14

TAG 14

"Household Income and its Distribution", Peter Saunders, *Australian Economic Indicators*, June 2001

FEATURE ARTICLE

HOUSEHOLD INCOME AND ITS DISTRIBUTION

A version of this article first appeared as a Centenary Article in Year Book Australia 2001 (Cat. no. 1301.0). It is updated here to incorporate 1999–2000 data that has since become available and to incorporate a number of corrections to the historical data. As noted in this article, there are various definitions of income and different measures can be used to analyse income distributions. The significance of changes in income distribution over time can be sensitive to the particular measure chosen for analysis and any adjustments made to improve data comparability between surveys. The measures for 1994-1995 to 1999-2000 presented in the recent ABS publication *Income Distribution, Australia 1999-2000* (Cat. no. 6523.0) differ in some respects from the measures used in this article due to such adjustments.

The views expressed are those of the author and do not necessarily represent the views of the ABS.

Professor Peter Saunders[1]

INTRODUCTION

Over the course of the twentieth century, the Australian economy grew strongly, resulting in rising material prosperity and increasing standards of living. Although the fruits of growth have not been distributed evenly—over time, across regions or between sub-groups of the population—the overall effect has been to raise the average level of economic wellbeing far above what it was when the century began. Although many groups have prospered over the last one hundred years, there are others whose relative economic circumstances are unacceptable by contemporary Australian standards. The material conditions of Indigenous Australians still lag far behind, pockets of entrenched poverty exist alongside increased affluence, and where one lives can still exert an important influence on one's economic prospects. Overall, however, Australia is a country with a high standard of living and a life style that others view with envy. Migrants from around the world still flock to its shores, keen to participate in (and contribute to) the economy and the vibrant and diverse multicultural society in which it is embedded.

This article explores the nature of the increase in living standards as measured by changes in the level of household income and its distribution. In undertaking such an exercise, it is important to emphasise some of the limitations of income as an indicator of economic wellbeing or standard of living. There is more to life

1 Professor Peter Saunders is the Director of the Social Policy Research Centre at the University of New South Wales. He has undertaken a series of research studies on income distribution and living standards and is one of Australia's leading experts in these fields. His research on poverty and income distribution has been widely cited overseas and was given special reference when he was elected a Fellow of the Academy of the Social Sciences in 1995. The views expressed are those of the author and do not represent the views of the ABS.

INTRODUCTION
continued

than money, just as there is more to one's standard of living than income. But in a market economy like Australia, income reflects the ownership and use of human, financial and physical capital and provides access to the goods and services that support the standard of living. People's status in society—both as workers who contribute to economic output and as consumers who benefit from it—also reflects their income and the level of consumption that it can sustain.

The distribution of income can be presented in a variety of different ways, each focusing on a different aspect of income variation. A range of measures is also available for summarising how much inequality exists at any point in time. Most of these measures indicate how far the observed distribution deviates from a situation of total equality, where all incomes are equal. They reflect relative income differences. Supplementary statistics are needed to provide more insight into the nature of inequality and to identify its causes, but how the inequality statistics are presented can be important. Measures that relate income differentials to differences in location, ethnicity, age, gender, educational qualifications, or employment participation each reveal part of what is a complex multi-dimensional reality. It is not possible to do justice to all of these aspects in the limited space available. Emphasis has been given to describing the Australian income distribution, exploring how it has changed and how it compares internationally. Such an account, while primarily descriptive, provides the basis for further study of the causes and consequences of inequality.

CONCEPTUAL ISSUES

In order to generate income, other things generally have to be sacrificed, at the level of both the individual and society. Individuals must forego leisure in order to work and earn an income, and there may be social costs associated with rising market incomes, including increased pollution, congestion and a decline in the value attributed to civic duties and other forms of work that are unpaid and often unrecognised. For these reasons, it cannot be assumed that an increase in income *necessarily* implies a higher standard of living. However, these considerations are likely to be more significant at an aggregate level than at the household level, and to exert a more significant influence in the longer run. For households, in the short to medium term, it can be assumed that, since income is the result of participation in activities that are generally freely entered into, an increase in income translates directly into an increased standard of living.

Even accepting this proposition, there are still a number of more specific questions surrounding the definition of income and its use as an indicator of the standard of living of households. Before discussing these, a few comments on the nature of the household itself are in order. Almost everyone lives in a household of some form and the vast majority live with their

family, generally as a member of a 'nuclear family' consisting of adults (single or married) and (if there are any) their children. Although older children living with their parents may be largely independent of them, where children are younger and financially dependent on their parent(s) the nuclear family can be viewed as a single economic unit. In these circumstances, it is normally assumed (although the empirical basis for doing so is rather limited) that income is shared and used to benefit all family members equally. On this assumption, it is possible to use total family income as an indicator of the standard of living of all family members. It is, however, necessary to make an adjustment for the size of the family, because a given level of income will support a lower standard of living the more people there are reliant upon it.

Although most households consist of nuclear families only, there are many households that reflect other living arrangements. An increasing proportion of the population live by themselves, while others live with people they are not related to, or in multi-generational family households. Within these households, particularly those consisting of unrelated adults living together, the assumption that income is totalled up and used to the equal benefit of all household members becomes problematic. It may be true, but it may not, and the *degree* of income sharing is likely to vary from household to household (as it may within nuclear family units). No single income sharing assumption will be generally applicable, so that the use of household income to reflect the living standard of household members may not be justified. The standard approach for dealing with this issue is to treat all people as belonging to an income unit that consists of either one or two adults, with or without any dependent children, and to assume that income is only shared *within income units*. This approach has been used to derive the income distribution estimates presented and discussed in the section *Distribution of Income in Australia* (where the method used to adjust income for differences in income unit size is also explained).

Thus far, the discussion has proceeded as if the definition of income is a straightforward matter. It is not. First, there is the question of defining cash or monetary income—the complexity of which is illustrated by the length of the income tax legislation. Of particular relevance in the current context is the question of deciding what should be included in income so that it better reflects the standard of living. Cash income is generally a good measure of the standard of living because it indicates the extent to which people are able to satisfy their consumption needs through market transactions, but it omits many non-cash and in-kind elements that contribute directly and indirectly to living standards.

One example of indirect in-kind income is the imputed rental income of home-owners. This is a form of property income from the investment in the dwelling, even though it does not appear in

conventional household or personal income measures. Employer superannuation contributions (along with other employer-provided fringe benefits) are another form of in-kind income. In this case, even though the superannuation benefits earned from the contributions have a cash value, they are income that is forced saving and cannot be accessed until retirement. An example of non-cash income is the benefits that households receive in the form of free or subsidised education and health services. These are generally referred to as part of the 'social wage', although they are more accurately described as 'social income' because many of the benefits accrue to groups in the population (pensioners and children, for example) who are not earning a wage. In the case of social income, households are given access to consumption of the services by government rather than being required to pay for them in the market (although many social income components can also be purchased in the market). Payment for social income services occurs collectively, through the tax system (supplemented by user charges) and the amounts involved affect disposable cash income indirectly, as a larger than otherwise tax bill.

