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Income Inequality in Australia and New Zealand: International Comparisons and Recent Trends

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The opinions presented in this paper are those of the authors and do not necessarily represent an official view of the institutions with which the authors are associated.

1. Introduction

With the advent of the Luxembourg Income Study (LIS) international comparisons of inequality, poverty and other indicators of well-being have become more soundly based. There can be little doubt that research utilising the LIS data base has advanced understanding of the extent of international differences in poverty and inequality and allowed analysis of the sensitivity of results to alternative definitions and assumptions to be undertaken. While such comparisons are of interest in their own right, it is the potential they provide for understanding the factors underlying cross-country differences in poverty rates and income inequality that is likely to be of greater value. These factors include the role of labour market earnings in overall inequality, the impact of demographic structure on relative poverty rates and broad indicators of inequality, the role and impact of alternative income support arrangements and the redistributive impact of personal taxes and other government programs. Over-riding these considerations is the question of whether it is valid to treat these factors independently, or whether analysis of the whole process of income generation and distribution in modern democratic mixed economies requires a more holistic approach.

This paper does not deal explicitly with these latter questions, although its analysis and results have some bearing on them. Rather, its main aim is to extend earlier analysis of income inequality using the LIS data base by including Australia and New Zealand into the comparisons. By way of background to these results, the paper also contains comparative data on tax and income support expenditures in Australia and New Zealand, and describes major changes over the period 1981 to 1986. After presenting comparative results for eight countries around 1980, a more detailed analysis of changes in income inequality in Australia and New Zealand between 1981-82 and 1985-86 is undertaken, extending earlier work by the authors (Saunders and Hobbes, 1988; Saunders, Hobbes and Stott, 1989). When this analysis was begun, Australia had just formally joined the LIS project although the Australian data file located in Luxembourg was not fully operational. New Zealand has not yet joined LIS, largely because confidentiality requirements embodied in the New Zealand **Statistics Act, 1975** have prevented public release of unit record data. The approach has thus involved re-arrangement of domestic unit record files to conform to the standardised LIS concepts and variables and use of the amended files to duplicate analysis already undertaken as part of the LIS project. In New Zealand, this process was undertaken within the Department of Statistics to protect the confidentiality of respondents. The broad framework adopted in the paper conforms to that developed by O'Higgins, Schmaus and Stephenson (1985) and because of the reliance on their methodology, the rationale for the particular comparisons made are not repeated, except where not to do so seriously impedes understanding of the argument and interpretation of results.

Inclusion of Australia and New Zealand into international comparisons of income distribution and redistribution is of interest because both countries have a number of unique features that make them outliers in historical and policy terms, as well as geographically. Both countries have, for example, relied on a selective means tested approach to income support financed from general revenue, rather than the earnings-related contributory systems that characterise much of continental Europe. It has also been argued that both countries have pursued egalitarian objectives primarily through wages policies rather than income support policies (Castles, 1985) and whilst this interpretation has itself been questioned, few would disagree with the perception that both Australia and New Zealand are relatively egalitarian countries.

This perception has, in part, resulted from earlier studies that indicated both countries had relatively equal income distributions. For example, a study by Lydall (1968) of the distribution of employment incomes in twenty five countries led him to conclude:

> 'The broad picture seems, then, to be that, amongst non-communist countries, the degree of dispersion of pre-tax employment income is related roughly to the degree of economic development, *although Australia and New Zealand are exceptionally equal on this criterion*' (Lydall, 1968, p. 157; emphasis added).

Similarly, Sawyer's comparative income distribution study published by the OECD (Sawyer, 1976) showed the distribution of income in Australia to be more equal than that in many other OECD countries, while Easton (1980; 1983) has presented results indicating that - in the mid-seventies at least - the New Zealand income distribution was more equal than that in other advanced countries. Both Sawyer and Easton, however, were aware of the limitations of the data they were working with, and thus of the need for caution in interpreting their results. It was precisely such concerns, since they were more generally shared by others working in the field, that led to the formation of the LIS project. The first issue addressed is thus whether the conclusions from this earlier work stand up to methodologically sound analysis of more truly comparative data. Comparative income distribution results are presented for the early eighties in the following Section of the paper, and discussed in some detail in Section 3.

Because of the many similarities in the economic and social structure of Australia and New Zealand, they are often discussed (from the relatively safe distances of Europe or North America) as if they were to all intents and purposes the same. For those residing either side of the Tasman Sea, ever-keen to maintain a distinctive and separate identity, nothing could be further from the truth. Yet the experience of both countries in the last decade has, in many regards, been very similar. Throughout this period, both countries faced balance of payments difficulties and a loss of traditional export markets. In the early-eighties, both elected reformist Labor governments intent

on public sector reform and general economic deregulation designed to improve competitiveness. A second question is thus to look at how policies during the early years of these new governments have influenced income inequality in both countries. Unfortunately, at the current time 1985-86 is the latest year for which Australian data sufficient for this purpose are available, and the analysis has therefore been restricted to changes in income distribution between 1981-82 and 1985-86. This is unfortunate as many of the major policy initiatives in both countries that are likely to have important immediate and direct effects on income inequality have been implemented since 1985. The analysis and results are nonetheless of interest in their own right, and also because they can be used at a later date to compare with income distribution results for the other LIS countries that will also be based on 1985 or 1986. This aspect of the results is presented in Section 4, which also summarises relevant features of developments in the two countries between 1981-82 and 1985-86.[1] Finally, Section 5 summarises the main findings of the analysis and its major conclusions.

2. Income Inequality in the Early 1980s

The framework used to analyse income inequality in Australia and New Zealand in the early 1980s is that developed by O'Higgins, Schmaus and Stephenson (1985) in their comparative analysis of income distribution and redistribution using the LIS data base. The standard LIS concepts and definitions described in Smeeding, Schmaus and Allegrezza (1985) have been applied to the Australian and New Zealand unit record files as closely as they would allow. The data used are from the unit record file from the **1981-82 Income and Housing Survey** released by the Australia Bureau of Statistics (ABS) and unit record file from the **1981-82 Household Expenditure and Income Survey** held by the New Zealand Department of Statistics (NZDS). These files contain detailed socio-economic data on 20100 income units and 3500 households, respectively.[2] For both countries, it was necessary to impute income tax liabilities from other data available on the files.[3] In Australia, this was done using a tax imputation model developed at the Social Welfare Research Centre. In New Zealand, a Simulation System for Evaluating Taxation (ASSET) model developed by the NZDS was used to impute tax liabilities. Subsequent comparisons with published tax return statistics were used to refine the imputations and ensure broad consistency with tax collection data. Once income tax had been imputed, it was relatively straightforward to reorganise the data to conform with the LIS definitions. One difficulty encountered arose because in the Australian data

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1. The Appendix contains a more detailed discussion of the main changes in income support and income taxation arrangements between 1981-82 and 1985-86.

2. Although the household was the basic unit for the New Zealand survey, the file contains relatively few multiple income unit households and this was not seen as likely to lead to major problems of non-comparability with other data sets.

3. The Australian income data reported below refer to income for the financial year ending 30 June 1982; for New Zealand, the income data refer to income for the financial year ending 31 March 1982.

for 1981-82, negative incomes from self-employment were re-coded to zero on the file, unlike New Zealand where actual losses were recorded as negative income on the file. This has implications not only for data comparability in that year, but also for the reliability of the Australian income tax imputations for those with negative incomes from self-employment.

The distribution of gross family income - the most common measure of income inequality - is presented in Table 1 for all countries (except Israel) included in the original study, along with the distributions for Australia and New Zealand calculated on the same basis. In the following discussion, attention will focus on the Gini coefficient and the shares of the lowest and highest quintiles as summary indicators of the degree of income inequality. The limitations of the Gini coefficient in providing an unambiguous ranking is acknowledged (Atkinson, 1970) particularly since Buhmann et. al. (1988) indicate that there are many cases in the LIS data of intersecting Lorenz curves. Notwithstanding this, several broad features of the results in Table 1 are worth emphasising. The share of the bottom quintile is below 5 per cent in all countries except New Zealand (5.7 per cent) and Sweden (6.6 per cent). In contrast, the share of the top quintile exceeds 40 per cent in all countries except Norway (39.8 per cent) and Sweden (38.9 per cent). The greatest stability across countries relates to the share of the fourth quintile, which varies within a very narrow range centred around 25 per cent in all countries except Germany where it is 22.6 per cent. All three indicators suggest a very similar ranking of countries in terms of the inequality of gross income among families. Sweden stands alone as clearly having the most equal distribution. At the other extreme lie Germany and the United States which have the highest degree of inequality. In between, in increasing order of inequality, are New Zealand, Norway, the United Kingdom, Canada and Australia. Overall, New Zealand's income distribution is very close to that of Norway, while Australia's - with the exception of the income share of the lowest quintile - is closer to that of Germany and the United States than it is to that of the group of countries in the middle of the range. On this measure, income in New Zealand is considerably more equally distributed among families than it is in Australia, suggesting that the egalitarian label is more appropriate for New Zealand than for Australia.

