Family Incomes and Economic Growth in the 1980s

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by

Bruce Bradbury and Jennifer Doyle

Foreword

The 1980s was a decade in which Australia, like other industrial nations, struggled to cope with difficult economic times by freeing up markets which had for decades been subject to government regulation. Fiscal restraint operated throughout the period, yet despite this economic growth continued at reasonably high rates from the time that the 1982-83 recession ended right up until signs of recession again began emerging in 1989-90. While this growth saw many incomes rising and led to the creation of new jobs, others missed out. The result was a widespread perception that inequalities in income were widening and rates of poverty were rising, for some groups if not for the nation as a whole.

Issues of inequality and poverty have, for the last five years, been central to the work of the Social Policy Research Centre. We have attempted to monitor developments in these important social indicators, in the process utilising new data and methods of analysis which have provided new insights into these issues. Included among this research is the study of family disposable incomes undertaken by the authors of this Report and Peter Whiteford, and work on poverty by myself and George Matheson. This work has been published in the **SPRC Discussion Paper** series, though much of it is now out of print in that series, having appeared in professional journals.

In this Report, Bruce Bradbury and Jennifer Doyle have documented the basic building blocks which underlie much of this research effort. Central to this is the microsimulation model which has been developed at the Centre over the last three to four years. This model builds on detailed income data released by the Australian Bureau of Statistics (ABS) by estimating how economic, demographic and tax-transfer policy changes have impacted upon family incomes. It is possible to use the basic method to construct counterfactual outcomes, i.e. outcomes which would have been observed if economic or policy changes had been different from those which actually took place. By comparing observable outcomes with these counterfactual simulations, it is possible to estimate, for example, the impact of changing levels of unemployment on poverty and income inequality.

This Report documents the underlying microsimulation techniques, as they exist in 1992. It is a feature of this research that the methods themselves are constantly being improved as new data and techniques become available. This process has operated in the Centre since the research commenced and will no doubt continue. Having explained the methods, the Report analyses changes in income distribution and poverty in Australia in the 1980s and highlights some of the factors contributing to those changes. It is important research and its results are fundamental to an understanding of how Australian families have fared during a time of rapid economic and social change.

Peter Saunders
Director

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1 Introduction

Between 1983 and 1990, the Australian economy experienced its strongest period of economic growth since the early 1970s. Between 1983-84 and 1989-90 average real GDP growth averaged over four per cent per annum, and total employment grew by almost a quarter. Though this strong growth was partly a reflection of the depth of the 1983-84 recession, and is now being followed by yet another recession, it is still claimed by many as a major achievement of the Labor government of the period.

This period of economic growth was accompanied by a number of other factors of major importance for family incomes. First was a significant decrease in real wage levels. Between 1984-85 and 1989-90, real wages fell by 6 per cent, returning to their level of the early 1980s – despite a decade of productivity growth.[1] This fall was attributed by many commentators to the Wage and Prices Accord agreed between the Labor government and the ACTU on behalf of the trade union movement. Even those critical of other aspects of the Accord process generally concede that this policy had some success in moderating wage growth (e.g. Fane, 1990; Blandy, 1990). These real wage falls in turn are generally accepted to be an important reason for the strong employment growth of the period.

Part of the trade-off sought by the trade union movement for this moderation in real earnings growth was in the extension of 'social wage' benefits. The social wage can be considered as all those aspects of government expenditure which directly benefit particular individuals or families. Major initiatives of the Labor government over this period included the (re)introduction of universal public funded health insurance (Medicare), significant increases in income support payments for low income families with children, and expansion of government services in the housing, education and child care areas. In addition, attempts were made to integrate income support payments for the unemployed and sole parents with labour market programs.

At the same time, social expenditures have been curtailed in other areas. Eligibility criteria and the administration of entitlement have been tightened (e.g. via assets tests, and restrictions on sole parent pension and unemployment benefit eligibility) and charges have been introduced for some services such as higher education.

Nonetheless one of the key goals of these social policy initiatives by the Labor government has been to address concerns of the persistence of poverty, especially among families with children. The Prime Minister's famous statement that 'by 1990 no child will need to live in poverty' (Hawke, 1987) may have been ill-conceived, given the difficulty of achieving consensus on the definition of poverty, but was in fact matched by significant changes. The two main planks upon which the government's anti-poverty policy rested were employment growth and income

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1   This estimate is for ordinary time Average Weekly Earnings for full-time employed adults.

support reforms (including both payment increases and new programs) and, up until the end of the 1980s at least, significant achievements were made in both these areas.

These changes are described in more detail in Section 2 of this report. However, description of these changes is not our primary aim. Rather, this report has two main goals:

*   To estimate the overall impact on family incomes of these economic and policy changes between 1983-84 and 1989-90, both in terms of average incomes and distributional outcomes; and

*   To decompose these overall changes into those due to different influences.

Some specific questions that we address include:

*   Which family types benefited most from this period of strong economic growth?

*   What was the main proximate cause of their income growth?

*   What impact did strong economic growth have on income inequality? Which factors had the most impact?

*   How did economic growth influence the rates of poverty among different family types?

*   Which changes were most important in alleviating poverty? In particular, to what extent were employment growth and income support policy changes responsible for any poverty reduction?

*   What does the experience of the 1980s tell us about likely consequences of the recession of the early 1990s? How much will poverty increase and which groups will be most severely affected?

The focus of the report is primarily historical, looking in detail at the impact on incomes of a sustained period of economic growth. Though these years of growth are now fast receding, this analysis is not just of historical interest. In particular, the counterfactual simulations presented here can be used to provide some insight into the likely impact of the current recession on family incomes. Moreover, the 1983 to 1989 period seems to represent the best in terms of economic growth that the Australian economy can deliver, at least in the foreseeable future. Estimates of the impact of growth will thus be relevant to considerations of the likely trends in family incomes as the economy recovers from the present recession. If poverty persists even after such a period of strong employment growth and increases in income support payments, perhaps alternative policies will need to be found.

The present report is organised into six main parts. In the next section we review the aggregate income trends and the income support and taxation policy changes of the 1980s. Section 3 then introduces the simulation model which we use to impute the impact of these aggregate trends to individual families. This model is then used in

Section 4 to provide estimates of the changes in family incomes between 1983-84 and 1989-90. Estimates of mean incomes, as well as of poverty rates and income shares are presented.

In Section 5 a series of counterfactual simulations are undertaken in order to identify the different influences on the distribution of family incomes over the period. These involve modifying the simulation of 1989-90 incomes presented in Section 4 so as to hold each factor in turn at its 1983-84 value. This permits estimates to be made of the separate impact of changes in unemployment, married women's labour force participation, wage rates, capital/business incomes, income support and income tax scales. Results from these simulations are presented both for mean incomes in each family type, as well as for the measures of poverty and inequality used in Section 4.

Section 6 summarises the main findings of the report, considering the implications of these results for future economic and social policies.

2 Aggregate Income Trends

2.1 Household Disposable Incomes

One of the more convenient means of summarising aggregate trends in household incomes can be found in the National Accounts. Figure 2.1 illustrates trends in the components of household disposable income per capita (HDIPC) during the 1980s. The different sources of household income are cumulated in this figure to arrive at a total household income per person in the population (the top line of the figure). Taxes and some other transfers are then subtracted in order to calculate HDIPC (the dotted line). All incomes in the figure are adjusted for price changes (using the CPI). It should be noted that the figure is truncated at the bottom, and thus does not clearly indicate that wages and salaries comprise around 60 per cent of total household income.

Between 1981-82 and 1989-90, all per capita income components other than farm incomes increased in real value, leading to an overall 10 per cent increase in HDIPC. It is clear, however, that trends in the different components of household incomes were not uniform. Despite the large growth in employment since the 1983 recession, real per capita wages grew relatively slowly (by only 2.4% over the period 1981-82 to 1989-90). This reflects falls in real wages, together with the fact that many new jobs were only part-time. Because some wage rises during this period were taken in the form of increased employer contributions to superannuation, supplements to wages and salaries grew proportionately much faster (34.4% growth).

After expanding during the 1983 recession, personal benefit payments fell slowly during the remainder of the decade. The fastest growth, however, was recorded in the various forms of capital incomes. Because of the high interest rates and profit levels over the second half of the decade, the share of household income accruing in the form of interest, dividends, rent and (non-farm) business income rose from 18.6 to 22 per cent.

This National Accounts data, however, presents only a very summarised picture of income trends in the Australian economy. To understand both the reasons for these changes, and how they have affected individual families we have to disaggregate these changes much further. The rest of this section therefore examines in more detail the trends in employment patterns, wage, social security and other income growth and income taxation over the 1980s.

2.2 Employment

Table 2.1 summarises changes in unemployment, participation and employment rates since the recession in the early 1980s. The annual average number of people

Figure 2.1: Components of Real Household Incomes Per Capita, 1981-82 to 1989-90

Source: ABS Unpublished National Accounts tabulations as at June quarter 1990.

Table 2.1: Unemployment, Employment and Participation Rates, 1983-84 and 1989-90

	1983-84 %	1989-90 %	Difference (Percentage points)
Unemployment rates	9.6	6.2	-3.4
Married women's participation rates	42.4	52.1	9.7
Other participation rates	68.0	68.0	0.0
Employed per persons aged 15-64	62.3	68.6	6.3
Full-time employment rate (ft/(ft+pt))[a]	82.7	79.1	-3.6
Full-time employed per persons aged 15-64	51.5	54.2	2.7

Sources: ABS (various years), *The Labour Force, Australia,* Cat. No. 6202.0 and 6203.0 (Via dX EconData).
ABS (various years), *Australian Demographic Statistics,* Cat. No. 3101.0.

Note: a) ft is full-time; pt is part-time.

unemployed peaked in 1983-84 at 680 thousand and then fell slowly to 515 thousand in 1989-90, a drop from 9.6 to 6.2 per cent. This left the unemployment rate still slightly higher than it was at the beginning of the 1980s (5.9% in 1980-81).

Between 1983-84 and 1989-90 the number of persons in employment rose from 6.39 to 7.84 million, with overall employment increasing from 62.3 to 68.6 per cent of the workforce-age population. Of these 1.45 million new jobs, 920 thousand (63.4%) were full-time, while 533 thousand (36.7%) were part-time. The full-time rate (full-time employed per working age persons) increased from 51.5 to 54.2 per cent, while the part-time rate rose from 10.8 to 14.3 per cent. As a proportion of total employment however, full-time employment fell from 82.7 to 79.1 per cent. Thus, while nearly two-thirds of all job growth was full-time, part-time employment became increasingly important in the Australian labour market.

This growth in part-time employment was related to the growing participation of married women in the labour market. The greatest increases in employment rates occurred amongst married women, particularly those in the 20 to 54 year age range where rates rose between 8 and 12 percentage points. Over 56 per cent of total employment growth between 1983-84 and 1989-90 was taken up by women (38.4% married, 18.2% single), with around half of the growth in married female employment occurring in the part-time market. This led the proportion of employed married women who were working part-time to rise slightly from 45 to 46 per cent.

General statements, however, about the increased labour market activity of married women tend to disguise the very uneven impact of job growth during the 1980s

amongst married couple families. The variation in married women's labour market participation with the labour force status of their husband is of particular relevance when examining trends in family incomes. In earlier work one of the present authors (Bradbury, 1990a) has shown that it was primarily in families where one member was already employed that married women's employment grew most. Where the husband was either unemployed or not in the labour force, employment growth of wives was negligible. These patterns are illustrated in Figures 2.2 and 2.3.

Figure 2.2 shows changes in the labour force status of couples where at least one spouse was in the labour force (this restriction is made so as to exclude the retired population). The decrease in single income couples (full-time + not employed) and the corresponding increase in the proportion of two income couples (both employed) is clearly evident, both for couples with and without dependants. The proportion of couples with dependants who had only a single earner fell from 53 to 39 per cent while that of two income couples rose from 43 to 56 per cent. The prevalence of two incomes was even stronger amongst couples without dependants with the corresponding proportion rising from 53 to 62 per cent.

Changes in wives' employment rates classified by husbands' employment status and the presence of dependants are presented in Figure 2.3. Again the dramatic increases in married women's participation are evident. However this figure also shows that these increases were not uniform. Married women with employed husbands had both the highest employment rates at the start of the 1980s as well as the largest increases in employment over the decade. Though this difference was most marked for total employment, Part b) of Figure 2.3 shows a similar pattern for full-time employment—particularly for wives without dependants. Between 1981 and 1989, full-time employment amongst wives with employed husbands and no dependants rose from 38.9 to 45.8 per cent, an increase of 6.9 percentage points. Among wives with dependants, the increase was slightly smaller (5.7%). In contrast, employment rates amongst wives with unemployed husbands have either remained the same or fallen.

The reasons for both the general association between husbands' and wives' employment status and the patterns over time evident in Figure 2.3 are not immediately obvious. Some possible explanations for the general association include: spouses having similar characteristics such as age, education level and location; established social roles within the household, for example where it is considered inappropriate for some wives to work when their husbands are unemployed; or the impact of the high effective marginal tax rates of the income support system in discouraging part-time or low wage employment. That is, when a husband is receiving unemployment benefit, the increase in family income obtained by the wife working part-time will only be small, as the benefit will be reduced via the income test. Whilst there is little evidence available that would permit a distinction between these explanations, this last explanation must be considered a strong contender.

Figure 2.2:   Combined Labour Market Status of Couples, with at Least One Member in the Labour Force, 1981 to 1989

a) Couples Without Dependants

b) Couples With Dependants

Source: ABS (various years), Catalogue No. 6224.0.

Figure 2.3: Employment Rates of Married Women by Husband's Employment Status

a) Employment Rate [Ft+Pt/Pop]

Legend:

— H employed, no dependents   ⋯⋯ H unemployed, no dependents   — H not in l.f., no dependents

✶ H employed, dependents   ✶ H unemployed, dependents   ✶ H not in l.f., dependents

b) Full-time Employment Rate [Ft/Pop]

Source: ABS (various years), Catalogue No. 6224.0.

However even less evidence exists as to why the patterns of wives' labour market participation became more divergent over the decade. This could be due to the interaction of the above factors with a general increase in married women's labour force participation, or may reflect some factor(s) more specific to the 1980s. One hypothesis is that the key driving force behind the increase in married women's participation during the 1980s was the income effect of falling family disposable incomes as real wages fell.[2] If this were the case one might expect this effect to have been much less significant for those families where the husband was not receiving a wage.

Whatever the reason for these patterns of married women's employment, Figure 2.3 shows that they do not imply the across the board increase in incomes that might be implied by the aggregate employment trends. In particular, those families experiencing unemployment were very little assisted by the increase in participation rates.

2.3 Wages

Whilst family incomes are clearly influenced by the probability of members being in employment, for those families with employed members wage rates are of central importance in determining living standards.

In Figure 2.4, some alternative measures of Average Weekly Earnings (AWE) are shown. Over the decade the standard measure of earnings, average weekly total earnings for all persons, experienced a significant real decline, particularly after 1984-85. However a significant part of this fall was due to the changing composition of the workforce, as the proportion of people employed in part-time jobs increased. This compositional effect is illustrated by the other measures of average earnings shown in Figure 2.4. The fall in weekly earnings is significantly less when we restrict attention to full-time adult employees (or full-time adult males). Nonetheless, the fall in these wage rates since 1984-85 is significant. By the end of the 1980s, real earnings had returned to their level in 1981-82 despite almost a decade of productivity growth.

These changes, however, have also not been uniform across different groups. Figure 2.5 shows the increase in weekly wage rates between August 1983 and August 1989 for married and single full-time workers at different levels of the income distribution using data from the ABS *Weekly Earnings of Employees (Distribution)* publication (Cat. No. 6310.0). This figure clearly shows that wage increases have varied significantly across demographic groups and income levels. For example the earnings increase for the 70th percentile of single female earnings was 64 per cent, whilst that for the 10th percentile of married males was only 46 per cent.

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2   The decrease in 'disposable' incomes due to high interest rates may also have had a similar effect.

Figure 2.4: Indices of Real Average Weekly Earnings

Source: ABS earnings data from dX EconData

Figure 2.5:   Weekly Earnings In August 1989 Relative to August 1983 by Percentile (Full-time Employees)

Source: Calculated from ABS (various years), Catalgue No. 6310.0.

These data, however, need to be interpreted with some caution. Even though part-time workers are excluded, it is possible that some of this variation may reflect changes in hours worked, rather than wage rates. Moreover, the definition of marital status was changed over the period (in 1983 'permanently separated' persons were classified as married but as single from 1984 onwards), and this may be an explanation for the relatively high increase in wages for the top decile of single males (since 'separated' men are older and hence have higher wages than single men generally).

Most important, however, is that this survey publishes earnings data in ranges only, and cannot provide information on changes in the wage distribution **within** the top decile.[3] One source of potentially more detailed data is that available from the ABS income surveys. Figure 2.6 shows the increase in wage income for each of twenty half deciles for the same demographic groups as in Figure 2.5, but in this case between the years 1985-86 and 1989-90 only.[4] Unlike that figure, which compared percentile levels, this figure shows a comparison of the average incomes of the different half-decile groups, and so is able to more fully describe the wage changes at the very top of the income distribution.

The results are quite dramatic. For both married men and women there is a clear trend for wage increases to be greatest for those higher up the income distribution. The average income of the top 5 per cent of married men, for example, was almost 50 per cent higher in 1989-90 than in 1985-86, whilst the average income of the bottom 5 per cent increased by only one quarter. The picture for single people is more mixed, with the largest increases at both the top and bottom of the income distribution.

Again some caution is required in interpreting this data. In preparing the public use files from which this figure was derived, the Australian Bureau of Statistics adjusted some very high incomes in order to protect the confidentiality of the survey respondents. Whilst the precise adjustment methods used are confidential, it is possible that some changes in the adjustment methodology between 1986 and 1990 may be responsible for these patterns. Nonetheless, the pattern of results shown in Figure 2.6 (particularly for married men) is consistent with the anecdotal evidence of significant executive wage growth in the latter part of the 1980s.

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3   This also means that the percentile wages used in Figure 2.5 had to be calculated by linear interpolation rather than being directly available.

4   Wage rates for this calculation are calculated as the annual wage and salary income of the person, divided by the number of weeks worked. Full-time employees are those people who worked full-time for more than half the weeks they worked during the year.

Figure 2.6:   Weekly Earnings of Half Deciles in 1989-90 Relative to 1985-86 (Full-time Employees)

Source: Calculated from ABS 1985-86 and 1989-90 Income Distribution Surveys.

2.4 The Social Security System

The decade of the 1980s was a period of continuous change in income support policy. Since 1983 in particular, the Labor government has instituted a wide range of reforms aimed at both furthering social justice objectives and reducing government expenditure. These two, often contradictory, goals meant an expansion of income support programs in some areas (primarily family assistance) combined with an increased emphasis on targeting and more restrictive administration of eligibility requirements.

An important part of the social security policy changes of the period are summarised in Table 2.2. This table shows the change in the rates of payment of the most important pension and benefit payments between 1983-84 and 1989-90.

In order to make sense of changing pension and benefit payment rates, however, it is necessary to take account of changing prices. This is not as simple as it might seem as the conventional measure of price changes in Australia, the consumer price index (CPI) is not really appropriate for pensioner/beneficiary families. The CPI is designed to reflect changes in the prices faced by metropolitan wage and salary earning households. The introduction of Medicare in 1984 reduced health care prices for these households, but not for pensioner and beneficiary households for whom health concession cards had existed prior to Medicare. For these families, the best price index that can be easily calculated is the consumer price index excluding health and medical charges. In Table 2.2 both this measure and the standard CPI are used to estimate the changes in the real values of the different components of pensions, benefits and allowances.[5]

Whichever price index is used the picture shown in Table 2.2 is one of considerable diversity. The base rate of pension experienced a very minor real increase over the period. Even though it reached the long-sought benchmark of 25 per cent of average weekly earnings (for all males) in April 1990, this was due more to the decrease in real earnings described earlier, than to pension increases.

Changes in payment levels for beneficiaries varied considerably depending upon the category of payment, with real base benefit levels for all age categories except adult unemployment beneficiaries declining substantially. These falls were partly due to the standardisation of payments according to age rather than activity. Begun in 1987, this process involved the establishment of uniform rates across all benefits and education allowances and their alignment with unemployment benefit (UB) rates. Although UB and sickness benefit (SB) payments to 16 and 17 year olds were still at

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5   It is important to note that estimates of changes in the real value of pensions and benefits can be quite sensitive to the precise date on which comparisons are made—even when there are no policy changes. This is because of the lag between price changes and the intermittent indexation adjustments. This is why other authors (Saunders and Matheson, 1991: 11; Harding and Landt, 1991: 13) have quite different estimates for pension changes over a similar period to that shown here.