The significance of all three forms of in-kind or non-cash income—imputed rent, employer contributions and the social wage—reflect broader social trends, including patterns of home ownership, how the retirement income system is organised and what goods and services are provided collectively by government. They each contribute to the standard of living of households but are not reflected in the conventional statistics on household income, in part because of the inherent difficulty in identifying the benefits and estimating their value. If income is defined narrowly to include just cash income, the contribution of these other factors will be missed, leading to a distorted image of how living standards vary, over time and between groups at a point in time.

In relation to living standards, the form in which income is received—as cash, non-cash or in-kind benefits—matters less than its total value. To omit some items because of the difficulty of estimating their value runs the risk of producing a measure of income that has only marginal relevance to actual living standards. Ideally, the income concept should be both defensible in its measurement and practical in its application. In 1995 the ABS proposed such a broad income measure, which it defines in the following terms:

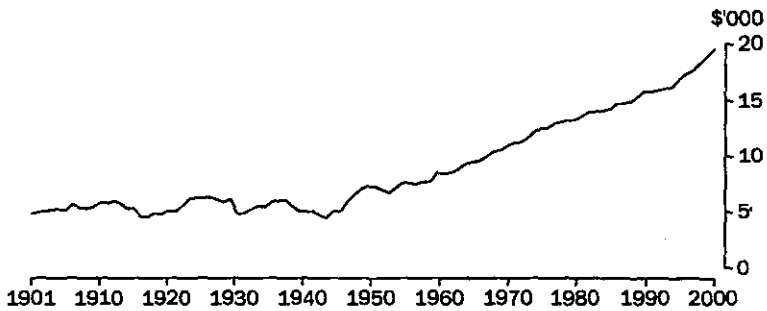
> "[I]ncome consists of receipts, as money or in-kind, that are received or accrued regularly and are of a recurring nature. Income may accrue from a wide range of sources both from outside and within the household itself ... Cash income may be generated through involvement in economic production, either within the market economy or outside it ... Non-cash income similarly covers income in-kind from [these] sources. It includes non-cash benefits received by employees and by owners of small business [and] non-cash government benefits directed to pensioners and beneficiaries and

directed to the broader population groups in the form of government expenditure on services such as health, housing, welfare etc. In addition, non-cash income ... includes the value of the production of goods and services provided by the household to itself [through] services such as child care and cooking as part of their unpaid household work." (ABS 1995, pp. 4–5)

It is clear from this definition that income is far broader in scope than what appears in the pay packet each fortnight, or even what is reported to the tax authorities each year. In order to be able to estimate the standard of living, it is necessary to impute a value for each of the different components of income, or at least to recognise the limitations of not doing so.

In recognition of this, there have been numerous attempts to estimate the value of various types of in-kind and non-cash income and to explore their impact on living standards and income distribution (ABS 1996; Yates 1991). These studies have made an important contribution to the measurement of living standards and how they compare between different groups in Australia. They are not considered further here, although their significance should be kept in mind when reviewing the estimates that follow.

1 HOUSEHOLD FINAL CONSUMPTION EXPENDITURE PER CAPITA, in 1999–2000 Prices— 1900–1901 to 1999–2000



Source: Data for 1900 to 1980 are from Appendix Tables 1 and 4 of Maddock and McLean (1988), supplemented by ABS population and national accounts data from 1981.

TABLE 1 TRENDS IN HOUSEHOLD SIZE–1911 to 1996

	Occupants per dwelling					
	1	*2–4*	*5 and over*	*Total dwellings*	*Total population in private dwellings*	*Average household size*
Census year	*no.*	*no.*	*no.*	*no.*	*no.*	*persons*
1911	n.a.	n.a.	n.a.	894,389	4,055,926	4.53
1921	97,620	529,744	479,646	1,107,010	4,875,428	4.40
1933	128,785	824,886	556,000	1,509,671	6,629,839	4.39
1947	152,029	1,168,781	552,813	1,873,623	7,026,760	3.75
1954	213,088	1,523,238	607,095	2,343,421	8,314,362	3.55
1961	285,360	1,743,173	753,412	2,781,945	9,870,494	3.55
1966	371,861	1,958,351	821,714	3,151,926	10,930,500	3.47
1971	497,816	2,319,179	853,559	3,670,554	10,955,250	2.98
1981	839,302	3,041,213	788,396	4,668,911	13,918,445	2.98
1991	1,130,749	3,759,850	751,797	5,642,396	15,717,020	2.78
1996	1,432,820	4,122,479	726,518	6,281,817	16,751,439	2.67

n.a. Not available

Source: Census of Population and Housing, various years.

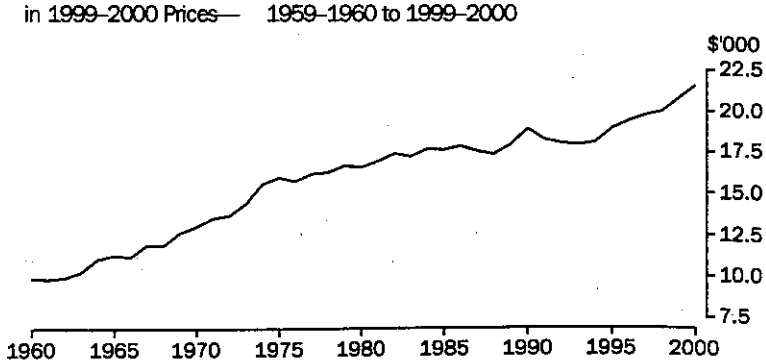
AGGREGATE TRENDS IN HOUSEHOLD CONSUMPTION AND INCOME

Writing about fifteen years ago, Maddock and McLean (1988) concluded that, however they are measured, Australian living standards improved substantially between the turn of the century and 1980. Drawing on a detailed review of the available evidence, the authors argued that Australians were better off in terms of aggregate income and consumption, and that income was more equally distributed, with the rich losing ground relative to others and the poor making up ground against the middle classes (Maddock and McLean 1988, p. 351). How far these trends have continued into the last quarter of the twentieth century is addressed in this and the following section.