The income distributions presented in Table 1 take no account of family size or of taxes. In welfare terms, it makes a great difference whether those families in the lowest income quintile are single adults or larger families with children. In order to derive income distributions which have a closer correspondence to the distribution of economic welfare, it is necessary to consider the distribution of equivalent rather than unadjusted income. Following O'Higgins, Schmaus and Stephenson (1985) a common set of equivalence scales was used to derive equivalent income. These LIS scales allocate a value of 0.5 to the first individual in any unit, a value of 0.25 to each individual from the second to the ninth member of the unit, and set the scale to 3.0 for all units with ten or more members. It is worth noting that these scales do not distinguish between adult

Table 1

The Distribution of Gross Family Income among Quintiles of Families

(Percentage Shares of Total Gross Income)

	Australia (1981-82)	Canada (1981)	Germany (1979)	New Zealand (1981-82)	Norway (1979)	Sweden (1981)	United Kingdom (1979)	United States (1979)
Bottom quintile	4.6	4.6	4.4	5.7	4.9	6.6	4.9	3.8
Second quintile	10.0	11.0	10.2	11.4	11.4	12.3	10.9	9.8
Third quintile	16.5	17.7	15.9	17.6	18.4	17.2	18.2	16.6
Fourth quintile	25.2	25.3	22.6	24.7	25.5	25.0	25.3	25.3
Top quintile	43.7	41.4	46.9	40.5	39.8	38.9	40.8	44.5
Gini coefficient	**0.399**	**0.374**	**0.414(a)**	**0.353**	**0.356**	**0.329**	**0.365**	**0.412**

Note: (a) The Germany data include a relatively high proportion (2.7 per cent) of income units with zero or negative reported income. These have been excluded when calculating the Gini coefficient.

and non-adult members of the unit. This implies, for example, that a couple with one child is given the same equivalence as a sole parent with two children. If the needs of children are lower than those of adults, and if unit size increases primarily because the number of children increases, then the LIS scales will overstate the 'true' equivalence for larger income units and thus understate their 'true' equivalent income. This point is of some significance because, as shown later, both Australia and New Zealand have more children per income unit than most other countries included in the comparisons and their results are thus likely to be more sensitive to the equivalence scales used. This point emerged from the recent analysis of poverty and income inequality using the LIS data (including Australia) undertaken by Buhmann, Rainwater, Schmaus and Smeeding (1988). The authors concluded:

> '...that equivalence scales have in general no great effect on the rank order of measured inequality across countries as long as average family size is not extremely large' (Buhmann, et. al., p. 128).

However in their analysis the rankings of the two countries with the largest average family size (Israel and Australia) did vary according to the equivalence scale used (see Buhmann et. al., Tables 7 and 8). This indicates the significance of this issue for the inequality rankings of Australia and New Zealand based on equivalent income distributions derived from the LIS equivalence scales, a matter explored further in the following Section.

Net income was derived by deducting imputed income tax liabilities from gross family income.[4] The distribution of equivalent net income has been expressed using the LIS equivalence scales and in terms of quintiles of individuals, although the ranking of the distribution has been undertaken on the basis of net equivalent family income. The lowest quintile of the distribution, for example, thus contains the 20 per cent of **individuals** who are in **families** with the lowest equivalent net incomes. Since the distributions of equivalent net income represent the best approximation of the distribution of monetary economic welfare, the results in Table 2 deserve particular attention. The effect of taking account of direct tax liabilities, adjusting for needs using the LIS equivalence scales, and giving individuals an equal weight in characterising the income distribution is to reduce inequality in all countries, but by varying degrees across countries. What is most striking about these results is the low degree of inequality in Sweden, as evidenced by the Gini coefficient of 0.205 and the closeness of the income shares of the bottom and top quintiles. Across countries, the equivalent net income share of the bottom quintile ranges from 6.1 per cent in the United States to

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4. Both Australia and New Zealand use the individual as the unit for personal tax purposes, although in both instances some of the personal rebates depend upon family circumstances. Neither country has any form of social security contribution, either on employers or employees.

Table 2

The Distribution of Equivalent Net Family Income among Quintiles of Individuals

(Percentage Shares of Total Equivalent Net Income)

	Australia (1981-82)	Canada (1981)	Germany (1979)	New Zealand (1981-82)	Norway (1979)	Sweden (1981)	United Kingdom (1979)	United States (1979)
Bottom quintile	8.1	7.6	7.5	8.2	9.9	10.6	9.0	6.1
Second quintile	11.4	13.3	12.7	13.5	14.8	16.1	13.5	12.8
Third quintile	14.4	17.9	16.1	17.6	18.4	19.1	18.0	18.1
Fourth quintile	23.0	23.8	20.7	23.7	22.9	23.1	23.4	24.4
Top quintile	43.1	37.4	43.0	37.0	34.1	31.1	36.1	38.6
Gini coefficient	**0.305**	**0.299**	**0.340(a)**	**0.288**	**0.243**	**0.205**	**0.273**	**0.326**

Note: (a) The Germany data include a relatively high proportion (2.7 per cent) of income units with zero or negative reported income. These have been excluded when calculating the Gini coefficient.

10.6 per cent in Sweden. Australia and New Zealand both fall in the middle with the share of the bottom quintile equal to 8.1 per cent and 8.2 per cent, respectively. The share of the top quintile in equivalent net income ranges from 31.1 per cent in Sweden to 43.1 per cent in Australia. The share of equivalent net income going to the middle sixty per cent of families is close to 55 per cent in Canada, New Zealand, the United Kingdom and the United States. It is just over 56 per cent in Norway and over 58 per cent in Sweden. In Germany it is 49.5 per cent, and in Australia 48.8 per cent. Thus in Australia the medium-ranking of the lowest quintile, combined with the high share of the top quintile has left the income share of families in the middle of the income distribution well below that in most of the other countries. The distribution of equivalent net income is more equal in New Zealand than in Australia, although the two countries appear much closer together than they did on the basis of the distributions of unadjusted gross income. The major difference between the two distributions is in the top quintile, where the inequality of net equivalent income is much greater in Australia than in New Zealand. However, contrary to the earlier studies referred to, neither country now has an income distribution that, according to Table 2, is particularly egalitarian in comparative terms.

The results in Table 2 differ from those in Table 1 because account is taken of direct tax liabilities, combined with further adjustments relating to equivalencing and weighting procedure. The relative importance of the first (taxation) and second two of these factors together (equivalencing and weighting) can be gauged from the Gini coefficients shown in Table 3. The impact of direct taxes causes the Gini coefficient to decline by about 6 per cent in Germany and the United Kingdom, 7 per cent in Canada, between 10 per cent and 11 per cent in Australia, Sweden and the United States, and by about 13 per cent in New Zealand and Norway. The use of equivalence scales and weighting by individuals causes a further decline of around 6 per cent in New Zealand, around 12 per cent in Germany and the United States, about 14 per cent in Australia and Canada, 20 per cent in the United Kingdom, 22 per cent in Norway and almost 30 per cent in Sweden. There is clearly far greater diversity across countries in the impact on alternative measures of income inequality as a result of using equivalences and weighting by individuals than there is as a result of deducting direct taxes. New Zealand is the only country where taxes have a larger proportional impact than the other adjustments. Thus while these latter adjustments may have little consequence in most instances for the **inequality ranking** of countries, they do have very different effects on the **extent of income inequality** in each country, a point which needs to be borne in mind when interpreting differences in inequality across countries.

