.1	3.7	28.7
Sixth	3.0	32.6	7.3	11.1	8.8	2.4	3.1	24.0
Seventh	2.8	44.6	4.3	12.1	7.1	0.5	2.4	19.5
Eighth	2.8	47.1	6.8	11.0	5.2	0.5	0.9	17.0
Ninth	2.6	57.1	5.9	9.1	6.2	0.7	0.9	10.5
Tenth	2.6	55.7	10.7	9.6	3.2	0.2	0.4	10.5
Average	2.7	30.3	5.9	10.6	12.1	2.2	4.9	23.5

Income tables by decile, 1987/88

Appendix Table 8 – Receipt of cash benefits, 1987/88

Decile	National Superannuation A	Family Assistance B	DPB C	Unemployment Benefit D	Accommodation E	Other Benefits F	Total cash benefits G =A+B+C+D+E+F
First	4,829	2,896	2,549	1,784	993	1,112	14,162
Second	8,451	1,888	3,080	1,391	801	723	16,334
Third	6,744	1,315	1,730	1,221	642	630	12,281
Fourth	4,964	667	1,184	555	574	666	8,610
Fifth	4,142	371	777	722	357	221	6,591
Sixth	5,074	344	554	962	401	496	7,831
Seventh	3,770	220	273	764	408	192	5,627
Eighth	3,623	91	94	355	319	561	5,043
Ninth	2,002	75	191	476	172	60	2,976
Tenth	2,713	59	46	408	127	61	3,414
Average	4,684	844	1,102	889	491	483	8,494

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 9 – Receipt of education benefits, 1987/88

Decile	Early childhood H	State primary I	State secondary J	Tertiary K	Other education L	Total education M =H+I+J+K+L
First	115	1,653	992	263	8	3,032
Second	110	1,535	591	303	14	2,553
Third	130	1,595	1,091	162	18	2,994
Fourth	131	2,008	1,379	888	20	4,428
Fifth	134	1,716	1,147	520	26	3,542
Sixth	78	1,128	1,537	788	31	3,563
Seventh	35	872	1,165	1,412	15	3,497
Eighth	35	842	1,132	696	25	2,731
Ninth	23	372	963	2,005	16	3,379
Tenth	26	323	689	1,676	29	2,742
Average	82	1,200	1,054	861	19	3,216

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 10 – Receipt of total government benefits, 1987/88

Decile	Cash benefits	Education	Health	Total govt benefits
	G	M	N	O =G+M+N
First	14,162	3,032	3,349	20,543
Second	16,334	2,553	4,121	23,008
Third	12,281	2,994	3,879	19,155
Fourth	8,610	4,428	3,750	16,787
Fifth	6,591	3,542	3,698	13,832
Sixth	7,831	3,563	3,379	14,773
Seventh	5,627	3,497	3,132	12,256
Eighth	5,043	2,731	3,008	10,782
Ninth	2,976	3,379	2,762	9,117
Tenth	3,414	2,742	3,092	9,251
Average	8,494	3,216	3,418	15,129

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 11 – Tax payments, 1987/88

Decile	Income tax P	Consumption tax Q	Total tax R =P+Q
First	2,339	3,400	5,740
Second	4,096	3,396	7,492
Third	6,208	4,224	10,432
Fourth	8,638	5,080	13,718
Fifth	11,314	5,737	17,051
Sixth	12,813	6,107	18,920
Seventh	15,098	6,523	21,621
Eighth	18,511	7,297	25,808
Ninth	22,690	8,529	31,219
Tenth	39,591	10,294	49,886
Average	13,886	5,995	19,880

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 12 – From market income to disposable income, 1987/88

Decile	Market income	Cash benefits	Income tax	Disposable income
	S	G	P	T
				=S+G-P
First	-1,866	14,162	2,339	9,957
Second	8,290	16,334	4,096	20,528
Third	18,331	12,281	6,208	24,405
Fourth	28,730	8,610	8,638	28,701
Fifth	37,061	6,591	11,314	32,339
Sixth	41,129	7,831	12,813	36,147
Seventh	50,161	5,627	15,098	40,689
Eighth	60,421	5,043	18,511	46,954
Ninth	73,372	2,976	22,690	53,658
Tenth	109,983	3,414	39,591	73,809
Average	41,609	8,494	13,886	36,218

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 13 – From market income to final income, 1987/88