Table 2.2:   **Real Changes (Per Cent) in Social Security and Related Payments – 1983-84 to 1989-90**

Type of Payment	Real Change (%)	
	CPI	CPI(ex.HM)
Married rate of pension and benefit	+1.4	+0.6
Standard rate of pension	+1.5	+0.6
Single unemployment benefit		
16-17 years (JSA)	-16.8	-17.6
18-20 years	-9.7	-10.5
adult	+10.6	+9.6
Single sickness benefit		
16-17 years	-16.8	-17.6
18-20 years	-22.8	-23.5
adult	-5.5	-6.4
Additional pension/benefit for children		
Less than 13 years	+37.5	+36.3
13-15 years	+98.1	+96.3
Mothers/guardians allowance	+26.7	+25.7
One child under 6 years	-3.5	-4.3
Rent assistance		
No children	+17.5	+16.5
With children	+50.0	+48.8
Family allowances		
One child	+13.1	+12.1
Two children	-6.8	-7.6
Secondary assistance scheme	+59.6	+58.0
Tertiary education assistance	+11.2	+10.2

Note: CPI is the standard Consumer Price Index. CPI(ex.HM) is the Consumer Price Index net of hospital and medical costs.

their November 1985 nominal level when the restructuring of youth payments commenced, a further decline in their real value occurred when the increase scheduled for January 1988 was deferred for a year to allow Austudy rates to align with UB. In addition, the replacement of UB by Job Search Allowance (JSA), a training allowance set at half the rate of its forerunner with the other half subject to a parental income test, resulted in further significant falls in the level of payment for many young unemployed. (Table 2.2 is based on the maximum rate of JSA available).

Changes in payments to 18 to 20 year olds varied according to benefit type. Unemployment beneficiaries experienced falls in the value of payments when six monthly indexation was removed between November 1985 and January 1989, whereupon it was restored on an annual basis. Two ad hoc increases during this period failed to maintain the real value of payments. Again the rationalisation of payments to youth contributed to further falls when the January 1988 increase was deferred for Austudy alignment. Sickness beneficiaries in this age category experienced substantial falls in payment levels when the standardising of benefits translated into an actual cut in the nominal rate of SB (and hence a 23 per cent fall in real value over the period).

The adult rate of SB has a similar history, although the effect of alignment with UB payments was not as severe as for 18-20 year olds. Nonetheless, because the adult rate of SB has traditionally been set a higher level than UB, its alignment necessarily involved a fall in real value.

In contrast to the modest increases and sometimes reductions in base pension/benefit rates, however, major increases in the rates of supplementary payments to families with children were implemented in the second half of the 1980s. Since 1990, total payments for children (Additional Pension or Benefit for Children or AP/BC, Family Assistance Supplement or FAS and Family Allowance or FA) were fixed at 15 and 20 per cent of the married rate of pension, for children under 13, and 13 to 15 year olds, respectively (and thus indexed for future price rises).

The last feature of Table 2.2 concerns the increased real value of education allowances. As mentioned earlier, the restructuring of benefits according to age rather than activity included student allowances. As part of the policy to remove financial disincentives to continuing education, large real increases were made in both Secondary Assistance Scheme (SAS) and Tertiary Educational Assistance Scheme (TEAS) (now Austudy) payments. Although some of the real growth can be explained by the absorption of FA payments into SAS payments in 1986 and additional pensions and benefits for children into the higher rates of student allowances in 1988, Austudy rates also increased significantly when they were raised to the level of UB in January 1988. Moreover as well as increases in payment rates, the period also saw a significant increase in the numbers of students receiving support, with the number of recipients of education assistance increasing from around 148 thousand in 1983 to almost 310 thousand in 1990. This reflected the growing numbers of students both completing school and going on to higher education.

However as this example attests, rates of payment are only one of the factors influencing the total level of income support going to families. Whilst changes in rates of payments since 1983-84 have overall acted to **increase** real family incomes, this has generally **not** been the case for the changes in program coverage. Clearly changes in basic economic and demographic factors (such as unemployment rates and the size of the aged population) have influenced the base population eligible for

these different payments. However there have also been major social security coverage and administrative changes implemented during the 1980s.

The more important of these are shown in Table 2.3. As well as listing these changes, the table also notes the full year expenditures or savings (adjusted to 1989-90 dollars) forecast in the Budget papers for each of the policy initiatives when they were introduced. Table 2.4 summarises this further information by grouping these policy developments into three areas: income/asset test, administrative, and eligibility/scope changes. The detailed classification of the policy changes into these three categories is indicated in Table 2.3.

Income/Asset Tests include the major extensions of income and assets tests introduced over the 1980s (including the broadening of the definition of income). New income tests were imposed on Family Allowance (FA), in-kind maintenance payments to sole parent pensioners, for JSA applicants (parental income test) and pensioners 70 years and over whilst assets tests were introduced for virtually all pensions, benefits and allowances, including FAS and Austudy. In addition, the definition of income was significantly widened to include a wide range of capital-return financial instruments. In terms of projected savings, the most important of these was the introduction of the income test for over 70s pensioners in November 1983, followed by the introduction of an income test for family allowances in November 1987. Together these two changes accounted for almost three quarters of the savings in this category.

At the same time as income tests were being extended, a range of other **administrative changes** were made to restrict entitlement. These included the introduction of additional job search and reporting requirements as well as the use of mobile review teams, and more extensive cross-checking of records with other government departments such as the Australian Tax Office. New 'penalty' waiting periods were introduced for voluntary job leavers, those who failed the work test and unemployment beneficiaries who moved to low employment areas. In addition, the reporting obligations of recipients were increased, with requirements for increased proof of separation by sole parents and compulsory reporting of financial circumstances after 3 months on sole parent pension, new activity tests for the young unemployed, new employer report and work intention forms, and requirements for the personal lodgement of continuation of benefit forms. In total, government forecasts estimated that $739m per annum (in 1989-90 dollars) was saved as a result of these more stringent administrative policies. It is, however, not possible to ascertain whether these targets were actually met.

As well as changing the administrative arrangements for categories of people eligible for income support, there were also major policy changes defining the scope of the eligible population. Some of these **eligiblity/scope** changes involved reductions in expenditure, whilst others meant significant increases.

In the former category, the most important changes occurred for the young unemployed and sole parents. Based on the expectation that parent(s) should and

Table 2.3:   Selected Changes in Social Security Coverage and Administrative Arrangments 1983-84 to 1989-90

Payment Category	Description	Implementation	Per-Annum Cost ($m 1990-91)
AP	Income test for pensioners 70+ years (I)	November, 1983	-356.5
Ps	Assets test introduced (I)	March, 1985	-42.9
FA	FA withdrawn for student children 18-24 in non-pen/ben families (E)	November, 1985	-39.3
FA	FA absorbed into Secondary Allowance payments (E)	January, 1986	-30.1
Ps/Bs	New income assessment procedures in relation to complex investment products (I)	1987-88	-26.2
UB	Waiting period extended for voluntary job leavers (E)	July, 1987	-3.4
UB	Tighter administration of UB (eg. scrutiny of work intentions) (A)	July, 1987	-53.9
UB	Waiting period for junior and intermediate UB extended (E)	September, 1987	-51.3
Ps/Bs	Review of eligibility and administration of income support payments (eg. additional review teams, employer reports) (A)	September, 1987	-365.5
SPB	Qualifying age for child of sole parent reduced to 15 (E)	September, 1987	-19.4
FA	Income test on FA (I)	November, 1987	-108.3
Ps	Permit pensioners to aggregate unused free entitlement areas (earnings credit scheme) (I)	November, 1987	5.4
FAS	FAS introduced (including extension of RA) (E)	November, 1987	558.4
UB/SB/SpB	Assets test for 25+ years (I)	December, 1987	-27.4
APC	APC no longer available to students on education allowance (E)	January, 1988	(no est)
JSA/UB	JSA replaced UB for 16-17 year olds (E)	January, 1988	-38.3
SPB	Income test on in-kind maintenance payments (I)	June, 1988	-10.3
	Increased detection of non declared income (A)		-11.1
Ps/Bs	Review of eligibility and admin of income support payments (eg. additional mobile reviews, computer matching etc) (A)	1988-89	-112.9
Ps/Bs	Removal of Investment Income Shelters under the income test for pensions and benefits (I)	1988-89	-15.9
FAS	FAS abolished for children with unearned income (E)	December, 1988	-3.2
FAS	Assets test on FAS introduced (I)	January, 1989	-42.0
UB	Tighter administration of the work test (eg increased use of work intention form) (A)		-4.9
AP	Definition of income relaxed (I)	1989-90	14.0
UB	New work-test arrangement for UB and new definition of 'suitable paid work' (A)	July, 1989	-16.4
UB/SB	Deferment of benefit for annual leave payments on termination of employment (E)	September, 1989	-61.2
FA	Review of FA recipients (A)	October, 1989	-30.0
UB	Introduction of 12 week waiting period for persons moving to low employment area (A)	November, 1989	-8.9
SB	Tighter administration (mobile review teams and reviews) (A)	December, 1989	-19.5
UB	Additional review procedures (eg. closer monitoring of job search efforts, additional mobile review teams etc) (A)	December 1989	-98.4
FA	Reassess FA on increase of income (I)	January, 1990	-27.6
FA	Abolish payments for children under 16 working full-time (E)	January, 1990	-8.0
FAS	Change in administration of FAS income test (notifiable events) (A)	January, 1990	-7.8
FAS	Income test changes - 25% reduction rule (I)	January, 1990	5.5
SPP	Revised review arrangements for sole parent pensioners (focussing on 'high risk' pensioners) (A)		-9.8

Notes: ABC - additional benefit for children; AP - age pension; APC - additional pension for children; FA - family allowance; FAS -- family allowance supplement; JSA - job search allowance; MGA - mother's/guardian's allowance; Ps - all major pensions; Ps/Bs - all major pensions and benefits; SB - sickness benefit; SpB - special benefit; SPP - sole parent pension; UB - unemployment benefit. (I) - Income/Asset test changes (E) Eligibility/Scope (A) Administrative

Source: Treasury (various years), Budget Paper No. 1.

Table 2.4:   **Summary Table of Estimated Savings and Expenditure 1983-84 to 1989-90 ($m1990-91 per Annum)**

Policy Changes	Savings (-)	Additional expenditure (+)	Total
Income/Asset Tests	657.10	24.9	-632.2
Administrative	739.1	-	-739.1
Eligibility/Scope	254.2	558.4	304.2
TOTAL	1650.4	583.3	-1067.1
Changes not included in simulation	1503.8	24.9	-1478.9

Source: Table 2.3.

would provide for the financial needs of 16 and 17 year olds, policy changes were implemented to shift financial responsibility away from the social security system and toward the family (or others). In September 1987 the waiting period for junior and intermediate UB was extended to 13 weeks, and this was followed in January 1988 with the abolition of UB for 16 and 17 year olds and its replacement with Job Search Allowance (JSA). Under JSA, payment was subject to a parental income test. The clear implication of these changes was that income support for the young unemployed was to be primarily a family responsibility, with the state intervening only when this manifestly failed.

Somewhat different changes to the boundary between family/state responsibility were made in the case of sole parents. After September 1987 sole parents with no children aged under 16 were no longer eligible for sole parent's pension. These parents were required to apply for unemployment benefit (UB) and search for work. Whilst this led to income reductions for many sole parents (UB was less than supporting parents benefit) this was offset for some by the introduction of the Child Support Scheme—which sought to broaden the income support responsibility to non-custodial parents.

The most important **increase** in income support coverage (and hence expenditure) was the introduction in 1987 of the 'family package', a series of measures directed towards both working and non-working low income families with children. Under the new Family Allowance Supplement (FAS) scheme, levels of assistance were increased, the income test was liberalised, and rent assistance was extended to both FAS recipients and beneficiaries receiving child payments who rented privately.

Overall, increased levels of assistance and significantly broadened eligibility requirements resulted in a substantial increase in recipient numbers from around 33 thousand families at June 1987 (under the old FIS) to over 178 thousand at June 1990 (DSS, 1990: 213).

In summary, and covering both payment rates and administrative arrangements, the main changes in income support policy between 1983 and 1989 can be grouped under three headings. First, an increased attention given to the problem of child poverty, with the introduction of FAS and significant increases in the rates of pension and benefit for families with children. Second, an increase in the 'targeting' of the already highly targeted Australian income support system. The main changes here were the introduction of income tests for family allowances, and for the over 70s pensioners. Finally, has been a focus upon integration between income support and labour market policy. This has involved increased training and child care support, reductions in some poverty traps, but most of all an increase in the administrative pressures on beneficiaries to re-enter employment.

Because of the complexity of these changes, the simulation model employed in later sections of this paper does not attempt to mirror them all. Whilst payment rate changes, and some major policy changes such as the introduction of income tests for family allowance and JSA and the introduction of FAS are included, most of the items listed in Table 2.3 are not. The total forecast savings not included in the simulation model are also listed in Table 2.4. Overall, some $1.5b in expenditure savings are not captured by the simulation model. This represents 6 per cent of total 1989–90 income support expenditure. The implications of this exclusion are discussed further in Section 4.

2.5 Personal Income Taxation

Like income support payments, personal income tax policy experienced significant change over the 1980s (Whiteford and Doyle, 1990). The Labor government introduced changes to the rate scale in the 1984-85 Budget, following the September 1985 Statement on tax reform, and in the April 1989 Economic Statement. Since the introduction of Medicare in February 1984, a levy has also been imposed on taxable incomes above certain low income thresholds.

In considering the tax rates facing family units of differing composition, however, it is also necessary to take account of appropriate rebates, such as the dependent spouse and sole parent rebates, and transfers such as FA and FAS, which go to those outside the social security system. Despite nominal increases, the family rebates fell substantially in real terms. As shown in Table 2.2, however, the real value of FA for the first child and FAS increased in real terms.

Clearly, it is trends in the real value of tax thresholds and rebates that are relevant when considering changes in tax liabilities over time. Table 2.5 shows the income

Table 2.5: Personal Income Tax Arrangements – 1983-84 and 1989-90

Part A: Rate Scales

Income Range ($1989-90 per year)	Marginal Rate (Cents per dollar) 1983-84	Marginal Rate (Cents per dollar) 1989-90
0 - 5,099	0	0
5,100 - 7,065	0	21
7,066 - 17,649	30	21
17,650 - 20,599	30	29
20,600 - 29,986	30	39
29,987 - 34,999	46	39
35,000 - 49,999	46	47
50,000 - 55,034	46	48
55,035+	60	48

Part B: Tax Thresholds

Type of Taxpayer	Effective Tax Threshold 1983-84	Effective Tax Threshold 1989-90	Change %
Single	7,065	5,100	-27.8
Sole parent	11,063	9,576	-13.4
Single income couple			
-without children	11,320	9,862	-12.9
-with children	12,345	10,814	-12.4
Pensioner			
-single	8,347	8,262	-1.0
-married couple[(a)]	8,347	7,624	-8.7
Beneficiary			
-single			
16-17 years	7,065	5,100	-27.8
18-20 years	7,065	5,471	-22.6
21 years or more	7,065	6,719	-4.9
60-64 years	7,065	6,786	-4.0
-married			
without children	11,320	12,033	6.3
with children[(b)]	12,345	12,033	-2.5

Notes: (a) The difference between the effective thresholds for single and married pensioners in 1989-90 reflects the decision to increase the rebates to cover the basic pension plus the pensioner free area, which is less for each of a married couple than for a single pensioner.

(b) Until March 1984, Additional Benefit for Children was taxable.

tax rate scales in 1983-84 and 1989-90 (excluding the medicare levy), expressed in 1989-90 dollars, as well as the effective tax threshold produced for different types of families by the dependent rebates.

Part A of Table 2.5 shows that changes in tax liability varied with income, with taxes rising at very low income levels because of the fall in the real value of the threshold, and then falling because of the cut in the first rate, and so on. These effects offset each other at different income levels, so that as a consequence single tax-payers with incomes less than $11,653 per year in 1989-90 paid higher taxes than they would have under the real 1983-84 scale; single tax-payers with incomes between $11,653 and $26,924 paid less tax; those with incomes between $26,924 and $33,925 paid more tax; those with incomes between $33,925 and $42,528 paid less tax, while those with incomes over $56,713 paid less tax than they would have if the 1983-84 scale had been maintained and indexed to inflation.

These results are of particular interest since they indicate that the benefits of the cut in the top marginal rate did not actually have an impact until much higher real income levels than is often supposed. In fact, tax-payers with incomes between $35,000 and $55,035 actually faced a higher rather than a lower marginal tax rate than they would have if the 1983-84 tax scale had been indexed. This is simply an illustration of 'fiscal drag' in operation.

The second part of Table 2.5 shows the effective tax thresholds produced by the various personal and dependent rebates. It can be seen that effective thresholds fell for sole parents and for those with dependent spouses. This produces different 'break-even' points than those described above, although the general effects were similar.

The table shows that the effective tax thresholds for pensioners, particularly couples, fell in real terms despite increases in the relevant pensioner rebate. The beneficiary rebates were introduced by the current government in 1984-85, and while effective thresholds for single beneficiaries and couples with children fell in real terms, the rebates were sufficient to insure that those beneficiaries without private income did not actually pay tax on benefits. However these results should be interpreted with care, since beneficiary couples with children also had their additional benefit payments for children exempted from tax in 1984. This meant that even while their effective tax threshold fell in real terms over the period, they were better off since those with no private income would have actually paid tax on their basic benefit payments in 1983-84 but did not in 1989-90 because of the combined effects of changes to the rebates and the tax-exemption of additional payments.

Table 2.6 shows the combined effects of changes in both the rate scales and the various rebates for four hypothetical family types. The results are expressed as percentage changes in real disposable incomes, which are calculated as total taxable income, minus income tax net of relevant rebates and minus the medicare levy, plus family transfers.

Table 2.6:   **Effects of Changes to the Tax-Transfer System on Real Disposable Incomes for Different Family Types, 1983-84 to 1989-90**

Taxable Income[a] ($p.a.)	Change in Real Disposable Income[b] %			
	Single person	One income couple, two children[c]	Two income couple, no children[d]	Two income couple, two children[d]
10,000	-1.6	4.9	-1.2	4.9
15,000	1.4	3.2	-3.0	0.0
20,000	2.5	10.4	-1.4	7.6
25,000	-0.2	-2.2	0.1	-0.2
30,000	-2.3	-3.8	1.3	1.0
35,000	-0.8	-2.4	1.6	1.3
50,000	-1.5	-2.6	-0.3	-0.5
70,000	2.4	-0.8	-1.3	-3.3
100,000	8.1	5.2	-0.6	-2.1

Notes: (a) Expressed in constant 1989-90 dollars.

(b) FA, FIS/FAS and Medicare Levy included.

(c) Dependent spouse assumed to have no taxable income; two children both under 13 years.

(d) Income is assumed to be earned in the ratio 60:40. Two children both under 13 years.

The results for single people show the effects of the rate scale changes alone, thus reflecting the pattern of changes identified in Part A of Table 2.5. This basic set of effects also applies to single income couples and to sole parents, but is modified at low income levels by the increased value of FAS, and at higher levels by the falling real value of the relevant rebates and FA for two or more children. In the example in Table 2.6, it can be seen that there were very large real increases in disposable incomes for low income families with children, followed by falls in disposable incomes for a very wide range of income, before the effects of the cut in the top marginal tax rate began to dominate. Even so, at very high incomes, single income couples with children did not do as well as single people, because of the fall in the value of the dependent spouse rebate and the effects of the income test imposed on FA.

The situation for two income couples is more complex, and depends upon the precise ratios in which incomes are earned (in the examples in Table 2.6, it is assumed that earnings are in the ratio 60:40 so that at $10,000, one earns $6,000 and the other $4,000, and so on.) Thus, at low income levels, the fall in the real value of the tax threshold had a greater effect than the cut in the first rate, and because this

influenced the tax liabilities of both earners, the effect covered a wider range of income than it did for single persons. These sorts of interactions meant that increases in real disposable income for two income couples were concentrated on those with individual incomes in the lower income ranges, and joint incomes in the middle income ranges. At joint incomes of $100,000, for example, there were tax increases, because one partner earned $60,000 and the other $40,000, and since they were taxed as individuals, they each suffered the sorts of losses that applied to single persons at these income levels. Once again, for two income families with children the results at low income levels are dominated by the effects of FAS, while at higher income levels, the results reflect the fall in the real value of FA and its income testing.

Overall, income tax reform during the 1980s resulted in lower marginal rates, a flatter tax scale and falls in the value of thresholds and rebates. The main winners were high single income families with and without children (because of the cut in the top rate) and low income families with children (because of the expansion of FAS). Lastly, a number of groups experienced falls in real disposable income—those on low incomes without children (because falls in the threshold outweighed the cut in the lower tax rate), single income families with children in the middle income ranges (because of falls in the real value of rebates and family allowance for two or more children), and high two income families with children (because the cut in the top rate was partially offset by the operation of the income test for FA).

It should be emphasised that the results presented in Table 2.6 implicitly assume that persons pay tax in line with their nominal liabilities and receive transfers according to their entitlements. Furthermore, these calculations have not incorporated all changes to the income tax system. No account has been taken of the introduction of base-broadening measures (e.g. fringe benefits tax and capital gains tax), measures to counter avoidance and evasion, or the removal of various rebates (e.g. concessional expenditure rebate). The distributive impact of changes such as these is difficult to estimate, but they have probably led to a greater tax take from higher income groups.