Table 3

Gini Coefficients of Alternative Income Distributions

Country	Income Concept (and Unit of Analysis): Gross Family Income (Family)	Net Family Income (Family)	Gross Equivalent Family Income (Individual)	Net Equivalent Family Income (Individual)
Australia	0.399	0.357	0.351	0.305
Canada	0.374	0.348	0.327	0.299
Germany	0.414	0.389	0.352	0.340
New Zealand	0.353	0.307	0.334	0.288
Norway	0.356	0.311	0.289	0.243
Sweden	0.329	0.292	0.249	0.205
United Kingdom	0.365	0.343	0.297	0.273
United States	0.412	0.370	0.371	0.326

Note: See Note to Tables 1 and 2

3. Further Analysis of the Comparative Results

The income distribution comparisons presented above cast doubt on the validity of the view that Australia and New Zealand are relatively egalitarian countries, at least in income distribution terms. Neither appear in the top three (of eight) countries when ranked by the distribution of equivalent family income, and both are characterised by more inequality than the United Kingdom - a country with which both are often compared favourably. The results in Table 1 also suggest marked differences in the degree of income equality in Australia and New Zealand, although they appear far more similar in the comparisons presented in Table 2. Despite the very important contribution to comparative research attributable to the standardised definitions developed as part of the LIS project, important differences between countries nonetheless remain and need to be acknowledged and noted when interpreting LIS comparisons. One such difference relates to the timing of the datasets used in this and other research associated with the LIS project. The results in Tables 1 and 2 refer to years between 1979 and 1982, a period of considerable turbulence in the

world economy and generally low economic growth.[5] This is likely to have contributed to increased inequality between 1979 and 1982 in light of evidence of countercyclical movements in inequality. (Blinder and Esaki, 1978).

For at least two of the countries for which the LIS data are available for 1979 - the United Kingdom and the United States - recent studies have confirmed that income inequality increased in the 1979-82 recession. In the United States for example Danziger and Gottschalk (1989) and Danziger, Gottschalk and Smolensky (1989) provide evidence of increasing income inequality between 1979 and 1982. The former conclude that:

> '...slow growth in mean income and increased inequality have contributed significantly to the rising poverty rates of the late 1970s and early 1980s' (Danziger and Gottschalk, op. cit., p.192)

Their results indicate a decline in the share of aggregate family income of the bottom 40 per cent from around 16.8 per cent in 1979 to below 16 per cent by 1982 (Danziger and Gottschalk, Figure 2). Similarly, the work of O'Higgins (1987) and Nolan (1989) points to increased inequality in the United Kingdom over the period. O'Higgins notes that recession has been the main factor behind increasing inequality, although this has been significantly modified (but not totally offset) by the redistributive impact of social welfare spending. It is not possible to assess the extent to which these trends would affect the income distribution comparisons in Tables 1 and 2 if a common year was adopted for each country, nor the inequality rankings of countries. It does, however, point to the need for caution in being too definitive about the comparative results, and points to the need for future LIS research to be based where possible on data at similar positions in the economic cycle of each country.

There are also a number of differences in demographic structure among the eight countries included in the comparisons. It is, for example, well known that the age structure of the population in the four European countries differs significantly from that in the four non-European countries. There are also other differences, such as the rate of female labour force participation and the level and structure of taxation that will impact differentially upon the degree of income inequality in each country and thus affect cross-country comparisons. Finally, as already observed, average family size differs markedly across countries and this has important implications for the comparisons. These points are not intended to undermine the usefulness of the resulting comparisons, but to caution against their unqualified interpretation.

Because Australia and New Zealand are both characterised by a relatively large average family size, the equivalence scale issue is worthy of further examination. In Table 4 the LIS equivalence

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5. Economic growth for the OECD region averaged 1.4 per cent a year between 1979 and 1982. (OECD, 1988b, Table R.1.).

scales are compared with national scales commonly used in each country. For ease of comparison, all three scales have been adjusted so that each has a value of unity for a single adult. It is clear that, particularly for Australia and to a lesser extent New Zealand, there are considerable differences between the LIS equivalences and the national scales. Relative to the national scales, the LIS scales overstate the costs of additional family members (particularly children) and thus produce lower estimates of equivalent income in larger families. For example, a family comprising two adults and two children with a weekly income of $400 will have an equivalent income of $160 using the LIS scale, an equivalent income of $219 using the Australian scale, or an equivalent income of $184 using the New Zealand scale. Or a sole parent with two children and a weekly income of $240 will have an equivalent income of $120 using the LIS scale, $158 using the Australian scale, or $137 using the New Zealand scale. Such differences will impact upon the rankings and consequent distributions of equivalent income shown in Table 2 above. These observations are not intended to undermine the use of a common set of equivalences in income distribution comparisons, for such an approach has much to recommend it. Rather, the intention is to emphasise that such a procedure can have important consequences for the comparative results, and these are likely to be all the more significant in countries like Australia and New Zealand where average family size is greater than that in many other countries.

Table 4

A Comparison of the LIS and National Equivalence Scales

Family Type	Equivalence Scale: LIS	Australia (a)	New Zealand (b)
Single adult	1.00	1.00	1.00
Couple	1.50	1.33	1.54
Couple, 1 child	2.00	1.53	1.86
Couple, 2 children	2.50	1.83	2.17
Couple, 3 children	3.00	2.24	2.43
Single parent, 1 child	1.50	1.21	1.40
Single parent, 2 children	2.00	1.52	1.75

Sources: (a) Australia: Whiteford (1985), Table 2.3, p. 13. These scales are those used by the Poverty Commission in its report **Poverty in Australia**, published in 1975.

(b) New Zealand: Department of Social Welfare (1988), Table 1, p. 25. These scales have often been used and quoted in research studies in New Zealand.

While the quantitative significance of the kinds of issues noted above has not been explored in any systematic and rigourous way, they are important and worthy of further investigation. By way of illustration, Table 5 indicates the magnitude of some of the demographic differences between countries and shows how these vary across the income distribution within countries. Several points stand out: First, as noted earlier, average family size is relatively high in both Australia and New Zealand. While average family size varies between 2.4 and 2.7 persons in six of the eight countries, it is below 1.9 in Sweden and over 3.0 in New Zealand. Family size also varies across countries within income quintiles, but by much less in the top two quintiles than the bottom three. The average size of families in the lowest three quintiles of gross family income is about twice as high in New Zealand as in Sweden, with the remaining countries lying between these extremes. There are also great differences in the proportion of families with children, particularly in the lower quintiles. Finally, reflecting the different demographic structures already referred to, the proportion of elderly families differs greatly overall, but again particularly so in the lowest quintile. Together, the results in Table 5 suggest that families in the lowest gross income quintile are mainly elderly people (often single) without children in the four European countries, but are far less often elderly and correspondingly more frequently families with children in the four non-European countries. It is because of these differences that the sensitivity of results to the equivalence scale used is of such significance. The use of a scale that places less weight on the needs of children relative to adults (or on the needs of elderly adults relative to working age adults) will affect the overall pattern of equivalent income inequality and its rankings between countries.

There is, however, another important aspect of these differences that deserves further consideration. A distinction is often drawn between the universal, contributory social insurance income support arrangements in place in many European countries and the general revenue financed selective, income tested systems more common in Australia, Canada, New Zealand and the United States. Conclusions based on the relative redistributive impacts of these alternative systems based on the kinds of comparisons presented in Tables 1 and 2 need to be investigated further to check the extent to which they reflect differences in demographic structure of the kind shown in Table 5. One way to overcome some of the difficulties discussed here is to restrict comparisons to particular demographic groupings (the elderly; families with children; sole parent families), since this avoids some of the complications arising from differences in demographic structure. Such an approach is often adopted in comparisons of poverty rates, as evidenced in a number of studies using the LIS data base (Hauser and Fischer, 1985; Smeeding, Torrey and Rein, 1988; Smeeding, 1989). It may be more fruitful to adopt a similar approach in future comparative work on aspects of income inequality.