Although it is only a partial measure of living standards, private consumption by households is a significant indicator of how well households are able to meet their material needs by purchasing goods and services in the market. It is also an aspect of wellbeing for which reliable estimates are available over a long time period. Graph 1 plots movements in household final consumption per head of population since 1900–1901 after adjusting for movements in consumer prices (as measured by the price deflator for household final consumption expenditure). After rising modestly until around 1913, consumption per head varied considerably for much of the next three decades but displayed no overall trend. Since the mid–1940s, however, there has been a steadily rising trend, with price-adjusted consumption per head increasing on average by about 2.5% each year—equivalent to a doubling of its value about every 28 years.

The adjustment of total consumption for changes in population size accounts for the impact on consumption of the fact that there is an increasing number of people whose needs have to be supported by consumption spending. However, as noted earlier, the appropriate unit for living standards purposes is the household, family or income unit, within which the fruits of consumption spending are shared. This latter (resource-sharing) effect will only be captured accurately by expressing total consumption in per capita terms if the number of persons per household has remained approximately constant. It has not. As Table 1 shows, there has been a steady decline in average

2 HOUSEHOLD DISPOSABLE INCOME PER CAPITA, in 1999–2000 Prices— 1959–1960 to 1999–2000



Source: ABS population and national accounts data.

household size throughout the twentieth century. The last 30 years has seen the percentage of single-person households almost double, from 11.8% of all households in 1966 to 22.8% in 1996. The extent of this change can be gauged by observing that, had there been no change in average household size since 1966, the 1996 population could have been housed in 4.828 million dwellings—1.454 million (or 23.2%) fewer dwellings than actually existed in 1996.

Factors influencing the decline in average household size include the ageing of the population, the decline in fertility, the increased incidence of divorce and the declining number of multi-generation households. Increased affluence has also played a role, in conjunction with changes in housing affordability, the trend towards urbanisation and preferred living arrangements. These factors also reflect broader changes in Australian society and community attitudes and values. When looking at per capita consumption, it should be remembered that the number of households has grown faster than the population. This implies that consumption per household has grown more slowly than consumption per capita. As a consequence, the trend shown in graph 1 may overstate the increase in the benefits from private consumption that have accrued to household members as higher expenditure for the increase in housing is required (although adjusting for this effect would not remove the upward trend shown in the graph).

Changes in total consumption reflect changes in the total income that households have available to spend. Accurate data on household income are only available for the more recent period, when the Australian National Accounts began to collect statistics on key economic aggregates. The national accounts data indicate that household disposable income has increased since 1959–1960, after adjusting for population growth and increases in consumer prices (graph 2). Real household disposable income per capita more than doubled over the period, increasing on average by 1.9% a year—equivalent to a doubling in its value about every 37 years.

Although this trend signifies a considerable improvement in average living standards, of greater relevance in a distributional context is not the overall level of household income, but the relative size of its different components. Not all types of income are distributed in the same way among the population, and some income sources (such as social security benefits and income taxes) reflect explicit distributional goals, whereas others (such as interest income and dividends) are primarily market-determined and thus reflect the existing distribution of economic resources.

Table 2 indicates that there have been significant changes in the composition of household income since 1959–1960. Although

AGGREGATE TRENDS IN HOUSEHOLD CONSUMPTION AND INCOME *continued*

caution must be applied when considering the impact of the business cycle on short-term movements in income shares, over the longer term, compensation of employees (primarily wages and salaries) accounts for between 55% and 60% of household income. This percentage declined throughout the 1980s, but has been moving upwards again in the 1990s. Property income (interest, dividends, rental income, etc.) shows considerable short-run variation, reflecting movements in interest rates, property prices and the performance of the share market, but has fallen markedly in relative terms since 1990. Both social assistance benefits and income tax have more than doubled as a proportion of household income since 1960. The impact of recession on the relative importance of social assistance income is apparent in the rises experienced in the early part of the last three decades, when the economy was in recession. Income tax reveals a more consistently upward trend (and a larger absolute increase than social assistance benefits) and rose sharply after 1995, although it will have declined with the introduction of the GST in July 2000.

Table 2 summarises the overall income framework operating in Australia, delineating the respective roles and significance of labour and capital income, and of income that is generated through the market and redistributed by government tax and transfer policies. The broad features of this framework help to shape how income is distributed to households, according to their involvement in market activity (through employment and/or investment in assets), their receipt of social transfers and payment of taxes to government. How these different activities combine to determine the overall income distribution is now considered.

THE DISTRIBUTION OF INCOME IN AUSTRALIA

The national accounts provide an authoritative source of statistics on trends in the major income aggregates over the latter half of the century and a framework that has been used to derive estimates that cover earlier years. Unfortunately, the same cannot be said of the reliability—or even the existence—of data on the distribution

TABLE 2 CHANGING COMPOSITION OF HOUSEHOLD INCOME, Percentages of Gross Income — 1959–1960 to 1999–2000

	1959–60	*1964–65*	*1969–70*	*1974–75*	*1979–80*	*1984–85*	*1989–90*	*1994–95*	*1999–00*
Income source	%	%	%	%	%	%	%	%	%
Compensation of employees	57.0	57.7	59.7	61.8	55.9	54.4	51.8	54.2	55.2
Property income	7.4	7.9	8.7	9.4	9.6	12.2	15.5	10.4	9.5
Other primary income	28.6	26.8	24.0	18.8	22.5	19.3	21.0	19.9	20.1
Social assistance benefits	4.9	5.0	4.7	5.8	7.5	8.2	7.0	9.7	9.6
Other secondary income	2.2	2.6	2.9	4.1	4.5	5.9	4.9	5.8	5.6
Total gross income	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Income tax payable	7.0	8.7	10.1	12.5	12.9	14.2	14.1	13.1	14.7
Other income payable	4.9	5.3	5.9	7.6	8.8	9.8	12.6	9.3	9.3
Disposable income	88.1	86.0	84.0	79.9	78.3	76.0	73.4	77.6	76.0

Source: Australian National Accounts, Household Income Account, various years.

of income. In part, this reflects the inherent difficulty of obtaining reliable information on income at the individual household level because of its sensitivity. Cost is also a factor. Deriving and administering a questionnaire capable of providing comprehensive and accurate income information is, as implied by the above discussion, a complex and expensive exercise. Even so, the absence of distributional data is somewhat surprising given the importance attached to equality and to the reduction of poverty as policy goals. It seems difficult to reconcile Australia's traditional reputation as an egalitarian nation with the lack of attention given to the collection of data on how income is distributed.

Reporting in 1975, the Taxation Review Committee made reference to the absence of reliable data on the distributions of income before and after tax (Taxation Review Committee 1975, para. 4.32). In fact, the first nationwide study of income distribution had been conducted in 1969, although results were not released until 1973 (Commonwealth Bureau of Census and Statistics, CBCS, 1973). A special income survey was also conducted in August 1973 to assist the Poverty Commission to estimate the extent of poverty (Commission of Inquiry into Poverty 1975). These initial surveys have been followed by a series of income distribution surveys conducted at regular intervals over the last three decades.