However, even when we restrict our attention to the relatively easily observed changes such as those of the labour market, income support and tax rate scales, the use of hypothetical families, as in the tables of this section, is still very restrictive. Whilst of use in identifying the direction of economic and policy changes in particular areas, such a description does not permit any overall analysis of the impacts of these changes on income levels and the distribution of income. To address these questions, a different method of analysis is required.

3 Simulating the Income Distribution

The most direct way to collect information on the level and distribution of income is to conduct sample surveys. In Australia such surveys have long been used to analyse income distribution and poverty levels. Similarly, the most straightforward way to analyse changes in these characteristics over time is to compare information from several such surveys.

However such an approach has limitations. First, survey techniques change over time and data may not be strictly comparable. This is a particular problem when researchers are forced to rely upon published data. Second, the timing of surveys is often not appropriate, or inevitable processing delays mean that the data may not be available when required. For example, this present report looks at the distribution of incomes in 1989-90. Whilst an income survey for this year has been conducted by the Australian Bureau of Statistics, the data was not processed and fully released until early 1992. Finally, whilst income surveys may provide the best estimate of the distribution of income at any particular time, changes in the income distribution will be a function of many different influences. A simple comparison of the data from different surveys will only allow the combined effect of these separate factors to be observed.

Because of these limitations this report uses an alternative **static microsimulation** methodology. The essence of this approach is quite simple. The goal is to combine the information from one base data source, in this case the ABS *1986 Income Distribution Survey* (IDS), with information on important changes over time, in order to provide an estimate of the data that might have been obtained had the income survey been conducted in a different period. Because the data for this different period is entirely simulated, it is then relatively simple to carry out counterfactual simulations to separately identify the impact of different factors.

For the present report, two base simulations are carried out to simulate income data for the 1983-84 and 1989-90 years. The first of these years corresponds to the election of the Hawke Federal Labor government (in March 1983), and also to the trough of the 1983 recession.[6] The second corresponds to the peak of the business cycle, prior to the increase in unemployment in 1990-91. A comparison of these two years thus can be used to derive a picture of the income trends resulting from a period of sustained economic growth.

In addition to simulating income distributions for these two years, we also present results for a number of counterfactual simulations. These describe the simulated

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6   Note that in an earlier report we take as our starting point the 1982-83 financial year
     (Bradbury, Doyle and Whiteford, 1990). The year has been changed here to capture the full
     impact of unemployment on family incomes (average unemployment rates were higher
     during 1983-84 than in the year before) and to avoid some of the distorting effects of the
     drought in 1982.

income distribution in 1989-90 assuming that some specified factors remained constant at their (real) 1983-84 levels. For example we simulate the likely income distribution if the unemployment rates of 1983-84 had continued to prevail in 1989-90, or if wages had been held constant at their real 1983-84 values. As well as enabling us to decompose the sources of income change over the period, these counterfactual simulations can also be of assistance in predicting the impact of future changes. A key example that we consider is the likely impact upon incomes of a return to 1983-84 unemployment levels.

It should not be forgotten, however, that these counterfactual simulations are just that − contrary to fact − and certainly must be interpreted with caution. For example, the fall in unemployment is often attributed to the reduction in real wages over this period. If this were the case, it will certainly not be consistent to hold wages at their 1989-90 level whilst describing the counterfactual impact of continuing high unemployment levels. On the other hand, this counterfactual may be of more relevance in describing the projected impact of increasing unemployment after 1989-90 − because this is now probably due to reasons other than wage levels. In general, the interpretation of these counterfactual results will always be dependent upon the underlying causal model between the variables of interest. Nonetheless we believe a presentation of the results of this exercise to be a useful input into a range of wider questions.

3.1 Simulation Methods

There are number of ways in which changes in the income distribution can be simulated.[7] One method is to model the changes in the incomes of individual families over time. This **dynamic simulation** method, however, requires a large amount of data and/or assumptions about how people move from one set of circumstances (e.g. labour market state) to another. As a consequence most simulation analyses use the **static simulation** approach followed here. Rather than following the course of individuals over time and then building up a picture of the overall changes from these, the goal of this simulation is to simply estimate the **distribution** of incomes in different periods.

The implications of this should be clearly understood. This means for instance, that when we talk of the incomes of the bottom decile growing by X per cent, we do **not** mean that, for the people who were in the bottom decile in 1983-84, their average income increased by this amount. Rather such statements mean that the average income of the bottom decile in 1989-90 was X per cent higher than the average income of the bottom decile in 1983-84. The static simulation method says nothing about whether the same people were in the bottom decile in both periods.

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7   For an overview of the different approaches to microsimulation in Europe, the United States and Australia respectively, see the collections by Atkinson and Sutherland (1988), Lewis and Michel (1990), and Bradbury (1990b).

The focus of this report is on the incomes of families, defined here by the **income unit** concept used by the ABS. Income units comprise either single adults, sole parents (and their dependent children), couples without children, or couples with dependent children (non-dependent children are treated as single adults).[8] For convenience, in this report the term 'family' is used synonymously with this income unit concept.

There are two main stages to the simulation of family incomes. First, population and employment changes are simulated by an adjustment to the **case structure** of the base data file. This is done by altering the weights attached to each income unit record which describe the number of income units in the Australian population which the record represents. Second, income changes are simulated by adjusting the income variables to reflect the trends in income growth over the period. More specifically, the following adjustments are made:

- Income unit weights are adjusted according to the total size and distribution of the population across 8 different income unit types (in decreasing size, couples with dependants, couples without dependants, adult children, single person households, persons in group households, sole parents, other family heads, and other relatives). This data was obtained from the ABS *Labour Force Status and Other Characteristics of Families* (LFSOCF) surveys (Cat. No. 6224.0) with some adjustments to compensate for changes in definitions (see Bradbury, 1990a).

- Income unit weights are then adjusted to account for the different labour force participation, unemployment and part-time employment rates of persons within each of these income unit types. For couples, adjustment is made according to the 16 cell interaction of these four labour force categories for husband and wife. The method used to link this data from the LFSOCF with the annual income data of the IDS is described in Bradbury (forthcoming). Some modifications to this methodology for this report are described in the Appendix.

- Wage and salary incomes are adjusted in order to reflect the changes in overall wage levels, together with the changing distribution of wages. Because of data availability, different methods are used for the 1983-84 and 1989-90 simulations. For the former year, annual wage incomes are deflated by the decreases in mid-quintile incomes as indicated by the ABS *Weekly Earnings of Employees (Distribution)* (WEED) survey (Cat. No. 6310.0). This is done separately for the four categories of wage earner shown in Figure 2.5, as well as for part-time employed married females. (The wage and salary incomes of part-time males and part-time single females are inflated by trends in mean incomes because there are fewer cases with these characteristics). More specifically, from the WEED survey, the 10th, 30th, 50th, 70th and 90th wage percentiles are calculated for August 1983 and 1989. These are used to inflate the wages of persons in the five income quintiles in the IDS data. An

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8   See ABS (1986), Catalogue No. 6545.0 for definitions.

adjustment based on average weekly earnings data (separately by sex) is then made to bring these wages into line with the financial years.

- To obtain the 1989-90 wage distribution, data from the ABS *1990 Income Distribution Survey* is used. The ratios shown in Figure 2.6, which show the increase in wages for different half-deciles of the wage distribution, are used to inflate the wages of persons in the corresponding half-deciles in the 1986 IDS. As for 1983-84, the wage and salary incomes of the smaller population groups (part-time males and part-time single females), are inflated by trends in mean incomes only.

- Other private income sources (interest, investment income, rents, self-employment income) are inflated in line with movements in the corresponding National Accounts aggregates (taking into account the effect of population growth).[9]

- Pension, benefit and educational allowance income recorded in the IDS is disaggregated into separate payments (e.g. base pension rate, allowances for children, rent assistance etc.). These components are then inflated according to trends in the rates of payment for these components. In general, coverage changes over the period are not modelled. However the parental income test for youth receiving Job Search Allowance is incorporated into the 1989-90 simulation.

- Family payments – Family Allowance (FA), Family Income Supplement (FIS) and Family Allowance Supplement (FAS) – are imputed on the basis of recorded characteristics of the family. The income test for FAS and FA in 1989-90 is based upon 90 per cent of simulated 1989-90 taxable income. A take-up rate of 15 per cent for FIS (in 1983-84) and around 50 per cent for FAS (in 1989-90) is assumed. The FAS take-up rate is assumed to increase with entitlements, and is calculated to replicate the known expenditure on FAS payments whilst taking the population estimates of the simulation into account (see Appendix).

- Personal income tax is then calculated on the basis of the simulated incomes. Some allowance is made for income averaging for farm income, and only 50 per cent of dividend income in 1989-90 is assumed to be subject to taxation.

Apart from the method used to adjust for labour force and wage changes, these simulations largely follow the methods described in Bradbury, Doyle and Whiteford (1990). More detailed information on the adjustment methods for labour market status can be found in Bradbury (forthcoming) and the Appendix.

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9   Ideally interest income should be discounted by the inflation rate, so as to remove that part of interest income required to simply compensate for the fall in the real value of savings. However (ignoring the Medicare effect) the underlying inflation rate was not very different in 1989-90 from that in 1983-84, and so no such adjustment has been made here.

As well as these simulations of incomes in 1983-84 and 1989-90, several counterfactual simulations are also undertaken. These simulations are based upon the 1989-90 simulation but with one factor in turn held at its real 1983-84 value. The difference between the overall simulated 1989-90 incomes and those simulated under this counterfactual can thus be used as an estimate of the importance of the particular factor on family income growth over the period. The specific factors held at their 1983-84 value (with all other factors at their 1989-90 value) are described below:

- **Unemployment:** Weights are defined so that unemployment rates are held at their simulated 1983-84 value. For computational simplicity in married couple income units, only husbands' unemployment rates have been set to 1983-84 values. An implication of this is that the changes in unemployment rates for couples will be underestimated.

- **Married Women's Participation:** For single adult income units, weights are the same as for the overall simulation of 1989-90 incomes. For married couples, the participation rate of wives (within each category of husbands' labour force status) is set equal to the participation rate in 1983-84.

- **Unemployment, Participation and Full-Time/Part-Time Rates:** Within each family type, the 1983-84 labour force status weighting is applied. (Note that the population and family type distribution is maintained at the 1989-90 level).

- **Pension/Benefit/Allowance Rates:** The payments recorded in the IDS are deflated to their 1983-84 values following the methods described above. These incomes are then inflated to (counterfactual) 1989-90 values using the CPI excluding medical costs. Family Allowance and FIS are imputed using CPI inflated rates of payments (and income test thresholds in the case of FIS).

- **Wage Rates:** Wage and Salary income is deflated to 1983-84 values using the method described above, and then inflated to 1989-90 values using the CPI.

- **Income Taxation:** Personal income tax is calculated using the 1983-84 rate scales and family rebates, with the thresholds inflated by the CPI to 1989-90 values. The definition of taxable income and the Medicare levy are not adjusted from their 1989-90 structure.

- **Everything:** This is the full simulation of the 1983-84 incomes, but with disposable incomes inflated to 1989-90 values (using the ex-medical CPI for pensioners and beneficiaries, and the standard CPI for other families).

3.2 Some Important Qualifications

Though the simulation method used here is much more comprehensive than the comparison of trends in aggregate income components used in Section 2 of this

report, there are several important respects in which the simulated data for the different years falls short of reflecting all the important changes of the period. Because the simulation process can only be finite, some such limitations are an inevitable part of any simulation results. Certainly we cannot claim that the simulated data are as rich as the data that might be obtained from actual surveys. Rather, the simulation method aims to provide estimates which are 'in-between', in terms of complexity, those obtained by the examination of either entirely hypothetical or actual families.

With regard to income support payments, whilst the methods used are quite appropriate for the measurement of trends in the **rates** of payments of different pensions and benefits, much less attention has been given to the **administrative and coverage** changes described in Section 2. Whilst we have made an attempt to model the introduction of income tests for family allowances and youth unemployment benefits, many of the important changes listed in Table 2.3 have not been incorporated into the simulations.

These include the introduction and extension of income and assets tests for pensioners, increased waiting periods and administrative supervision of unemployment beneficiaries, and changes to the qualifying age for children of sole parents. These have all led to a decrease in aggregate income support expenditures over the period but are not included in the model. As was discussed in Section 2, those omitted expenditure reductions amount to around 6 per cent of total 1989-90 income support payments. Another omitted factor which has had the opposite effect has been the expansion of AUSTUDY coverage. Such changes have generally been omitted because of a lack of information required to assign them appropriately, and this should be taken into account in considering the results presented below.

However the interpretation of these omissions is not always easy. For example, if we were to model the lack of an assets test in 1983-84 this would lead to an increase in the simulated incomes of aged persons in 1983-84. Since many of the asset-rich have low incomes, this would imply a lower poverty rate for this group in 1983-84 than actually simulated, and this might lead to the conclusion that the introduction of the assets test led to an increase in poverty among the aged. Would this be an appropriate conclusion? Only if it is assumed that the asset rich but income poor are actually poor. In the absence of a method of separately identifying the asset rich, the best approach is probably to simply ignore the impact of the assets test in the simulation (as we have done here).

In the Appendix a summary of an analysis comparing the simulation results with other external estimates is presented. For the most part, the estimates of income increases given by the model are quite similar to those of comparable sources. Compared to the National Accounts measures of household incomes, the most important difference probably lies in an apparent over-estimation of aggregate wages and salaries in 1983-84 (by 2 per cent). This means that the estimates of overall income growth shown here will be slightly underestimated.

On the other hand, the non-inclusion of many of the pension/benefit coverage changes described above will lead to an overestimate of income growth. This is discussed further in the next section where we examine incomes and poverty incidences in 1983-84 and 1989-90.

4 Overall Distributional Outcomes

Table 4.1 presents the simulation estimates of the mean real disposable incomes of seven different family types in 1983-84 and 1989-90. The first panel of the table is for the whole population, whilst the second panel excludes income units where either the head or spouse worked in their own business during the year.[10] In this and all following tables, 1983-84 incomes have been inflated to 1989-90 dollars using the CPI excluding medical expenses for pensioner/beneficiary families, and the standard CPI for other families. On average, real family incomes are estimated to have grown by an average of 4.3 per cent over the six year period (4.7 per cent for not self-employed families).

This can be compared with an estimate of a 9 per cent growth provided by the National Accounts estimate of real Household Disposable Income Per Capita (HDIPC) (deflated by CPI). About half of the difference between these two estimates lies in the distinction between disposable incomes per capita and disposable income per income unit. Between 1983-84 and 1989-90 the proportion of income units that comprised couples with dependants fell from 27.9 to 26.0 per cent. As a consequence, there was a fall of 2.3 per cent in the average number of persons per income unit. As a result, the simulation estimates that average income per capita grew by 6.6 per cent over this period, compared to the growth in average income per family of only 4.3 per cent. This changing demographic structure also explains why the **overall** percentage increase shown in Table 4.1 is lower than in most of the individual family types.

The remaining difference between this and the National Accounts estimate can be attributed primarily to two factors. First, the National Accounts have a much wider scope than the income measures considered here. For example, the increases in superannuation and social wage expenditures such as medical benefits are included in the National Accounts measures, but not in our estimates. Second, the model apparently overestimates aggregate wages in 1983-84 by two per cent (Appendix Table A.3). This is probably because of an underestimate of the proportion of employed people who were self-employed in that year.[11] These comparisons are discussed in more detail in the Appendix.

10　Both sets of estimates exclude incomplete income units and income units where annual income was not considered to be representative (the standard ABS exclusion for annual income tables, see ABS (1986), Catalogue No. 6545.0). Income unit income is defined as the sum of the income of the head and spouse (if present).

11　Further differences can also be explained by the use of the CPI ex-medical expenses rather than the standard CPI for pensioner/beneficiary households, the fact that the simulation does not account for the falling average numbers of dependants within married couple families, and the restricted scope of the income survey data (see previous footnote).

Table 4.1: Mean Incomes by Family Type ($1989-90)

Family Type	1983-84	1989-90	% increase	Cases
Person <25	12,283	12,988	5.7	1,651
Person 25-64	17,389	18,266	5.0	1,852
Person 65+	9,447	9,969	5.5	883
Couple, head 65+	17,846	18,917	6.0	746
Couple, head <65	32,145	33,379	3.8	1,736
Couple with dependants	32,695	34,276	4.8	2,743
Sole parent	13,818	15,729	13.8	383
All Families	22,345	23,304	4.3	9,994
		(Not Self-Employed)		
Person <25	12,022	12,804	6.5	1,570
Person 25-64	17,282	18,305	5.9	1,641
Person 65+	9,260	9,817	6.0	865
Couple, head 65+	16,817	17,982	6.9	687
Couple, head <65	31,931	33,858	6.0	1,350
Couple with dependants	33,210	35,270	6.2	2,059
Sole parent	13,557	15,495	14.3	363
All Families	21,404	22,419	4.7	8,535

Table 4.1 indicates that across family types, the largest increase in average incomes was for sole parents, who benefited significantly both from the improved labour market after 1983, and from the family package increases in payments for children. Since a large proportion of sole parents are pensioners, the family package had a particularly large impact upon their overall average incomes. It should be noted however that the estimates do not take account of the narrowing of coverage of sole parent pensions with the reduction in the child qualifying age, nor do they incorporate any increase in sole parent incomes associated with the child support scheme. These two changes have respectively led to decreases and increases in sole parent incomes.

Whilst younger couples had the smallest increase in average incomes, aged couples fared relatively well over the period. This was partly a result of the (small) increases in the real value of the aged pension (see Section 2) but mainly because of the increases in investment and interest income associated with the high interest rates of the late 1980s. In 1985-86 around one quarter of the income of families with head aged over 65 came from personal investments. The other side of these high interest rates, reductions in income after housing costs due to high home loan interest payments, are not considered here. In Bradbury, Doyle and Whiteford (1990) it is shown that these impacted most upon families at the other end of the life cycle, with home loan repayment increases greatest for those aged under 30.

4.1 Poverty Rates

The definition and measurement of poverty is a controversial issue, and one that has attracted much debate (see Bradbury and Saunders, 1990, and the references therein for an introduction). Rather than enter this debate here, we confine our analysis to a relatively simple, income based, measure of poverty. The basic poverty measure that we employ is the simplified Henderson Poverty Line for 1983-84.[12] Since the choice of the absolute level of the poverty line is essentially arbitrary (within reasonable bounds), we also look at the proportions of people in each family type below 80, 120 and 140 per cent of the poverty line. It should be remembered that the original Poverty Commission report recommended that all families with incomes below 120 per cent of the standard poverty line be included in the description 'poor' (Commission of Inquiry into Poverty, 1975: 13).

For comparing poverty rates at different times, a crucial issue is how the poverty line is adjusted in response to changes in community incomes and prices. The Henderson Poverty Line, for example, is usually adjusted in line with changes in the National Accounts measure of household disposable income per capita (HDIPC). Such poverty lines adjusted in line with community incomes are typically referred to as a **relative** poverty lines. The justification for this mode of adjustment is that people should be considered poor when their income is so low that they cannot participate in the social and economic life of the community. Hence increases in real community incomes should be reflected in increases in the poverty line.

Whether HDIPC is the best way of reflecting these changes in community incomes is debatable. Originally the Henderson Poverty Line was updated in line with trends in average weekly earnings, but this was abandoned as it did not adequately reflect net (or after-tax) incomes nor changes in non-wage incomes. Whilst replacing AWE with HDIPC solved these problems, others were introduced. The HDIPC measure includes income sources that are not normally included in household income surveys (such as imputed dwelling rent, earnings of superannuation funds, and medical benefit payments), and is calculated on a per-capita rather than per-income unit (or per equivalent income unit) basis. Its major strength, however, is that it is readily available and so still retains wide application.

Nonetheless, for the present simulation exercise it is probably inappropriate. As was noted above, the simulation model estimates a significantly lower growth rate of family incomes than does HDIPC. Hence to maintain internal consistency, the relative poverty line that we employ here is calculated by inflating the 1983–84 Henderson Poverty Line by the changes in mean incomes simulated by the model. The inflation factor is thus the nominal equivalent of the 4.3 per cent shown in Table

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12   For the Henderson standard family of a couple with two children (with the head working) this was $10,689 per year or $205 per week (Social Policy Research Unit *Newsletter*, January 1991).

4.1.[13]   The same updating procedure is employed when we consider the counterfactual simulations in Section 5.

Whilst this measure has the advantage of internal consistency, the disparity between the simulated and National Accounts estimates of overall income growth implies caution in the interpretation of these estimates. If HDIPC were used as the index of community living standards, relative poverty rates would be higher in 1989-90 than shown in (all but one of) the tables in this report. Saunders and Matheson (1991) present poverty estimates for 1989-90 (based on an earlier version of the simulation model used here) using HDIPC as the inflator. For comparison with this and other work some alternative estimates of poverty using this updating method are also presented in Section 4.2.

