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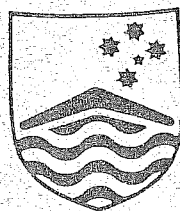
THE DISTRIBUTION OF INCOME AND WEALTH  
IN AUSTRALIA 1914-80:  
AN INTRODUCTION AND BIBLIOGRAPHY

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THE DISTRIBUTION OF INCOME AND WEALTH IN AUSTRALIA 1914-80:  
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1. Introduction

This paper is designed to provide an introductory guide to research and statistics on income and wealth distribution in Australia. It is intended as a guide to further reading for those approaching the subject for the first time and as a review of the Australian materials. As such it is divided into sections which provide an annotated list of references for each of the major areas of research. To assist the new student in gaining a basic background to the subject, the sections on income distribution and wealth distribution are prefaced with a summary of the major findings of the studies listed, and a brief discussion of the data base and methodology used.

Section 1 of this paper provides an introduction to some of the theoretical and ethical issues surrounding the measurement of inequality. It is not often appreciated by researchers working in this area that the selection of an inequality measure for comparative purposes involves an implicit value judgement. The nature of this value judgement is considered here by a demonstration of the link between measures of inequality and notions of ethics (or justice). The implications of this link for the more commonly used inequality measures are discussed. There is also a short list of basic Australian references on distributional matters.

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\* Margaret Vickers commenced this project within the Social Justice Project, RSSH, ANU, and compiled many of the basic materials. Janette Ryan determined the basic structure and wrote the first draft. Rodney Maddock and Nilss Olekalns expanded the content, altered the thrust of the theoretical discussion, and produced the later drafts. The paper is very much the product of a 'committee' but we hope it provides a useful reference document. We would like to thank Norma Chin for her skilful preparation of the manuscript.

Section 2 deals with the distribution of income in Australia. Research in this area has been based on a wide range of data employing a variety of approaches. A superficial but nonetheless indicative guide to the distribution of income is provided by analysis of the distribution of full-year, full-time adult earnings. A discussion of these findings reveals serious statistical omissions which produce an unrealistically egalitarian picture of income distribution. A more realistic image of income distribution is achieved by bringing together the evidence derived from taxation statistics and surveys. Both the major findings and basic methodological shortcomings of this work are briefly discussed.

Section 3 covers what is known about the distribution of wealth in Australia. In spite of the importance of an accurate knowledge of wealth distribution, surprisingly little work has been done in this area. One reason for this is the paucity of data available, itself an indication of the failure of Australian society to come to terms with the full implications of financial inequality. Of course any assessment of wealth requires the evaluation of assets held which is inherently more difficult than measuring income flows. A basic picture of the distribution of wealth can be put together, however, from data derived from estate records and from surveys. The evidence and the problems which emerge in drawing conclusions are briefly presented.

Throughout the text on income and wealth distribution reference is made to statistical sources such as surveys. Section 4 then aims to provide a guide to those sources and indicates other secondary sources which themselves present a useful introduction to the available data.

Any discussion of the distribution of income and wealth necessarily begs the question of the repercussions of inequality and what should be done about it. Work done on the extent of poverty in Australia and on the question of redistributive policy, although beyond the scope of this paper, is introduced in the final two sections.

There are, however, some important caveats to be entered. The generation of income and wealth is a dynamic not a static process. A significant body of social theory suggests that some elements of inequality may be positively beneficial, promoting economic growth and providing access

to higher levels of wellbeing for citizens of the future. If there is any merit to this idea then an optimal level of inequality may be a sensible concept. Rawls<sup>1</sup> for example explores the implications of this item. A second related aspect is that the dynamism of capitalist growth is derived from investment. Two individuals may differ significantly in their income levels but not in consumption, the unconsumed income being used for investment. Should we be concerned with the inequalities of income or with the inequality of consumption? Consumption measures the use people make of the society's resources, investment measures the additions they make to them. Despite these doubts there is an academic tradition of focussing on income and/or wealth and this study fits firmly in that tradition.

General introductory texts on distributional matters accessible to most readers are those of Sen<sup>2</sup> and Pen<sup>3</sup>.

### 1.1 Theoretical Issues

The inequality of income is difficult to describe by a single number but it would be appealing to be able to say that this year it was 4.0, last year it had been 5.0, and things have thus improved. While we can say that the level of income, the average per capita national income, is higher now than it was in 1940 there is no obvious metric for distribution. But in most views the levels of income enjoyed and their distribution are both important indicators of social welfare and while we have a lot of information on levels which can be simply compared we know much less about distribution.

With both levels and distribution there is an important problem of units. Should we consider all persons, all adults, all workers, all families or all households? Even the use of national income per capita to measure levels of income can be misleading across periods when the number of dependents changes dramatically. Thus the highly masculine low-dependant society of Australia in the 1860s, '70s and '80s may not be compared simply

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1. Rawls, J., A Theory of Justice (Harvard University Press, 1971).
  2. Sen, A., On Economic Inequality (Oxford, 1973).
  3. Pen, J., Income Distribution (London, 1971).

with the society of the 1950s replete with baby boom children. Alternatively, income per household may not be a good measure of welfare today when, for a variety of social reasons, the nature of the household is changing. The standard model of an income-earning male cohabiting with non-income earning female and several dependent children which dominated the 1950s has become far less common in the 1980s. Thus the first problem with which one should be concerned in comparisons of wellbeing is consistency of units.

Defining income itself poses the next problem - especially when we use it as a proxy for wellbeing. Leisure can be an important component of wellbeing but one which can be accumulated instead of income. Cleaning of a house, ironing, mowing, cooking, doing home repairs, etc., are all activities which one can choose to do for oneself, preserving one's income to be spent on other things. Should we really measure wellbeing from income rather than from consumption? If two people barter some goods and services their wellbeing rises but not necessarily their measured income. These examples suggest that earned money income is itself removed from the wellbeing we derive from our 'full' income or 'full' consumption. Household income rises as a spouse who previously earned no income shifts into market work but if a large portion of the additional earnings are spent on child care, ironing, prepared foods, etc., surely an income measure would overstate the gain in household wellbeing. Measures of wealth might be restricted to liquid assets but should they not also include the human capital embodied in education or work skills? How full a measure of wealth should we employ?

Just as the problems of units and of how full a definition of income or wealth to use apply to both measures of the level and of the distribution of income so both suffer from problems of finding an appropriate summary statistic. Average income could be replaced by modal income or median income or by measures such as the percentage of people below a poverty line. The measures of distribution most commonly employed in statistics are of course the range, variance (or standard deviation), and the coefficient of variation. These have all been used from time to time as income distribution measures but generally have been discarded.

The bias shown against these measures has arisen because they are

symmetric - a redistribution of income between two rich people having the same impact on the measures as a redistribution between two poor. Implicitly this suggestion is that redistributions in favour of the poor should carry greater weight in our measure.

The point of importance to us here is that the choice between alternative measures of distribution is being made by appeal to a rule that it is more just to give more weight to improvements in the position of the poor in distributional measures. An extreme position might be that of Rawls' second principle - 'social and economic inequalities are to be arranged so that they are both (a) to the greatest benefit of the least advantaged and (b) attached to offices and positions open to all under conditions of fair equality of opportunity' (p.83).

As soon as we measure inequality of income we invite comparisons between different levels of the measure. If the variance of income went down from 5 units to 4 units most people would suggest that the distribution had 'improved'. This improvement might have come about (say) because of a higher income level of the poor or a lower income level of the rich and Rawls at least would complain about this symmetry. Fortunately some recent research has shown that most measures of inequality have implicit a social welfare function which can be examined directly to see how it treats different income earners. For example, the well-known inequality measure the Gini coefficient, which has the daunting looking formula

$$G = 1 + 1/n - 2/n^2 y [y_1 + 2y_2 + \dots + ny_n]$$

where  $n$  = the number of income recipients

$y$  = the average income

$y_1$  = the income of individual recipients

and  $y_1 > y_2 > \dots > y_n$ , that is person  $y_1$  is the richest

and  $y_n$  the poorest,

has implicit the welfare function

$$W(G) = 1/n^2 [y_1 + 3y_2 + 5y_3 + \dots + (2n-1)y_n]$$

This is easier to interpret. Welfare (the  $W(G)$  variable) will be higher as incomes go up. Most importantly, however, the income of the richest person

$y_1$  counts just once while the income of the second richest person is multiplied by three, that of the third by five and so on. The greater importance in the value of the welfare index played by the poor accounts for much of the attraction of the Gini index. Blackorby and Donaldson<sup>4</sup> have shown that most inequality measures can be converted simply to welfare indices of the sort presented here as  $W(G)$ . Expressed in this way as welfare indices we can assess them more easily to see whether or not we like the values implicit in the measures.