Decile	Market income	Total govt benefits	Total tax payments	Final income
	S	O	R	U
				=S+O-R
First	-1,866	20,543	5,740	12,938
Second	8,290	23,008	7,492	23,806
Third	18,331	19,155	10,432	27,054
Fourth	28,730	16,787	13,718	31,799
Fifth	37,061	13,832	17,051	33,842
Sixth	41,129	14,773	18,920	36,982
Seventh	50,161	12,256	21,621	40,796
Eighth	60,421	10,782	25,808	45,395
Ninth	73,372	9,117	31,219	51,270
Tenth	109,983	9,251	49,886	69,348
Average	41,609	15,129	19,880	36,858

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 14 – Shares of government benefits, tax payments and income, 1987/88

Decile	Total govt benefits	Total tax payments	Market income	Disposable income	Final income
	O	R	S	T	U
First	15.4	3.3	-0.5	3.1	4.0
Second	17.5	4.3	2.3	6.5	7.4
Third	12.4	5.1	4.3	6.6	7.2
Fourth	9.8	6.1	6.1	7.0	7.6
Fifth	8.3	7.8	8.1	8.1	8.3
Sixth	9.2	9.0	9.4	9.4	9.5
Seventh	8.2	11.0	12.2	11.4	11.2
Eighth	7.1	12.9	14.4	12.8	12.2
Ninth	6.2	16.1	18.1	15.2	14.3
Tenth	6.0	24.4	25.7	19.9	18.3

All figures reported in this table are $1997 dollars per household per year.

Income tables by decile, 1997/98

Appendix Table 15 – Receipt of cash benefits, 1997/98

Decile	National Superannuation A	Family Assistance B	DPB C	Unemployment Benefit D	Accommodation Supplement E	Other Benefits F	Total cash benefits G =A+B+C+D+E+F
First	2,753	2,269	3,718	2,026	1,255	2,433	14,453
Second	9,489	1,221	1,599	2,042	1,105	1,480	16,937
Third	5,297	1,990	1,579	1,853	1,421	1,404	13,543
Fourth	4,648	935	786	1,443	590	1,527	9,929
Fifth	4,557	411	741	792	437	832	7,770
Sixth	2,785	213	596	1348	391	648	5,980
Seventh	2,046	127	287	318	289	871	3,938
Eighth	1,656	124	123	344	226	460	2,934
Ninth	1710	123	58	404	88	400	2,782
Tenth	1137	17	0	163	88	297	1,701
Average	3723	762	992	1,095	603	1053	8,229

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 16 – Receipt of education benefits, 1997/98

Decile	Early childhood H	State primary I	State secondary J	Tertiary K	Other education L	Total education M =H+I+J+K+L
First	305	1,837	880	973	217	4,212
Second	265	947	377	919	96	2,604
Third	452	1,917	1187	948	135	4,638
Fourth	275	2,048	1171	976	35	4,506
Fifth	334	1,708	1,238	1105	37	4,422
Sixth	217	1,243	1,097	1284	130	3,970
Seventh	192	1,139	739	989	138	3,196
Eighth	114	830	986	1454	132	3,515
Ninth	79	451	794	1001	170	2,494
Tenth	78	420	622	962	241	2,324
Average	228	1,225	882	1055	135	3,526

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 17 – Receipt of total government benefits, 1997/98

Decile	Cash benefits	Education	Health	Total govt benefits
	G	M	N	O =G+M+N
First	14,453	4,212	3,778	22,443
Second	16,937	2,604	5,283	24,824
Third	13,543	4,638	5,529	23,710
Fourth	9,929	4,506	5,130	19,565
Fifth	7,770	4,422	4,222	16,414
Sixth	5,980	3,970	3,942	13,892
Seventh	3,938	3,196	3,187	10,321
Eighth	2,934	3,515	3,073	9,522
Ninth	2,782	2,494	2,830	8,106
Tenth	1,701	2,324	2,523	6,548
Average	8,229	3,526	3,946	15,701

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 18 – Tax payments, 1997/98

Decile	Income tax P	Consumption tax Q	Total tax R =P+Q
First	2,047	3,528	5,575
Second	3,278	3,330	6,608
Third	5,017	4,770	9,787
Fourth	6,944	5,336	12,280
Fifth	8,511	5,942	14,453
Sixth	10,571	6,539	17,110
Seventh	12,934	7,080	20,014
Eighth	16,206	8,206	24,412
Ninth	20,472	8,987	29,459
Tenth	42,985	12,325	55,310
Average	12,915	6,556	19,471

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 19 – From market income to disposable income, 1997/98