In the absence of survey data covering the first two-thirds of the century, a number of academic studies have attempted to estimate the income distribution in those years and how it changed (Jones 1975; McLean and Richardson 1986; Saunders 1993). Although beset by numerous definitional and data comparability obstacles, these studies allow a broad picture to be built up of how income distribution changed over that period. The broad consensus reached by this research is that income inequality declined between 1915 (when the first national data were available) and 1969, with much of the decline taking place after the height of the Depression in 1933. There was a further modest decline between 1969 and 1981, by which time inequality of both earnings and total income had began to increase.

The analysis reported below describes changes in income distribution over the three decades since the first comprehensive survey was undertaken in 1969. Table 3 compares the overall income inequality profile among families in 1968–1969 and 1999–2000. The estimates exclude 'non-family individuals' who were analysed separately in the earlier survey—an omission that is of significance given the increased incidence of single person households shown in Table 1. The analysis is in gross income terms, that is, without taking account of the impact of the tax system.

The distribution of gross income among families became more unequal between 1968–1969 and 1999–2000, as measured by the

two summary measures of inequality, the Gini coefficient and the 'Robin Hood Index'. The Gini coefficient varies between zero (complete equality) and one (extreme inequality), with a higher value indicative of more inequality. The Robin Hood Index indicates the percentage of total income that would need to be distributed away from those with above-average incomes and towards those with below-average incomes in order to equalise all incomes. The extent of the rise in the two summary measures (15.5% and 20.9% respectively) is substantial.

According to the gross income distribution statistics in Table 3, the relative income position of families at the bottom of the income distribution declined over the period, while the relative incomes of those at the top increased. These trends are contrary to those identified by Maddock and McLean (1988) as having occurred in the period up to 1980. In terms of how incomes changed relative to prices, the income cut-off that identifies families in the top 20% of the distribution (P80) increased by 50% more than the increase in consumer prices between 1968–1969 and 1999–2000. In contrast, the income cut-off that identifies families in the bottom 20% of the distribution (P20) increased by only 3% more than the increase in prices over the same period.

Table 4 compares how *individuals* have fared since 1968–1969 by investigating changes in the distributions of gross incomes (from all sources) of full-time male and female workers. (It should be noted that the figures for 1968–1969 refer to full-time, full-year workers, while those for 1999–2000 refer to all workers who were working full-time at the time of the survey.) Income

TABLE 3 CHANGES IN GROSS INCOME DISTRIBUTION AMONG FAMILIES — 1968–1969 to 1999–2000

	1968–1969		*1999–2000*		*Change, 1968–1969 to 1999–2000*	
	Income Share	*Upper Bound(a)*	*Income Share*	*Upper Bound*	*Income Share*	*Upper Bound(a)*
Income deciles	%	*$('99–00)*	%	*$('99–00)*	*percentage points*	*$('99–00)*
First	2.2	13,370	1.8	15,912	–0.4	2,542
Second	4.6	20,500	3.3	21,200	–1.3	700
Third	6.0	24,800	4.6	29,968	–1.4	5,168
Fourth	6.9	28,960	6.2	38,500	–0.7	9,540
Fifth	8.5	33,270	7.7	47,852	–0.8	14,582
Sixth	9.3	37,730	9.4	57,000	0.1	19,270
Seventh	10.6	43,070	11.2	68,040	0.6	24,970
Eighth	12.2	50,350	13.4	82,002	1.2	31,652
Ninth	14.9	63,570	16.3	102,200	1.4	38,630
Tenth	24.8	..	26.3	..	1.5	..
P10/P50(b)	..	0.402	..	0.333	..	–0.069
P90/P50(b)	..	1.911	..	2.136	..	0.225
P90/P10(b)	..	4.756	..	6.423	..	1.667
Gini coefficient	0.33		0.38		15.5%	
Robin Hood index	22.5		27.2		20.9%	

(a) In 1999–2000 dollars. 1968–1969 incomes have been inflated using the household final consumption expenditure deflator. (b) The percentile ratios (P10/P50, etc.) show the ratio of the upper bound income of the first decile (P10) to the fifth decile, or median (P50), and so on.

Source: CBCS 1973; ABS Survey of Income and Housing Costs, 1999–2000, data available on request.

inequality increased among both male and female full-time workers, with the position of lower-income workers declining relative to the median and that of high-income workers improving. The extent of these changes was more pronounced for males than for females. By 1999–2000, low-income female full-time workers were better off relative to the female median than were low-income males relative to the male median. In contrast, the position of higher-income male workers relative to the male median was above that of higher-income female workers, and throughout the period there was greater inequality in the male distribution than in the female distribution. At the same time, there was a narrowing of male-female income differentials at all points in the two distributions since the late 1960s. Whereas in 1968–1969 the median income of full-time male workers was 67% above that of the corresponding median female income, by 1999–2000 that differential had fallen to 20%.

A more detailed exploration of changes in income distribution is restricted to the period since 1981–1982, when the ABS income surveys were regularised and data stored electronically. There were, however, a number of changes to the survey methodology between 1981–1982 and 1994–1995, when a continuous survey was introduced. These changes have affected the comparability of some of the data from the 1994–1995 survey with those collected in earlier years. Academic studies based on these data for the 1980s suggest that income distribution became considerably more unequal over that decade (Saunders 1993; Harding 1996). The following analysis uses data which estimates some of the impact of these changes in survey methodology for 1990 and represents the best estimates that can be produced from the currently available data. (The data used are available from ABS on

TABLE 4 CHANGES IN TOTAL GROSS INCOME(a), People Working Full-Time, Quintile Upper Bounds(b) — 1968–1969 to 1999–2000 (c)

	1968–1969		*1999–2000*		*Change, 1968–1969 to 1999–2000*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*
Income quintiles	*$('99–00)*	*$('99–00)*	*$('99–00)*	*$('99–00)*	*%*	*%*
First	17,970	10,770	21,020	18,500	17.0	71.8
Second	22,800	13,660	31,035	26,000	36.1	90.3
Third	27,850	16,260	41,236	33,010	48.1	103.0
Fourth	36,090	20,270	55,030	43,400	52.5	114.1
Fifth	..	..	..	..	..	..
Median	25,030	15,000	36,000	30,000	43.8	100.0
Quintile boundary ratios						
Q1/Median	0.718	0.718	0.584	0.617	–0.134	–0.101
Q4/Median	1.442	1.351	1.529	1.447	0.087	0.096
Q4/Q1	2.008	1.882	2.618	2.346	0.610	0.464
Male/female ratios						
Q1	1.669		1.136		–0.533	
Q4	1.781		1.268		–0.513	
Median	1.669		1.200		–0.469	

(a) Incomes have been inflated using the household final consumption expenditure deflator.
(b) In 1999–2000 dollars.
(c) Comparison may be affected by some methodological differences between the 1968–1969 and 1999–2000 surveys.