Table 5

Selected characteristics of Income Distributions

(Families Ranked by Gross Family Income)

	Australia	Canada	Germany	New Zealand	Norway	Sweden	United Kingdom	United States
A. Average Number of Persons per Family:								
Bottom quintile	1.53	1.59	1.26	1.99	1.21	1.08	1.30	1.63
Second quintile	2.22	2.22	1.77	2.69	1.89	1.29	2.10	2.16
Third quintile	2.70	2.76	2.69	3.23	1.55	1.55	2.81	2.56
Fourth quintile	3.20	3.22	3.03	3.44	3.28	2.54	3.12	3.13
Top quintile	3.59	3.50	3.41	3.76	3.51	2.93	3.54	3.41
All Families	**2.64**	**2.65**	**2.43**	**3.02**	**2.49**	**1.88**	**2.57**	**2.58**
B. Percentage of Families with Children:(a)								
Bottom quintile	18.1	18.2	2.4	28.1	7.9	2.9	4.7	19.8
Second quintile	27.5	28.7	14.1	43.3	26.3	6.3	23.4	29.6
Third quintile	46.2	45.4	46.3	57.2	49.7	16.2	47.3	38.8
Fourth quintile	54.9	55.4	52.7	56.8	70.3	44.2	51.7	52.9
Top quintile	52.5	53.1	52.1	56.2	75.7	54.2	50.5	51.1
All Families	**39.8**	**40.1**	**33.5**	**48.3**	**46.0**	**24.7**	**35.5**	**38.4**
C. Percentage of Elderly Families:(b)								
Bottom quintile	39.8	36.8	71.0	48.5	64.2	52.4	74.5	39.7
Second quintile	29.5	26.1	46.1	23.1	43.9	36.0	37.1	33.8
Third quintile	7.5	10.0	10.1	8.3	14.4	20.6	11.2	15.9
Fourth quintile	5.8	7.4	10.3	3.4	7.8	13.8	5.4	8.1
Top quintile	4.7	5.2	6.4	3.9	6.1	6.1	4.7	5.9
All Families	**17.4**	**17.1**	**28.7**	**17.4**	**27.3**	**25.7**	**26.5**	**19.7**

Notes: (a) Children are defined as those aged under 17 or under
(b) Elderly families are defined as those where the head is aged 65 or over.

4. Changes in Income Inequality, 1981-82 to 1985-86

Having described and analysed income distribution comparisons in the early eighties, attention now focuses on developments between then and 1985-86 in Australia and New Zealand, the latest year for which comparative data are available for both countries. By way of background to the distributional analysis, economic developments in both countries between 1981 and 1986 are first discussed in some detail and comparisons are made with trends for the OECD region as a whole. Summary data on overall levels of taxation and aggregate social welfare expenditure are also presented, supplemented in the Appendix by a more detailed discussion of income tax and income support measures introduced over the period.

4.1 The Economic and Policy Context in Australia and New Zealand, 1981-86

There are a number of broad similarities in the political and economic experience of Australia and New Zealand during the 1981-86 period. Indeed, a formal agreement to Closer Economic Relations between Australia and New Zealand was signed in December 1982. In both countries, the period saw Labor governments returned to office after lengthy periods in opposition. In Australia, the Hawke ALP government was elected in March 1983 after almost eight years in opposition and was returned to office in 1984. Prime Minister Lange's Labor government won office in New Zealand in mid-1984, having been in opposition to the Muldoon National Party government for nine years. It too was returned to government in the election of 1987. The economic policy of both governments over the period was driven by the need to improve international competitiveness. Both had relied heavily on primary exports throughout the post-war period and were suffering a loss of traditional export markets, as well as from adverse terms of trade movements due to falling commodity and agricultural prices. The perceived economic imperative was thus to foster competition through de-regulation (particularly of the financial sector), reductions in the size and scope of government intervention and tax reforms designed to improve efficiency, each of which was intended to promote a healthier climate for business and thereby raise competitiveness.

But while there are similarities in the broad policy environment within which the two countries found themselves, as well as in broad policy directions, their detailed policies were markedly different in several respects. In Australia, the economic strategy of the Liberal-National Party coalition government that had been in office since late 1975 showed signs of collapse from the middle of 1981. The anticipated resources boom did not materialise, and domestic investment was not as high as hoped, leading to fears of imminent recession. Within several months of the announcement of the federal Budget of August 1982, it was clear that a blow-out in the budget

deficit was occurring due to serious underestimation of government expenditure. The actual deficit for 1982-83 was almost $4.5 billion, compared with an estimate of less than $1.7 billion. Wage inflationary pressures mounted throughout 1981-82 and a wage pause was introduced in December 1982. It was thus in a situation of economic recession, industrial unrest and budgetary collapse that the Hawke Labor government was elected to office in March 1983.

A cornerstone of the Hawke government's economic strategy was the Accord, an incomes policy agreed to with the Australian Council of Trade Unions (ACTU) in 1983 and re-negotiated several times subsequently. Under the Accord, wage restraint was guaranteed by the ACTU in exchange for increases in the social wage, a commitment to tax reforms to achieve greater vertical and horizontal equity and, subsequently, enhanced occupational superannuation coverage, personal tax cuts and improved income support for low income families (although some of these latter policies were implemented after 1986). Fiscal restraint was pursued by the Hawke government by controlling the growth of government spending, although the main effects of this strategy were again realised after 1985-86. After the sharp rise in Commonwealth budget outlays in 1982-83 (from 26.6 per cent of GDP in the previous year to 28.7 per cent of GDP) the government restrained its spending growth to the growth of GDP between then and 1985-86. Commonwealth revenue grew slightly faster than GDP with the result that the budget deficit fell slightly from 2.6 per cent of GDP in 1982-83 to 2.4 per cent of GDP by 1985-86. More significant reductions in the deficit occurred after 1985-86 as expenditure restraint tightened, and by 1987-88 the federal budget was in surplus. Privatisation of public enterprises did not achieve prominence at the policy level in Australia prior to 1986 and to date has still not had much of an impact. In short, the Hawke government has attempted to implement a fiscally responsible, corporatist approach to economic management through its close relations with the ACTU, a relationship that has attempted to embrace certain sections of the business community with some success.

In New Zealand, economic pressures had been mounting from the late sixties as world prices for agricultural exports declined. With Britain's membership of the European Economic Community, a shrinkage of the traditional export market was experienced, and balance of payments deficits have persisted since the mid-seventies. The Muldoon government attempted to cushion the impact of this by borrowing to finance a range of subsidies and tax incentives for industry but this led to accelerating inflation. A wage-price freeze was introduced in mid-1982 and for the following two years was accompanied by rising unemployment. After being lifted in February 1984, the resulting economic instability and the election of the Lange government in July 1984 saw the re-introduction of a price freeze until November of that year. The new government encouraged a more market orientated approach to wage determination, with additional income support measures targeted on low income families. Tax reform in New Zealand proceeded more quickly than in Australia, where a number of the Hawke government's key tax reform proposals were rejected at the Tax Summit held in 1985. Despite this, the major tax reform of the Lange government was

implemented in October 1986, when a 10 per cent comprehensive goods and services tax was introduced and accompanied by considerable reductions and simplifications to the personal tax system. The major move towards privatisation of public enterprises in New Zealand also occurred after 1986, with the passing of the **State Owned Enterprises Act**. Under this Act, many government departments were restructured, and many trading departments such as the Post Office, Railways and Electricity became corporatised from 1 April 1987.

This brief description of the development of policy during the 1981-86 period, along with the detailed changes to income support and personal taxation described in the Appendix provides the background to the analysis of changes in income inequality in both countries between 1981-82 and 1985-86. It is somewhat unfortunate that this period does not include many of the more significant changes to income tax and income support arrangements in both countries that took place after 1986. These included substantial cuts in marginal tax rates, particularly at higher income levels, and increased selectivity through greater targeting of income support for families. The impact of these post-1986 measures and of the full range of wage, tax, income support and deregulatory reforms of both governments will need to await further investigation at a later date.

Several indicators of economic performance in Australia and New Zealand over the period are compared with developments in the OECD as a whole in Table 6. Both Australia and New Zealand experienced economic growth over the 1981-86 period somewhat higher than other OECD countries, suffered a less severe recession in 1982 than elsewhere, but took longer to recover from it. Economic growth during 1984-85 was particularly strong in Australia and above average in New Zealand, although 1986 saw a marked moderation in Australia's growth rate and negative growth in New Zealand. Both indicators of inflation point to relatively high inflationary pressures throughout the period in both Australia and New Zealand. In both countries, inflation declined markedly up to 1984 - in relative terms faster than in other OECD countries - but since then inflation has risen, at a time when it has continued to fall in the OECD as a whole. By 1986, inflation in Australia was three and a half times the OECD average, while in New Zealand it was over five times the OECD inflation rate.