Decile	Market income	Cash benefits	Income tax	Disposable income
	S	G	P	T =S+G-P
First	2,068	14,453	2,047	14,474
Second	5,099	16,937	3,278	18,758
Third	16,697	13,543	5,017	25,223
Fourth	25,097	9,929	6,944	28,082
Fifth	32,330	7,770	8,511	31,589
Sixth	41,734	5,980	10,571	37,143
Seventh	51,115	3,938	12,934	42,119
Eighth	62,795	2,934	16,206	49,523
Ninth	76,967	2,782	20,472	59,277
Tenth	141,510	1,701	42,985	100,226
Average	45,239	8,229	12,915	40,553

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 20 – From market income to final income, 1997/98

Decile	Market income	Total govt benefits	Total tax payments	Final income
	S	O	R	U =S+O-R
First	2,068	22,443	5,575	18,936
Second	5,099	24,824	6,608	23,315
Third	16,697	23,710	9,787	30,620
Fourth	25,097	19,565	12,280	32,382
Fifth	32,330	16,414	14,453	34,291
Sixth	41,734	13,892	17,110	38,516
Seventh	51,115	10,321	20,014	41,422
Eighth	62,795	9,522	24,412	47,905
Ninth	76,967	8,106	29,459	55,614
Tenth	141,510	6,548	55,310	92,748
Average	45,239	15,701	19,471	41,469

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 21 – Shares of government benefits, tax payments and income, 1997/98

Decile	Total govt benefits	Total tax payments	Market income	Disposable income	Final income
	O	R	S	T	U
First	15.7	3.1	0.5	3.9	5.0
Second	20.2	4.3	1.4	5.9	7.2
Third	13.6	4.5	3.3	5.6	6.7
Fourth	10.9	5.5	4.8	6.1	6.8
Fifth	9.5	6.7	6.5	7.1	7.5
Sixth	8.1	8.0	8.4	8.4	8.5
Seventh	6.4	9.9	10.9	10.0	9.7
Eighth	5.9	12.3	13.6	12.0	11.3
Ninth	5.3	15.5	17.4	14.9	13.7
Tenth	4.4	30.0	33.1	26.1	23.7

All figures reported in this table are $1997 dollars per household per year.

Income tables by household type, 1987/88

Appendix Table 22 – Receipt of cash benefits, 1987/88

Household type	Age	National Super A	Family Assistance B	DPB C	Unemployment Benefit D	Accommodation Supplement E	Other Benefits F	Total cash benefits G =A+B+C+D+E+F
Single	<40	0	0	34	1,402	120	341	1,897
person	40-59	0	0	344	951	495	2,242	4,032
	60+	12,815	0	0	0	374	0	13,189
Couple without	<40	46	0	0	747	119	97	1,009
children	40-59	4,545	0	0	83	151	262	5,041
	60+	20,771	0	0	0	202	20	20,993
Couple with	<30	0	1,697	191	2,080	868	41	4,876
children	30-34	130	1,539	181	1,027	547	135	3,559
	35-39	83	948	0	565	371	35	2,002
	40-44	316	450	0	430	342	113	1,652
	45-49	333	308	0	606	256	346	1,850
	50+	7,782	310	27	1,535	334	1,233	11,220
Sole parents		1,611	4,516	10,147	1,101	1,585	1,439	20,399
Other family types		5,324	2,435	4,353	2,753	1,241	1,616	17,721
Non-family households		3,148	0	93	1,710	217	492	5,661

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 23 – Receipt of education benefits, 1987/88

Household type	Age	Early childhood H	State primary I	State secondary J	Tertiary K	Other education L	Total education M =H+I+J+K+L
Single	<40	0	0	22	1,064	0	1,086
person	40-59	0	0	0	237	0	237
	60+	0	0	0	12	0	12
Couple without	<40	0	19	0	492	0	512
children	40-59	0	0	0	76	0	76
	60+	0	0	0	12	0	12
Couple with	<30	376	1,916	60	285	5	2,643
children	30-34	338	4,717	989	359	44	6,446
	35-39	177	4,044	3,272	668	86	8,248
	40-44	40	1,765	4,523	1,237	61	7,626
	45-49	12	866	3,229	2,358	14	6,479
	50+	3	584	1,420	1,966	8	3,980
Sole parents		112	2,107	1,941	632	27	4,819
Other family types		121	1,886	1,721	2,081	53	5,864
Non-family households		0	0	74	4,280	0	4,354

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 24 – Receipt of total government benefits, 1987/88