As well as presenting these relative poverty estimates, we also present estimates using a poverty line which only takes account of price movements between the two years. This **absolute** poverty line is the 1983-84 poverty line inflated by changes in prices to 1989-90.[14]   Such a poverty line would be appropriate if we were to consider poverty in terms of the income needed in order to purchase some minimum bundle of goods.

Since mean incomes rose in real terms over the period, the estimates of absolute poverty in 1989-90 will always be lower than the estimates of relative poverty. It should be noted that neither of these poverty lines corresponds to the conventional Henderson Poverty Line for 1989-90 (though see Section 4.2). Finally, because of concerns of the appropriateness of the very low incomes recorded by many self-employed families, all poverty estimates presented here exclude the self-employed.

These basic estimates of poverty rates for the different family types are presented in Table 4.2. Overall, a standard poverty incidence (below 100% of the Henderson line) of 11.3 per cent is estimated for 1983-84. This falls to 9.4 per cent in 1989-90 using the absolute poverty line but increases to 11.4 per cent using the relative poverty line. The fall in absolute poverty applies consistently across the different poverty thresholds, whilst relative poverty decreases at the 80 per cent and 120 per cent thresholds, and increases at the 100 per cent and 140 per cent per cent poverty threshold.

The fall in absolute poverty should not be surprising given the growth in employment and payment rates of most income support payments. The ambiguous response

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13   Ideally, it would probably be most appropriate to inflate the poverty line by changes in
      disposable income per **equivalent person,** as this would be the best way to summarise
      changes in community living standards. In fact, however, the increase in the number of
      equivalent persons (using the Henderson scale) is very close to the increase in the number of
      income units.

14   As in the calculation of real incomes, we have used the CPI excluding medical expenses for
      pensioners and beneficiaries.

Table 4.2: Percent Below Different Poverty Lines

Income Relative to Henderson Poverty Line	1983-84 %	1989-90 Absolute %	1989-90 Relative %	Change in Absolute Poverty (Percentage points)	Change in Relative Poverty (Percentage Points)
		Person <25			
Below 80%	10.3	9.6	9.9	-0.7	-0.4
Below 100%	14.2	13.3	13.9	-0.9	-0.3
Below 120%	19.9	19.0	20.4	-0.9	0.5
Below 140%	27.6	25.0	26.8	-2.6	-0.7
		Person 25-64			
Below 80%	4.1	3.9	4.2	-0.2	0.1
Below 100%	10.8	9.1	11.6	-1.8	0.8
Below 120%	18.7	16.8	18.0	-1.8	-0.7
Below 140%	25.0	22.9	24.6	-2.1	-0.4
		Person 65+			
Below 80%	2.3	2.1	2.4	-0.2	0.1
Below 100%	20.8	18.1	28.0	-2.7	7.2
Below 120%	50.5	46.7	50.5	-3.8	-0.0
Below 140%	67.5	65.3	67.5	-2.2	-0.0
		Couple, head 65+			
Below 80%	2.7	2.8	3.0	0.1	0.3
Below 100%	4.2	3.8	4.2	-0.4	-0.1
Below 120%	23.2	18.1	25.2	-5.1	2.0
Below 140%	50.5	44.3	48.1	-6.2	-2.3
		Couple, head <65			
Below 80%	1.8	1.4	1.5	-0.4	-0.4
Below 100%	2.6	2.2	2.4	-0.5	-0.2
Below 120%	6.8	6.1	7.5	-0.7	0.7
Below 140%	13.6	12.6	13.8	-1.0	0.2
		Couple with dependants			
Below 80%	2.9	2.0	2.3	-0.9	-0.5
Below 100%	6.9	4.6	5.3	-2.3	-1.6
Below 120%	13.4	10.1	12.0	-3.2	-1.3
Below 140%	21.8	21.0	24.2	-0.8	2.4
		Sole parent			
Below 80%	24.5	14.9	18.0	-9.7	-6.6
Below 100%	46.5	33.0	36.7	-13.5	-9.8
Below 120%	66.2	54.8	56.6	-11.4	-9.6
Below 140%	72.2	63.5	64.9	-8.7	-7.2
		All Families			
Below 80%	5.2	4.4	4.8	-0.9	-0.5
Below 100%	**11.3**	**9.4**	**11.4**	**-1.9**	**0.1**
Below 120%	21.3	18.9	21.1	-2.4	-0.2
Below 140%	31.1	29.2	31.4	-1.9	0.3

Notes: For not self-employed population
Absolute Poverty Line: Inflated by CPI from 1983-84
Relative Poverty Line: Inflated by mean incomes from 1983-84

in terms of relative poverty reflects the fact that growth in community incomes only leads to a fall in relative poverty when the increase in incomes of those near the poverty line is greater than the overall income increase.

The family types with the highest poverty rates in both years are those with least attachment to the labour force – the aged and sole parents. It is also for these family types that the calculation of poverty incidence is most sensitive to the choice of poverty line. This follows from the fact that income support payment levels are generally close to the value of the poverty line (see Bradbury and Saunders, 1990, for a more detailed discussion of this issue).

Between the two years, the largest fall in both absolute and relative poverty rates occurred among sole parents, though this fall was from a very high base. In general the smallest falls in absolute poverty were among non-aged couples without children and young single persons. Given the high initial levels of income poverty among the latter group, this is of particular concern. It reflects the fact that falling unemployment rates were offset by decreases in income support payments for those aged under 21 (Table 2.2). The implicit assumption of this policy decision was that in many families parents were able to provide significant support for these youth. (Note that 'Persons<25' include non-students living with their parents).

These poverty rates are estimates of the proportion of **income units** below the poverty line. Given the particular importance of child poverty, it is also interesting to examine estimates of the proportion of children living in income units with incomes below the poverty line. This is done in Table 4.3. Particularly for married couple families, child poverty rates are generally higher than family poverty rates. This is primarily because families with more children are assumed to have greater needs, and so for a given family income are more likely to be below the poverty line. For the most part under either measure of poverty, child poverty rates fell significantly between 1983-84 and 1989-90, with the largest fall being 4.4 percentage points at the 120 per cent threshold of the absolute poverty measure. This represents a fall of almost one fifth from the 1983-84 estimate. The only exception to this fall in poverty was for the highest relative poverty line. The fact that relative poverty actually rose for those families at 140 per cent of the Henderson poverty line reflects the tight targeting of the family assistance measures.

The fall in child poverty rates was greatest in sole parent families where the absolute poverty measure indicates a fall of 13.7 percentage points, from the very high level of 51.6 per cent in 1983-84 (at the 100% threshold). This represents around 62 thousand children in sole parent families moved out of poverty during the period.[15] Nonetheless, though the corresponding percentage point drop in poverty for those children in married couple families was only 3.3, this represents a greater number of children (around 96 thousand).

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15   This holds constant the total number of children. That is, 62 thousand equals 13.7 per cent of the number of children in sole parent families in 1989-90.

Table 4.3: Child Poverty Rates

Income Relative to Henderson Poverty Line	1983-84 %	1989-90 Absolute %	1989-90 Relative %	Change in Absolute Poverty (Percentage Points)	Change in Relative Poverty (Percentage Points)
In married couple families					
Below 80%	3.8	2.5	2.9	-1.2	-0.8
Below 100%	9.4	6.1	7.1	-3.3	-2.3
Below 120%	16.8	12.5	15.1	-4.3	-1.8
Below 140%	26.6	26.0	29.6	-0.6	3.0
In sole parent families					
Below 80%	28.6	18.1	20.9	-10.6	-7.8
Below 100%	51.6	37.8	41.2	-13.7	-10.4
Below 120%	70.5	59.0	60.6	-11.5	-9.9
Below 140%	75.5	66.1	68.1	-9.3	-7.4
In All Families					
Below 80%	6.7	4.6	5.4	-2.1	-1.4
Below 100%	**14.4**	**10.4**	**11.7**	**-4.0**	**-2.8**
Below 120%	23.2	18.8	21.2	-4.4	-2.0
Below 140%	32.4	31.5	34.8	-1.0	2.4

Notes: For not self-employed population
Absolute Poverty Line: Inflated by CPI from 1983-84
Relative Poverty Line: Inflated by mean incomes from 1983-84

4.2 Alternative Poverty Measurements

As was noted in the preceding discussion, the poverty estimates described here for 1989-90 are not based upon the conventional Henderson poverty line, but are instead derived using an updating procedure that is internally consistent with the simulation model. Whilst some of the differences between these two estimates stem from some inappropriate features of the standard methodology for updating the Henderson poverty line, others lie in the limitations of the simulation itself. Hence it is of interest to address the question of how estimates of relative poverty in 1989-90 change when using alternative poverty lines.

Even more interesting, however, is to compare the estimates of poverty obtained using the simulated incomes for 1989-90 with those obtained from an actual income

survey for that year. Whilst the methods used in this report were being developed, the data from this *1990 Income Distribution Survey* (IDS) were not yet available. (And indeed the actual survey results are not appropriate for the examination of counterfactual simulations in the following Section). However now that this data is available, it is obviously of interest to compare the simulation results with those from the actual survey.

Both these issues are addressed in Table 4.4. This table shows relative poverty estimates for 1989-90 both using the actual data available from the 1990 IDS, and the simulation of incomes for 1989-90 (only estimates at the 100% line are shown). The first data column of the table is thus identical to the '1989-90 Relative' poverty estimates shown in Table 4.2. The second column shows poverty estimates obtained when the standard Henderson poverty line (based on the National Accounts) for 1989-90 is used. A comparison of these two columns can be used to address the question of how estimates of relative poverty change when using alternative poverty lines.

Since HDIPC grew faster than average family incomes, poverty rates are always higher using the National Accounts adjusted poverty line. Comparing these National Accounts adjusted poverty lines with the 1983-84 poverty lines in Table 4.2, an increase in relative poverty for all single person and aged families is observed. Nonetheless the relative rankings of poverty rates across the different family types are not altered.[16] Whilst the overall poverty rate is now significantly above the 1983-84 estimate, poverty rates amongst the family types with children are still estimated to be lower in 1989-90 than in 1983-84.

A more important question however, is how estimates of poverty vary when the survey data from 1989-90 is used instead of the simulation. This can be observed by comparing the left-hand two columns of Table 4.4 with the corresponding columns on the right of the table. Overall, the simulation data apparently underestimates poverty in 1989-90 by one and a half to two percentage points. Poverty rates in all family types (with the exception of single older people) are also apparently under-estimated.

'Apparently' is used advisedly here as in some respects the simulated data appears to be of better quality than the actual survey data. Thus the simulated data closely matches the National Accounts aggregate estimate of wages and salaries, whilst the 1990 IDS has a two per cent higher estimate. Even more dramatically, the 1990 IDS appears to measure less than 40 per cent of self-employed income, compared to 88 per cent for the simulation (Appendix Tables A.3 and A.5). Whilst the former of

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16 These poverty incidences are also broadly similar to those in Saunders and Matheson (1991) which were based upon an earlier version of the simulation model used here. As well as differences flowing from the revisions to the simulation model their results differ in that they used the detailed Henderson equivalence scale, and a different revision of the National Accounts.

Table 4.4: Relative Poverty in 1989-90: A Comparison of Simulation Results With Results From the 1990 Income Distribution Survey

Family Type	Simulation		1990 IDS	
	Simulation Poverty Line	NA Poverty Line	Simulation Poverty Line	NA Poverty Line
		Poverty Rates (%)		
Person <25	13.9	15.5	14.3	16.0
Person 25-64	11.6	13.4	12.9	15.0
Person 65+	28.0	36.2	27.9	35.3
Couple, head 65+	4.2	4.7	6.3	7.6
Couple, head <65	2.4	2.6	3.7	4.6
Couple with dependants	5.3	6.5	7.3	8.8
Sole parent	36.7	43.8	46.3	54.1
All Families	11.4	13.6	13.0	15.5

Notes: Excludes self-employed. The simulation poverty line is the 1983-84 poverty line inflated by the simulated increase in real incomes. The NA poverty line is inflated by increases in the National Accounts measure of household disposable incomes per capita. This is the conventional Henderson Poverty Line measure.

these problems cannot be responsible for the pattern shown in Table 4.4 (if anything, it should have the opposite effect), the latter may be important even though the self-employed are excluded from Table 4.4. This is because (for the 1990 IDS data) self-employment status is defined as people who received self-employment income during the year. Persons who were self-employed, but for whom this income was not recorded, may thus remain in the sample, but with very low incomes.

More important, however, is likely to be the measurement of family related payments in the 1990 IDS. Whilst the survey slightly overestimates the amount of family allowance payments in 1989-90 (compared to DSS expenditure data), it significantly overestimates the population of children (compared to ABS population estimates). This leads to a 4 per cent underestimate of the average family allowance per child. Even more significant for poverty estimation, however, is the fact that the ratio of total FAS payments per child is underestimated by some 13 per cent in the survey. The simulation, on the other hand, overestimates these payments because some older children are assumed to be eligible when they are not. But this is more than offset by not modelling the expansion of educational allowances.

These differences are likely to explain a large part of the different poverty rates of families with children between the simulated data and the 1990 IDS results. The above discussion would thus suggest that the poverty rates in the simulated data may well be more accurate than the 1990 IDS data.

However the picture is, unfortunately, a good deal more complicated. As was noted in Section 2, the simulation does not encompass many of the administrative and coverage changes in the social security system since the early 1980s. These led to savings of the order of 6 per cent of total social security expenditure. Since the simulation imputes income support payments in 1989-90 to many people who were not actually receiving them, we should expect it to provide an underestimate of the extent of poverty.

This may provide another explanation of why the poverty rates for sole parents are so different between the simulation and the 1990 IDS. In 1987 the child qualifying age for sole parent pension was lowered to 15, excluding many sole parents from pension. This, however, is unlikely to be responsible for much of the divergence shown in Table 4.4. Only about 5 per cent of sole parent pensioners were affected by this coverage change (Thompson, 1988) and many of those losing their pension would have claimed other benefits. Though the slightly lower rates of payment for these other benefits may have moved some across the poverty line, this is unlikely to account for more than one third of the ten percentage point difference in poverty rates in the two data sources.

Most of the difference is likely to lie in the different measurement of family related payments, and FAS in particular. Whilst there is evidence that this payment was not fully recorded in the survey, the simulation treatment of FAS is also only very approximate. This suggests that caution is required before accepting either these data sources as providing precise estimates of the extent of sole parent poverty in 1989–90. One can however, be quite confident in saying that, as a family type, sole parents still had the highest (Henderson) poverty rates at the end of the 1980s.[17]

For aged couples, on the other hand, it is quite likely that the different poverty rates stem from the changes in administration and eligibility summarised in Section 2 – though even here it is not clear that the 1990 IDS data gives a better picture of changes over time than the simulation. An important change affecting this group was the gradual broadening of the definition of income for the pension income test which occurred during the 1980s. This led to a significant drop in the pension coverage of the aged. However, many of the newly defined income sources (such as capital growth investments deemed to be income generating) are not included in the

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17   It should however be noted that different equivalence scales (other than the Henderson scales which are used for all these estimates) could lead to quite different estimates of relative poverty incidence (Bradbury and Saunders, 1990).

ABS income survey definition of income. Hence people who have their pension reduced because they have these investments may be recorded by the survey as being in poverty. But these people are generally the most well-off of the elderly, and so it is probably inappropriate to record this policy change as leading to a poverty increase.[18]

Thus despite the evident differences between the 1989-90 simulation and actual survey results, it is not obvious that the simulation results are inappropriate for describing changes in poverty rates over time. Both data sources have their weaknesses: the simulation in respect of those changes not adequately included; and the actual survey data in respect of apparent methodological changes over time (and in the case of investment incomes, general methodological limitations). On balance, it can be concluded that the simulation results do underestimate poverty in 1989-90, though by not as much as the comparison shown in Table 4.4 would suggest.

Such limitations are an inevitable component of any simulation exercise. The strength of the simulation methodology, one the other hand, lies in its ability to separately consider the different factors which have led to income changes. This is the topic of Section 5. Before we turn to this, however, we summarise the overall distributional outcomes estimated by the simulation model.

4.3 Income Distribution

Table 4.5 presents estimates of the (simulated) income shares of different quintiles and deciles in both 1983-84 and 1989-90. As for the poverty estimates, families with the head or spouse self-employed during the year are excluded. These distributional patterns are also summarised in Table 4.6 which shows the Gini coefficients for the two years. Overall, the last panel of the table indicates that it is the bottom and very top of the income distribution that most increased their income share, though all income groups experienced increases in their mean income. The Gini coefficient increased over the period, but the pattern of increases means that the Lorenz curves would cross, and so conclusions about overall trends in inequality will depend upon which part of the income distribution is the focus.

The patterns within each of the different family types is quite varied. For young single people, income inequality was significantly reduced, for mid-aged singles, sole parents and couples without dependants the picture was mixed, whilst for the aged there was a trend towards increased inequality. For couples with dependants the strongest income growth was for those in both the bottom and top deciles.

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18   The reason this applies much more to couples than to the single aged is because they are generally wealthier, but also because the poverty line for couples is set so that couples receiving a full pension are above it, and so those recorded as being in poverty are the part (or non-) pensioners with little other income.

Table 4.5: Income Shares and Means, 1983-84 and 1989-90

	Bottom Decile	Second Decile	Second Quintile	Middle Quintile	Fourth Quintile	Ninth Decile	Top Decile
			Person <25				
Share (%)							
1983-84	1.39	4.47	13.86	19.77	25.52	15.37	19.64
1989-90	1.42	4.66	14.44	20.22	25.39	14.97	18.89
% increase	2.7	4.2	4.2	2.3	-0.5	-2.5	-3.8
Mean ($1989-90)							
1983-84	1,668	5,370	8,329	11,885	15,338	18,473	23,607
1989-90	1,824	5,960	9,245	12,944	16,257	19,173	24,191
% increase	9.4	11.0	11.0	8.9	6.0	3.8	2.5
			Person 25-64				
Share (%)							
1983-84	2.49	4.01	11.23	19.88	25.81	15.45	21.13
1989-90	2.52	3.94	11.83	19.71	24.57	14.60	22.83
% increase	1.5	-1.9	5.3	-0.8	-4.8	-5.5	8.0
Mean ($1989-90)							
1983-84	4,300	6,934	9,705	17,178	22,304	26,695	36,523
1989-90	4,621	7,208	10,828	18,042	22,488	26,721	41,786
% increase	7.5	3.9	11.6	5.0	0.8	0.1	14.4
			Person 65+				
Share (%)							
1983-84	5.74	7.35	15.38	16.41	19.45	12.37	23.29
1989-90	5.59	7.06	14.75	16.02	19.31	12.67	24.59
% increase	-2.5	-4.0	-4.1	-2.4	-0.7	2.4	5.6
Mean ($1989-90)							
1983-84	5,311	6,806	7,123	7,598	9,007	11,457	21,566
1989-90	5,488	6,929	7,241	7,862	9,479	12,442	24,143
% increase	3.3	1.8	1.7	3.5	5.2	8.6	11.9
			Couple, head 65+				
Share (%)							
1983-84	5.18	6.95	14.71	16.45	19.50	13.38	23.83
1989-90	4.96	6.59	14.08	16.15	19.39	13.43	25.40
% increase	-4.3	-5.2	-4.3	-1.9	-0.6	0.4	6.6
Mean ($1989-90)							
1983-84	8,710	11,684	12,370	13,836	16,398	22,505	40,068
1989-90	8,916	11,845	12,659	14,520	17,437	24,155	45,675
% increase	2.4	1.4	2.3	4.9	6.3	7.3	14.0

Table 4.5: Income Shares and Means, 1983-84 and 1989-90 (Cont.)

	Bottom Decile	Second Decile	Second Quintile	Middle Quintile	Fourth Quintile	Ninth Decile	Top Decile
			Couple, head <65				
Share (%)							
1983-84	3.24	4.57	13.60	18.74	24.33	14.73	20.79
1989-90	3.20	4.61	13.62	19.07	23.82	14.22	21.46
% increase	-1.3	0.9	0.1	1.8	-2.1	-3.4	3.2
Mean ($1989-90)							
1983-84	10,337	14,586	21,717	29,916	38,850	47,024	66,401
1989-90	10,819	15,608	23,056	32,292	40,318	48,154	72,670
% increase	4.7	7.0	6.2	7.9	3.8	2.4	9.4
			Couple with dependants				
Share (%)							
1983-84	3.96	6.18	15.63	18.92	22.70	13.55	19.05
1989-90	4.17	6.20	15.20	18.45	22.31	13.31	20.36
% increase	5.4	0.3	-2.7	-2.5	-1.7	-1.8	6.9
Mean ($1989-90)							
1983-84	13,139	20,539	25,956	31,420	37,693	45,007	63,277
1989-90	14,707	21,874	26,810	32,532	39,337	46,938	71,822
% increase	11.9	6.5	3.3	3.5	4.4	4.3	13.5
			Sole parent				
Share (%)							
1983-84	3.22	5.23	13.22	16.30	22.55	16.30	23.17
1989-90	3.40	5.33	13.26	16.57	23.83	15.38	22.23
% increase	5.4	1.9	0.3	1.6	5.7	-5.6	-4.0
Mean ($1989-90)							
1983-84	4,371	7,096	8,961	11,050	15,288	22,099	31,408
1989-90	5,266	8,264	10,274	12,834	18,462	23,832	34,446
% increase	20.5	16.5	14.6	16.1	20.8	7.8	9.7
			All Families				
Share (%)							
1983-84	2.13	3.53	10.82	16.72	25.05	16.90	24.87
1989-90	2.19	3.54	10.97	16.55	24.29	16.84	25.63
% increase	2.8	0.4	1.4	-1.0	-3.0	-0.4	3.1
Mean ($1989-90)							
1983-84	4,552	7,546	11,575	17,893	26,804	36,170	53,228
1989-90	4,902	7,933	12,292	18,551	27,233	37,751	57,457
% increase	7.7	5.1	6.2	3.7	1.6	4.4	7.9

Note: Self-employed excluded. All incomes expressed in $1989-90.