However, it is in the area of the labour market that Australia and, to a lesser extent, New Zealand have performed best. Employment growth in Australia during 1981-86 has been twice that for the OECD and its employment record between 1984 and 1986 has been even more impressive. Employment growth in New Zealand was also relatively high until 1986 when a net reduction in employment stands in contrast to the moderate jobs growth experienced elsewhere in the OECD. In terms of unemployment, Australia has been close to the OECD average over the period, although with a more marked reduction than elsewhere since the peak of 1983. Unemployment in New Zealand has been about half the OECD average throughout the period and has also declined

Table 6

Economic Performance Indicators, Australia and New Zealand 1981-1986

	1981	1982	1983	1984	1985	1986	Average 1981-86
Real GDP (a)							
Australia	3.1	0.0	0.2	6.9	5.1	2.2	2.9
New Zealand	3.3	1.5	2.1	4.3	6.3	-2.0	2.6
OECD	1.6	-0.4	2.7	4.9	3.4	2.7	2.5
GDP Deflator (a)							
Australia	10.0	11.0	8.2	7.1	6.4	7.4	8.3
New Zealand	17.7	13.4	5.6	8.4	13.7	15.3	12.2
OECD	9.1	7.1	5.4	5.1	4.6	4.4	5.9
Consumer Prices (a)							
Australia	9.6	11.1	10.1	3.9	6.8	9.1	8.4
New Zealand	15.4	16.1	7.4	6.2	15.4	13.2	12.2
OECD	10.5	7.7	5.3	5.2	4.5	2.6	5.9
Employment Growth (a)							
Australia	2.1	0.0	-1.8	3.0	2.7	4.0	1.6
New Zealand	-0.2	1.7	-1.1	1.1	3.7	-0.1	0.8
OECD	0.2	-0.5	0.5	1.7	1.2	1.5	0.8
Unemployment Rate (b)							
Australia	5.7	7.1	9.9	8.9	8.2	8.0	8.0
New Zealand	3.5	3.7	5.4	4.6	3.6	4.0	4.1
OECD	7.0	8.4	8.9	8.4	8.3	8.2	8.2

Notes: (a) Annual average percentage changes
(b) National definitions

Source: OECD, Economic Outlook No. 44, December 1988.

more rapidly since 1983, although the rise in 1986 was in a climate of general, though modest, continuing decline elsewhere. It needs to be remembered, however, that in both countries unemployment over this period was far above that experienced in the sixties, when they both had unemployment rates well below that of most other OECD countries.

Having described the broad policy and economic environment in Australia and New Zealand over the 1981-86 period, a brief comparison of aggregate trends in revenue structure and government transfer spending in the two countries is in order. This material is complemented by the more detailed description of policy changes in the income tax and income support areas during 1981-86 provided in the Appendix. It is well known that in terms of the level and structure of public finance generally, and social security and its finance in particular, Australia and New Zealand differ markedly from most other OECD countries, particularly those in Europe. Table 7 indicates some of the main differences on the revenue side. In 1986, tax revenue relative to GDP in Australia and New Zealand was well below the OECD average. In that year their revenue to GDP ratios ranked nineteenth and sixteenth, respectively, among the twenty three countries for which data are available. Both countries are unique in having no social security contributions, choosing to finance social security transfers from general taxation revenue. In part as a consequence of this, reliance on personal income taxation as a revenue source was close to 50 per cent higher than the OECD average in Australia, and twice as high in New Zealand. Furthermore, the revenue significance of personal taxation rose in both countries between 1981 and 1986 (largely as a consequence of fiscal drag), whilst it declined in importance for the OECD as a whole.

Although reliance on indirect taxation in both countries was close to average, both placed less emphasis for much of the period on general consumption taxes. In 1986, Switzerland and the United States were the only other OECD countries that raised lower proportions of total revenue from general consumption taxes. However, as already noted, New Zealand introduced a broad-based goods and services tax in October 1986, and Australia gradually broadened the base of its indirect taxation and reduced the range of indirect tax rates. Such moves were motivated in part by the need for a less distortionary system of indirect taxation, but also by the need to finance cuts in personal taxation in later years.

The absence of social security contributions and the consequently greater reliance on personal income taxation is of relevance to the analysis of income inequality and redistribution and thus warrants further consideration. The LIS cash income framework excludes employer social security contributions from the definition of factor income for wage and salary earners (but includes them, by necessity, for the self employed) but includes employee social security contributions in direct taxes when estimating net or disposable income (Smeeding, Schmaus and Allegrezza, 1985).

Table 7

Comparative Tax Levels and Structures, 1981-1986

	1981	1982	1983	1984	1985	1986
Total Revenue as a Percentage of GDP (a)						
Australia	30.0	30.2	29.5	30.9	30.8	31.4
New Zealand	34.0	34.9	32.8	33.1	33.8	32.9
OECD (b)	36.0	36.4	36.8	36.9	37.3	38.1
Personal Income Tax Revenue (c)						
Australia	45.3	44.8	44.0	44.7	45.0	46.6
New Zealand	61.3	60.2	59.6	56.2	60.0	62.6
OECD (b)	32.6	32.5	32.0	31.5	31.2	31.5
Corporate Income Tax Revenue (c)						
Australia	11.3	10.0	8.8	9.2	9.3	9.0
New Zealand	7.1	7.8	6.2	8.7	8.4	7.0
OECD (b)	7.8	7.7	7.3	7.8	8.1	7.9
Goods and Services Tax Revenue (c)						
Australia	30.1	31.8	33.4	32.8	32.4	30.5
New Zealand	23.2	23.5	25.6	27.0	23.2	26.9
OECD (b)	28.9	29.1	29.7	29.8	29.7	30.0
Other Tax Revenue (c) (d)						
Australia	13.3	13.4	13.8	13.3	13.3	13.9
New Zealand	8.4	8.5	8.6	8.1	8.4	3.5
OECD (b)	30.7	30.7	31.0	30.9	31.0	30.6

Notes:
(a) Total tax revenue includes social security contributions.
(b) Unweighted average for 23 countries.
(c) As a percentage of total tax revenue.
(d) Other taxes include social security contributions, payroll taxes and property taxes.

Source: Revenue Statistics of OECD Member Countries, 1965-1987, Paris: OECD, 1988.

However, to the extent that personal income taxes in Australia and New Zealand raise revenue that might otherwise have been collected through social security contributions on employers, there will be a more comprehensive treatment of their effects using the LIS framework than where social security contributions are imposed on employers. Further, to the extent that personal income taxation is more progressive in its incidence than social security contributions, cross-country comparisons of income inequality and redistribution will also be affected. Such considerations serve to warn one that the distinctiveness of the Australian and New Zealand tax structure has implications for the interpretations to be derived from LIS comparisons of income inequality and redistribution.

Table 8 shows, for the years 1981-84, comparative data on expenditure on social security and welfare (SSW) transfers to households. Total spending on SSW transfers relative to GDP is relatively low in both Australia and New Zealand. In 1984, on this basis they ranked eighteenth and thirteenth, respectively, among the nineteen OECD countries for which data are available. Given that the percentage of the population aged 65 and over is relatively low, but similar, in both Australia and New Zealand (OECD, 1988a), the difference in the importance of old age, survivors and disability transfers is somewhat surprising. This primarily reflects the considerably more generous age pension and invalidity benefit levels in New Zealand (see Appendix for further details).

The relative importance of spending on unemployment transfers is particularly high in Australia and it rose significantly in 1982 as unemployment rose generally, but particularly among families with children. New Zealand's relatively low level of unemployment spending reflects its low level of unemployment (Table 6). Finally, the share of total transfer spending on family transfers is far higher than average in both Australia and New Zealand. However, this category in the OECD classification also includes spending on categorical transfers to sole parent families (Supporting Parents Benefit in Australia and Domestic Purposes Benefit in New Zealand) both of which have grown rapidly since the mid-seventies. OECD comparisons of the value of universal family assistance benefits for two child families as a proportion of the net wage of the average production worker indicate that these were relatively low in both Australia and New Zealand in 1984, 4.4 per cent and 5.4 per cent, respectively, compared with an OECD average of 9.0 per cent (OECD, 1986). In short, the **expenditure** aggregates in Table 8 provide at best only a partial and imperfect indication of the effects of social security **benefits** on income inequality and redistribution, in the same way that the revenue aggregates in Table 7 shed little light on the redistributive impact of the tax system. It is on the question of how the changes between 1981 and 1986 have affected the income distribution in both countries that attention now focuses.