Source: CBCS, 1973; ABS, Survey of Income and Housing Costs, 1999–2000, data available on request.

request. The Social Policy Research Centre at the University of New South Wales and the ABS are currently undertaking a joint project, supported by the Australian Research Council, which will attempt to quantify the impact of the major changes in methodology from the earlier surveys.)

Table 5 summarises changes in the income distribution for selected years between 1990 and 1999–2000. The distributional profile has been summarised with the use of the inequality measures used previously, and several different distributions are shown for each year. The first distribution refers to wage and salary income among full-time individual workers. This has significance because, as Table 2 shows, compensation of employees (which is largely wage and salary income) is the most important source of income—in aggregate and for most households with an employed member. It also allows the degree of inequality that exists among the 'core' labour force to be assessed, and provides a link with the longer-term distributional trend shown in Table 4. The next three distributions–of market income, gross income and disposable income–correspond broadly to the national accounts concepts of primary, gross and disposable household income shown in Table 2. There are some differences in the coverage and accuracy of some income components, particularly those such as imputed rental income and employer superannuation contributions, where it is difficult to collect reliable information in a household survey. Despite these, it is worthwhile to explore several different income measures because this allows the factors contributing to income inequality to be identified and their impact assessed. The units of analysis used to derive the estimates shown in Table 5 are full time workers only for the wage and salary income series and the income unit discussed earlier. The income unit is used on the grounds that the assumption of income pooling is most applicable at this level.

The framework underlying Table 5 allows the degree of income inequality generated in the market to be differentiated from the impact of government transfer and tax programs that influence the distribution of post-transfer, post-tax (disposable) income. Thus, it is possible to assess the distributional impact of social security (and other regular) transfers by comparing the distributions of market and gross income. Similarly, the impact of (personal) income taxes can be assessed by the difference in the distributions of gross and disposable income. The overall impact of the tax-transfer system is reflected in the difference between the distributions of market and disposable incomes.

The final distribution shown in Table 5 adjusts disposable income by an equivalence scale that measures the relative needs of income units of differing size and composition. This adjustment attempts to place all income units on a common metric because it is based on a measure of (disposable) income adjusted for the needs that

have to be met from that income of those who receive it. The equivalence adjustment involves estimating the number of 'equivalent adults' in each family, where children count as less than adults because their needs are lower, and where the needs of a second adult are less than those of the first adult because some costs such as housing and transport can be shared. Family income is divided by the number of equivalent adults in the family to produce equivalent (or need-adjusted) income and the distribution of this measure is then summarised. There is no single equivalence scale that allows this adjustment to be made perfectly. In deriving the estimates in Table 5, the 'OECD equivalence scale' has been used in which the first adult in each income unit is assigned an equivalence value of 1.0, the second adult a value of 0.7, and each child a value of 0.5 (OECD 1982).

The anatomy of inequality, as indicated by how inequality changes as the income concept moves from full-time wage and salary income to market income, gross income, disposable income and equivalent disposable income, displays a consistent pattern in each year. The distribution of wage and salary income among full-time workers appears relatively equally distributed when comparing the columns of Table 5. However, direct comparisons are not possible because the wage and salary data relate to full-time employed workers only, whereas the other columns relate to income units which include adults who are either not employed or employed on a part time basis and children who usually do not have significant income from any source.

TABLE 5 CHANGES IN DISTRIBUTION OF WEEKLY INCOME — 1990 to 1999–2000(a)

Year	*Wage and salary income (b)*	*Market income (c)*	*Gross income (c)*	*Disposable income (c)*	*Equivalent disposable income (c)*
1990					
Gini coefficient	0.224	0.543	0.427	0.375	0.330
Robin Hood index	17.0	39.4	30.9	26.8	23.8
P10/P50	0.607	0.000	0.337	0.386	0.494
P90/P50	1.721	2.806	2.677	2.315	2.081
P90/P10	2.833	..	7.937	6.000	4.215
1994–1995					
Gini coefficient	0.271	0.570	0.436	0.385	0.338
Robin Hood index	18.9	41.7	31.5	27.6	24.4
P10/P50	0.609	0.000	0.344	0.392	0.501
P90/P50	1.775	2.963	2.721	2.415	2.129
P90/P10	2.913	..	7.916	6.157	4.251
1999–2000					
Gini coefficient	0.275	0.572	0.445	0.391	0.346
Robin Hood index	19.3	41.8	32.3	28.1	24.8
P10/P50	0.597	0.000	0.333	0.384	0.498
P90/P50	1.832	3.085	2.839	2.448	2.129
P90/P10	3.069	..	8.517	6.369	4.278

(a) Comparison may be affected by some methodological differences between the survey of 1990 and the surveys of 1994–1995 and 1999–2000.
(b) Covers full-time workers only. Includes wage and salary income from first and second jobs.
(c) Covers all income units.

Source: Income Distribution Survey, 1990, and Survey of Income and Housing Costs, various years, data available on request.

Both social security transfers and income tax exert a considerable redistributive impact, with the former effect being largest. In 1999–2000, for example, social transfers reduced income inequality (as measured by the Gini coefficient) by 22.2%, while income taxes reduced it by an additional 12.1%. In that year, the two main distributive instruments of the welfare state combined to reduce income inequality generated in the market sector by around one-third. Another way of looking at these effects is to compare the amount of income that a hypothetical Robin Hood would have to redistribute in order to remove all inequality. In 1999–2000, Robin Hood would have had to redistribute 41.8% of market income to achieve this goal, but only 28.1% of disposable income. Thus, his task was reduced by about one-third by the impact of the social security and tax systems.

The effect of adjusting for differences in need by using the OECD equivalence scale further reduces the extent of inequality by a considerable margin—approximately equal in magnitude in most years to that produced by the personal income tax system (i.e. by around one-eighth, or 12%). This effect reflects the positive association that exists between income unit size and the level of total income received by the unit. It follows from this association that when the equivalence scale adjustment is made, the incomes of those with low and high incomes both move closer to the middle of the distribution, causing the degree of inequality to decline.

Before looking at the trends (i.e., movements) over time in income distribution (as reflected in the Gini coefficient) shown in Table 5, it is necessary to understand the extent to which sampling error associated with the income distribution surveys affects the statistical significance which can be placed on those movements. The standard error (SE) is a measure which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three (67%) that a sample estimate will differ by less than one SE from the number that would have been obtained if all dwellings had been included, and about 19 chances in 20 (95%) that the difference will be less than two SEs. Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate.