Household type		Cash benefits	Education	Health	Total govt benefits
		G	M	N	O =G+M+N
Single	<40	1,897	1,086	797	3,780
person	40-59	4,032	237	1,019	5,288
	60+	13,189	12	4,327	17,527
Couple without	<40	1,009	512	1,952	3,473
children	40-59	5,041	76	2,583	7,701
	60+	20,993	12	6,394	27,400
Couple with	<30	4,876	2,643	3,922	11,441
children	30-34	3,559	6,446	3,658	13,663
	35-39	2,002	8,248	3,128	13,378
	40-44	1,652	7,626	2,808	12,086
	45-49	1,850	6,479	2,946	11,275
	50+	11,220	3,980	4,419	19,620
Sole parents		20,399	4,819	2,653	27,871
Other family types		17,721	5,864	5,291	28,876
Non-family households		5,661	4,354	2,789	12,804

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 25 – Tax payments, 1987/88

Household type	Age	Income tax P	Consumption tax Q	Total tax R =P+Q
Single	<40	9,859	3,684	13,543
person	40-59	8,888	3,493	12,381
	60+	4,250	2,163	6,414
Couple without	<40	19,091	7,052	26,142
children	40-59	15,608	6,291	21,899
	60+	8,837	4,455	13,292
Couple with	<30	11,580	5,700	17,281
children	30-34	17,027	7,097	24,124
	35-39	19,728	7,914	27,641
	40-44	20,614	9,098	29,712
	45-49	22,430	9,386	31,815
	50+	22,836	8,050	30,886
Sole parents		7,353	4,468	11,822
Other family types		16,693	7,823	24,515
Non-family households		15,870	7,386	23,256

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 26 – From market income to disposable income, 1987/88

Household type	Age	Market income	Cash benefits	Income tax	Disposable income
		S	G	P	T =S+G-P
Single	<40	32,250	1,897	9,859	24,289
person	40-59	27,227	4,032	8,888	22,371
	60+	6,306	13,189	4,250	15,244
Couple without	<40	62,509	1,009	19,091	44,428
children	40-59	46,058	5,041	15,608	35,492
	60+	16,169	20,993	8,837	28,325
Couple with	<30	38,589	4,876	11,580	31,885
children	30-34	52,567	3,559	17,027	39,099
	35-39	59,614	2,002	19,728	41,888
	40-44	68,267	1,652	20,614	49,305
	45-49	67,476	1,850	22,430	46,895
	50+	67,689	11,220	22,836	56,073
Sole parents		19,016	20,399	7,353	32,061
Other family types		53,916	17,721	16,693	54,944
Non-family households		54,544	5,661	15,870	44,334

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 27 – From market income to final income, 1987/88

Household type	Age	Market income S	Total govt benefits O	Total tax payments R	Final income U =S+O-R
Single	<40	32,250	3,780	13,543	22,487
person	40-59	27,227	5,288	12,381	20,134
	60+	6,306	17,527	6,414	17,420
Couple without	<40	62,509	3,473	26,142	39,840
children	40-59	46,058	7,701	21,899	31,860
	60+	16,169	27,400	13,292	30,277
Couple with	<30	38,589	11,441	17,281	32,750
children	30-34	52,567	13,663	24,124	42,107
	35-39	59,614	13,378	27,641	45,350
	40-44	68,267	12,086	29,712	50,641
	45-49	67,476	11,275	31,815	46,935
	50+	67,689	19,620	30,886	56,422
Sole parents		19,016	27,871	11,822	35,064
Other family types		53,916	28,876	24,515	58,277
Non-family households		54,544	12,804	23,256	44,091

All figures reported in this table are $1997 dollars per household per year.

Income tables by household type, 1997/98

Appendix Table 28 – Receipt of cash benefits, 1997/98

Household type	Age	National Super A	Family Assistance B	DPB C	Unemployment Benefit D	Accommodation Supplement E	Other Benefits F	Total cash benefits G =A+B+C+D+E+ F
Single	<40	0	0	0	939	631	626	2,196
person	40-62	0	0	202	498	159	1,716	2,575
	63+	13,062	0	0	0	209	460	13,730
Couple without	<40	0	0	0	298	326	14	638
children	40-62	2,195	0	0	858	266	590	3,910
	63+	19,068	0	0	0	22	845	19,936
Couple with	<30	0	1964	441	1,287	1,170	417	5,279
children	30-34	0	1846	112	695	583	628	3,864
	35-39	0	1164	245	824	659	500	3,392
	40-44	0	1193	276	1,534	390	497	3,891
	45-49	112	405	85	667	373	1,260	2,902
	50+	4,657	315	192	2,530	401	1,935	10,030
Sole parents		807	3061	7,828	1134	1,684	2,478	16,992
Other family types		3,532	1767	3,260	3,798	1,587	2,676	16,621
Non-family households		2,153	42	0	2,594	821	1,056	6,666

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 29 – Receipt of education benefits, 1997/98