Table 4.6: Gini Coefficients

Family Type	1983-84	1989-90
Person <25	0.296	0.282
Person 25-64	0.317	0.320
Person 65+	0.217	0.237
Couple, head 65+	0.241	0.263
Couple, head <65	0.282	0.283
Couple with dependants	0.224	0.233
Sole parent	0.303	0.292
All Families	0.367	0.370

Note: Self-employed excluded.

More interesting than simply a description of these distribution changes however, is the question of **why** these patterns emerged. Whilst it is easy to speculate on the source of the patterns in these tables on the basis of the sort of information presented in Section 2, it is very difficult to gain an understanding of the relative magnitudes of the different changes at work over the period. The simulation approach however, does permit such a disaggregation, and this is object of the next section.

5 Decomposing Family Income Trends

When the data from two income surveys are compared it is usually a very difficult process to separately identify the effects of the many different influences on incomes. Probably the main advantage of simulating changes in the income distribution is that this disaggregation becomes relatively simple.

As was described in Section 3, the goal of the simulation is to model the most important changes affecting family incomes so as to reflect the likely income distribution that might have been observed in the years of interest. This is done by taking a base income distribution data set (the 1986 IDS) and adjusting it in line with changes in external data – such as demographic changes, unemployment and participation rates, wages rates (and distribution), income tax changes etc.

Since this process is entirely artificial, it is possible to undertake **counterfactual** simulations where one or more factors are adjusted in some alternative way. In this section we take the simulation for 1989-90 (the outcomes of which were described in Section 4) and compare it with a number of counterfactual simulations. These alternative simulations are each identical to the overall simulation except that in each case one factor has been held at its 1983-84 value. Thus, for example, we compare the general simulation of 1989-90 incomes with the incomes which might have occurred had unemployment rates remained at their 1983-84 level. (The detailed assumptions used in these calculations are described in Section 3). This gives an indication of the importance of the unemployment reductions since 1983-84 on the level and distribution of family incomes.

Where we compare the effect of income changes (such as pensions or wages), we first apply the basic simulation to adjust the relevant income source to 1983-84 levels, and then inflate these incomes up to 1989-90 values according to overall price changes. Changes in the personal income tax system are calculated by inflating the 1983-84 income tax thresholds to 1989-90 dollars using the CPI, and then using this counterfactual tax scale to calculate income tax liability. The medicare levy is assumed unchanged.

5.1 Mean Incomes

Table 5.1 presents the percentage changes in mean incomes that result from these various counterfactual simulations. These percentage changes are derived by calculating the mean income under the counterfactual simulation, subtracting the mean income calculated under the base 1989-90 simulation, and expressing this difference as a percentage of the base simulation mean. Thus the top left cell in the table indicates that, if unemployment rates in 1989-90 had remained at their 1983-84 level (but everything else in 1989-90 was unchanged), then the mean income of persons aged under 25 would have been 5.3 per cent less than it actually was in 1989-90.

**Table 5.1:   Percentage Increase in Mean 1989-90 Incomes Under Different Counterfactual
Simulations**

					Family Type			
Factor Held at (Real) 1983-84 Value	Person <25	Person 25-64	Person 65+	Couple, head 65+	Couple, head <65	Couple, with depend-ants	Sole parent	All Fam-ilies
				Full Population				
Unemployment rates	-5.3	-2.5	-0.1	-0.1	-1.2	-1.1	-2.2	-1.7
Wives' LF participation rates	0.0	0.0	0.0	0.1	-3.1	-3.7	0.0	-2.2
Unemployment, particip. + ft/pt rate	-4.9	-2.2	0.1	-0.2	-4.1	-5.0	-7.4	-4.0
Pension/benefit/allowance rates	-0.1	-0.3	-0.7	-0.3	-0.0	-1.0	-5.3	-0.6
Wage rates	0.1	-1.1	0.1	0.3	1.3	0.5	-0.7	0.4
Interest/dividends/self-employment	0.2	-0.6	-4.1	-4.9	-0.1	0.3	-0.4	-0.4
Income taxation	-1.2	-1.1	-0.2	-0.2	-1.0	-0.7	0.0	-0.8
Everything	-5.4	-4.8	-5.2	-5.7	-3.7	-4.6	-12.1	-4.1
(Residual)	0.5	0.3	-0.5	-0.4	0.3	1.2	1.3	1.3
				Not Self-employed				
Unemployment rates	-5.4	-2.8	-0.0	0.0	-1.6	-1.5	-2.3	-2.0
Wives' LF participation rates	0.0	0.0	0.0	0.2	-3.3	-4.2	0.0	-1.6
Unemployment, particip. + ft/pt rate	-5.0	-2.5	0.1	0.1	-4.7	-5.7	-7.5	-3.6
Pension/benefit/allowance rates	-0.1	-0.3	-0.7	-0.3	-0.0	-1.0	-5.7	-0.6
Wage rates	0.0	-1.1	0.1	0.3	1.5	0.6	-0.6	0.4
Interest/dividends/self-employment	-0.4	-1.3	-4.6	-6.2	-2.0	-0.8	-0.5	-1.6
Income taxation	-1.2	-0.9	-0.1	-0.1	-1.0	-0.5	0.1	-0.7
Everything	-6.1	-5.6	-5.7	-6.5	-5.7	-5.8	-12.5	-4.5
(Residual)	0.5	0.4	-0.4	-0.3	0.6	1.5	1.4	1.6

Note: The counterfactual for the income variables is that they have increased in line with prices (the CPI
for wages, the CPI ex-health for pensions). Income taxation is the 1983-84 scale with the
threshold inflated by the CPI. 'Everything' is the overall simulation for 1983-84 (inflated to
1989-90 dollars).

As might be expected, the imposition of 1983-84 unemployment rates onto the 1989-90 simulation leads to a decrease in the incomes of all family types. However for couples, this simulated decrease is an under-estimate of the full effect of unemployment reductions because the counterfactual simulation adjusts husbands' unemployment rates back to the simulated 1983-84 unemployment levels, but leaves the distribution of wives' employment status unchanged. This means that whilst male unemployment rates are quite accurately reflected, only half of the 3.4 percentage point change in female unemployment rates between 1983-84 and 1989-90 are reflected in this counterfactual simulation.

Perhaps a more interesting comparison to make is with the trends in unemployment rates **since** 1989-90. In the financial year 1989-90 the unemployment rate averaged 6.2 per cent – by March 1992 this had risen to 10.5 per cent (seasonally adjusted). Assuming the March 1992 unemployment rate to hold for the last three months of the financial year, this implies an average unemployment rate of 10.3 per cent for 1991-92 (10.7 for males and 9.7 for females). That is, in the two years 1989-90 to 1991-92, unemployment rose by 4.1 percentage points (5.0 males and 3.0 females). This can be compared with the counterfactual simulation shown in the first row of Table 5.1 which simulates an unemployment increase of 2.8 percentage points (3.5 for males, 1.7 for females), or close to two-thirds of the actual unemployment increase since 1989-90.

Hence the estimates shown in the first column of Table 5.1 can be taken as an approximate estimate of two-thirds of the income decreases associated with the rise in unemployment in the 1991 recession. On this basis, the rise in unemployment led to reductions in overall household incomes of around 2.6 per cent, (or 3 per cent if we exclude the self-employed). As might be expected, unemployment has a much greater impact upon the incomes of young people, with an anticipated income decrease of around 8 per cent. These calculations of course assume that the pattern of unemployment rises across demographic groups broadly mirrors that shown in the 1983-84 recession and that nothing else has changed, but this is probably a reasonable first approximation.

Turning to the remainder of Table 5.1, the 'everything' column reflects the overall 1983-84 simulation described in the previous section, whilst the 'residual' reflects those changes which the overall simulation incorporated, but are not separately specified in the table (this also incorporates demographic changes and the interactions between the different variables).[19] For the 'everything' counterfactual simulation, the percentage change in incomes is identical to that given in Table 4.1, except that the signs are reversed, and the percentage change is calculated with the 1989-90 rather than the 1983-84 estimate as the denominator.

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19   The residual column is calculated as,
      $$100 \left[(1+f_e/100) / \Pi_i(1+f_i/100) \right]$$
      where f_e is the 'everything' percentage change shown in Table 5.1, and the f_i terms are the specific counterfactual changes shown in the table (not including the unemployment and participation estimates which are included in the combined labour force change estimate).

Overall, a move back to 1983-84 conditions in 1989-90 would decrease average family incomes by 4.1 per cent (4.5 per cent for the not self-employed). Unemployment increases would contribute 1.7 percentage points (though, as noted above this is an underestimate), falls in married women's labour force participation, 2.2 percentage points, and the combined effect of labour market status changes, 4.0 percentage points. This combined labour market status simulation includes the unemployment and participation changes in the first two columns of Table 5.1, changes in the full-time employment rate as well as the changes in wives' unemployment rates omitted from the first column. Offsetting these negative changes is the higher level of real wages in 1983-84. For income transfers, investment income and income taxation, a return to 1983-84 (real) values would lead to a small fall in incomes. Finally the sum of these individual changes over-explain the total fall in incomes by 1.3 percentage points (the residual). In other words, demographic changes and the interactions between these variables led to a small decrease in average family incomes over the period.

The relative importance of the factors identified varies considerably across the different family types. For non-aged single persons, changes in unemployment rates were the main factor increasing their incomes between 1983-84 and 1989-90. For the aged, the most significant factor was their increase in income from savings and investments. As was noted in Section 2, interest income in particular, grew rapidly over the 1980s. In the aggregate, this had a much larger effect on the incomes of the aged than the slight increases in real pensions.

For couples, the most important influence on incomes over the period was the increase in wives' labour force participation, followed by the falls in unemployment. For couples with dependants, increases in family transfers were also important. Falls in real wage rates had the greatest percentage impact upon the incomes of non-aged couples without children. For sole parents, both labour force and income support changes produced significant income increases.

5.2 Poverty Rates

Tables 5.2 and 5.3 show the impact of these same counterfactual simulations on absolute and relative poverty rates, respectively. In the first of these tables, counterfactual poverty rates are calculated assuming the 1989–90 poverty line to be unchanged. For example, the 'Unemployment rates' rows calculate disposable incomes in 1989-90 on the assumption that the unemployment rates of 1983-84 had continued and then compares the disposable incomes thus calculated with the absolute 1989-90 poverty lines (as used in Table 4.2). The 'Everything' rows are the same as the overall change in poverty incidence between these two years as shown in Table 4.2 (though with the sign reversed).

Whilst the estimation of the effect of these various counterfactual changes on the incidence of absolute poverty in 1989-90 is thus relatively straightforward, the corresponding estimation of relative poverty changes is somewhat more complicated. This is because the relative poverty line is itself a function of overall

mean incomes and these will also be altered by the counterfactual changes. The estimates in Table 5.3 take these changes into account. For example, Table 5.1 shows that a return to 1983–84 unemployment rates would lead to average incomes falling by 1.7 per cent. Hence the relative poverty line also needs to be lowered by this amount when we undertake this counterfactual simulation.

Because of this relationship, poverty calculations based upon relative poverty lines will generally be less sensitive to changes in incomes than those based upon absolute poverty lines. This applies for both income increases and decreases. Hence the changes in poverty due to·the counterfactual simulations are generally smaller (in absolute value) in Table 5.3 than in Table 5.2. The reason they need not always be lower is because the base 1989-90 relative poverty line is quite different to the base absolute poverty line (Table 4.2) and so they are not always comparing the same part of the income distribution.[20]

This difference between the two poverty concepts is perhaps most clear with respect to those changes, such as married women's participation, which are only relevant for some family types. In terms of absolute poverty lines, this change in participation obviously has no effect upon the incomes of single people or sole parents. But a return by married women to their 1983-84 levels of labour force participation would lead to a fall in overall community incomes, and hence a fall in the relative poverty line. As a consequence, this change would lead to a fall in poverty rates among single adults (and aged couples). Interpreting this counterfactual simulation the other way round, we might say that relative poverty for these latter groups increased because of the increase in married women's labour force participation.

From one point of view, this may seem nonsensical, and may seem to imply a strong case for the use of an absolute rather than a relative poverty line. However there are important policy implications inherent in the patterns implied by the relative poverty line. This is because some groups, such as sole parents and aged couples, are particularly likely to evaluate their living standards in relation to those of working age married couples. The growth in married women's labour force participation has meant that the income gap between these groups has increased. Whereas previously the 'normal' transition to retirement may have meant going from a single to a no-wage earning family, it increasingly means a transition from a two (or one and a half) wage to a no-wage situation. This has important implications for retirement income policies, and may be considered an important argument for the necessity of extending occupational superannuation as widely as possible in the community.

A similar argument might apply to sole parents, though here it is tempered by the increases in sole parents labour force participation (witness the fact that most of the numbers in the 'unemployment, participation and ft/pt rate' column for sole parents in Table 5.3 are positive).

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20 Another reason why the relative poverty estimate might be more variable than an absolute estimate is if the incomes of people near the poverty line change in a direction **opposite** to that of mean incomes.

Table 5.2:   Percentage Point Increase in 1989-90 Absolute Poverty Rates Under Different Counterfactual Simulations

Family Type and Factor Held at (Real) 1983-84 Value	Income Relative to Henderson Poverty Line			
	Below 80%	Below 100%	Below 120%	Below 140%
Person <25				
Unemployment rates	1.2	1.9	2.9	4.1
Wives' LF participation rates	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	1.0	1.6	2.5	3.7
Pension/benefit/allowance rates	-0.1	-0.3	0.2	0.4
Wages rates	-0.3	-0.5	-1.1	-0.5
Interest/dividends/self-employment	0.0	0.2	0.1	0.3
Income taxation	0.0	-0.2	-1.0	-0.9
Everything	0.7	0.9	0.9	2.6
Person 25-64				
Unemployment rates	0.1	0.3	1.0	1.8
Wives' LF participation rates	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	0.1	0.3	0.8	1.6
Pension/benefit/allowance rates	0.1	1.5	0.7	0.8
Wages rates	-0.1	-0.3	-0.3	-0.8
Interest/dividends/self-employment	0.1	0.6	1.0	0.5
Income taxation	0.0	-0.4	-0.2	-0.1
Everything	0.2	1.8	1.8	2.1
Person 65+				
Unemployment rates	0.0	-0.0	0.0	0.0
Wives' LF participation rates	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	-0.0	-0.3	-0.8	-0.5
Pension/benefit/allowance rates	0.0	2.1	1.0	0.6
Wages rates	0.0	-0.1	0.0	0.0
Interest/dividends/self-employment	0.2	1.9	4.1	2.6
Income taxation	0.0	0.0	-0.1	-0.6
Everything	0.2	2.7	3.8	2.2
Couple, head 65+				
Unemployment rates	-0.0	-0.0	-0.1	-0.1
Wives' LF participation rates	-0.0	-0.0	-0.1	-0.1
Unemployment, participation + ft/pt rate	-0.1	-0.1	-0.1	-0.1
Pension/benefit/allowance rates	0.0	0.0	2.7	0.6
Wages rates	-0.2	0.0	0.0	0.0
Interest/dividends/self-employment	0.2	0.5	2.4	6.2
Income taxation	0.0	0.0	0.0	-0.2
Everything	-0.1	0.4	5.1	6.2

Table 5.2: Percentage Point Increase in 1989-90 Absolute Poverty Rates Under Different Counterfactual Simulations (cont.)

Family Type and Factor Held at (Real) 1983-84 Value	Income Relative to Henderson Poverty Line			
	Below 80%	Below 100%	Below 120%	Below 140%
Couple, head <65				
Unemployment rates	0.1	0.2	0.8	1.5
Wives' LF participation rates	0.1	0.1	0.0	0.3
Unemployment, participation + ft/pt rate	0.1	0.2	0.7	1.6
Pension/benefit/allowance rates	0.1	0.0	0.1	0.0
Wages rates	-0.1	-0.0	-0.6	-1.1
Interest/dividends/self-employment	0.2	0.6	0.7	0.9
Income taxation	0.0	0.0	-0.3	-0.1
Everything	0.4	0.5	0.7	1.0
Couple with dependants				
Unemployment rates	0.7	1.5	2.1	2.1
Wives' LF participation rates	-0.1	0.1	0.7	2.2
Unemployment, participation + ft/pt rate	0.5	1.3	2.4	4.2
Pension/benefit/allowance rates	0.7	1.1	2.8	1.7
Wages rates	-0.0	-0.4	-1.0	-2.0
Interest/dividends/self-employment	0.1	0.1	0.2	0.4
Income taxation	-0.0	-0.1	-0.3	-0.4
Everything	0.9	2.3	3.2	0.8
Sole parent				
Unemployment rates	0.9	1.4	1.7	2.1
Wives' LF participation rates	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	2.0	4.5	6.2	6.7
Pension/benefit/allowance rates	9.3	10.5	5.8	2.9
Wages rates	-0.4	0.0	-0.6	-0.7
Interest/dividends/self-employment	0.2	-0.0	0.7	-0.0
Income taxation	0.0	0.0	-0.1	0.0
Everything	9.7	13.5	11.4	8.7
All Families				
Unemployment rates	0.5	0.9	1.4	2.0
Wives' LF participation rates	-0.0	-0.0	0.0	0.4
Unemployment, participation + ft/pt rate	0.4	0.8	1.4	2.3
Pension/benefit/allowance rates	0.6	1.2	1.4	0.9
Wages rates	-0.1	-0.3	-0.6	-0.9
Interest/dividends/self-employment	0.1	0.5	1.0	1.2
Income taxation	-0.0	-0.2	-0.4	-0.4
Everything	0.9	1.9	2.4	1.9

Note: As for Table 5.1. For not self-employed population only.

Table 5.3:   Percentage Point Increase in 1989-90 Relative Poverty Rates Under Different Counterfactual Simulations

Family Type and Factor Held at (Real) 1983-84 Value	Income Relative to Henderson Poverty Line			
	Below 80%	Below 100%	Below 120%	Below 140%
Person <25				
Unemployment rates	1.0	1.6	2.3	3.4
Wives' LF participation rates	-0.2	-0.4	-0.9	-1.1
Unemployment, participation + ft/pt rate	0.7	1.1	1.0	2.0
Pension/benefit/allowance rates	-0.0	-0.2	-0.2	0.1
Wages rates	-0.1	-0.4	-0.7	0.4
Interest/dividends/self-employment	0.1	-0.0	-0.1	0.2
Income taxation	-0.2	-0.4	-1.1	-0.9
Everything	0.4	0.3	-0.5	0.7
Person 25-64				
Unemployment rates	-0.0	-0.6	0.5	1.1
Wives' LF participation rates	-0.1	-1.7	-0.9	-1.0
Unemployment, participation + ft/pt rate	-0.3	-2.7	-0.3	-0.3
Pension/benefit/allowance rates	0.5	0.8	1.0	0.5
Wages rates	-0.1	-0.2	-0.4	-0.8
Interest/dividends/self-employment	0.1	0.5	0.8	0.5
Income taxation	-0.1	-0.8	-0.8	-0.7
Everything	-0.1	-0.8	0.7	0.4
Person 65+				
Unemployment rates	-0.1	-4.1	-2.5	-0.9
Wives' LF participation rates	-0.2	-7.7	-2.9	-1.1
Unemployment, participation + ft/pt rate	-0.3	-13.9	-5.0	-3.2
Pension/benefit/allowance rates	0.3	0.7	0.6	0.8
Wages rates	0.2	0.9	0.1	0.3
Interest/dividends/self-employment	0.2	1.6	4.5	2.5
Income taxation	-0.1	-2.1	-1.4	-0.6
Everything	-0.1	-7.2	0.0	0.0
Couple, head 65+				
Unemployment rates	-0.2	-0.3	-2.8	-2.1
Wives' LF participation rates	-0.2	-0.3	-4.0	-2.5
Unemployment, participation + ft/pt rate	-0.3	-0.5	-9.6	-5.1
Pension/benefit/allowance rates	0.0	0.0	0.0	-0.0
Wages rates	-0.2	0.0	-0.1	1.0
Interest/dividends/self-employment	0.2	0.4	2.3	7.5
Income taxation	-0.2	-0.1	-1.6	-1.6
Everything	-0.3	0.1	-2.0	2.3

Table 5.3: **Percentage Point Increase in 1989-90 Relative Poverty Rates Under Different Counterfactual Simulations (cont.)**

Family Type and Factor Held at (Real) 1983-84 Value	Income Relative to Henderson Poverty Line			
	Below 80%	Below 100%	Below 120%	Below 140%
Couple, head <65				
Unemployment rates	0.0	0.0	0.3	0.7
Wives' LF participation rates	0.0	-0.2	-0.8	-0.6
Unemployment, participation + ft/pt rate	0.1	-0.0	-1.5	0.3
Pension/benefit/allowance rates	0.0	0.0	-0.2	-0.3
Wages rates	0.0	-0.1	-0.8	-0.7
Interest/dividends/self-employment	0.4	0.5	0.7	1.1
Income taxation	0.0	-0.2	-0.5	-0.7
Everything	0.4	0.2	-0.7	-0.2
Couple with dependants				
Unemployment rates	0.7	1.2	1.5	1.0
Wives' LF participation rates	-0.2	-0.2	-0.2	1.0
Unemployment, participation + ft/pt rate	0.2	0.6	0.4	1.2
Pension/benefit/allowance rates	0.7	1.5	2.4	0.3
Wages rates	-0.2	-0.4	-0.7	-1.4
Interest/dividends/self-employment	0.0	0.1	-0.1	-0.0
Income taxation	-0.1	-0.3	-0.4	-0.8
Everything	0.5	1.6	1.3	-2.4
Sole parent				
Unemployment rates	-1.9	-0.0	0.8	0.9
Wives' LF participation rates	-2.7	-2.2	-1.2	-1.4
Unemployment, participation + ft/pt rate	-1.9	0.4	4.2	5.3
Pension/benefit/allowance rates	7.9	10.9	5.2	3.1
Wages rates	-0.6	-0.2	0.0	-0.6
Interest/dividends/self-employment	0.0	0.1	0.1	-0.0
Income taxation	-1.2	-1.0	-0.2	-0.2
Everything	6.6	9.8	9.6	7.2
All Families				
Unemployment rates	0.3	0.0	0.5	1.0
Wives' LF participation rates	-0.3	-1.5	-1.3	-0.8
Unemployment, participation + ft/pt rate	-0.0	-1.7	-1.2	0.0
Pension/benefit/allowance rates	0.6	1.0	0.9	0.4
Wages rates	-0.1	-0.1	-0.5	-0.4
Interest/dividends/self-employment	0.1	0.4	0.9	1.2
Income taxation	-0.2	-0.6	-0.8	-0.8
Everything	0.5	-0.1	0.2	-0.3

Note: As for Table 5.1. For not self-employed population only.