The RSE on the Gini coefficients shown in Table 5 ranges from about 0.8% for wage and salary income up to 1.2% for both gross income and equivalent disposable income. However, the RSE on the *movements* in the table are much higher. The SE on the movements in the Gini for all income measures except wages and salaries are 0.006 or higher. This means that most of the 5-year movements in the Gini between 1990 and 1994–1995 and between 1994–1995 and 1999–2000, are less than two standard errors, and the movements may be solely due to sampling error. The only 5-year movements in Table 5 that are clearly statistically

significant are in wage and salary income and in market income. For the decade as a whole, the movements in the Gini for gross, disposable and equivalent disposable income are a little larger than 2 standard errors.

Trends over time in inequality within each of the income measures shown in Table 5 show that there has been instability in the distributions of the different income measures over the period. Although most show small increases in inequality between the beginning and end of the decade, it is not clear to what extent the increase occurred in the first half of the decade and to what extent in the second half. In the case of wage and salary income of full time workers and market income, the increase in inequality was concentrated between 1990 and 1994-95. The other indicators show a more even rise over the decade – the average annual increase in inequality (as measured by the Gini coefficient) was 2.2% for wage and salary income, 0.56% for market income, 0.45% for both gross income and disposable income, and 0.51% for equivalised disposable income[2].

INTERNATIONAL COMPARISONS

As illustrated by the international comparison over the period 1985 to 1995 given in Table 7, Australia is not unique in having experienced an increase in income inequality. Other countries have faced the same pressures (particularly the increased role of market forces in a deregulatory policy environment) and many (though not all) have seen a widening of their income distributions as a consequence. This past trend to increasing inequality has been described as "one of the most important issues facing our societies and the world as a whole" (Atkinson 1999, p. 1).

How does the increase in (Gini) inequality in Australia compare with that of other countries, and is Australia's reputation as an egalitarian nation warranted? In order to answer these questions, it is necessary to compare income distributions across countries and to rank them in terms of the degree of inequality in each. Such an exercise provides the basis for thinking more systematically about how the causes of income inequality relate internationally to differences in institutional structures and policies.

A series of international studies of income distribution in the 1970s suggested that Australia was a country characterised by relative equality in its income distribution. The most famous of

2 Note that the measures used are sensitive to the underlying concepts and methodology. For example, while the Gini coefficient for gross income used in this article grew by 2.1% between 1994–1995 and 1999–2000, the corresponding measure in *Income Distribution* (ABS, 2001) grew by only 1.1%. Neither increase is statistically significant, given the magnitude of the standard erors. The methodology used for the estimates in this article was chosen to facilitate comparisons between data for recent years and data from 1990 and earlier.

these studies, undertaken by the OECD secretariat, used published data on income distribution to compare inequality in ten OECD countries, including Australia (Sawyer 1976). Using a range of different income measures (before-tax and after-tax; original and per capita household income), the study concluded that Australia, along with Japan and Sweden, had the lowest degree of inequality in its post-tax distribution. At the other extreme were France and the United States, both of which consistently showed up as having most inequality. The study was, however, severely limited by the available data, which restricted the scope for any adjustments that could improve cross-country comparability.

Responding to these criticisms requires having access to microdata at the household level that can be manipulated in order to derive a more consistent set of definitions and operating assumptions. Only then is it possible to determine whether the observed differences in the distributions reflect different statistical concepts and definitions rather than real differences in the underlying inequality profile of each country. As more and more countries have released income distribution data in unit record format, the possibility of imposing a common definitional framework became a practical reality with the establishment in 1983 of the Luxembourg Income Study (LIS). The aim of the LIS project is to gather, in one central location, sophisticated microdata sets containing comprehensive measures of income and economic wellbeing for a group of modern industrialised countries, in order to allow researchers to measure inequality and test ideas about its sources and causes.

The LIS project began with seven countries, to which Australia had been added (along with the Netherlands and Switzerland) by 1989. Data provided by Australia is in the form of confidentialised unit record files. Australia's annual membership fee (which funds the LIS staff and support facilities required to modify and document the data provided, and monitor its access and use) has been provided by the ABS (two-thirds) and the Social Policy Research Centre at the University of New South Wales (one-third). Once Australia had joined the project, access to the LIS data and its full documentation became free to all Australian users. (Readers who are unaware of this possibility and wish to find out more are invited to contact the author for further details.) Since its establishment, membership of LIS has expanded and the project now covers twenty-one countries with three waves of data, covering the mid-1980s (Wave I), around 1990 (Wave II) and the mid-1990s (Wave III).

Although the development and accessibility of the LIS database has been an important vehicle for documenting, comparing and analysing income distribution in different countries, it is limited by the original data on which it is based. Sometimes, it is simply not possible to derive fully comparable data for different countries (or for different time periods in the same country, as

mentioned earlier in this article with respect to Australia) because of the way the data were originally collected. The scope and definition of income varies across time and space, as does the definition of families or households—in the treatment of dependent children and multi-generation households, for example. Different countries also adopt different methods for protecting confidentiality by suppressing data on very low and/or very high incomes and this can influence measured inequality. Finally, there are the problems alluded to earlier that make comparisons of income distribution over time within countries difficult, such as differences in social income, imputed rent or in-kind subsidies that are linked to the consumption of specific items (e.g. housing subsidies). For these reasons, in terms of comparability the LIS data are not ideal, but they are without doubt the best that can be generated given existing data limitations and constraints.

The LIS data have been used in a series of comparative studies of income distribution and how it has changed. They also form the basis of the most comprehensive comparative study of income distribution yet undertaken, commissioned and published by the OECD (Atkinson, Rainwater and Smeeding 1995). The framework developed in that study has been applied to the latest wave of LIS data (relating to the mid-1990s) by LIS Research Director Professor Timothy Smeeding, whose results are now summarised (Smeeding 2000). The extent of inequality in the income

TABLE 6 INCOME DISTRIBUTION, Selected Countries — around 1995 (a)

Country/year	*Gini coefficient*	*P10/P50*	*P90/P50*	*P90/P10*
Sweden (1995)	0.222	0.603	1.562	2.589
Finland (1995)	0.226	0.594	1.591	2.677
Belgium (1992)	0.230	0.588	1.625	2.764
Luxembourg (1994)	0.235	0.591	1.726	2.919
Denmark (1992)	0.240	0.545	1.546	2.840
Norway (1995)	0.242	0.556	1.570	2.825
Austria (1987)	n.a.	0.562	1.623	2.888
Taiwan (1995)	0.277	0.560	1.880	3.357
Netherlands (1994)	0.282	0.555	1.712	3.085
Canada (1994)	0.286	0.473	1.844	3.898
France (1994)	0.290	0.539	1.790	3.321
Germany (1994)(b)	0.300	0.545	1.735	3.185
Israel (1992)	0.305	0.497	2.049	4.121
Spain (1990)	0.306	0.499	1.974	3.958
Japan (1992)	0.315	0.460	1.920	4.174
Australia (1994–1995)	0.317	0.455	1.919	4.222
Switzerland (1982)	0.323	0.545	1.847	3.390
Ireland (1987)	0.330	0.498	2.091	4.196
Italy (1995)	0.346	0.430	2.013	4.685
United Kingdom (1995)	0.346	0.463	2.089	4.515
United States (1997)	0.375	0.380	2.142	5.637
Average	0.290	0.521	1.821	3.583

(a) The unit of analysis used for this table is the household. Therefore the observations are not comparable to those in the earlier tables of this article, where they relate to workers, families and income units.
(b) Refers to West Germany only.