To evaluate alternative measures one can use a diagram from Blackorby and Donaldson. This is reproduced as Figure 1. It presents possible allocations of twelve units of income amongst three people. It is a three dimensional diagram with the income of person 1 on the  $y_1$  axis, of person 2 on  $y_2$  and person 3 on  $y_3$ . At point A  $y_1$  has 12,  $y_2$  0 and  $y_3$  0: at B  $y_1$  has 0,  $y_2$  has the whole 12 units, and  $y_3$  also has 0: at C  $y_1$  and  $y_2$  have 0 while  $y_3$  has the 12 units. In the very centre of the triangle ABC each of them has 4 units, i.e. the distribution is (4,4,4). If we assume that nobody has negative income the surface of the triangle contains all possible distributions of the 12 units of income. The points marked  $h_1, h_2, h_3, h_4, h_5, h_6$  indicate the distributions (2,3,7), (2,7,3), (3,7,2), (7,3,2), (7,3,2), (3,2,7). Since these are all equivalent one would expect all distribution measures to treat them as equivalent (assuming no positive discrimination in favour of particular groups) and the common measures such as the Gini or the variance certainly do this. This is the easy part.

The triangle ABC is again presented in Figure 2 this time without the axes. The distributions represented by  $h_1 \dots h_6$  are equivalent distributions and hence should all produce the same welfare measure. The problem, however, is to decide which other distributions of income we should accept as being equivalent to this distribution. For example the (7,3,2) combination produces a Gini coefficient of 0.27. What other combinations produce a Gini of 0.27? One answer is (5.92, 5.08, 1), another is (7.2, 2.52, 2.28). Relative to the distribution (7,3,2) the first of these takes income from both the richest and the poorest persons and gives it to the

4. Blackorby, C., and Donaldson, D., 'Measures of Relative Equality and their Meaning in Terms of Social Welfare', Journal of Economic Theory, 18 (1978) 59-80.



middle one, i.e. it moves into the region E of Figure 2: the second takes from the middle to give to the extremes, i.e. it moves into the R region. Generally movements into R give more income to the rich, movements into E give more to the poor.

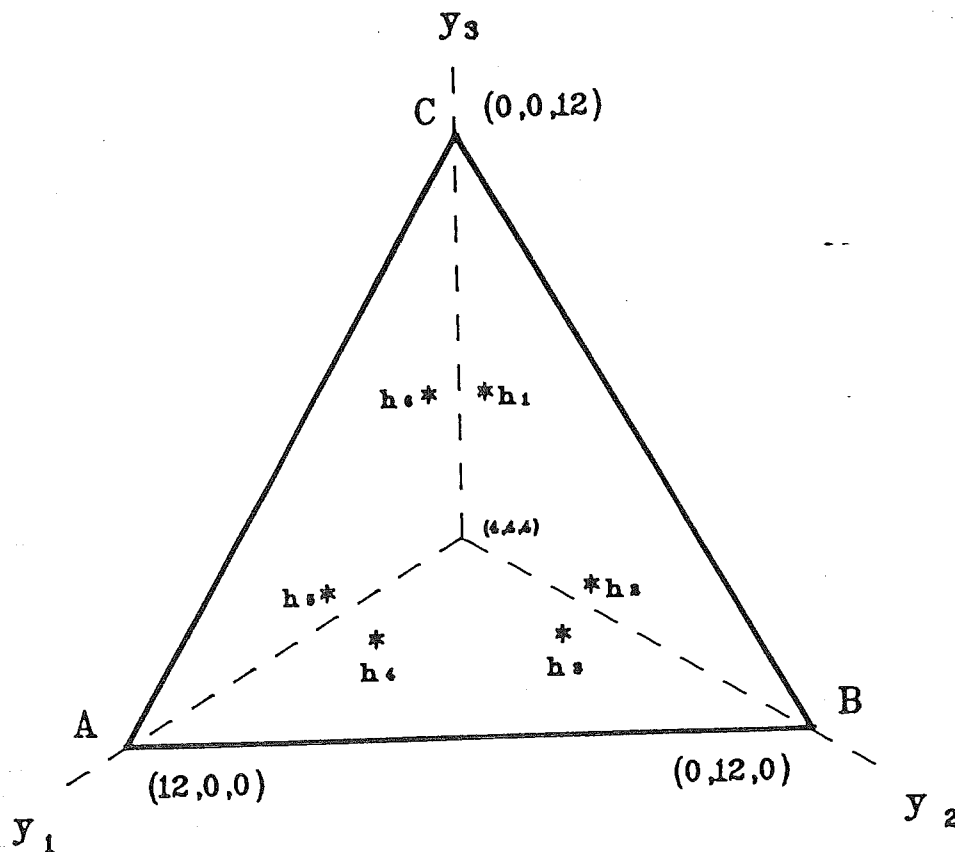


Figure 1: Distributions of 12 units of income.

This diagram can be used to display some characteristics of the Lorenz curve. This curve is simply a cumulative income chart with incomes ranked from the smallest to the largest as shown in Figure 3. If income were evenly distributed it would follow the dotted line rather than the curve. The Lorenz curve is related to the Gini coefficient in that it is equal to the proportion of the area OAS which lies between the curve OMS and the line of equality OS. It is commonly accepted that a shift in OMS towards OS represents an improvement in welfare, while a shift towards OAS represents a diminution. Most texts however caution against interpreting cases where the new Lorenz curve intersects with the old. Thus if one uses the Lorenz curve

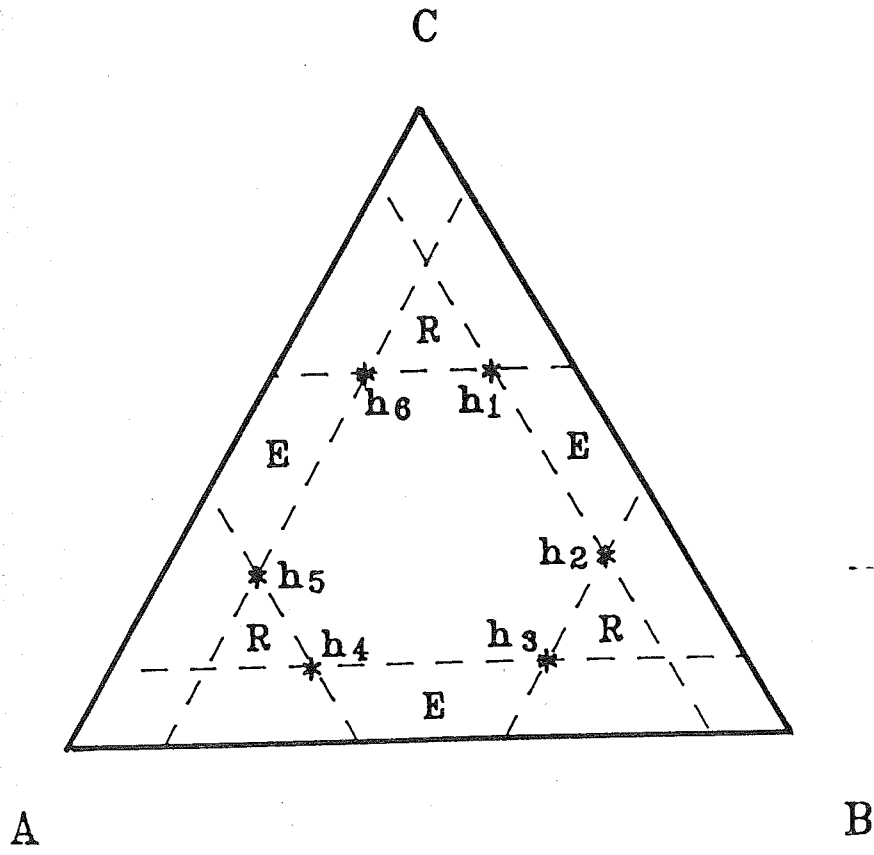


Figure 2: Welfare indifference surfaces for 12 units of income.