Table 8

Comparative Social Security and Welfare Transfers to Households, 1981-1984

	1981	1982	1983	1984
Total Transfers as a Percentage of GDP				
Australia	7.8	8.5	9.0	8.6
New Zealand	9.7	10.9	10.9	10.0
OECD (a)	12.4	13.1	13.4	13.2
Old Age, Survivors and Disability Transfers (b)				
Australia	68.4	62.1	60.1	61.5
New Zealand	73.6	75.2	72.5	73.3
OECD (a)	68.6	67.6	67.4	68.3
Unemployment Transfers (b)				
Australia	11.0	16.5	18.5	17.5
New Zealand	5.5	5.5	5.3	6.7
OECD (a)	10.5	12.2	12.7	12.1
Family Transfers (b)				
Australia	15.1	15.7	15.6	15.0
New Zealand	19.3	17.8	17.6	18.2
OECD (a)	9.5	9.1	8.8	8.6
Other Transfers (b) (c)				
Australia	5.5	5.7	5.8	6.0
New Zealand	1.6	1.5	4.6	1.8
OECD (a)	11.4	11.1	11.1	11.0

Notes: (a) Unweighted average for 20 countries.
(b) As a percentage of total social security and welfare transfers.
(c) Other transfers include temporary sickness benefits and welfare transfers.

Source: Varley (1986).

4.2 Changes in Inequality, 1981-82 to 1985-86

As already noted, two aspects of the 1985-86 Australian data created some difficulties in arriving at results comparable with those for 1981-82. Both relate to income from self-employment. Unlike the 1981-82 unit record file, where losses where re-coded to zero in all cases, actual losses were provided on the 1985-86 file (as they are on the New Zealand file for both years). In order for the Australian results for 1985-86 to be comparable with those for 1981-82, it was decided to suppress the information on actual self-employment losses in 1985-86 and treat these as zero, as was done by necessity in 1981-82. Checks using both procedures in 1985-86 indicate that this caused the income share of the lowest quintile in that year to rise by up to 0.5 percentage points and the shares of the two highest quintiles to fall correspondingly. It should be noted that although these differences do not appear large in absolute terms, they are high relative to the observed changes in income inequality over the period (See Table 10 below). A further problem with the Australian data was that the owners of limited liability companies (as well as their income from such) were recorded as self-employed in 1981-82, but as wage and salary earners in 1985-86. This does not, of course, affect analysis of overall income inequality but does impact upon comparisons of income composition between 1981-82 and 1985-86 to an extent that cannot be estimated with any degree of reliability.[6] Finally, income tax liability again had to be estimated in both countries for 1985-86. Checks have been undertaken to ensure broad consistency with available information from the relevant taxation collection agencies and to remove any obvious inconsistencies on the data files themselves.[7] If anything, the tax estimates derived for 1985-86 are likely to be more accurate than those derived for 1981-82.

Turning to the results themselves, Table 9 presents estimates of the main changes in overall income composition in both countries between 1981-82 and 1985-86. The main apparent change indicated here is the declining importance of self-employment income in Australia, although this is largely due to the definitional changed noted above (see footnote 6). When wages and salaries are combined with self-employment income, there is a combined decline in labour income of 3.3 percentage points in Australia and 4.0 percentage points in New Zealand. In contrast, property income rose sharply in both countries over the period, reflecting both the strong performance of the stock market and the level of interest rates. It is of interest to note that despite the broad policy emphasis in both countries over the period on greater reliance on market forces, the importance of market incomes in gross income actually declined, albeit only slightly in Australia. The relative

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6. In 1985-86, wages and salaries from ownership of limited liability companies (after deducting losses from trusts, etc.) amounted in total to 4.3 per cent of total gross income.

7. Recorded information for Australia on negative self-employment incomes were included in the estimation of taxation liabilities for 1985-86.

Table 9

Changes in Income Sources and Taxes, 1981-82 to 1985-86

(Expressed as percentages of gross income)

	Australia		New Zealand	
Income Component	1981-82	1985-86	1981-82	1985-86
Wages and salaries	69.9	71.4	70.8	67.9
Self employment income	13.5	8.7	10.7	9.6
Property income	5.3	7.9	4.8	7.5
Factor Income	**88.7**	**88.0**	**86.3**	**84.9**
Occupational pensions	1.1	1.4	0.7	0.9
Market Income	**89.8**	**89.4**	**87.0**	**85.8**
Government cash benefits	9.4	9.7	12.1	13.2
Private transfers/other	0.8	0.9	0.9	1.0
Gross Income	**100.0**	**100.0**	**100.0**	**100.0**
Income tax	18.6	21.5	26.5	27.9
Net Income	**81.4**	**78.5**	**73.5**	**72.1**

importance of both government transfers and taxes rose, the rise in income taxation being particularly marked in Australia, where income tax revenue was a growing proportion of a rising overall tax burden (Table 7).

Table 10 presents the income distributions for Australia and New Zealand in 1985-86 and, for ease of comparison, those for 1981-82 also. Panel A presents the distribution of gross family income among families, while Panel B uses the tax imputation models and LIS equivalence scales (Table 4) to derive the distribution of equivalent net family income among individuals. Following O'Higgins, Schmaus and Stephenson, income units are ranked by gross family income in Panel A of the table, and by equivalent net family income in Panel B. The distribution of gross income among families became somewhat more unequal in Australia between 1981-82 and 1985-86, reflecting a decline in the gross income shares of the lowest four quintiles and a significant rise in the share of the highest quintile. The Gini coefficient for the distribution of gross family rose by 5.0 per cent, a significant increase over such a relatively short time span. In New Zealand, the distribution changed much less overall, although there was a movement in income shares away from the fourth quintile towards the second and top quintiles. On this basis, the distribution of gross family income, which was already more equal in New Zealand than Australia in 1981-82, had become even more so by 1985-86.

The results in Part B of Table 10 tell a broadly similar story. After taking account of income taxes, adjusting income for family needs, giving individuals equal weighting and re-ranking the distributions accordingly, both countries now appear to have experienced a rise in inequality. In terms of changes in the Gini coefficient, the rise is still greater in Australia (4.3 per cent) than in New Zealand (3.1 per cent). In Australia, the change is primarily due to a decline in the share of the third quintile and a rise in the share of the top quintile. This is despite the fact that the shares of these two quintiles were already the lowest and highest, respectively, among the eight countries for which comparative data for 1981-82 are available (Table 2). Thus for Australia, changing inequality over the period reinforced those aspects which were already unique in its income distribution when compared with other countries. In New Zealand, the increase in inequality arises from a decline in the income share of the lowest quintile and a corresponding increase in the share of income going to the top quintile, a classic 'reverse Robin Hood' redistributive change.

The results thus indicate that the period between 1981-82 and 1985-86 has been characterised by increasing income inequality in both Australia and New Zealand, particularly in Australia. In both cases, the income share of the top quintile has increased, even in the period before personal tax reforms lowered the top marginal income tax rates considerably in both countries. The changes indicated in Table 10 do, however, appear relatively small in size and might be accounted for by data errors or by the different but unavoidable procedures referred to earlier. However, it is worth

Table 10

Changes in Income Inequality, 1981-82 to 1985-86

	Australia		New Zealand	
	1981-82	1985-86	1981-82	1985-86
A. The Distribution of Gross Family Income Among Quintile of Families				
Lowest quintile	4.6	4.4	5.7	5.7
Second quintile	10.0	9.4	11.4	11.9
Third quintile	16.5	15.9	17.6	17.6
Fourth quintile	25.2	24.7	24.7	24.1
Highest quintile	43.7	45.6	40.5	40.8
Gini coefficient	**0.399**	**0.419**	**0.353**	**0.353**
B. The Distribution of Equivalent Net Family Income Among Quintiles of Individuals				
Lowest quintile	8.1	8.1	8.2	7.6
Second quintile	11.4	11.2	13.5	13.6
Third quintile	14.4	13.5	17.6	17.6
Fourth quintile	23.0	22.9	23.7	23.6
Highest quintile	43.1	44.3	37.0	37.5
Gini coefficient	**0.305**	**0.318**	**0.288**	**0.297**

noting that the magnitude of the distributional changes over the period within the two countries appears more considerable when compared with the range of observed differences in income distribution across countries at a point in time (Tables 1 and 2). From this perspective, the observed redistributional changes seem of more significance. Furthermore, the range of experimentation and sensitivity analysis undertaken does not materially affect the broad picture shown in Table 10.