Source: Smeeding, 2000; data provided by the author.

distribution of the countries currently included in the LIS database is summarised in Table 6. (The estimates for Japan in the table were generated within that country to conform to the LIS framework, because Japan is not yet a member of LIS.) The measure used is disposable (after-tax) income at the household level, adjusted for need using an equivalence scale equal to the square root of household size. (This equivalence scale implies that economies of scale within the household unit are considerably larger than is implied by the OECD scale used in Table 5.) The distributions themselves refer to individuals, where each individual is assigned the equivalent income of the household in which they are living. (Further details of these technical issues can be found in the studies cited above.)

The countries have been ranked in Table 6 by the value of their Gini coefficient. Also shown are the percentile ratios that allow inequality at the lower and upper ends of the distribution to be distinguished and compared. The variation in inequality was quite remarkable in the mid-1990s. The Gini coefficient in the lowest ranking country (the United States) was 69% higher than that in Sweden, which had the most equal distribution. Australia ranked sixteenth out of the twenty-one countries included—hardly justifying its claim to egalitarianism, at least in terms of its income distribution. In terms of its Gini coefficient, inequality in Australia was about 43% greater than in Sweden and 15% less than in the United States. It lay about mid-way between Canada and the United Kingdom, with around 10% more inequality than Canada, but 10% less than the UK. The Australian income distribution was very similar to that of Japan, another country whose inequality was considerably higher than had been suggested in Sawyer's original study using published statistics. The percentile ratios shed further light on why the Australian distribution ranked so low in terms of equality. It was inequality at the bottom of the distribution rather than at the top that was

TABLE 7 CHANGES IN INCOME DISTRIBUTION (GINI COEFFICIENTS) — 1985 to 1995

Country(a)	Year	Gini	Year	Gini	Year	Gini	Overall Change
							%
Finland	1987	0.207	1991	0.223	1995	0.226	+9.2
Sweden	1987	0.220	1992	0.229	1995	0.222	+0.9
Norway	1986	0.234	1991	0.234	1995	0.242	+3.4
Luxembourg	1985	0.238	1991	0.239	1994	0.235	-1.3
Germany(b)	1984	0.265	1989	0.281	1994	0.300	+13.2
Netherlands	1987	0.268	1991	0.272	1994	0.282	+5.2
Canada	1987	0.289	1991	0.286	1994	0.286	-1.0
Australia	1986	0.295	1990	0.310	1994(c)	0.317	+7.5
United Kingdom	1986	0.304	1991	0.340	1995	0.346	+13.8
Italy	1986	0.310	1991	0.290	1995	0.346	+11.6
United States	1986	0.341	1991	0.342	1997	0.375	+10.0

(a) Countries are ranked by their Gini coefficient in the initial year.
(b) Refers to West Germany.
(c) 1994–1995

Source: Smeeding, 2000, Table 1.

mainly responsible. This suggests that social security benefits (which are the main source of income for those around the tenth percentile) were relatively low in Australia compared with most of the other countries in Table 6.

Table 7 shows changes in income inequality between the mid-1980s and the mid-1990s for the eleven countries that are included in Waves I-III of the LIS data. Australia fell towards the bottom of the inequality ranking and was one of seven countries where inequality increased by more than 5% over the period (with 70% or so of that increase in the first 5 years and with little change since 1990). Interestingly, the general pattern in Table 7 (with some exceptions, notably Finland and Germany, both of which faced particularly difficult economic problems) is for the increase in inequality between 1985 and 1995 to be greater in countries where inequality was originally highest. Although inequality had increased since 1985 in the majority of countries, it is significant that the increase has not been universal, nor has its magnitude been similar in different countries.

Increasing inequality was therefore not inevitable over this period of increased deregulation and globalisation of financial, capital and product markets. Some countries managed to resist the increase in inequality by the operation of their tax and transfer policies, though nowhere has inequality declined to any noticeable degree. The important point to emphasise is the value of comparisons like those shown in Tables 6 and 7, not only in describing how income distribution varies in different countries, but also in raising important questions about why the differences arise. The LIS project has contributed to the analysis of income distribution by providing the best available statistical basis for making cross-country comparisons and raising awareness that the income distributions of different countries are different. However, the data in Tables 6 and 7 do not show a comparison of real levels of income, nor increases in aggregate and average income to support higher standards of living for all, regardless of changes in income distribution. Nor do the data in these tables capture the impact of public services such as health and education.

CURRENT ISSUES

Australia has made enormous progress in many areas of economic activity during the course of the twentieth century. That progress has resulted in a substantial increase in economic prosperity in which all groups have shared, though to varying degrees. At the same time, there have been major changes in the institutional framework and social conditions that both shape and reflect economic progress. An assessment of the overall impact on living standards requires account to be taken not only of the increase in material prosperity, but also of changes in the social, environmental and cultural context within which the fruits of economic progress are produced, distributed and consumed. An important element of this is how economic product is distributed among members of society, and income distribution is one aspect

of this. The distribution of income provides important information about how economic resources are distributed in society, particularly if income is defined in a broad way.

As the foregoing analysis has shown, however, significant progress over the century in our ability to measure the income distribution, identify its causes and monitor distributional change has evolved only recently. Although there has been a long-standing and intense interest in the topic, appropriate statistics and analytical tools have only emerged over the last three decades. Despite the considerable progress that has been made in this period, there are still many areas where current understanding of the causes and nature of income distribution is in its infancy. Yet the broad picture of rising inequality that has emerged from the statistics and research already conducted has entered the national psyche, with references to a "growing divide" and "poverty in the midst of affluence" a regular feature of media accounts of contemporary Australian society. Unfortunately, these accounts do not always capture the subtleties of the data and the complexities of income distribution measurement and analysis. This situation reinforces the need for more studies of income distribution and for greater effort at disseminating the findings and highlighting their limitations.