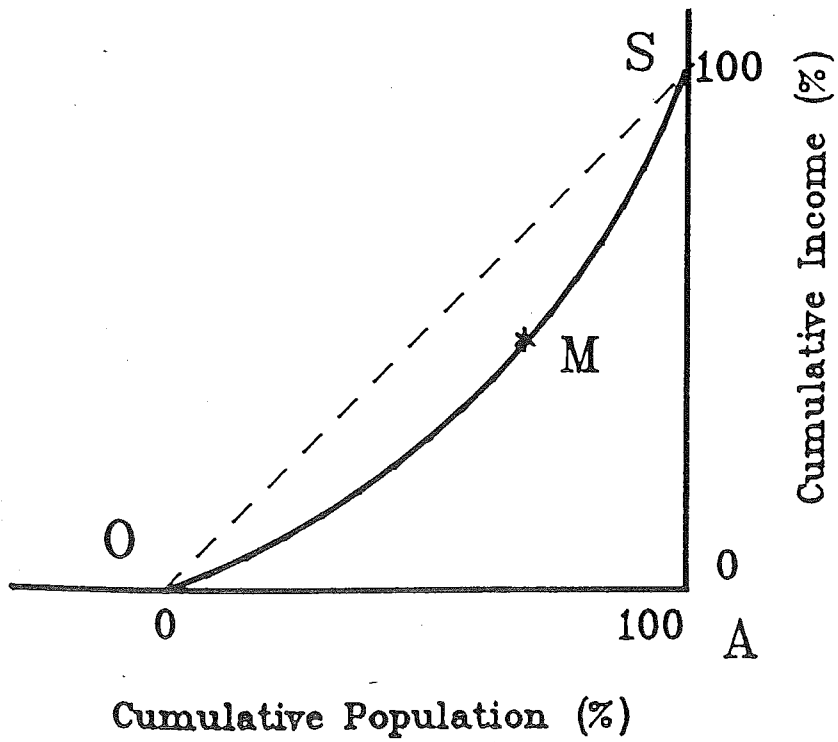


Figure 3: Lorenz curve.

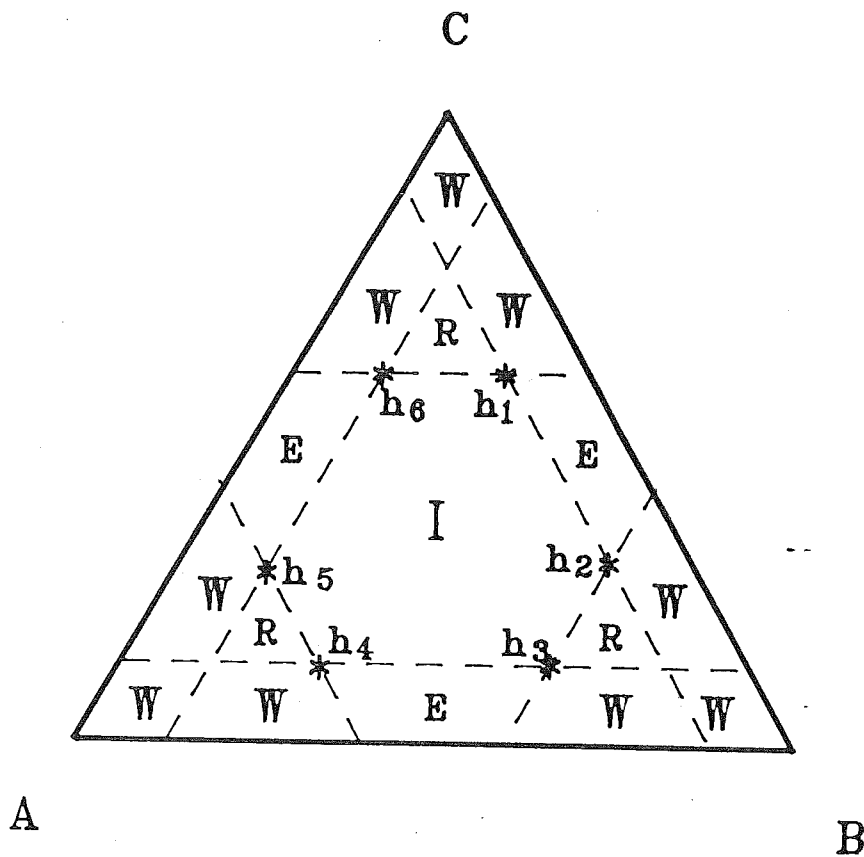


Figure 4: The incomplete Lorenz characterisations.

approach together with this injunction one can divide changes in the distribution into three classes: unambiguous improvements, unambiguous deteriorations or as indeterminate. With the Gini coefficient of course one gets a complete range of values so there are no indeterminate cases.

Figure 4 shows up the nature of the constraint implied by the Lorenz approach. It is a repeat of Figure 2 with slight changes to lettering but represents the same triangle. If we started with a Lorenz curve related to the distribution at  $h_1$  what would be improvements? Only changes which were above the old curve. Since this means that the income of the poorest person cannot fall and the income of the richest cannot rise the only acceptable changes are those into the region marked I. By similar arguments it is clear that a downward shift in the Lorenz curve, an unambiguous worsening of distribution, can be represented by the areas W. The injunction that we should not consider Lorenz curves that cross is simply the injunction that we should not decide whether shifts into E or R raise or lower welfare. This traditionally prohibitive approach of using the Lorenz curve should be discarded in favour of explicit argumentation for the desirability of

measures such as the Gini coefficient. The Lorenz method is not wrong just sadly incomplete.

The Lorenz curve gives an incomplete ordering of distributions from best to worst. Other measures have been developed. Most of these make implicit value judgements about the types of distributions they regard as equal to, better than or worse than any other distribution. They all involve deciding how we should split up the regions R and E. Lorenz is incomplete because of its failure to do this.

One extreme set of value judgements is implied in Rawls' second principle. If we had Rawlsian welfare functions our iso-welfare curves would be triangular. In Figure 5, welfare could only be increased from the point X by movements perpendicularly away from the side BC because only that way do we increase the welfare of the poorest person ( $y_1$ ). Movements parallel to BC (redistributing income between the two richer people) have no effect on the Rawlsian welfare index. The two shifts from X to 'a' and 'b' are quite different but have the same effect on the welfare index because they are both on the same (dotted) iso-welfare line. Rawls would thus imply that we should be very sensitive to shifts in the E regions of Figure 4 and quite insensitive to shifts in R. In Lorenz terms it means we should only be concerned with upward shifts of the left-hand element of the curve.

How do our standard measures, the coefficient of variation, the Gini coefficient and for a Cobb-Douglas coefficient,<sup>5</sup> stand up to these types of iso-welfare contours. The complete indifference as to whether changes are made to rich or to poor is obvious for the coefficient of variation from Figure 6. By contrast the Gini coefficient is quite sensitive to changes in the region R but much less so to those in the region E than is the Rawlsian measure. The Cobb-Douglas has a most satisfying property. When incomes are nearly equal it is close to circular but as the distribution becomes more and more skewed it becomes more and more Rawlsian. Unlike the Gini and coefficient of variation it says that if income is very unevenly distributed then improving the distribution among the not-poor will have little

5. This latter has the formula  $CD = \prod_{i=1}^n (y_i/\mu)^{1/n}$ , where  $\Pi$  indicates the product of the 'n' terms  $(y_i/\mu)$ . This is a special case of the Atkinson measure.

influence on welfare. If income is evenly spread it will have a greater effect on our measured welfare. The other weakness of the Gini is of course the fact that its 'pointiness' is an indicator of its greater sensitivity around points of equality of income between any two members than in other regions.