Household type	Age	Early childhood H	State primary I	State secondary J	Tertiary K	Other education L	Total education M =H+I+J+K+L
Single	<40	0	0	48	784	29	862
person	40-62	0	0	18	193	7	217
	63+	0	0	0	22	0	22
Couple without	<40	0	0	85	610	99	793
children	40-62	0	0	138	147	11	296
	63+	0	0	0	32	0	32
Couple with	<30	1,036	2,057	29	581	123	3,826
children	30-34	1070	4,049	471	437	145	6,173
	35-39	717	4,492	2,341	813	247	8,610
	40-44	153	2,711	3,966	1,209	353	8,392
	45-49	11	913	2,712	2,646	507	6,790
	50+	0	337	732	2,021	122	3,212
Sole parents		462	2,921	1,891	953	262	6,489
Other family types		370	1,705	1,299	2,729	249	6,352
Non-family households		0	56	122	5,962	87	6,226

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 30 – Receipt of total government benefits, 1997/98

Household type	Age	Cash benefits	Education	Health	Total govt benefits
		G	M	N	O =G+M+N
Single	<40	2,196	862	885	3,943
person	40-62	2,575	217	1,141	3,933
	63+	13,730	22	4,942	18,694
Couple without	<40	638	793	1,645	3,076
children	40-62	3,910	296	2,430	6,636
	63+	19,936	32	7,311	27,279
Couple with	<30	5,279	3,826	6,132	15,237
children	30-34	3,864	6,173	5,667	15,704
	35-39	3,392	8,610	4,442	16,444
	40-44	3,891	8,392	3,650	15,933
	45-49	2,902	6,790	3,466	13,158
	50+	10,030	3,212	4,393	17,635
Sole parents		16,992	6,489	3,451	26,932
Other family types		16,621	6,352	6,073	29,046
Non-family households		6,666	6,226	3,276	16,168

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 31 – Tax payments, 1997/98

Household type	Age	Income tax P	Consumption tax Q	Total tax R =P+Q
Single	<40	7,563	3,972	11,535
person	40-62	10,131	4,397	14,528
	63+	3,759	2,607	6,366
Couple without	<40	18,596	7,807	26,403
children	40-62	16,230	7,165	23,395
	63+	7,735	4,827	12,562
Couple with	<30	9,442	5,175	14,617
children	30-34	13,341	7,139	20,480
	35-39	19,405	9,165	28,570
	40-44	20,671	10,694	31,365
	45-49	23,430	10,595	34,025
	50+	15,347	8,708	24,055
Sole parents		6,294	4,335	10,629
Other family types		14,552	7,726	22,278
Non-family households		12,775	7,554	20,329

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 32 – From market income to disposable income, 1997/98

Household type	Age	Market income	Cash benefits	Income tax	Disposable income
		S	G	P	T =S+G-P
Single	<40	29,119	2,196	7,563	23,752
person	40-62	36,179	2,575	10,131	28,623
	63+	4,932	13,730	3,759	14,903
Couple without	<40	70,306	638	18,596	52,348
children	40-62	57,609	3,910	16,230	45,289
	63+	15,106	19,936	7,735	27,307
Couple with	<30	37,667	5,279	9,442	33,504
children	30-34	50,475	3,864	13,341	40,998
	35-39	69,938	3,392	19,405	53,925
	40-44	76,078	3,891	20,671	59,298
	45-49	86,018	2,902	23,430	65,490
	50+	55,561	10,030	15,347	50,244
Sole parents		19,292	16,992	6,294	29,990
Other family types		52,565	16,621	14,552	54,634
Non-family households		50,634	6,666	12,775	44,525

All figures reported in this table are $1997 dollars per household per year.

Appendix Table 33 – From market income to final income, 1997/98

Household type	Age	Market income	Total govt benefits	Total tax payments	Final income
		S	O		U
				R	=S+O-R
Single	<40	29,119	3,943	11,535	21,527
person	40-62	36,179	3,933	14,528	25,584
	63+	4,932	18,694	6,366	17,260
Couple without	<40	70,306	3,076	26,403	46,979
children	40-62	57,609	6,636	23,395	40,850
	63+	15,106	27,279	12,562	29,823
Couple with	<30	37,667	15,237	14,617	38,287
children	30-34	50,475	15,704	20,480	45,699
	35-39	69,938	16,444	28,570	57,812
	40-44	76,078	15,933	31,365	60,646
	45-49	86,018	13,158	34,025	65,151
	50+	55,561	17,635	24,055	49,141
Sole parents		19,292	26,932	10,629	35,595
Other family types		52,565	29,046	22,278	59,333
Non-family households		50,634	16,168	20,329	46,473

All figures reported in this table are $1997 dollars per household per year.