While great progress has been made in collecting income distribution statistics in Australia, the debate over living standards calls for more sophisticated measures of income and economic resources. While the rationale for these is undisputed, there are many conceptual and practical problems associated with extending the income measure to include in-kind and non-cash social income. There are already many very valuable Australian studies that explore the distributional impact of these factors, although most of them employ methods that are, at best, rudimentary. More work is needed to assess the sensitivity of findings to alternative assumptions, and to bring the diverse range of estimates that currently exist together into an integrated framework that allows the overall picture to be assessed.

There are also a number of areas of data collection and analysis where there is scope for further improvement. The collection of longitudinal data on income dynamics that follows the income fortunes of the same individuals through time is only just beginning. The significance attached to a particular degree of inequality in the income distribution at a point in time (as measured here) may be less if it is known that there is a considerable degree of mobility in people's incomes and distributional positions over time. Research conducted using income simulations shows that the distribution of lifetime income differs substantially from that of annual income and that the tax and transfer systems are also less redistributive when assessed on a lifetime basis (Harding 1993).

In addition to putting more effort into measuring inequality, there is need for further study of why inequality matters, focusing on the economic and social consequences of inequality. Almost nothing is known about community attitudes to inequality, including what forms of inequality concern people most and what they think should be done about them.

The available statistics on the conventional measures of household income reveal that, while income distribution narrowed in Australia for much of the first three-quarters of the century, incomes became less equally distributed since then. This was primarily due to a growing disparity in market incomes, including wage and salary income and income derived from the ownership of property. In Australia, government action in the form of social security and progressive income taxation moderated levels of inequality. Some see the past rise in inequality in countries like Australia as a consequence of globalisation and technology whereby the demand for (and hence the incomes of) the most highly-qualified workers has increased, while increasingly intense international competition has put downward pressures on the incomes of those with fewest skills. Others have suggested that social conventions have changed in ways that have made growing income disparities more acceptable by reducing the implicit social penalties for breaking traditional norms of pay and income (Atkinson 1999). The former arguments appeal to those who emphasise the role of market forces, while the latter arguments see an important role for social convention, customs and values in the process of income determination.

These debates over the factors contributing to the rise in inequality in income distribution have been greatly facilitated by the increased availability of data that allows income distribution in different countries to be compared. The advent of the Luxembourg Income Study—itself made possible by the collection and release of unit record data by national statistical agencies around the industrialised world—has allowed researchers to explore whether income distribution differs in different countries and, if so, why. The research conducted to date on the LIS database has rejected earlier findings suggesting that the Australian income distribution is among the most equally distributed. That claim has now been shown to apply to the countries of Scandinavia and Northern Europe, with Australian ranking rather low in terms of overall equality—though still well above the position of the other English-speaking countries like the United Kingdom and the United States. One of the most important findings of the research conducted on the LIS data is that the degree of income inequality reflects the role and impact of the tax and transfer systems of government.

It follows from this that how much inequality a society is prepared to accept is something over which it has a choice. This

does not mean that Australia should necessarily select a more equal distribution. The choices made on such matters reflect factors other than moral views about justice and inequality, including incentive structures and how these affect entrepreneurship, competitiveness and productivity and ultimately, economic growth. Income mobility and the dynamics of income over time are also important because they reflect the ability of people to improve their distributional position, and thus influence the acceptability of a given degree of static inequality. If the question of income distribution is put in these terms, the choices become more complex and difficult. This does not mean that income distribution should be abandoned as a policy goal. Instead, it suggests a need for more discussion of what kind of distributional outcome best suits the goals of society as a whole, and about the choices and sacrifices that will have to be made in order to achieve it.

ABS CONTACT

Further information can be obtained by contacting Leon Pietsch on Canberra 02 6252 6098 or e-mail leon.pietsch@abs.gov.au

REFERENCES

- Atkinson A. B. 1999, "Is Rising Inequality Inevitable? A Critique of the Transatlantic Consensus", *WIDER Annual Lectures*, No. 3, World Institute for Development Economics Research, Helsinki.
- Atkinson A. B., Rainwater L. and Smeeding T. M. 1995, *Income Distribution in OECD Countries. Evidence from the Luxembourg Income Study (LIS)*, OECD Social Policy Studies No. 18, OECD, Paris.
- Australian Bureau of Statistics (ABS) 1995, *A Provisional Framework for Household Income, Consumption, Saving and Wealth* (6549.0), ABS, Canberra.
- —1996, *Household Expenditure Survey: The Effects of Government Benefits and Taxes on Household Income, 1993–1994* (6537.0), ABS, Canberra.
- —2001, *Income Distribution, Australia, 1999–2000* (6523.0), ABS, Canberra
- Commission of Inquiry into Poverty 1975, *First Main Report. Poverty in Australia*, AGPS, Canberra.
- Commonwealth Bureau of Census and Statistics (CBCS), *1973 Income Distribution, 1968–1969. Part 1*, Reference No. 17.6, CBCS, Canberra.
- Harding A. 1993, "Lifetime vs Annual Tax-Transfer Incidence: How Much Less Progressive?", *Economic Record*, Vol. 69, pp. 179–92.
- Harding, A 1996, "Recent Trends in Income Inequality" in P. Sheehan, B. Grewal and M. Kumnick (eds) *Dialogues on Australia's Future. In Honour of the Late Professor Ronald Henderson*, Centre for Strategic Economic Studies, Victoria University, pp. 283–305.
- Jones F. L. 1975, "The Changing Shape of the Australian Income Distribution, 1914–1915 to 1968–1969", *Australian Economic History Review*, Vol. 15, pp. 21–34.
- Maddock R. and McLean I. W. (eds.) 1988, *The Australian Economy in the Long Run*, Cambridge University Press, Cambridge.
- McLean I. W. and Richardson S. 1986, "More or Less Equal? Australian Income Distribution in 1933 and 1981", *Economic Record*, Vol. 62, pp. 67–81.
- OECD 1982, *The OECD List of Social Indicators*, OECD, Paris.
- Saunders P. 1993, "Longer Run Changes in the Distribution of Income in Australia", *Economic Record*, Vol. 69, pp. 353–66.
- Sawyer M. 1976, *Income Distribution in OECD Countries*, OECD, Paris.
- Smeeding T. M. 2000, "Changing Income Inequality in OECD Countries: Updated Results from the Luxembourg Income Study (LIS)", in R. Hauser and I. Becker (eds), *The Personal Distribution of Income in an International Perspective*, Springer-Verlag, Berlin.
- Taxation Review Committee 1975, *Full Report*, AGPS, Canberra.
- Yates J. 1991, *Australia's Owner-Occupied Housing Wealth and Its Impact on Income Distribution*, Reports and Proceedings No. 92, Social Policy Research Centre, University of New South Wales.