Though the results implied by the relative poverty line are thus important, those implied by the absolute poverty line are certainly easier to interpret, and it is upon these results in Table 5.2 that the discussion here will focus.

Unemployment: For all families on average, it is estimated that a return to 1983-84 unemployment rates, **ceteris paribus**, would lead to increases in the absolute poverty rate by 0.5 to 2.0 percentage points depending upon the poverty threshold chosen. The greater increase in poverty rates with the higher poverty thresholds, is a reflection of the fact that much unemployment is part rather than full-year, with a significant proportion of the unemployed likely to have some work during a twelve month period even when unemployment rates are high. In other words, higher unemployment rates tend to move many people down to a 'near poor' annual income level.[21]

As was noted above, these estimates underestimate the change in incomes that would be associated with a return to 1983-84 unemployment levels – particularly for married couples. To adjust for the underestimation of unemployment changes, these estimates of percentage point changes in absolute poverty should probably be around 8 per cent higher for all families together, and around 15 per cent higher for married working age families than shown in Table 5.2. Similarly, to use these results to provide estimates of the likely increase in poverty with the current recession, one would need to add around 50 per cent to the estimates. These modifications apply to the absolute poverty estimates only. Because unemployment changes also alter the poverty line, the adjustments required for the relative poverty estimates would be more complicated, though generally less than those for the absolute poverty line.

For the different family types shown in Table 5.2, there are significant variations in the impact of unemployment rates returning to their 1983-84 level. The largest impact is for the young singles, for whom the model simulates a 7.5 percentage point increase in unemployment rates, with a maximum poverty increase of 4.1 percentage points. For the other non-aged family types, the simulated increases in unemployment are as follows: persons aged 25-64, 3.4 percentage points; non-aged couples, 1.5 percentage points (2.6 for husbands); couples with dependants, 1.4 percentage points (2.3 for husbands) and sole parents, 5.6 percentage points.

Note that for single persons, the maximum percentage point increase in poverty is only slightly over half the percentage point change in unemployment rates. This relatively loose association between unemployment and poverty reflects three factors. First, not all people are in the labour force, and so a given percentage point change in the unemployment rate represents a smaller change in the percentage of the population unemployed. Second, unemployment does not necessarily lead to

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21   The simulation method used ensures however that the patterns of unemployment duration
      are partly constrained to follow those apparent in 1985-86. However we believe that the
      reweighting process does at least approximately reflect the changing distribution of
      unemployment experience with different unemployment rates. See Bradbury (1990a) for a
      more detailed discussion of these duration patterns.

annual income poverty as many of the unemployed will have some work over a twelve month period. In 1989-90, for example, of those income units with head more than half year unemployed, we calculate that only two-thirds were below the 140 per cent absolute poverty line. Finally, some persons predominantly employed during the year are still below the poverty line. In 1989-90, 9 per cent of income units with head predominantly full-time employed were below the 140 per cent line. This represented almost half of those income units with head in the labour force who were below this poverty line (even using the 80 per cent line, 30 per cent are predominantly full-time employed). Some of these income units may be low-wage earning youth, and others may have many dependants. (The poverty line is also higher for families with employed members to take account of the costs of working). However further identification of these low income employed is an important topic for further research.

As was noted above with respect to average incomes, the results of this counterfactual simulation can also be used to provide an indication of the impact of the current high unemployment rates. The rise in unemployment since 1989-90 was higher than that simulated in Table 5.2, and so as for average incomes, these estimates of the change in poverty due to unemployment rates should be inflated by around 50 per cent. Whilst this can still be only an approximate estimate of likely poverty rates they are the best we are likely to have for some time.

Making this adjustment would suggest that the current recession will see (absolute) poverty levels of between 0.8 and 3.0 percentage points higher than in 1989-90, depending upon the poverty threshold chosen. This corresponds to an increase of between 50 and 196 thousand in the number of (not self-employed) families in poverty. Note however, that this high estimate is still smaller than the increase in the number of unemployed between 1989-90 and 1991-92. Over this period the number of unemployed increased by around 370 thousand, and the unemployment rate by 4.1 percentage points.

In terms of child poverty the counterfactual simulation implies an increase of about 1.0 to 2.6 percentage points in the percentage of children below the poverty line (depending upon the line used). Putting this in the context of the current recession, this corresponds to an increase of between 1.5 and 3.9 percentage points or between 50 and 130 thousand additional children in poverty. Note that during the 1983 recession, labour force participation rates of sole parents also fell dramatically. If this were to occur with the current recession, this would lead to up to another 20 thousand children in families with below poverty line incomes.

Wives' Labour Force Participation: Whilst the increase in married women's participation rates over the 1983-84 to 1989-90 period had a roughly similar effect on aggregate incomes as the decrease in unemployment (Table 5.1), its impact upon absolute poverty was significantly lower (Table 5.2). This is because the growth in participation rates was primarily among families where the husband was in employment (and hence the income unit as a whole was already above the poverty line). It is interesting to note, however, that for couples with dependants, the increase in

married women's participation did have a significant impact upon incomes near the 140 per cent threshold. Without the increase in participation rates for this group, the absolute (140%) 1989-90 poverty rate of 21.0 per cent (Table 4.2) would have been 2.2 percentage points higher.

Pensions and Benefits: As might be expected, given the real increases in most pension and benefit payment rates, a return to 1983-84 rates of payments would generally lead to an increase in poverty. The only exception to this is for youth, for whom the replacement of Unemployment Benefit with Job Search Allowance generally led to reduced levels of income support and, in consequence, increases in poverty.

It is also interesting to note that for most family types the effect of real increases in payments is generally only significant for one of the four poverty lines shown. Thus the effect of pension increases for the single aged is concentrated around the standard poverty line, whilst that for couples has most impact on the 120 per cent poverty rate. This is simply a result of the clustering of pensioner incomes around the base payment rate, but does imply caution when considering changes in poverty rates based upon a single poverty threshold.

The most significant impact of changing rates of social security payments has been for sole parents. At the standard poverty line, the family package increases over the period led to a 10.5 percentage point decrease in the poverty rate of sole parent families. This decrease, of course, was from an exceedingly high base, and the larger change in poverty rates for sole parents than for couples with children, simply reflects the fact that a larger proportion of sole parents were income support recipients. In fact, because there are many more couples than sole parents, the 2.8 percentage point change in poverty incidence (at the 120% level) for couples with dependants actually represents more families being moved out of poverty than does the 10.5 point change in poverty rates for sole parents (42 vs 29 thousand).

One caveat to these conclusions is that the poverty rates in 1989-90 estimated by the simulation (for sole parents in particular) differ significantly from those estimated from the 1990 IDS (see Section 4.2). Whilst a case was made above for these simulation estimates being more accurate than the survey results, the relatively simple way of assigning take-up of family related payments means that the simulation results for sole parents must still be treated with some caution.

Other Changes: Compared to the other changes described, the impact of wage changes on poverty rates is generally very small since those receiving (full-time) wages are usually not below the poverty line, and the fall in real wages between 1983-84 and 1989-90 was not sufficient to change this. The only exception to this is for couples with dependants at the highest poverty line, for whom a return to the higher wage rates of 1983-84 would mean a 1.4 percentage point reduction in poverty in 1989-90. This is because the higher poverty line of large families come close to full-time wage levels.

Similarly, changes in taxation rates have had little impact on either relative or absolute poverty rates. This reflects both the fact that the aggregate real changes in taxation have been small (Table 5.1) and that most changes affect those families with incomes above poverty line levels. What changes there are have generally slightly increased poverty rates (i.e. poverty rates would be lower under the 1983-84 tax scales).

5.3 Income Distribution

Just as for poverty rates, one can also decompose the changes in income inequality between 1983-84 and 1989-90. This is done in Table 5.4 which shows the per cent increase in 1989-90 income shares of different income groups, under different counterfactual assumptions.

Unemployment: A return to 1983-84 unemployment levels would in general lead to increased income inequality among working age families, though for some groups such as single people aged 25 to 64, and sole parents, the very bottom of the income distribution contains many people not in the labour force – who would be relatively unaffected by unemployment rate changes. For (not self-employed) couples with dependants, the bottom decile would lose 6.5 per cent of its income share were 1983-84 unemployment levels to return, whilst for young single people, the loss would be 7.8 per cent. As noted above, for couples these estimates do not include the changes in wives' unemployment, though it is more difficult to estimate the magnitude of this limitation on income shares.

Wives' Labour Force Participation: For working age couples, a return to lower levels of married women's participation would tend to reduce the income shares of the middle of the income distribution, whilst increasing that of both extremes. There are two reasons why this participation increase had most impact upon the middle of the income distribution. The first is simply that the top income deciles were predominantly two-earner couples in 1983-84, and so overall increases in participation could have little impact. Second, and of more policy relevance, the increase in married women's participation was primarily in families where the husband was already employed. As was noted in Section 2, participation rates for women whose husband was unemployed or not in the labour force hardly grew over the period.

It is important however to bear in mind that changes in family well-being will not necessarily follow these income trends. Rather, this depends fundamentally upon the reasons for the increase in participation. If, for example, some women were 'forced' into the labour market because of their husbands' falling real wages (or because of high mortgage interest payments) this would imply quite a different interpretation of these income changes than if they reflected the impact of increasing labour market opportunities for women.

Table 5.4:   **Per Cent Increase in 1989-90 Income Shares Under Different Counterfactual Simulations**

Family Type and Factor Held at (Real) 1983-84 Value	Bottom Decile	Second Decile	Second Quintile	Middle Quintile	Fourth Quintile	Ninth Decile	Top Decile
Person <25							
Unemployment rates	-7.8	-7.3	-7.0	-1.9	2.0	3.6	4.1
Wives' LF participation rates	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	-6.5	-7.0	-6.5	-1.6	1.9	3.3	3.8
Pension/benefit/allowance rates	1.6	-0.3	-0.3	-0.1	0.1	0.1	0.1
Wages rates	5.5	1.8	-0.1	-0.3	0.3	-0.0	-0.9
Interest/dividends/self-employment	-0.7	-0.3'	0.0	0.2	0.1	-0.1	-0.2
Income taxation	1.2	3.3	2.6	-0.8	-2.1	-0.6	1.2
Everything	-2.6	-4.1	-4.1	-2.2	0.5	2.6	3.9
Person 25-64							
Unemployment rates	0.1	0.7	-6.8	-1.1	1.4	1.8	1.7
Wives' LF participation rates	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	-0.3	0.4	-7.0	-0.8	1.4	1.8	1.6
Pension/benefit/allowance rates	-3.1	-1.5	-0.5	0.2	0.3	0.3	0.3
Wages rates	2.0	1.3	3.2	1.9	1.4	1.5	-6.2
Interest/dividends/self-employment	-0.2	0.6	-0.9	0.6	0.5	0.3	-0.8
Income taxation	2.2	1.8	0.2	-1.4	1.3	0.9	-1.4
Everything	-1.5	1.9	-5.1	0.8	5.0	5.8	-7.4
Person 65+							
Unemployment rates	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0
Wives' LF participation rates	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	0.2
Pension/benefit/allowance rates	-0.9	-0.5	-0.4	-0.4	0.1	0.2	0.6
Wages rates	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.3
Interest/dividends/self-employment	3.7	4.5	4.3	2.6	0.3	-1.9	-5.7
Income taxation	0.2	0.1	0.1	0.1	1.0	-0.6	-0.7
Everything	2.6	4.1	4.3	2.5	0.7	-2.4	-5.3
Couple, head 65+							
Unemployment rates	0.2	-0.0	-0.0	0.0	0.2	0.6	-0.5
Wives' LF participation rates	0.2	-0.2	-0.2	-0.1	-0.1	-0.3	0.4
Unemployment, participation + ft/pt rate	0.5	-0.1	-0.1	-0.1	0.1	0.2	-0.2
Pension/benefit/allowance rates	-0.3	-0.3	-0.3	-0.2	-0.0	0.2	0.3
Wages rates	0.7	-0.3	-0.3	-0.2	0.2	0.3	-0.1
Interest/dividends/self-employment	3.1	5.7	4.7	1.9	-0.5	-1.7	-4.6
Income taxation	0.1	0.2	0.2	0.4	0.5	-0.1	-0.8
Everything	4.5	5.5	4.5	1.9	0.6	-0.4	-6.2

Table 5.4: **Per Cent Increase in 1989-90 Income Shares Under Different Counterfactual Simulations (cont.)**

Family Type and Factor Held at (Real) 1983-84 Value	Bottom Decile	Second Decile	Second Quintile	Middle Quintile	Fourth Quintile	Ninth Decile	Top Decile
Couple, head <65							
Unemployment rates	-1.1	-3.6	-2.0	-0.2	0.9	1.1	0.6
Wives' LF participation rates	2.9	2.8	-1.3	-3.6	-0.6	0.4	3.3
Unemployment, participation + ft/pt rate	1.9	-0.1	-2.7	-3.8	0.2	1.4	3.8
Pension/benefit/allowance rates	-0.5	-0.2	-0.0	0.0	0.0	0.0	0.0
Wages rates	-0.3	0.9	1.4	1.2	0.7	-0.0	-2.9
Interest/dividends/self-employment	-1.0	-2.2	-0.5	0.1	0.6	1.1	-0.6
Income taxation	1.8	1.3	1.1	0.2	0.2	0.8	-2.1
Everything	1.3	-0.9	-0.1	-1.8	2.2	3.5	-3.1
Couple with dependants							
Unemployment rates	-6.5	-3.6	-0.8	0.5	0.9	1.1	0.9
Wives' LF participation rates	4.1	1.6	-0.5	-0.6	-0.6	0.2	0.1
Unemployment, participation + ft/pt rate	-0.9	-0.6	-0.8	-0.3	-0.1	1.0	0.7
Pension/benefit/allowance rates	-5.3	-2.7	-0.7	0.1	0.2	0.7	1.6
Wages rates	1.7	2.1	1.3	0.7	0.3	-0.3	-2.7
Interest/dividends/self-employment	0.1	0.2	0.4	0.4	0.2	0.2	-1.1
Income taxation	0.9	0.8	1.3	0.8	0.4	0.0	-2.6
Everything	-5.1	-0.3	2.8	2.6	1.8	1.8	-6.4
Sole parent							
Unemployment rates	2.7	1.9	0.9	-0.1	-1.7	0.0	0.5
Wives' LF participation rates	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unemployment, participation + ft/pt rate	0.7	3.5	3.0	-0.5	-5.0	1.3	2.0
Pension/benefit/allowance rates	-5.0	-8.1	-5.0	-3.9	0.4	4.5	5.1
Wages rates	0.9	0.6	1.5	2.0	1.6	1.2	-5.2
Interest/dividends/self-employment	0.0	0.1	0.3	-0.1	-0.0	-0.3	0.1
Income taxation	-0.1	-0.1	-0.0	0.2	-0.4	0.9	-0.2
Everything	-5.1	-1.9	-0.3	-1.6	-5.4	6.0	4.2
All Families							
Unemployment rates	-4.0	-1.7	-2.7	-1.3	0.3	1.3	1.4
Wives' LF participation rates	2.2	2.2	2.5	1.9	-0.9	-2.1	-0.6
Unemployment, participation + ft/pt rate	-1.7	0.3	-0.3	1.0	-0.3	-1.0	0.6
Pension/benefit/allowance rates	-1.4	-1.3	-0.9	-0.3	-0.1	0.2	0.7
Wages rates	0.7	0.2	0.0	0.6	0.9	-0.1	-1.2
Interest/dividends/self-employment	0.5	-0.0	-0.3	-0.1	0.3	0.3	-0.3
Income taxation	1.5	1.6	0.2	-0.4	1.0	0.3	-1.3
Everything	-2.7	-0.4	-1.4	1.0	3.1	0.4	-3.0

Note: As for Table 5.1. For not self-employed populations only.

Pensions and Benefits: Since the real value of most pensions and benefits increased over the period (albeit only slightly in some cases), a return to 1983-84 levels would lead to a decrease in the income shares of the lower income deciles. The only exception to this is for young single people, where the bottom decile had a higher level of income in 1983-84. The reduction in income share since then reflects the lower rates of payment for unemployed youth in 1989-90 (Table 2.3).

Wages: Interpreting the distributional impact of wage changes is made complicated by the distribution of the non-employed, part-time and full-time employed across the income distribution. For example the 5.5 per cent rise in the income share of the bottom decile of young single people if wages were to return to their 1983-84 level should be treated with caution. This group had an average income in 1989-90 of only $1,824, and comprised many people whose primary source of income was from part-time employment. This significant change reflects the fact that the WEED surveys show real average weekly wages from part-time employment for single people to have declined significantly over the period. However the part-time employed are an extremely heterogeneous section of the population, and so the imputation of the average change (which probably mainly represents changes in hours more than wage rates), may not be appropriate.

Despite these complexities, the distributional impact of the wage changes described in Section 2 are apparent. Figure 2.6 showed a dramatic increase in wage inequality for full-time workers between 1985-86 and 1989-90 -- particularly between the top of the income distribution and the middle. This is evident in Table 5.4 for single people aged 25-64 and for working age couples. A return to the wage levels and distribution of 1983-84 is estimated to lead to significant falls in the income share of the top decile.

Investment Income: One of the more striking features of Table 5.4 is the relationship between investment income and inequality among the aged. A return to 1983-84 rates of return would lead to a significant fall in the income share of the top deciles, and a corresponding increase for lower deciles.[22] The fact that both the average incomes and distribution of income among the aged is so much subject to cyclical fluctuations has perhaps not received the attention it deserves. Certainly the perspectives of many of the aged with regard to interest rate fluctuations will be quite the opposite of that of young home buyers.

Income Taxation: Finally, the impact of changes to the income tax scales on income inequality have been mixed, with patterns varying across family types. The trend for the highest decile to lose with a return to the 1983-84 tax scale is evident overall and in most family types. This is a result of the cut in the top marginal tax rate to 48 per cent. It should be noted however, that only the changes to the tax rate

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22   The fall in share is lower for the bottom decile, because many of these people were actually retirees with investment income rather than pensions. Their income is low because the wide income definition for the age pension (or the assets test) means that they do not receive age pension, but the narrower income definition in the income survey does not include these imputed income sources.

scale have been modelled. Other base-broadening measures (in particular the capital gains tax), probably had a progressive impact on the distribution of the income tax burden.

6 Summary and Conclusions

The goal of this report has been to describe the changes in the various components of family incomes over the period 1983-84 to 1989-90. Of the many economic and policy developments of this period, the most important were:

- Significant falls in unemployment rates, accompanied by even more dramatic increases in married women's labour force participation (though the latter did not apply to families with unemployed husbands).