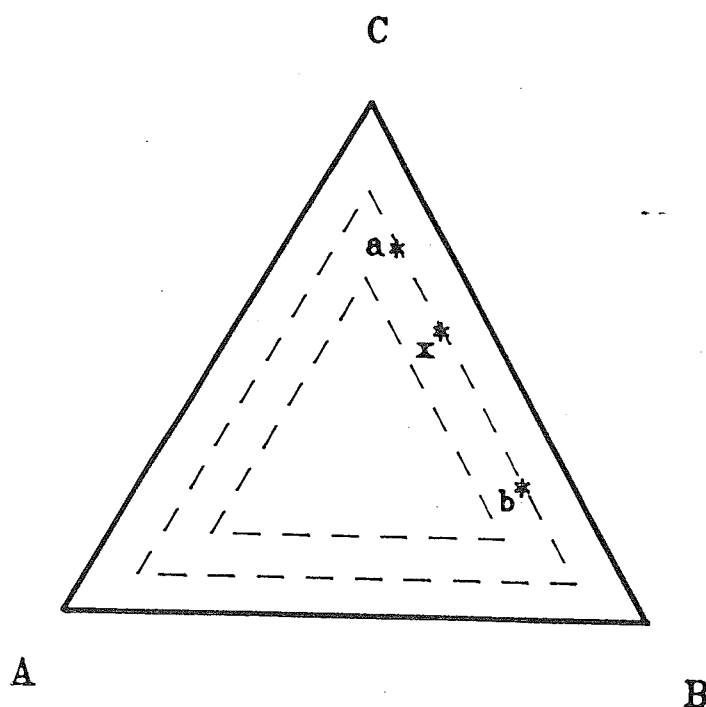
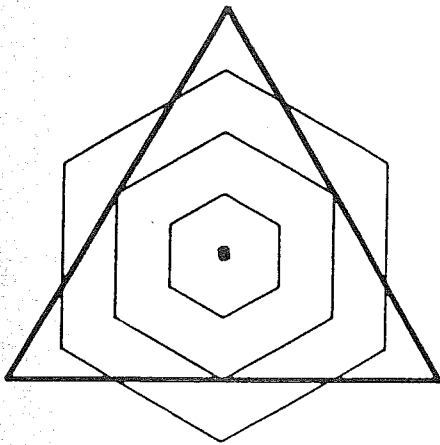
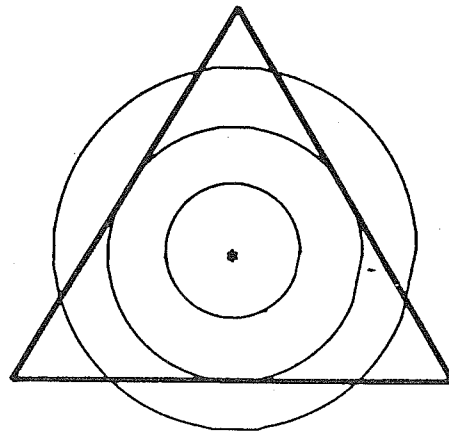


Figure 5: Rawlsian iso-welfare lines.

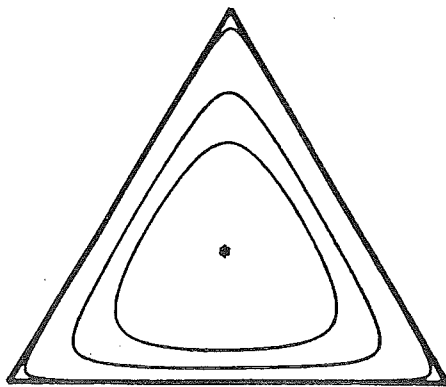
In conclusion of this line of argument we can see some choice which must be made. Any index of inequality implies some ethical judgements about which sorts of inequality are preferred. Rather than assuming that the coefficient of variation or the Gini coefficient is an ethically neutral measure we should consider the welfare implications of the measures. Blackorby and Donaldson have enabled us to make these comparisons quite easily and lead to the conclusion that the Gini measure which has been widely used in the literature implies some unusual ethical premises.



(a) Gini



(b) Coefficient of Variation



(c) Cobb Douglas

Figure 6: Iso-welfare lines implied by various indices.

## 1.2 Some Australian Overview References on Income and Wealth Distribution

Where possible we have tried to provide a standard format to annotated references below. '(Ab. prov.)' following the reference indicates that we have included an abstract supplied by the author. In addition, where the reference contains original empirical work concerning the distribution of income/wealth, we have provided a precis on the basis of:

income/wealth unit  
time period  
data source  
and inequality measure.

1. Australian Bureau of Statistics, 'Income and Social Security', in Social Indicators No. 3, Canberra, AGPS, 1980.
  - i. Income Unit: a) individuals  
b) income units (i.e., married couple income units, one-parent income units and one-person income units)
  - ii. Time Period: 1973-74
  - iii. Data: Income Distribution Australia, 1973-74, Parts 1, 2 and 3, Australian Bureau of Statistics, Canberra (6502.0, 6503.0 and 6504.0)
  - iv. Inequality Measure: relative frequency distribution, mean and median income, income shares of deciles, Lorenz curve, Gini coefficient

A concise presentation and review of statistical data (primarily for 1973-74) relating to the distribution of income and to characteristics of income units at different income levels. Attention is focussed on persons in the lower end of the income distribution and on those whose income is derived principally from the Government social security system. Presents data firstly for individuals as income recipients and secondly for 'family' groups, emphasising the concept of the spending unit. Emphasis is on inequality rather than inequality in income distribution. Detailed data on recipients of social security payments and the type of benefits received are also presented.

2. Berry, M.J. 'Inequality', in Australian Society: A Sociological Introduction, A.F. Davies, S. Encel and M.J. Berry (eds.), 3rd ed. (Melbourne, Longman Cheshire, 1977).
- i. Income Unit: a) taxpayer  
b) family
  - ii. Time Period: a) 1922-23 - 1972-73  
b) 1968-69
  - iii. Data: a) Before-tax income detailed in various reports of the Commissioner of Taxation  
b) Income Distribution Australia, 1968-69 Parts 1, 2, and 3, Australian Bureau of Statistics, Canberra (6502.0, 6503.0 and 6504.0)
  - iv. Inequality Measure: a) Lorenz curve  
b) Percentile shares

The chapter provides an introduction to the issue of inequality in Australian society. The concept of inequality and its emergence from both the economic and sociological tradition is first discussed. Basic data showing the extent of inequality are presented along with a critical review of the major studies on income and wealth distribution in Australia. A brief discussion on some methodological problems inherent in these studies is included. International comparisons of income and wealth distribution are given, and a note is made of the impact of government policies. Competing theoretical arguments as to the causes and the morality of inequality are summarised.

3. Head, B.W. 'Inequality, Welfare and the State: Distribution and Redistribution in Australia', Australian and New Zealand Journal of Sociology, 16 (1980) 44-51.

This paper is concerned to place the Australian debate on income levels and welfare in a wider context of arguments about the post-war welfare state. Data from previous studies are summarised on the distribution of wealth and income in Australia. Further data is presented on the extent to which redistribution of income and wealth is achieved through state activities: especially through taxation, income maintenance, and public goods. These data are related to debates concerning the objectives and methods of redistribution advocated by various political parties; and an



argument is presented for the need to analyse 'welfare' measures to a broader theory of state activities.

4. Piggott, J. 'The Distribution of Wealth in Australia: A Survey', Centre for Economic Policy Research Discussion Paper No. 93 (1984), 44 pp.

This is easily the best source on wealth distribution in Australia. It is both comprehensive and critical, surveying all the major sources from the mid-nineteenth century to the present. It lays bare the major weaknesses of the estate multiplier method, the biases of surveys and the difficulties posed in employing the investment income method. It demonstrates quite convincingly that the wealth distribution in Australia is no less skewed than that of many other countries.

5. Richards, G. 'Income Distribution', Economy in Operation, 4 (1980) 67-77.

- i. Income Unit: family
- ii. Time Period: 1968-69, 1973-74
- iii. Data: a) Income Distribution, 1968-69: Consolidated and Revised Edition, Australian Bureau of Statistics, Canberra (6505.0)  
b) Income Distribution Australia, 1973-74, Parts 1, 2, and 3, Australian Bureau of Statistics, Canberra (6502.0, 6503.0 and 6504.0)
- iv. Inequality Measure: Percentile shares

A clear and comprehensive introduction to the concept of income distribution. Discusses bases for variations in wage earnings, presents recent ABS data on individual and family incomes, and provides a simple outline of the 'human capital' approach to explaining the observed income distribution. Redistributive measures, taxation and social welfare, and the guaranteed minimum income approach are also briefly reviewed.