Changes in the composition of gross income in the lowest and highest quintiles of individuals, ranked according to the gross income of their family are shown in Table 11. In the lowest quintile, government cash benefits are by far the most important income source in both countries, and their importance has increased markedly over the period in New Zealand. This highlights the key role that income support measures play in redistributing income towards those at the lower end of the distribution. It would appear that the emphasis given to increased targeting of income support payments has met with some, albeit limited, success in increasing the relative importance of government cash benefits at the lower end of the income distribution, at least in New Zealand. That the observed changes are not greater can in part be explained by the fact that increased income support payments were directed to families with children, who represent only a small proportion of those in the lowest quintile (Table 5). Wages and salaries are the second largest income source in the lowest quintile, accounting for around 25 per cent of gross income. However, despite the stronger overall employment growth in Australia (Table 6) the relative importance of wage and salary income in the lowest quintile declined, although it increased somewhat in New Zealand. This again reflects the demographic composition of the lowest quintile which, as Table 5 indicates, contains many elderly people.

Wages and salaries are easily the most important income source in the highest quintile, although income from self-employment and property income are also much more significant. The overall growth in importance of property income (Table 9) is reflected in a greater contribution to gross income in the highest quintile but a constant contribution to gross income in the lowest quintile. This suggests that the increased importance of property income has been an important factor underlying the increase in income inequality in both countries. The relative importance of wage and salary income in the top quintile also increased in both countries, but by far more in Australia. It is tempting to conclude from this that Australia's incomes policy approach to wage determination has been less egalitarian than New Zealand's greater reliance on a market-orientated wages policy (albeit in a country with high trade union coverage and centralised wage negotiations). Certainly, there has been much concern in Australia that the Accord has exerted far less control over salaries than wages and this, combined with a tendency for employers to 'cash-out' fringe benefits in anticipation of the introduction of a tax on fringe benefits, may also have contributed to the growing importance of wages and salaries in the highest quintile. However, the

Table 11

Changes in the Composition of Gross Income in the Lowest and Highest Quintiles of Individuals, 1981-82 to 1985-86 (a)

	Australia		New Zealand	
Income Source	1981-82	1985-86	1981-82	1985-86
A. Lowest Quintile				
Wages and salaries	2.2	1.8	2.4	2.7
Self employment income	0.4	0.2	0.2	-0.4
Property income	0.5	0.5	0.6	0.6
Occupational pensions	0.1	0.1	0.1	0.1
Government cash benefits	5.7	5.7	5.9	6.5
Gross Income (b)	**9.1**	**8.5**	**9.7**	**9.6**
B. Highest Quintile				
Wages and salaries	23.9	27.2	24.5	24.9
Self employment income	7.2	3.7	6.2	6.1
Property income	2.3	4.1	2.0	3.6
Occupational pensions	0.4	0.3	0.2	0.2
Government cash benefits	0.4	0.3	0.8	0.9
Gross Income (b)	**34.3**	**35.8**	**34.3**	**36.3**

Notes: (a) Quintiles are derived by ranking individuals according to the gross income of their family. The income shares are based on the family totals in each quintile.

(b) Gross income also includes private transfers and other sources of income.

definitional change for Australia in the treatment of the owners of limited liability companies contaminates the data and does not allow firm conclusions to be drawn. It is certainly true that when income from wages and salaries is aggregated with self-employment income, the relative importance of total labour income in both countries becomes much closer and changes over time virtually disappear.

5. Summary and Conclusions

This paper has addressed two aspects of the distribution of income in Australia and New Zealand. The first relates to how income inequality in both countries compares with that in a range of other industrialised countries in the early eighties. The framework adopted for this analysis was that developed as part of the Luxembourg Income Study (LIS) and the data for Australia and New Zealand were re-organised to conform as closely as possible with the LIS concepts and definitions. The results cast doubt on the view that emerged from earlier comparative research which suggested that Australia and New Zealand were both comparatively egalitarian nations. Although the inequality rankings of countries (particularly New Zealand) show some sensitivity to the precise income measure used and how the income distribution is characterised, neither country ranks as highly eqalitarian, particularly on the basis of equivalent net family income comparisons. The comparisons all indicate somewhat greater equality in 1981-82 in New Zealand than in Australia.

The paper investigated some of the reasons for these results, pointing in particular to differences in the timing of the LIS data for different countries. In light of the evidence of increasing inequality between 1979 and 1982 in some of the countries with data for 1979, it is at least possible that a different comparative picture could emerge if the data for each country were for a common year. Differences in the demographic structure of the countries were also noted and their potential impact on inequality rankings discussed. Recent LIS research has indicated that inequality rankings are quite sensitive to which equivalence scales are used to define equivalent income where average family size is large. Since both Australia and New Zealand, particularly the latter, have a relatively large average family size, their ranking appears sensitive to which equivalence scale is used. The fact that equivalence scales commonly used by researchers in both countries differ markedly from the LIS equivalence scales suggest further that their ranking might differ if an alternative scale were used.

The second issue addressed focused on changes in income inequality in Australia and New Zealand between 1981-82 and 1985-86. This analysis again utilised the framework and concepts developed as part of the LIS project. The period was one of broad similarity in the economic and political context of both countries. Both elected reformist Labor governments in the early eighties who proceeded to implement a wide range of deregulatory initiatives and public sector reforms intended

to improve international competitiveness. There were, however, significant differences in policy emphasis in each country, and in the speed with which reforms were introduced. It is particularly unfortunate that many of the major reforms to the income tax and income support systems of both countries took place after 1986 and are therefore not reflected in the data. However, the results indicate that income inequality in both countries increased between 1981-82 and 1985-86, reflecting an increase in the income share of the top quintile, the increase in inequality being slightly greater in Australia. Although the data do not permit an accurate assessment of the relative importance of the factors contributing to the increase in inequality, it appears that the rise in property income has been of significance. Finally, it needs to be emphasised that the results cover a period prior to tax reforms in both countries which lowered marginal (and average) tax rates at higher income levels, suggesting that income inequality may have increased further in the period since 1986. A fuller account of the impact of both governments on income inequality must wait until data allow the analysis to be extended to cover policies introduced in more recent years.

Appendix: Changes in Income Support and Personal Income Tax Provisions in Australia and New Zealand, 1981-86.

This Appendix provides more detail on the main changes to income support and personal taxation in Australia and New Zealand between 1981 and 1986. The information is supplementary to the discussion and comparisons contained in Section 4.1 of the paper. Every effort has been made to present information in a consistent manner, but the following caveats apply to the statistical comparisons:

- Information is provided on a financial year basis. The Australian financial year ends on 30 June, while the New Zealand financial year ends on 31 March.

- Income support information relates only to provisions administered in Australia by the Department of Social Security and in New Zealand by the Department of Social Welfare. Coverage is thus somewhat narrower than the LIS variable 'government cash benefits', which also includes income support provisions administered by other government departments. The main category excluded is income support for war veterans' pensions administered in Australia by the Department of Veterans' Affairs and in New Zealand (separately) by the Department of Social Welfare.