- Falls in real wage rates, and an apparent increase in wage inequality.

- Increases in some (particularly child-related) income support payments, accompanied by reduced coverage and tighter administration of other payments.

- Increases in the share of national income accruing to capital, and consequent increases in investment and interest incomes.

- A flattening of the income tax scale, accompanied by a broadening of the tax base (e.g. via the capital gains and fringe benefit taxes).

In this report, simulation methods have been used to describe both the combined and separate impacts of (most of) these changes on family incomes between 1983-84 and 1989-90. Whilst the simulations are of necessity limited in scope, and certainly do not provide the same data that actual income surveys conducted in these two years could provide, they do permit comparisons which are both timely and capable of being decomposed.

The main conclusions of the comparison of these two years are:

- Overall, we estimate a small increase in average real family disposable incomes over the period (4.3 per cent) (Table 4.1). This, it should be noted, is significantly less than the growth in the national account estimates of household disposable income per capita. The main reasons for this divergence are (starting with the most important): our use of a per-family rather than per-person index, the wider scope of the national accounts measure, and an apparent underestimation of wage growth in our simulation model.

- Using a range of poverty lines, absolute poverty is estimated to have fallen by between 0.9 and 2.4 percentage points, and relative poverty to have fallen by between –0.3 and 0.5 percentage points. Absolute child poverty rates fell by between 1.0 to 4.4 percentage points. Across family types, the fall in the absolute poverty rate was greatest for sole parent families, though the reduction in the numbers of children in poverty was greatest in married couple families (Tables 4.2 and 4.3).

- We also compared our simulated estimates of poverty in 1989–90 with those obtained from the recently released *1990 Income Distribution Survey*. In general, the simulation based estimates provide a slightly lower estimate of poverty (Table 4.4). Whilst part of this difference may be found in the less than comprehensive modelling of the income support coverage changes of the period, in many respects the simulated data appears to be more suitable for the analysis of poverty changes than does the actual survey data.

- Across all families both the bottom and top of the income distribution increased their income share at the expense of middle income families. This was particularly marked for couples with dependants, where the top and bottom deciles increased their shares by 7 and 5 per cent respectively. All income deciles (in all family types), however, experienced an increase in average incomes (Table 4.5).

When the sources of these income changes are disaggregated, the patterns which emerge vary significantly across the different family types.

- The aged benefited from some small increases in pension rates, but much more important was the increase in investment and interest income. This led to a large increase in income inequality among the aged, with gini coefficients increasing by about 9 per cent (Tables 4.6, 5.1 and 5.3).

- For single people aged under 65, the most important influence on aggregate incomes between 1983-84 and 1989-90 was the fall in unemployment. This was particularly important for those aged under 25. As might be expected, this unemployment fall led to a reduction in poverty – with the reduction greatest for the higher poverty lines. For people aged under 25, an estimated unemployment rate decrease of 7.5 percentage points between 1983-84 and 1989-90, is estimated to lead to a 4.1 percentage point decrease in the poverty rate (at the 140% poverty line). The percentage point change in poverty is less than the change in unemployment because some people are not in the work force, because many part-year unemployed will still have an annual income sufficient to place them above the poverty line, and because a significant proportion of full-time employed are below the poverty line. Offsetting the falls in unemployment rates were falls in real wages and income support payments for the younger unemployed (Tables 5.1 and 5.2).

- For (non-aged) married couples the most important influence on average incomes was the dramatic increase in married women's labour force participation. Between 1983-84 and 1989-90 falls in unemployment and increases in investment income also increased average incomes, offsetting reductions in real wages. For couples without dependants, the main influence on poverty rates was the fall in unemployment, whereas for couples with children unemployment falls and income support increases had roughly similar impacts. If income support payments for couples with children had remained at their real 1983-84 level, their (absolute) poverty rates in 1989-90 may have been up to 2.8 percentage points higher (Tables 5.1 and 5.2).

•   If married women's participation rates had not increased, the main 'losers' would have been middle income families, as there was little participation increase among women with husbands not employed, and upper income families were generally two earner families in both years (Table 5.4). Whether welfare gains and losses will mirror these income trends, is however, a much more complicated question and outside the scope of this present report.

•   For sole parents, the main influences on both average incomes and poverty rates were the significant increases in employment and income support payments over the period. Without the increases in income support payment rates over the period, poverty rates for sole parents in 1989-90 could have been up to 10.5 percentage points higher. Nonetheless, poverty rates for sole parents were still at a very high level in 1989-90 (Tables 5.1, 5.2 and 4.2). It should be noted however, that there are several important omissions and simplifications in the modelling of sole parents incomes, and so these estimates should be treated with some caution (see Section 4.2).

•   Both the falls in unemployment and income support increases led to absolute child poverty rates falling significantly over the period (by up to 4.4 percentage points, or one-fifth of the 1983-84 poverty incidence). For couples, unemployment falls and income support increases were approximately equally important in achieving this result, whilst for sole parents increases in labour market participation were important, but not as important as income support increases.

As well as being used to describe the changes in family incomes over the 1980s, the results of these simulations can also be used to provide insights into the likely income trends in the current recession. Using the assumption that things will remain as they were in 1989-90, except that unemployment will peak at an average rate of 10.3 per cent in 1991-92, the following estimates are made.

•   The main impact of rising unemployment will be on the proportion of families in 'near poverty', for which we might see a rise of up to 3 percentage points.

•   This corresponds to just under an additional two hundred thousand families below the poverty line – containing 130 thousand children. If the participation rates of sole parents were to also fall as they did in the 1983 recession, this could lead to an additional 20 thousand children living in families with incomes below the poverty line.

Note that these increases are much less than the additional numbers of people likely to become unemployed. This is partly because, like all the estimates in this report, these are based on annual incomes. Many unemployed people will be likely to have at least some employment during the year – providing enough income to move them over the poverty lines used here (though still leaving them with a very low income). Similarly, some families will have wages sufficiently low, or needs sufficiently high, to place them under the poverty line even when they have employed members.

What do these results imply for the future of income levels and distribution in Australia? Whilst it is unlikely that the pattern of economic growth in the 1983-84 to 1989-90 period will be replicated in the near future, the analysis here does assist us in speculating on some of the likely implications of future economic growth.

Some of the conclusions presented here, are of course, not particularly new. The effect of changes in real wages and unemployment rates on average incomes and poverty rates are well known, though some may be surprised by the relatively loose association we observe between unemployment and poverty rates. As noted above, this is in part because many unemployed are unemployed for only short periods of time, and so their annual family incomes do not fall below the poverty line. However it is only fair to say that part of this indeterminacy may reflect problems in the methodology of income survey based poverty measurements. More detailed analysis is required, for example, of the standard of living of very low wage employed people. Are we seeing the emergence of a 'working poor', or does the apparent poverty of these people simply reflect limitations in the measurement of income in these surveys?

In this report we have also pointed to other limitations of income survey based measurement for analysing changes over time when there are changes in the policy treatment of income sources not included in these surveys (e.g. capital growth investments). Whilst these issues by no means invalidate the use of the important data in income surveys, they do indicate that much care is required in their application. One of the side effects of simulation based research is that it forces a much more critical consideration of the quality and compatibility of data sources. Whether this will ultimately lead to better data, or whether it will simply lead to a diversion of research effort away from substantive issues, only time will tell.

Still, in terms of substantive results, this report has many, and these are summarised above. In conclusion there are three issues which we believe deserve particular emphasis. First, with regard to the issue of poverty, and particularly child poverty, we conclude that both unemployment falls and income support increases were important in reducing poverty in the 1980s. Clearly poverty has now increased again with the 1991 recession, and the prospect of slow economic growth over the next few years is particularly troubling. Whilst macroeconomic and labour market policies will thus be of central importance, the likely trends suggest that much of the short term burden of policy alleviation will continue to be borne by income support policy. The generosity or otherwise of this will thus be crucial in determining the level of poverty and hardship over the next few years.

The second issue is that when economic growth returns, the impact of employment growth on poverty will depend very much on the distribution of that growth. If overseas experience is anything to go by, there seems to be no reason to suspect that the growth in married women's labour force participation has stopped (though it may pause for a while). Whilst we do not subscribe to the view that this necessarily

means fewer jobs for the unemployed[23], we would like to point out the implications of the changing nature of family labour market participation for income support policies. As the two (or one and a half) earner family becomes the norm, the gap in incomes between average families and unemployed families will become greater. This gap is currently reinforced by the income testing arrangements of Australian income support policies. We forecast increasing pressures for change to this family based income support system.

These pressures are perhaps already being felt in the retirement incomes area, where the same issue of the increased gap between a two and no-earner family is arising. In this case however, replacement rates will (hopefully) be maintained by the growth of private saving for retirement (via superannuation). The final point we would like to make is that the 1980s have shown just how volatile the investment incomes derived from these savings can be. The implications of this volatility on the level and distribution of the incomes of the aged has been described here. The associated policy issues however, have yet to be addressed.

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23   Such an argument is flawed because it does not take account of the segregated nature of the
      Australian labour market, nor the links between the labour market and the macroeconomic
      constraints on economic growth.

Appendix: Comparison with External Aggregates

In any simulation exercise it is desirable to validate the analysis by comparing the simulated results with those obtained from independent sources. An obvious source of data for comparison with some of our simulation results is the *1990 Income Distribution Survey (IDS)*, which collected income data for 1989-90 using a similar methodology to the 1986 IDS. However (partly because we wish to check the validity of this survey data itself) it is also preferable that the simulation matches the changes in other sources of household income data. This appendix thus describes a range of comparisons with other external data sources as well as with the 1990 IDS.

The goal of the simulation process is to go some way towards estimating the information that might be collected by income surveys using the same methods as the 1986 IDS, but conducted for the 1983–84 and 1989–90 years. Data available on the same basis thus provide an ideal calibration (if one can be confident that an identical methodology has in fact been used). Usually however, there are significant conceptual differences in the different data sources that are available for comparison, and so a good deal of caution is required. Quite often, for example, the external comparison data produce a different income total from the income survey data even in the base year (1985-86). Whilst such differences may reflect the quality of the original survey data (or may be simply due to definitional differences) they are clearly of a different nature to the differences that arise from the simulation process itself. Where such differences exist, but the calibration data are still reasonably close to the survey concept, it is more useful to compare changes in, rather than levels of, the variables of interest.

A.1 Population

Table A.1 shows population estimates for three age groups obtained from the *1986 Income Distribution Survey* (IDS), the simulated data, and ABS population estimates. The population weighting in the IDS is calculated for the survey period of September to December 1986, hence these estimates are compared in the table with population estimates for June (at the end of each financial year) rather than with the average financial year population.

Looking first at the base period data (1985–86) the survey and population estimates correspond closely for persons of working age, as might be expected from ABS weighting procedures. Indeed, the ABS actually weights persons in the IDS to

Table A.1: Simulated and 'Actual' Population Estimates

Age	1983-84	1985-86	1988-89
	ABS Population Estimates (000)		
<15	3,730.1	3,699.5	3,741.7
15-64	10,258.5	10,636.7	11,436.9
65+	1,567.4	1,682.1	1,907.6
TOTAL	15,555.9	16,018.4	17,086.2
	Simulation (000)		
<15	3,891.3	3,835.2	3,990.6
15-64	10,346.3	10,561.9	11,472.5
65+	1,464.1	1,557.8	1,713.1
TOTAL	15,701.7	15,954.9	17,176.2
	Ratio, Simulation/Population Estimates		
<15	1.043	1.037	1.067
15-64	1.009	0.993	1.003
65+	0.934	0.926	0.898
TOTAL	1.009	0.996	1.005

Source: ABS (various years), Catalogue No. 3101.0.

exactly reflect population estimates. The differences that exist here arise because of the use of income unit rather than person weights.[24]

Whilst the population aged 15-64 is within one per cent of the ABS population estimate in 1985-86, the aged population is underestimated by seven per cent. This is because of the exclusion of persons in 'hospitals and sanatoria' from the scope of the IDS.[25] The most serious discrepancy however is in the numbers of children, which are overestimated by almost four per cent in the survey. This is possible because children are not explicitly taken account of in the ABS weighting procedure, and could reflect factors such as higher contact and response rates from families with children.

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24   For 1985-86 these are defined as the harmonic mean of the head and spouse weights of each income unit.

25   The 1986 Census estimated around 150,000 aged persons in such institutions, more than explaining the difference of 124,000 in this table (ABS (no date), Catalogue No. 2498.0: 164).

These discrepancies in the base data generally carry over into the simulated data for 1983-84 and 1989-90. There are however some changes between these years which reflect the limitations of the simulation model. Because the reweighting is carried out on the basis of estimates of the numbers of income units rather than persons, the ratios of person numbers vary between years. The model, for example, does not take account of the decrease in the average number of children (per family with children) since 1986, and so overestimates the number of children in 1990 by a further three per cent (on top of the three per cent discrepancy in the original IDS data).

The reverse pattern applies to the aged population, where the lack of specific disaggregation by age in the reweighting means that the model does not take account of 'greying' of the population since 1984 (nor is any account taken of the trend towards de-institutionalisation of the aged since 1986). The simulation of the working age population remains, however, very close to the ABS estimates.

Because most of the results shown in this report refer to either averages or rates (rather than totals), these errors in the simulation of population levels are of little direct importance, except to point the changes which have not been modelled. However, because many of the external calibration variables against which the simulation can be calibrated are aggregates, these divergences need to be taken into account when comparing with this external data.

A.2 Labour Force Status

One of the key goals of the simulation is to reflect the major changes in unemployment and participation rates over the 1980s. Focusing on annual incomes, and hence annual labour market status, however, presents particular problems as the available labour force calibration data generally only refer to labour market status at a particular point in time. Calibration data broken down by family type moreover, are generally only available for one month in each year (either June or July for the period covered here).

The reweighting method used assumes that trends in the predominant labour market status of individuals over the year reflect trends in these point-in-time estimates. Though an adjustment is made to account for the fact that persons not predominantly unemployed may experience unemployment (and vice versa) (see Bradbury, forthcoming), this method still implicitly assumes that the distribution of labour market status within each category of predominant status remains constant over the period.

One way to evaluate the success of this reweighting method is to compare the aggregate estimates of labour market trends predicted by the model with those obtained from an alternative data source such as the monthly ABS *Labour Force*

Surveys (LFS) (Cat. No. 6203.0).[26] Whilst the LFS does not record status over a twelve month period, some correspondence should be observed between the total number of employment and unemployment weeks recorded in the IDS (and hence in the simulated data) and the average results from the relevant twelve months of the LFS. Because the IDS data on participation, unemployment and employment weeks are retrospective rather than current, it would be surprising if the two data sources corresponded exactly. However, a greater degree of agreement should be found in the **changes** in unemployment and participation rates.

Using the method employed in an earlier version of the simulation model used here (see Bradbury, forthcoming), it was found that the annual average unemployment rate was simulated to fall by 3.0 percentage points between 1983-84 and 1989-90 (from 9.0 to 6.0 per cent). However a corresponding estimate from the monthly *Labour Force Surveys* was 3.4 percentage points. Similarly, the model underestimated the growth in married women's labour force participation by about 10 per cent.[27] Since the reweighting process does not explicitly take account of the total number of weeks spent in each labour market state (only using predominant status), this divergence is not surprising. In order that the estimates provided here be as accurate as possible, some additional adjustments have been made to the income unit weights to compensate for these biases.[28]

The final outcome of this simulation is shown in Table A.2. The first panel of this table compares the unemployment rates estimated from the average of the twelve months of the LFS, and from the weekly status variables recorded in the IDS.[28] The different weights in the simulated data sets thus produce the variations in this variable across the period. In general, the LFS definition of unemployment yields a slightly higher unemployment rate than the weekly status variable, even for 1985-86. This is because of the differences between current week and recall estimates of unemployment. Changes over time however, are captured well.

A similar conclusion holds for married women's participation rates. Whilst the base period data do not provide exactly comparable estimates, the simulation process ensures that the changes over time are accurately modelled. For the labour force participation rate of other persons, however, the simulations produce a slight fall in the participation rates whilst the LFS indicates stability.

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26   Now that data from the 1990 IDS is available, it might be thought best to use this data to validate. However the 1990 IDS does not contain the same level of detail of annual labour market status as the 1986 IDS.

27   Estimates based upon this simulation are given in Bradbury and Doyle (1991).

28   These involved increasing the simulated predominant unemployment rates of single persons and husbands by 0.5 percentage points in 1989-90, decreasing the labour force participation of married women by 0.8 percentage points in 1983-84 (half from full-time and half from part-time), and increasing their labour force participation by 0.5 percentage points in 1989-90.

Table A.2: Simulated and Labour Force Survey Unemployment and Participation Rates

	1983-84	1985-86	1989-90
		Unemployment Rates (%)	
Monthly LFS Data	9.6	7.9	6.2
Difference from 1983-84		-1.7	-3.4
Simulated Weekly Status	9.0	7.4	5.6
Difference from 1983-84		-1.6	-3.4
		Married Women's Labour Force Participation Rates (%)	
Monthly LFS Data	42.4	46.0	52.1
Difference from 1983-84		3.6	9.7
Simulated Weekly Status	45.6	49.2	55.3
Difference from 1983-84		3.6	9.7
		Other Labour Force Participation Rates (%)	
Monthly LFS Data	68.0	68.0	68.0
Difference from 1983-84		0.0	0.0
Simulated Weekly Status	67.1	66.7	66.6
Difference from 1983-84		-0.4	-0.4

Source: ABS (various years), The Labour Force, Australia, Catalogue No. 6203.0 (via dX EconData).

A.3 Income Aggregates

As well as adjusting the weights of the 1986 IDS to reflect the changing demographic and labour force status of the population over the 1980s, the simulation also directly modifies the variables in the data file to represent changes in other economic indicators and policies over the period. Two types of comparisons are made in this section. First, aggregate incomes in the simulation are compared with the National Accounts aggregates (Table A.3), aggregate income support expenditures (Table A.4) and aggregate personal income tax revenue (Table A.6). In addition, the income aggregates for 1989-90 are compared with the aggregate incomes recorded in the 1990 IDS (Table A.5).

National Accounts Aggregates

Given the discussion in Section 2 of this report, a natural comparison to make of the simulation data is with the National Accounts (NA) data on household disposable incomes. The concept of family disposable incomes which we employ here has many features in common with the National Accounts concept of aggregate

household disposable income (HDI). However there are also many important differences which make comparisons difficult.

Table A.3 compares some key aggregates from the National Accounts household income and outlay account with the corresponding aggregates available from the 1985-86 IDS data together with the simulations for 1983-84 and 1989-90. Even in the base year, however, the problems of comparison are clear. The closest match is with the estimate for aggregate wages and salaries, where the estimates from the two sources are within 0.2 per cent of each other. Apart from this, most items exhibit large discrepancies, usually due to major definitional differences.

For example, total government pension, benefit and allowance payments in the IDS comprise only two-thirds of the NA aggregate of personal benefit payments to residents. However a large part of this difference arises from the inclusion of many 'social wage' type benefits in the NA aggregate. Thus $4.1bn of the $22.9bn is accounted for by the government provision of various health related transfers.[29] Excluding these expenditures, the survey estimate comprises 83 per cent of the NA aggregate. The detailed patterns of apparent under-recording in the survey of income support incomes are discussed further below.

For the IDS, income from unincorporated enterprises has been sub-divided according to the person's main industry during the year. This approximate division probably explains the offsetting over- and underestimation of farm and non-farm income respectively. In total however, only 83 per cent of these two income sources are recorded in the survey. The main reason for this is probably the inclusion in the National Accounts of an explicit adjustment for the under-reporting of self-employment income. Such adjustments are much easier to implement at the aggregate than the personal level!

Like personal benefit payments, income from interest and dividends seems to be systematically understated in the income survey – a result that is often seen in income surveys world-wide.

Finally the 'other' category is a miscellaneous collection of items for which no comparable definition exists in the two sources. The most important items in the National Accounts are 'supplements to wages and salaries' (including employer contributions to superannuation funds), interest on life and super funds and 'dwelling rent' (including imputed rent on owner-occupied dwellings). Only some of these income sources are recorded in the income survey, and then usually in a limited fashion (e.g. rent does not include imputed rent, and superannuation is only measured when received in the form of a regular income stream).

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29   Source: ABS (various years), Catalogue Nos 5502.0 and 5501.0. These figures are not
      entirely compatible due to payments to non-residents.