6. Richardson, S. 'Income Distribution, Poverty and Redistributive Policies', in Survey of Australian Economics, F.H. Gruen (ed.) (George Allen & Unwin, 1979). (Ab. prov.)

The paper provides a review of what economists have written about the distribution of income in Australia in recent decades. Earnings are

distinguished from income. Most of the discussion is focussed on the shape of and changes in the distribution of income between individuals, variously grouped, rather than between the factors of production (or labour's share of output). There is substantial discussion of the major enquiries and policy debates of the 1970s, such as those concerned with poverty and income support for the aged. Most attention is given to the circumstances of the 1970s. For earlier periods, paucity of data has severely limited research, though some comparisons over time and across nations are offered.

7. Kakwani, N.C. 'Conceptual Problems in the Analysis of Income Distribution in Australia', Working Paper No. 26, Centre for Applied Economic Research, University of New South Wales, 1981.

This working paper deals with the issues concerning the measurement of the distribution of economic welfare in Australia. It focusses on the distribution of income among individuals, households and other units. Discussion is centred on those questions of a conceptual nature which arise when money income is used as a measure of economic welfare. The measurement issues dealt with are the income recipient unit, the income concept, the household net worth or wealth, the time period of measurement, voluntary leisure, and the differing needs of recipient units. Australian data is referred to where possible.

8. Ingles, D. 'Statistics on the Distribution of Income and Wealth in Australia', Research Paper No. 14, Development Division, Department of Social Security, Canberra.
- i. Income Unit: individual, wage and salary earner, household
  - ii. Time Period: 1915-1981
  - iii. Data:
    - a) 1915 War Census
    - b) 1933 Population Census
    - c) Income tax statistics
    - d) Estate duty statistics
    - e) Edwards, H.R., Drane, N.T., and Yates, R.C., The Australian Survey of Consumer Expenditures and Finances 1966-68 (Macquarie University and University of Queensland)
    - f) ABS Income Surveys, 1968-69, 1973-74, 1978-79 and 1981-82
    - g) National Survey of Income, 1973

- h) ABS Household Expenditure Surveys 1974-75 and 1975-76
  - i) ABS General Social Survey 1975
  - j) ABS Censuses of Population and Housing 1976 and 1981
- iv. Inequality Measure: percentile shares

This paper provides a comprehensive guide to the major sources of statistical information on the distribution of income and wealth in Australia. A brief discussion of methodological issues involved in interpreting wealth/income data is presented. Each major source of data, from the 1915 War Census to the 1976 and 1981 Censuses of Population and Housing is then discussed. The implied income or wealth distribution from these sources is given. International comparisons are also made.

## 2. The Distribution of Income in Australia

### 2.1 The Distribution of Earnings

In the financial year 1973-74 there were 8.7 million income recipients in Australia and their mean annual income was \$3,980. The Gini coefficient was relatively high at 0.47, indicating extensive inequality among individual income recipients. But the degree of inequality among the 4.4 million full-year full-time workers was considerably lower. Their mean income was \$6,060, and the Gini coefficient was just 0.27.

In comparison with the total population, full-year full-time workers therefore comprise a relatively homogeneous group who are, on the whole, more affluent than those not in the workforce. For example, in 1974-75 the mean income of social security beneficiaries was \$870 - less than one-fifth of the mean income of wage and salary earners. As Murray<sup>6</sup> found, more than half the observed inequality of Australian family incomes could be attributed to the fact that different families contain different numbers of earners.

Yet despite the relatively favourable position of full-year full-time

6. Murray, D., 'The Inequality of Household Incomes in Australia', Economic Record, 57 (1981) 12-22.

workers, substantial inequalities are apparent within this group. Table 1 presents data on the dispersion of earnings in 1971, which is the only year for which data on both managerial and non-managerial employees has been published. In this table the median non-managerial wage represents only 63 per cent of the median managerial wage, and managerial wages are widely dispersed whilst non-managerial wages are relatively compressed. The degree of dispersion or compression is shown by recording the percentage of the median wage earned by persons at certain percentile points in the distribution. For example, non-managerial employees in the bottom decile earn up to 71 per cent of the median non-managerial wage, whilst the top 15 per cent of them earn more than 141 per cent of that amount. The relative diversity of managerial employment together with its hierarchical structure ensure that managerial salaries are much less compressed.<sup>7</sup>

Table 1

Dispersion of earnings in Australia 1971: full-time adult males.  
Percentiles as percentages of medians

Percentile Point	Non-managerial Employees	Managerial, etc. Employees	All Employees
10	71.2	65.4	68.2
25	82.6	79.2	80.4
75	125.0	128.8	128.2
85	141.7	149.8	n.a.
(Median, \$ per week)	82.4	130.6	87.7

Source: ABS Survey of Weekly Earnings (Size Distribution), May 1971.

The existing data are inadequate to determine what changes might have occurred in the relationship between the levels of managerial and non-managerial wages over time. As a result, Australian studies on earnings distribution are largely concerned with changes in the degree of dispersion

7. Lydall, H., 'The Economics of Inequality', Australian Bulletin of Labour, 2 (1976) 24-52.

and compression of male non-managerial wages, and the effects of the Arbitration Commission in regulating such change.

The ABS supplies data on wage rates in two forms: statistics on the minimum wage rates payable for specific occupations (presented annually since 1913 in the Labour Report series) and data on the distribution of earnings by industry group (reported in the Survey of Weekly Earnings for selected years since 1960). Analyses of both sources support the conclusion that over the years from 1914 to 1975 there has been no obvious long-term trend in the dispersion of occupational earnings.

The successive stretching and compressing of the wage structure can be related to variations in award rates granted by the industrial tribunals, and to changes in the amount of overtime work available.<sup>8,9</sup> When margins are held constant, increases in the basic wage result in compression; this is particularly noticeable when inflation is high. The availability of overtime work during periods of economic expansion results in greater dispersion, which is reversed when the economy contracts.

These factors produce significant short-run fluctuations in the degree of dispersion, but in the long run, according to Norris (1977, p.484) 'we can conclude that the dispersion of earnings in Australia is probably very little different to that of sixty years ago', But as Norris continues, in the absence of proper information about the full range of occupations, 'the possibility cannot be ruled out that, as in Britain, professional workers lost ground to other workers, causing the overall dispersion to narrow.'

This century, however, the ratio of female to male earnings has increased dramatically.<sup>10</sup> In this area the decisions of the Arbitration

8. Hancock, K., and Moore, K., 'The Occupational Wage Structure in Australia Since 1914', British Journal of Industrial Relations, 10 (1972) 107-122.

9. Norris, K., 'The Dispersion of Earnings in Australia', Economic Record, 53, No. 144 (1977) 475-489.

10. Jones, F.L., 'Sources of Gender Inequality in Income: What the Australian Census Says', Social Forces, (1984).

Commission have been critical. The effects of the 1947 decision to raise the wage rate relativity from 54 to 75 per cent and the 1972 decision to introduce equal pay for work of equal value were marked. The effect of the latter can be seen in the results of the three income surveys carried out by the ABS between 1968-69 and 1978-79. In 1968-69 the female-male ratio for average earnings among full-time full-year workers was 56 per cent; by 1978-79 it had risen to 72 per cent. Despite this dramatic improvement, the elimination of formal discrimination has not closed the income gap between male and female earnings. Jones<sup>11</sup> argues that the persistence of this income gap is due partly to the segregation of women into lower paid occupations, and partly to their discontinuous career patterns and part-time employment.

Of the various sources contributing to household income, earnings are by far the most important. Kakwani<sup>12</sup> shows that they comprise 88 per cent of mean income. But since high-level earners are more likely than low-level earners to augment their incomes with capital gains from investment and property, the inequalities of income will exceed those of the earnings distribution.