Income Support

Expenditure on cash benefits administered by the Department of Social Security (DSS) in Australia and the Department of Social Welfare (DSW) in New Zealand are shown in Table A.1. In total, cash benefit expenditure is considerably higher relative to GDP in New Zealand, although Australia experienced somewhat faster total expenditure growth over the period. The main differences in the composition of expenditure are the far higher share of income support for the elderly in New Zealand and its correspondingly lower share of expenditure devoted to support for invalids and for the unemployed. The former difference reflects the lower age of eligibility for national superannuation benefits in New Zealand (60 years) compared with Australia, where eligibility for the age pension commences at 60 years for females and 65 years for males. National superannuation benefits in New Zealand were also indexed to movements in the after-tax average wage rather than the consumer price index, and this has increased pressure on expenditure. More significantly, New Zealand national superannuation benefits are not income tested, although superannuitants with other incomes above certain limits were required to pay a tax surcharge after April 1985. The overall impact of the surcharge is small, but age pension expenditure in New

Table A.1

Expenditure on Social Security Cash Benefits in Australia and Social Welfare Cash Benefits in New Zealand [a]

Category	Australia (b)		New Zealand (c)	
	1981	1986	1981	1986
Aged	3936 (48.5)	5897 (39.1)	1557 (66.9)	3341 (66.8)
Widows and sole parents	1054 (13.0)	2162 (14.4)	256 (11.0)	693 (13.9)
Families (d)	952 (11.7)	1591 (10.6)	308 (13.2)	449 (9.0)
Invalids	881 (10.9)	1673 (11.1)	50 (2.1)	133 (2.7)
Unemployed	996 (12.3)	3122 (20.7)	119 (5.1)	290 (5.8)
Other	293 (3.6)	623 (4.1)	39 (1.7)	92 (1.8)
Total	**8112** **(100)**	**15069** **(100)**	**2327** **(100)**	**4999** **(100)**
Total as a % of GDP	**5.9**	**6.4**	**10.1**	**11.1**

Notes:
(a) The first entry shows expenditure totals in local currencies, the second entry (in brackets) expresses this as a percentage of total expenditure.
(b) Year ending 30 June; expenditures in A$ million.
(c) Year ending 31 March; expenditures in NZ$ million.
(d) Includes expenditure on family allowance, family income supplement and double orphans pension in Australia, and expenditure on family benefit, family care and orphans benefits in New Zealand.

Sources: Australia: Department of Social Security, Annual Report, 1986-87.
New Zealand: Department of Social Welfare, Annual Report, 1987-88.

Zealand should be adjusted downward by revenue from the surcharge in order for it to be directly comparable to the data for Australia. New Zealand's lower spending on invalid benefits reflects the existence of separate earnings-related compensation benefits to accident victims, administered through the Accident Compensation Corporation. Australia's greater spending on income support for the unemployed reflects its higher, and more rapidly rising, unemployment level over the period. (Table 6 in main text).

The share of income support expenditure devoted to the elderly declined by close to 10 percentage points in Australia, in part because many males reaching the age of eligibility for the age pension over the period were in receipt of a service pension, but also because of a tightening of eligibility criteria (see below). In contrast, the share of expenditure on the elderly in New Zealand rose to over 70 per cent by 1983 before declining back to its 1981 level by 1986. In both countries, income support for widows and sole parents accounted for around 14 per cent of total expenditure in 1986, although it grew faster between 1981 and 1986 in New Zealand.

In Australia, for much of the period, most standard rates of pension and benefit were indexed twice a year to movements in the consumer price index. In addition, several ad hoc increases were made to some of those payments not subject to automatic indexation. In May 1983, a new income tested family income supplement for low income working families with children was introduced. Increases in universal family allowance payments of 50 per cent for the first and second children were introduced in October 1982, and in November 1983 child-related payments to pension and benefit recipients were raised. Changes to ease the severity of the income test on pensions and benefits were introduced in November 1982, and the income test on benefits was further eased in March 1984 and again in May 1986. In November 1983, an income test was fully reintroduced on the age pension for those aged over 70 (previously, only part of their pension was income tested), and in March 1985 pensions were also made subject to an assets test. These two latter changes also help explain why age pension expenditure declined in relative importance over the period.

In New Zealand, as in Australia, most benefits (apart from national superannuation) were indexed twice yearly to the movements in the CPI over this period. The allowable income exemptions for the main benefits were unchanged over the period up until 1986 when they were doubled and the rates of abatement of the benefits reduced. In addition, the introduction of family care in October 1984 provided an income tested income supplement for low income working families, and at the same time there were related increases to the child allowances for social welfare beneficiaries. However, one aim of the changes in income support made by the Labor Government after 1984 was to shift income support for working families away from provision of cash benefits towards

income tax relief. Hence in October 1986, family care was replaced by family support, a refundable tax credit paid through the income taxation system.

Personal Income Taxation

Tables A.2 and A.3 indicate, respectively, changes to personal tax scales and the major personal tax rebates between 1981 and 1986. In both countries, the assessment unit for personal tax purposes is the individual, although many of the personal rebates depend upon the family circumstances of the taxpayer. Unlike in Australia, where a tax threshold frees initial income from tax liability, positive tax rates apply to the first dollar of taxable income in New Zealand. However, the existence of more generally available tax rebates serve to free initial income from tax for many New Zealanders. Table A.2 indicates that changes to the tax scales in both countries were not significant in either country between 1981 and 1986. Major changes to flatten the tax schedule and reduce higher marginal tax rates occurred in both countries after 1986. In fact, marginal tax rates rose between 1981 and 1986 in New Zealand but fell slightly in Australia, although not by as much to offset fiscal drag. As Table 7 in the text indicates, personal tax revenue continued to rise as a proportion of total tax receipts in both countries between 1981 and 1986.

Table A.3 shows changes to the main personal tax rebates between 1981 and 1986. Among the more significant developments were the introduction of rebates for DSS pension and benefit recipients in Australia in 1984-85. Their intention was to ensure that those fully dependent on pension or benefit for the whole year were not liable for tax. Had these rebates not been introduced, CPI indexation of pension and benefit levels would have caused them to exceed the tax threshold, which was not itself indexed, and which would have been very costly to increase for all taxpayers. In contrast, in New Zealand the general tendency has been to reduce the range of tax rebates available. However, the value of the low income family rebate rose more than four fold (in nominal terms) between 1981 and 1986 and the principle income earner rebate (introduced in October 1982) was also set at quite a high level. Their intention was to free low income families dependent on a single income earner from the personal tax rates that operate from the first dollar of income (Table A.2). As a final point, it should be emphasised that the details provided in Tables A.2 and A.3 do not include either the Medicare levy introduced in Australia in 1983-84 to help fund the universal health care system introduced in that year, nor the income tax surcharge on national superannuitants with other incomes introduced in New Zealand in 1985.

Table A.2

Personal Income Tax Scales in Australia and New Zealand, 1981-82 and 1985-86 (a)

Australia (b)			New Zealand (c)		
Income Range: (A$ per annum)	Marginal Tax Rate: 1981-82	1985-86	Income Range: (NZ$ per annum)	Marginal Tax Rate: 1981-82	1985-86
0-4195	0	0	0-5500	14.5	20
4196-4595	32	0	5501-6000	35	20
4596-12500	32	25	6001-12600	35	33
12501-12600	32	30	12601-17600	48	33
12601-17894	32	30	17601-22000	55	33
17895-19500	46	30	22001-25000	60	33
19501-28000	46	46	25001-30000	60	45.1
28001-35000	46	48	30001-38000	60	56.1
35001-35788	46	60	38000 and over	60	66
35789 and over	60	60			

Notes:

(a) The Australian financial year ends on 30 June, the New Zealand financial year ends on 31 March.

(b) The Australian tax scales exclude the Medicare Levy, introduced in 1983-84 as a tax surcharge on incomes in excess of specified thresholds and (until 1985-86) subject to an overall ceiling.

(c) The New Zealand tax scales exclude the surcharge on certain national superannuitants.

Table A.3

Major Personal Tax Rebates in Australia and New Zealand, 1981-82 and 1985-86 (a)

Australia			New Zealand		
Rebate Type	Maximum Value (A$ per annum) 1981-82	1985-86	Rebate Type	Maximum Value (NZ$ per annum) 1981-82	1985-86
Dependent Spouse Rebate:			Spouse Rebate	156	-
- without children	830	830	Low Income		
- with children	830	1030	Family Rebate (b)	468	1924
Sole Parent Rebate	580	780	Principle Income		
Pensioner Rebate	-	250	Earner Rebate (b)	-	520
Beneficiary Rebate:			Young Family		
- single	-	170	Rebate	468	-
- married	-	220			

Notes: (a) Each of the rebates shown in the table are withdrawn gradually once income exceeds certain limits. The withdrawal rates and income limits vary for each rebate.

(b) Only one of the Low Income Family Rebate and Principle Income Earner Rebate can be claimed at any one time.

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