Table A.3: National Accounts and Simulation Income Aggregates

	NA $b	Simulation-IDS $b	Ratio (Sim./NA)
Wages and Salaries			
1983-84	93.4	94.9	1.02
1985-86	112.9	113.1	1.00
1989-90	170.0	169.3	1.00
Personal Benefit Payments to Residents			
1983-84	18.9	13.3	0.70
1985-86	22.9	15.0	0.66
1989-90	32.4	22.1	0.68
Farm Unincorporated Enterprises			
1983-84	3.1	3.7	1.20
1985-86	1.3	1.6	1.20
1989-90	4.4	5.3	1.20
Non-Farm Unincorporated Enterprises			
1983-84	10.2	8.1	0.79
1985-86	12.5	9.9	0.79
1989-90	18.1	14.4	0.79
Interest and Dividends			
1983-84	11.5	8.8	0.77
1985-86	16.6	10.8	0.65
1989-90	29.1	20.4	0.70
Other			
1983-84	19.4	3.7	0.19
1985-86	25.6	5.7	0.22
1989-90	41.5	6.6	0.16
TOTAL			
1983-84	156.5	132.4	0.88
1985-86	191.8	156.1	0.81
1989-90	295.5	238.1	0.81
Income Tax			
1983-84	24.7	27.1	1.10
1985-86	32.7	34.0	1.04
1989-90	50.0	48.8	0.98
Other Transfers to Government and Overseas			
1983-84	4.2	-	-
1985-86	5.6	-	-
1989-90	10.5	-	-
TOTAL HOUSEHOLD DISPOSABLE INCOME			
1983-84	127.6	105.3	0.83
1985-86	153.6	122.1	0.80
1989-90	235.0	189.3	0.81

As a consequence of all these differences, total household disposable income as measured by the IDS is only 80 per cent of the national accounts estimate. Income tax liability as recorded by the survey, however, is slightly higher than the NA estimate of income tax payments.[30] (The income sources excluded from the income survey are generally non-taxable). The higher income tax estimate may stem from differences between the liability estimate of the income survey vs the payment estimate of the national accounts. For the self-employed and those with investment income, income growth will generally mean that tax liabilities will exceed payments in any given year.

Table A.3 also contains the corresponding simulated data for 1983-84 and 1989-90. Whilst the discussion above notes many definitional and measurement differences between the National Accounts and the IDS, it is still of interest to compare the growth rates of incomes from the two sources. In this regard, the main concern should be whether the ratio between the NA and simulation results remains reasonably constant over the years. Several aspects are considered in detail below.

Wages

Whilst total wages and salaries are very similar to the NA aggregates in both the 1986 IDS and the 1989-90 simulation, wages are apparently overestimated by 2 per cent in 1983-84. This may reflect the less sophisticated inflation of wage income (using the WEED survey) for this year, or could be a reflection of limitations of the reweighting methodology.

In the latter context, one limitation of the reweighting method is that self-employed people are not distinguished from other employed persons. Between 1983-84 and 1989-90, Labour Force Survey estimates suggest that the proportion of the employed population who were self-employed stayed roughly constant. However the simulation estimates this proportion as rising by around 1.3 percentage points (calculated from weeks during the year self-employed).

This arises because of the way in which reweighting is undertaken on the basis of predominant labour market status. The fall in unemployment since 1983-84, for example, is simulated by increasing the weights on those cases mainly employed during the year, whilst decreasing the weights on those cases mainly unemployed. However people who are mainly unemployed are often wage and salary earners for the rest of the year, but very rarely self-employed. The decrease in weights for this group thus leads to an increase in the proportion of the simulated population who are self-employed. Correspondingly, the proportion of all employed who are wage and salary earners is overestimated in 1983-84, and so aggregate wages are higher than they should be. With a consistent simulation methodology, one might expect this overestimate of wages to be balanced by an underestimate of self-employment

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30   A tax-imputation program was used for the one in ten persons who did not report their tax
      liability for 1985-86 in the IDS.

income (since the numbers of self-employed are underestimated). However this is not the case here, as the growth in self-employment incomes are constrained to be equal to the growth in National Accounts aggregates.

Income Support Payments

Since the National Accounts measure of personal benefit payments to residents is clearly significantly broader in scope than the survey definition, it is more appropriate to focus upon expenditure data for selected payments.

This is done in Table A.4 where expenditure aggregates are compared with the corresponding totals in the simulated data, as well as in the base 1985-86 survey. Looking first at this base year (the middle row in each panel of the table) it can be seen that overall the IDS recorded only 85 per cent of income support expenditure. Moreover the extent of under-recording varies significantly according to the category of payment.

Only two-thirds of expenditure on supporting parent/widows pension was recorded by the survey, with a similar proportion for benefits. Other pensions (dominated by age pension) were more accurately recorded, as were family allowances. This is as might be expected given the more constant level of receipt of these payments (i.e. sole parents and beneficiaries are more likely to be short-term recipients and perhaps therefore less likely to know their annual income from pension or benefit). Whilst under-recording (for whatever reason) is probably the main cause for these discrepancies, an alternative possibility is that the pensioner/beneficiary population was under-sampled (e.g. because of their higher rate of residential mobility).

Family Income Supplement is overestimated (perhaps because of confusion with Family Allowance or Handicapped Child's Allowance), whilst educational allowances (SAS/TEAS in 1985-86) and pensions from the Department of Veteran's Affairs are under-recorded.

The primary focus of this present report, however, is on changes over time, and from this perspective the main question is whether the ratios in the third column of Table A.4 have remained constant over time. It is also useful to compare the 1989-90 simulation aggregates with the aggregate incomes recorded in the 1990 IDS.

Sole Parent Pensions: Table A.4 indicates that the simulation relatively overestimates expenditure on supporting parents benefit in both 1983-84 and 1989-90. (More precisely, given that the IDS underestimates expenditure in 1985-86, we should say that the simulation underestimates expenditure by a lesser proportion in these two years). Further analysis indicates that this is due to a relative overestimation of the numbers of persons receiving benefit. As might be expected, the simulation methodology is quite accurate in estimating changes in the average rate of benefit for those receiving it.

Table A.4: Aggregate Income Support Payments

	Actual Expenditure $m	Simulation-IDS $m	Ratio (Sim./Exp.)
Supporting Parent/Widows			
1983-84	1,719.1	1,240.9	.72
1985-86	2,162.5	1,447.2	.67
1989-90	2,887.3	2,067.7	.72
Other Pensions (age/invalid/wives/carers/HCA)			
1983-84	6,594.0	5,956.8	.90
1985-86	7,601.8	7,238.3	.95
1989-90	10,923.9	10,800.6	.99
Benefits (UB/sickness/special)			
1983-84	3,341.0	2,444.2	.73
1985-86	3,622.1	2,505.0	.69
1989-90	3,893.7	2,847.2	.73
Family Allowance			
1983-84	1,506.3	1,575.4	1.05
1985-86	1,537.6	1,464.0	.95
1989-90	1,810.3	2,040.9	1.13
FIS/FAS			
1983-84	36.1	41.5	1.15
1985-86	49.4	61.0	1.23
1989-90	513.3	572.9	1.12
Educational Allowances			
1983-84	282.3	263.5	.93
1985-86	392.3	308.1	.79
1989-90	823.3	534.6	.65
Department of Veterans Affairs Pensions			
1983-84	2,023.5	1,765.8	.87
1985-86	2,574.7	2,159.1	.84
1989-90	3,392.5	3,260.0	.96
TOTAL			
1983-84	15,502.3	13,288.0	.86
1985-86	17,940.4	15,182.6	.85
1989-90	24,244.3	22,106.1	.91

Sources: DSS Annual Report, various years; Treasury (various years), Budget Paper No. 1.

Because the total number of sole parents remained relatively constant whilst their participation rates rose and their unemployment rates fell, the simulation estimates the number of sole parent pensioners to have fallen slightly between 1983-84 and 1985-86 (see Bradbury 1990a for these participation and unemployment rates). DSS data, however, show an increase in sole parent pensioners over this period. We do not have an explanation for this divergence, except to note that the LFSOCF estimates of the population of sole parents show a significant degree of year to year

variability. If the divergent expenditure patterns shown in Table A.4 are simply a result of these population fluctuations, then estimates of the average (and distribution of) income among sole parent pensioners will not be distorted.

The change between 1985-86 and 1989-90 is more readily explained. In 1987 the coverage of the sole parent pension was significantly reduced with a reduction in the age at which children qualify their parent for sole parent pensions. Such coverage changes have not been included in the simulation. To this extent the incomes of sole parents in 1989-90 will be overestimated (though this will be offset, in aggregate at least, by the omission of the increase in maintenance income).

Contradicting this conclusion however, is the fact that the simulation estimate of total sole parent income support expenditure in 1989-90 is actually very close to the estimate obtained from the 1990 IDS (Table A.5). We can find no simple explanation of this result, except to note that IDS is also subject to sampling variability.

Other Pensions: The picture for other pensions (dominated by the age pension) is more straightforward. The model's relative underestimation in 1983-84 and overestimation in 1989-90 represents the continuing decline in the coverage of the age pension over this period. The main reasons for this were the introduction of income testing for pensioners aged over 70 in November 1983, the introduction of an assets test in March 1985, and the subsequent modifications to the treatment of investment income for income test purposes. As a consequence, the coverage of the age pension (as a proportion of the numbers of persons aged 65 and over) declined from 87 per cent in 1983-84, to 79 per cent in 1985-86 to 70 per cent in 1989-90.[31]

Table A.4 thus indicates that, when looking at income changes for (non-sole parent) pensioners between 1983-84 and 1989-90, the model over-predicts the growth in pension income by around 9 per cent. Moreover the overestimation of the **average** income growth of the aged may be greater than this as the simulation relatively underestimates the number of aged people in 1989-90 (Table A.1). However these comparisons are complicated by the limited scope of the survey (persons in nursing homes are not included). Nonetheless, the overestimation of pension income growth is reinforced by the comparisons with the 1990 IDS data shown in Table A.5. The simulated data estimate a total 1989-90 pension expenditure 14 per cent higher than does the 1990 IDS.

The (not so obvious) implications of this overestimation of pensioner incomes for the measurement of poverty in 1989-90 is discussed in more detail in Section 4.2 of the report.

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31 Age pension numbers are from DSS (1990), *Annual Report 1989-90,* and population
    numbers are from Table A.1. A more appropriate comparison would include women aged
    60-64 also.

Table A.5: 1989-90 Simulation and Income Survey Income Aggregates

	Simulation $b	1990 IDS $b	Ratio Sim./IDS
Wages and Salaries	169.3	172.0	0.98
Income Support Payments			
Supporting Parents/Widows	2.07	2.10	0.99
Other Pensions	10.80	9.46	1.14
Benefits	2.85	2.98	0.96
Family Allowance	2.04	1.88	1.09
FAS	0.57	0.48	1.19
AUSTUDY	0.53	0.53	1.00
Veterans Affairs Pensions	3.26	3.10	1.05
Total	22.1	21.1	1.05
Unincorporated Enterprises	19.7	8.8	2.24
Interest and Dividends	20.4	22.1	0.92
Other	6.6	3.7	1.78
TOTAL	238.1	227.8	1.05
Income Tax	48.8	47.1	1.04
TOTAL NET INCOME	189.3	180.7	1.05

Benefits: Coverage changes for Unemployment (including Job Search Allowance), Sickness and Special Benefits are also largely responsible for the higher simulation/expenditure ratios in 1983-84 and 1989-90 (compared to 1985-86). During the first half of the 1980s there was a significant increase in the numbers of unemployment beneficiaries relative to the numbers of persons recorded as unemployed. Whilst numbers in these two categories were roughly the same prior to 1983, by 1986 there were over 50 thousand more beneficiaries than unemployed. Whilst some commentators have described this as evidence of increasing fraud or cheating, it is difficult to draw any firm conclusions given the prevalence of other potential changes (such as long-term beneficiaries being classed as out of the work force). (See Bradbury, 1988, for a more detailed discussion).

Whatever the explanation for this change it does mean that, relative to 1985-86, the model relatively overestimates the level of benefit expenditure in 1983-84. (Though again, because benefit expenditure is underestimated in the IDS, it is still underestimated for 1983-84, though to a lesser extent). This is because the reweighting is done on the basis of labour force status (e.g. unemployment) rather than on the basis of receipt of unemployment benefit.

Similarly, Table A.4 shows that the model also overestimates benefit expenditure in 1989-90 (relative to 1985-86). This reflects two factors. First, in response to the slow decrease in beneficiary numbers after 1983, the government significantly tightened up the administration of eligibility criteria for unemployment benefit in particular. After 1986 a number of review teams were set up to identify cases of fraud and incorrect payment—apparently with some success. Of much more significance for aggregate expenditures, however, were the major changes in coverage after 1986. These included increases in waiting periods for unemployment benefit receipt and the introduction of parental income tests for unemployment beneficiaries aged under 18 (with the replacement of unemployment benefit by Job Search Allowance). Table A.4 suggests that these administrative and coverage changes reduced expenditure on benefits by 4 per cent over the modelled projection from 1985-86.

Overall, these patterns imply that the simulated benefit expenditures in 1989-90 are roughly comparable with 1983-84 expenditures, but an overestimate when compared with 1985-86 expenditures. However in this regard, it should be noted that the 1990 IDS actually estimates an even higher level of benefit income in 1989-90 (Table A.5). Given that benefit income is significantly under-recorded in both years, this may reflect better recording or sampling procedures in the later survey.

Family Payments and Educational Allowances: Table A.4 is not entirely appropriate for the examination of the adequacy of the simulation in reflecting trends in family payments. Unlike the other pensions and benefits in the table, entitlement to these family payments in 1983-84 and 1989-90 is explicitly calculated on the basis of numbers of children (and family incomes in 1989-90) rather than simply inflating entitlements as for other income sources. The 1985-86 estimates however, simply reflect the incomes recorded in the IDS, and so are not entirely compatible. Since changes between 1983-84 and 1989-90 are the main focus of this report, the discussion here focuses on the 1983-84 and 1989-90 values.

Comparing directly with the published aggregates, Family Allowances are overestimated by 5 per cent in 1983-84 and by 13 per cent in 1989-90. This reflects two main factors. As Table A.1 indicates, the reweighted data overestimate the population of under 15 year olds by around 4 per cent in 1983-84 and 7 per cent in 1989-90. Second, in 1983-84 all dependent children aged under 21 are assumed eligible for FA, whereas those receiving SAS or TEAS should not be eligible. Similarly in 1989-90 all those aged under 18 are assumed eligible, whereas in fact those receiving AUSTUDY are not eligible. Because of the expansion of student allowances over this period, this makes a much larger impact on 1989-90 incomes than on 1983-84 incomes. DSS statistics show that the number of children aged 16-20 for whom parents received Family Allowances dropped by 215 thousand between 1984 and 1990 (DSS 1983-84 and 1989-90 Annual Reports). This is around 6 per cent of the total number of children for whom Family Allowance is received.

Because the simulation does not model the coverage expansion of educational allowances over the period, these Family Allowance changes cannot be modelled. Table A.4 shows this coverage expansion quite clearly, with the ratio of simulated to projected expenditures on educational allowances declining steadily over the period. The treatment of FA eligibility thus tends to offset this bias in educational allowances.

For FIS in 1983-84 and FAS in 1989-90 the key coverage issue is that of take-up. Because FIS was only introduced in 1983, and is known to have a very low level of take-up, we have assumed only a 15 per cent take-up rate. This still produces an aggregate estimate of expenditure 15 per cent higher than the recorded aggregate ($36.1m), of which only around 4 percentage points is likely to be due to population size error.

For FAS payments in 1989-90 a more complicated take-up rate has been calculated which varies with the level of entitlement.[32] Our estimate of total FAS income in 1989-90 is $572.9m, compared to a total recorded expenditure of $513.3m. The discrepancy here arises from two factors. First, the 7 per cent overestimation of the population, and second, the imputation of FAS eligibility to all children aged 16-17. These older children should only be eligible if not receiving educational allowances. Again, this (partially) offsets the underestimation of income from educational allowances in 1989-90.

Finally, the simulation estimates for 1989-90 can be compared with the 1990 IDS results. Table A.5 largely reinforces the above comments, with both family allowance and FAS being overestimated in the simulation. However the offsetting underestimation of AUSTUDY payments is not found. To put these results another way, the 1986 IDS recorded some 79 per cent of educational allowances in 1985-86 (Table A.4), whilst the 1990 IDS recorded only 65 per cent (comparing Table A.5 with Table A.4). This suggests a poorer coverage or recording of these incomes in the latter survey.

Service Pensions and Allowances: Service Pensions and allowances from the Department of Veterans' Affairs have also experienced a decline in coverage over the period with the introduction of income and assets tests. This, together with the variations in numbers from year to year with the passing of the cohort of aged servicemen probably explains the fluctuations observed.

Overall Income Support Trends: Table A.4 also presents an estimate of the relationship between the simulation of total income support payments and the projections implied by expenditure data. In aggregate, many of the distortions noted above cancel out, and over the 1983-84 to 1985-86 period, aggregate expenditure trends are mirrored closely. Since 1985-86, however, income support payments have grown at a significantly slower pace than simulated, and as a consequence, income support incomes are simulated to be some 6 per cent higher than was

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32   Take-up is estimated at 49 per cent in expenditure terms.

actually the case in 1989-90. This is confirmed by a comparison with the 1990 IDS income aggregates (Table A.5).

The primary reason for this lies in the decreased coverage of income support payments for pensioners and beneficiaries through assets tests, changes to waiting periods and other eligibility criteria, and more vigorous enforcement of benefit entitlement. This conclusion is reinforced by Table 2.4 which suggested that such changes which were not included in the simulation model had led to net savings of some $1.4b, or 6 per cent of the 1989-90 income support expenditure of $24.4b.

Capital and Other Incomes: Because National Accounts aggregates are used to update incomes from unincorporated enterprises, Table A.3 shows farm and non-farm incomes to be a constant proportion of the National Accounts aggregates. Income from interest and income from dividends are similarly inflated, and so they too reflect National Accounts trends, even if their different proportions in the income survey compared to the National Accounts means that their sum does not.

Though Table A.3 indicates that unincorporated enterprises income is underestimated in all three years, Table A.5 suggests that the 1990 IDS measured even less of this income. In 1989-90 this survey recorded a total unincorporated enterprises income of only 39 per cent of the National Accounts aggregate (the corresponding percentage for the 1986 IDS was 83 per cent). Despite the significant problems in estimating self employment income, this suggests that in this regard the simulation results for 1989-90 may be more accurate than the actual 1989-90 survey results.

Finally, the income category 'other' is greatly underestimated in the income survey (because many of the income concepts are not collected), and so the significant real growth in incomes from this source is not reflected in the simulation. One of the main reasons for this income growth has been the expansion of occupational superannuation. The income survey collects only information on income received from periodic superannuation payouts and thus excludes lump sum payments, as well as the accruing income to the present generation of workers (the National Accounts measure of superannuation income is based upon the latter).

A.4 Income Tax

More detail on the trends in income tax estimation are given in Table A.6, which separates income tax collections according to PAYE vs non-PAYE status. It should be noted that the simulation estimates are of income tax **liabilities** for the respective years, whilst the Budget Papers refer to actual **collections**. Overall, the model overestimates income tax by 10 per cent in 1983-84, and underestimates by 2 per cent in 1989-90.

Whilst it is not entirely clear how the budget item of 'Net PAYE' taxation is defined, it has been approximated here by calculating income tax whilst assuming that

Table A.6: **Simulated and Budget Estimates of Personal Income Tax Revenue – 1983-84 and 1989-90**

	Budget Estimate $m	Simulation $m	Ratio (Sim./Bud.)
Net PAYE			
1983-84	19,620	20,365	1.03
1989-90	38,088	37,577	0.99
Medicare Levy			
1983-84	365	427	1.17
1989-90	2,545	2,352	0.92
Other			
1983-84	4,725	6,310	1.34
1989-90	9,386	8,856	0.95
TOTAL			
1983-84	24,710	27,102	1.10
1989-90	50,019	48,785	0.98

Source: Treasury (various years), Budget Paper No. 1.

taxable income was equal to wage and salary income. On this basis, the model overestimates PAYE taxation by 2 per cent in 1983-84 and underestimates it by 1 per cent in 1989-90. These errors in the estimation of PAYE taxation approximate the apparent errors in the estimation of aggregate wage income shown in Table A.3.

Non-PAYE taxation is overestimated in 1983-84 by around one-third. This probably reflects the use of income averaging schemes, together with the significant fluctuations in capital and farm incomes in the early 1980s. The differences in taxation recorded in the 1990 IDS and the simulation (Table A.5) reflect the different overall income totals.

A.5 Total Disposable Income

Overall, the ratio of simulated net income to the National Accounts estimate of Household Disposable Income fell from 83 per cent in 1983-84 to 80 per cent in 1985-86, rising slightly to 81 per cent in 1989-90 (Table A.3). A large part of the change in this ratio in the first period is due to the overestimation of wage income in 1983-84, whilst much of the one per cent rise in relative income in the second period is due to the coverage changes in income support payments.

Comparing the 1989-90 simulation results with the 1990 IDS in Table A.5, net income is estimated to be some $8.6b or 5 per cent higher in the simulation than in the survey. This is largely the result of a $10.9b higher estimate of self employment income (probably because of recording or coverage problems in the 1990 IDS), and

a $1.0b higher estimate of transfer payments (due to coverage changes not modelled), offset by a $2.7b underestimate of wage income (though the simulation is closer to the NA aggregate). Whilst the issue of transfer payment coverage is clearly identified as a limitation of the simulation methodology, comparison with external aggregates suggest, if anything, that the simulation aggregates for wages and self employment income are more accurate than the 1990 IDS survey results.

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