## 2.2 The Distribution of Income

Information on the distribution of earned income is available through taxation statistics and survey data, and it has formed the basis for a number of studies. Both sources of data, however, have deficiencies. Broadly speaking these deficiencies arise because the group included in the study do not represent adequately the population generally and because one may reasonably suspect that the amounts declared are understated, especially by the wealthy. The rich may under-declare the true value of their incomes since capital gains, imputed rent and fringe benefits are excluded by definition. The effect of these inaccuracies will become clearer in the following sections, which attempt to outline the results that have been achieved using taxation statistics and survey data.

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11. Jones, *ibid.*

12. Kakwani, N.C., Income Inequality and Poverty (Oxford University Press, 1980).

### 2.2.1 Income Distribution Data Based on Taxation Statistics

Data on the declared taxable incomes of males and females are available through the Annual Reports of the Commissioner for Taxation from 1915-16 to the present. Despite their deficiencies, these are the only annual statistics covering the whole period, and have therefore provided the basis for a number of studies on changes in individual income distributions over time.<sup>13,14,15,16</sup> They were also used by Lydall<sup>17,18</sup> in his well known comparative studies of the earnings distribution of Australian workers and those in other countries. In this study he claimed that 'the most equally distributed countries (in terms of employment income) are the two communist countries - Czechoslovakia and Hungary - and the two countries of Australasia' (1968, p.156). But this endorsement of the belief in Australian egalitarianism is not supported by later studies which used more broadly based survey data.<sup>19,20,21</sup>

There are four major problems in using income tax statistics to measure the dispersion of individual incomes. First, individuals who receive income below the tax threshold are not required to lodge a return. This removes

13. Hancock, K.J., 'The Economics of Social Welfare in the 1970s', in H. Weir (ed.), Social Welfare in the 1970s (ACOSS, 1970).
14. Berry, M.J., 'Inequality' in Davies, A.F., and Encel, S., Australian Society, A Sociological Introduction (Third Edition) (Longman Cheshire, 1977).
15. Ternowetsky, G.W., 'Taxation Statistics and Income Inequality in Australia: 1955-56 to 1974-75', A.N.Z.J.S., 15, No. 2 (1979) 16-24.
16. Butlin, N.G., 'Trends in Australian Income Distribution: A First Glance', Department of Economic History, Research School of Social Sciences, ANU, Working Paper No. 17, September 1983.
17. Lydall, H., 'The Dispersion of Employment Incomes in Australia', Economic Record, 41 (1965) 549-569.
18. Lydall, H., The Structure of Earnings (Oxford University Press, 1968).
19. Sawyer, M., 'Income Distribution', OECD Occasional Studies, Paris, 1976.
20. OECD, Public Expenditure on Income Maintenance Programmes (OECD, Paris, 1976).
21. Beckerman, W., Poverty and the Impact of Income Maintenance Programmes (ILO, Geneva, 1979).

some of the poorest members of the population from the statistics and is one of the reasons for the apparent 'equality' of the taxation distribution.<sup>22</sup> Second, since the rich gain most from the misrepresentation of taxable income, they are prone to submit inaccurate declarations, to engage in income splitting and to arrange their affairs so that income is converted to capital gains or placed in discretionary trusts. The effect of this is illustrated by a comparison of Gini coefficients based on 1973-74 taxation statistics with corresponding ABS survey data. As Table 2 shows, the taxation data result in a much more egalitarian distribution than do the survey data. This probably arises from the under-declaration of high incomes and from the exclusion of the poor from the taxation distribution.

Table 2  
Gini coefficients based on taxation statistics  
and survey data for 1973-74

	Taxation Statistics (a)	Survey Data (b)
Men	.286	.346
Women	.309	.535

Sources: (a) Ternowetsky (1979), Table 1, p.19.

(b) ABS, Income Distribution 1973-74 (6502.0) (revised in 1978-79: see 6501.0).

Third, income tax statistics do not distinguish data from different sources, so that changes in the nature of the distribution from one year to the next may be difficult to interpret. For example, an increase in women's workforce participation may result in an increase in inequality if the new entrants to the labour market work part-time or for only part of the year. To avoid these complications some researchers (e.g., Hancock, 1970) have restricted their analyses to the distribution of male incomes.

22. Ternowetsky, G.W., 'Taxation Statistics and Income Inequality in Australia: 1955-56 to 1974-75', A.N.Z.J.S., 15, No. 2 (1979) 16-24.



Finally, the definition of what is taxable and who must pay also changes from time to time. For example in 1972-73 the exemption threshold was raised from \$450 to \$1,200. As a result, 9.8 per cent of the population paid no tax in the following year and the Gini coefficient for male incomes dropped sharply from 0.356 to 0.312. Changes in policy regarding the taxability of pensions, the removal of concessional rebates and other changes in the definition of what is taxable also reduce the reliability of cross-time comparison. Changes in taxation concessions to primary producers may also be significant.

### 2.2.2 Income Distribution Data Based on Survey Statistics

Survey statistics provide a more reliable source of data on the distribution of income. Whilst sampling errors will still occur, the bias is generally less systematic than that associated with taxation statistics. Household surveys cover a broader population than wage earner surveys, and they are more likely to include the poor, who mostly earn no wages and often pay no tax. Moreover they provide a more valid measure of individual incomes than is available through wage rate and taxation data, since they include income from all sources (e.g. earnings from property, social security benefits, etc.).

As with measurements based on earnings, however, an assessment of the money incomes of individuals alone does not adequately measure the extent of poverty or the degree of inequality in a society. An alternative which helps fill out the picture is obtained by examining the economic wellbeing of income sharing units, i.e. households.<sup>23</sup> This involves obtaining measures of the total income and wealth of such units, together with the income which flows from assets such as the owner-occupied home. The degree of economic wellbeing of the individuals in any income unit depends not only

23. Although see Edwards, M., 'Financial Arrangements within Families', Social Security Journal, (Dec. 1981) 1-16 on the question of how extensive income transfers within the family actually are. The payment of family allowances to mothers rather than families clearly recognises the existence of such a problem. Again provision of food stamps rather than income supplements complicates the issue.

on the total income and assets of the unit but also on its composition and size, the uncontrollable expenses it incurs, and the extent to which incomes and costs are actually shared within the unit. The various surveys conducted over the past fifteen years have attempted in different ways to come to terms with these problems.

There are six main sources of survey data on the distribution of individual and household incomes in Australia:

- (a) Australian War Census, 1915;
- (b) Commonwealth Census, 1933;
- (c) Survey of Consumer Finances and Expenditures 1966-67;
- (d) National Survey of Income 1973;
- (e) Australian Bureau of Statistics Surveys -
  - (i) Income Surveys 1968-69, 1973-74, 1978-79;
  - (ii) Household Expenditure Surveys 1974-75 and 1975-76
- (f) Commonwealth Censuses, 1976 and 1981.

- (a) Australian War Census, 1915

The Australian Government undertook the War Census in order to identify the pool of males of war-service age and to provide a list of all individuals whose wealth exceeded £1,000. Such persons were sent a war loan appeal. Both income and wealth data were collected. All persons aged eighteen years and over were required to return the census form. Resource constraints meant that individuals responsible for filing the returns were required to collect the forms and post them to the Statistician. Jones<sup>24</sup> has estimated that the response rate was of the order of 92 per cent.

Apart from the failure to elicit a 100 per cent response rate, the major problem with the Census is the probable understatement of wealth and income by respondents fearing taxation. Losses caused by drought may also have produced some understatement. Clark<sup>25</sup> suggests that the true aggregate

24. Jones, F.L., 'The Changing Shape of the Australian Income Distribution 1914-15 and 1968-69', Australian Economic History Review, 15 (1975) 23.

25. Clark, C., The Conditions of Economic Progress (Macmillan, 1957), p.92.

income figure may have been over 20 per cent higher than the figure indicated by the Census. If this understatement is distributed randomly across respondents, distributions derived from the Census still provide an accurate picture of the extent of inequality present in 1915. However, drought losses, affecting wealthy farmers, and the progressivity of income tax suggest that much of the understatement would have been concentrated among the rich.

(b) Commonwealth Census, 1933

The general population census of 30th June 1933 included, for the first time, a question asking for details of individual income. Respondents were required to indicate the amount of income or earnings they received for the year ended 30th June 1933. Income was defined as salary or wages plus income derived from property and other sources. Respondents were not required to state their actual income but were directed to place themselves into one of seven income groups. Apart from a brief discussion by Cowper,<sup>26</sup> there appears to have been little empirical work based on the census although it is currently being reassessed by Ian McLean and Sue Richardson of the University of Adelaide.

(c) Survey of Consumer Finances and Expenditures 1966-67

This important pioneering survey (frequently referred to as the Macquarie Survey) was undertaken by Professors Edwards, Drane and Gates under the auspices of the Macquarie and Queensland Universities. It provides a comprehensive picture of the assets, liabilities, income and expenditure patterns, along with a range of socio-demographic characteristics of a sample of urban households.

While it is clear that the Macquarie Survey data has a number of important advantages over income tax or estate duty data, it appears that the survey approach may have given rise to inaccuracies which are likely to

26. Cowper, N., 'The Census and Social Conditions', in G.N. Portus (ed.),

What the Census Reveals (Adelaide, 1936).

be significant. First, since the actual design of the survey sample is not available, the standard error of any given observation cannot really be specified. Second, doubts have been raised about the relatively small size of the sample and the resultant possibility of large standard errors of estimates, particularly where the sample is broken down by various characteristics. Third, the survey's definition of a 'household' did not take account of the degree to which these units actually share incomes and costs. A fourth disturbing aspect of the survey is the very large discrepancy between the income and expenditure of the lower income groups.

Despite these reservations about the accuracy of the data, the Macquarie Survey is still the only one ever undertaken in Australia which combines data on amount and source of income, wealth, expenditure and tax. As such it has been the basis of several studies which have attempted to draw conclusions as to the distribution of income in Australia after aspects such as taxation and unearned income have been taken into account.<sup>27,28,29</sup>

In a substantial and very influential study on the distribution and redistribution of household income in Australia (undertaken for the Taxation Review Committee, 1975) Podder and Kakwani looked at the combined impact of government cash benefits, the taxation system, and the inclusion of imputed rent on the level of income inequality. They found that when these factors were taken into account the income share of the lowest two deciles was significantly raised. This is shown in Table 3.

When this data is converted into concentration ratios (or Gini coefficients) the impact of the three factors on income inequality is more clearly displayed.

27. Podder, N., and Kakwani, N.C., 'Distribution and Redistribution of Household Income in Australia', from Taxation Review Committee, Commissioned Studies (AGPS, Canberra, 1975).
28. Podder, N., 'Distribution of Household Income in Australia', Economic Record, 48 (1972) 181-200.
29. Podder, N., The Economic Circumstances of the Poor, Australian Government Commission of Inquiry into Poverty Research Report (AGPS, Canberra, 1978).

Table 3  
Shares in Deciles

Decile	Original	Gross	Disposable	Disposable
	Income	Income	Income	Income + Imputed Rent
	%	%	%	%
1st	0.01	2.07	2.23	2.64
2nd	2.91	4.24	4.54	4.89
3rd	6.26	6.25	6.49	6.54
4th	7.48	7.34	7.58	7.72
5th	8.58	8.38	8.57	8.68
6th	9.76	9.49	9.61	9.69
7th	11.09	10.79	10.87	10.88
8th	12.92	12.48	12.42	12.42
9th	15.62	15.00	14.71	14.54
Top	25.36	23.94	22.97	22.00
Total	100.00	100.00	100.00	100.00

Source: Podder and Kakwani, 1975, Table 8.

Table 4  
Inequality Measures

	Concentration Ratio
Original Income	.368
Original Income minus Income Tax	.353
Gross Income	.321
Disposable Income	.305
Disposable Income plus Imputed Rent	.287

Source: Derived from Podder and Kakwani, 1975, Table 9.

Podder and Kakwani conclude that cash benefits have the greatest equalising impact on income distribution and that while income tax is redistributive, its impact is significantly less. Indeed they make the point that the redistributive role of progressive income tax appears to have been exaggerated. Clearly these findings have major policy implications for the taxation/social security systems.

(d) National Survey of Income 1973

This survey was undertaken by the Australian Bureau of Statistics in August 1973 for the Commission of Inquiry into Poverty (1975) and hence is often referred to as the Poverty Survey. Incomes were recorded for the year 1972-73 in addition to current weekly incomes.

In addition to providing current income data, the survey also collected detailed information on those at the bottom of the income scale by net income and before and after housing costs. The survey did not, unfortunately, collect data on interest and dividends for those above a cut-off related to the poverty line for each size of family. These data can be obtained, however, from the First Main Report (Appendix 6, Volume 2, p.64) of the Commission of Inquiry into Poverty where figures showing imputed interest and dividends and gross income are given.

The connection of this income distribution survey with the Commission of Inquiry into Poverty has been particularly useful in allowing a preliminary examination of the movement of people in and out of low income deciles. While pointing out that a longitudinal rather than cross-sectional survey would be essential to draw out conclusive results, Cox<sup>30</sup> concluded that the implications of the data collected in this survey were consistent with the view that much poverty in Australia is temporary.

30. Cox, J.P., 'The National Survey of Income, Income Distribution and Temporary Poverty', Economic Record, 52 (1976) 423-442.

(e) Australian Bureau of Statistics

(i) Income Surveys 1968-69, 1973-74, 1978-79

The first of these surveys was carried out in November 1969 when questions on income for the year 1968-69 were asked of persons aged 15 years and over in a sample size roughly equal to 0.5 per cent of the Australian population (i.e. about 19,000 private dwellings and some non-private dwellings). Questions also covered educational qualifications, level of schooling and labour force experience during the year.

The income definition was basically gross income before taxation and other deductions from all sources. No information was collected on income tax paid, which means that an analysis based on adjustment to disposable incomes requires assumptions about the level of tax payable by each family unit, by income class.

Data on the distribution of income is published for individuals (males and females) and families separately. The concept of 'family' which was used included the head, spouse, and unmarried children of any age living at home, as well as any other unmarried near relatives living in the same household. This definition of families excluded single people not living with relatives or offspring. Since no income distribution data has been published for these 'non-family individuals' it is not possible to derive a complete picture of the overall income distribution in 1968-69. This information is, however, provided in the 1973-74 survey, and its inclusion can be seen to markedly affect the overall distribution of family incomes thus derived.

The 1973-74 income survey was similar in terms of sample size to the 1968-69 survey but it used a narrower definition of the income unit than the earlier one. Basically, it categorised respondents into either 'married couple' (including dependent children), 'one parent' or 'one person' income units. This definition approximated that used by the Commission of Inquiry into Poverty (1975) and is more useful for policy purposes since it accords broadly with the support unit in the social security system.

The 1978-79 income survey was broadly similar in scope and methodology to the 1973-74 survey. The sample comprised about 15,000 private dwellings

and some non-private dwellings - covering about one third of one per cent of the Australian population. In this survey, information was collected on income tax payments but the published income data are gross of income tax.

Of particular importance in this survey is the decision to delete from the tables many of those families or income units who had experienced a change of status in the relevant period and whose low measured income therefore gave a misleading impression (e.g. persons aged 15 years or over who had only recently become independent of parental income). These exclusions appear to have drastically reduced the number of families/income units reported as having nil or very low incomes. Differences such as these which are evident between the three income surveys must be kept in mind when comparisons are made and conclusions drawn as to the distribution of income in Australia and its change over time.

In spite of the differences, however, it is possible to make comparisons on the basis of the data from the various surveys. Firstly, Table 5 summarises the distribution of family income over the three survey periods:

Table 5  
Distribution of Family Income 1968-69, 1973-74 and 1978-79<sup>(a)</sup>

Income Share	Decile									
	1	2	3	4	5	6	7	8	9	10
1968-69(b)	2.2	4.6	6.0	6.9	8.5	9.3	10.6	12.2	14.9	24.8
Cumulative	2.2	6.8	12.8	19.7	28.2	37.5	48.1	60.3	75.2	100.0
1973-74(c)	2.2	4.5	6.0	7.3	8.4	9.6	11.1	12.6	15.4	22.9
Cumulative	2.2	6.7	12.7	20.0	28.4	38.0	49.1	61.7	77.1	100.0
1978-79(d)	2.4	4.1	5.8	7.0	8.7	9.9	11.4	13.6	15.2	21.9
Cumulative	2.4	6.5	12.3	19.3	28.0	37.9	49.3	62.9	78.1	100.0

Source: (a) This data excludes single person units.  
 (b) ABS, Income Distribution 1968-69, Part 1.  
 (c) ABS, Income Distribution 1973-74, Part 2.  
 (d) ABS, Income Distribution 1979-79, Supplementary Tables (6503.0).



It can be seen that over the five-year period between 1968-69 and 1973-74 the income share accruing to the three lowest deciles remained almost constant, while the middle and upper income groups (but not the very top) experienced relative gains. For 1978-79 the share accruing to the lowest decile has risen but for the second to fourth deciles has declined somewhat. Ingles<sup>31</sup> comments that it is possible that this increase in the first decile is due to the exclusion of certain groups from the 1978-79 survey and that this has masked an overall increase in measured inequality among families except at the very top of the distribution.

As noted Table 5 excludes data for single person income units. If the data for 'non-family individuals' is included, the degree of apparent inequality becomes much more pronounced. As a result of the inconsistencies in survey techniques outlined above, however, this computation can only be done for the 1973-74 data. On the basis of this information, Ingles<sup>32</sup> has compiled a table which shows that the income shares accruing to the lowest five deciles are very much less than those shown for families only.

Table 6  
Decile Shares for Families and Non-Family Individuals 1973-74

	Decile									
	1	2	3	4	5	6	7	8	9	10
Income Share										
Families	2.1	4.5	6.1	7.2	8.4	9.6	11.0	12.6	15.1	23.5
NFIs	1.0	3.4	3.6	4.3	6.0	8.8	11.7	14.5	18.0	28.7
Combined	1.2	2.8	4.9	6.7	8.1	9.6	11.3	13.4	16.3	25.6
Cumulative	1.2	4.0	8.9	15.6	23.7	33.3	44.7	58.1	74.4	100.0

Source: Ingles, 1981, Table 10.

Other studies, with varying scope and objectives, have been undertaken

31. Ingles, D., 'Statistics on the Distribution of Income and Wealth in Australia', Research Paper No. 14, Development Division, Department of Social Security, Canberra, 1981.

32. Ingles, *ibid.*

on the basis of the data collected in the ABS Income Surveys. Murray<sup>33</sup> looked at the inequality of household incomes in Australia using data from the 1968-69 and 1973-74 surveys. While he noted that there was little if any change in equality over this period, he concluded that the level of household income inequality had previously been noticeably understated.

(ii) Household Expenditure Surveys 1974-75 and 1975-76

These surveys were designed to provide information on how the expenditure pattern of private households varies with income level and other characteristics such as size and composition of the household, and age and occupational status of the household head. The first survey was confined to capital cities and the sample size was just under 10,000 households. The second survey covered the whole of Australia but the sample size was smaller, covering about 6,000 households.

The definition of 'households' was the same for both surveys, and was taken to be a group of people who live together as a single unit in the sense that they share common housekeeping arrangements, i.e. they have some common provision for food and other essentials of living.

Table 7 below presents a comparison of household income and expenditure distributions from the 1974-75 and 1975-76 surveys. The table was compiled by Ingles<sup>34</sup> who notes that the distribution of household expenditure is for deciles ranked by income, a technique which would tend to understate inequality.

Not surprisingly, Table 7 indicates that low-income households have a larger share of household expenditure than household income, reflecting the impact of income tax, of savings at the higher end of the income range and of 'dissaving' at the lower end.

More detailed results of the two surveys have been published by the

33. Murray, D., 'The Inequality of Household Incomes in Australia', Economic Record 57 (1981) 12-22.

34. Ingles, op. cit.

Australian Bureau of Statistics along with several tabulations which are available direct from the ABS.

Table 7  
Distribution of Household Income and Expenditure  
1974-75 and 1975-76

	Decile									
	1	2	3	4	5	6	7	8	9	10
1974-75										
Income Share	1.9	3.6	5.8	7.5	8.5	9.5	11.2	12.8	15.9	23.3
Cumulative	1.9	5.5	11.3	18.8	27.3	36.8	48.0	60.8	76.7	100.0
1975-76										
Income Share	1.8	3.4	5.4	6.9	8.1	9.5	11.6	13.3	16.0	24.0
Cumulative	1.8	5.2	10.6	17.5	25.6	35.1	46.7	60.0	76.0	100.0
1974-75										
Expenditure										
Share	3.7	5.1	7.5	8.9	9.1	9.9	11.1	11.9	14.5	18.3
Cumulative	3.7	8.8	16.3	25.2	34.3	44.2	55.3	67.2	87.7	100.0
1975-76										
Expenditure										
Share	3.5	5.1	7.2	8.0	9.1	9.9	11.7	12.9	14.9	17.7
Cumulative	3.5	8.6	15.8	23.8	32.9	42.8	54.5	67.4	82.3	100.0

Source: Ingles, 1981, Table 14.

(f) Commonwealth Censuses, 1976 and 1981

A question relating to income was reintroduced into the Census in 1976 and was repeated in 1981. People were asked to state which of 14 categories applied to their income. All sources of gross income (e.g. child endowment, scholarships, interest payments, etc.) were to be included.

For both censuses, the non-response rate for the income question was 7.5 per cent. Follow-up surveys conducted by the ABS suggested that most non-respondents were low income earners. In addition, a significant

proportion of people reported their net income, instead of gross income as asked for.<sup>35</sup>

### Other Surveys

Several other smaller surveys have been conducted by independent research groups. They have generally attempted to cover aspects of income distribution which have been neglected by the larger official surveys. One in particular which deserves mention here was that undertaken on behalf of the National Women's Advisory Council in 1980. This survey of fifty married couples was designed to investigate the internal financial arrangements (or the internal distribution of income) within families of varying socio-economic status. The various uses to which family allowances were put were given particular attention and conclusions were drawn as to the policy implications of the findings for the social security system. The results of the survey are presented by Edwards in the Social Security Journal (1981) (see annotation below).

The impact of income and wealth distribution among the aged is a further important area not dealt with explicitly by the major surveys, but it is being covered in ongoing work by the Ageing and the Family Project in the Research School of Social Sciences at the A.N.U.

### 2.3 Change in the Distribution of Income

A brief history of attempts to estimate Australian income distribution is provided by Brown.<sup>36</sup> He notes that interest in the size distribution of incomes has been mainly for practical, administrative purposes, e.g., to assess the yield of possible increased rates of tax. These early attempts at deriving income distributions were invariably based on income tax statistics and Brown discusses the many problems involved. He then derives

35. Australian Bureau of Statistics, Census 81 - Income, (2151.0).

36. Brown, H.P., 'Estimation of Income Distribution in Australia', in Gilbert, M., and Stone, R. (eds.), Income and Wealth, Series VI (London, 1957).

estimates of income distributions using taxation statistics for 1938-39 to 1942-43.

To measure inequality an 'inferiority index' is derived. This can be interpreted as 'the average ratio of incomes to all incomes above them.' For employees, this index rose from 54 per cent in 1938-39 to 60 per cent in 1942-43. Brown points out that this apparent change in inequality is relatively minor given a rise of 40 per cent in average income, a decline of 10 per cent in the number of employees and the elimination of unemployment. For non-employees, the variation is even less, ranging from 65 per cent in 1938-39 to 67 per cent in 1942-43. This relative stability for employees and non-employees carries over to the indexes for male and female income recipients. Between 1938-39 and 1942-43, the inferiority index rose for males from 58 per cent to 62 per cent; for females, the range is 52 per cent to 55 per cent.

More recent studies on the changes which may have occurred in the distribution of income in Australia have revealed conflicting results. In his study of change in income distribution from 1914-15 to 1968-69, Jones made the now much quoted comment that 'it would require a mind peculiarly resistant to evidence to deny that over the last half century there has been a significant reduction in inequality of income distribution among men.'<sup>37</sup> He notes that changes in the distribution of female incomes are virtually impossible to assess. This section will present the findings of Jones' work along with the conflicting findings of other researchers in a contentious field of study which has important implications for theories of economic development.

Jones' study was the first to cover such a long period in Australian economic history. The parameters of the time period he uses are defined, however, not by any reverence for the half century as a period of analysis but because these were the only years in which surveys of income distribution were taken in Australia. He can therefore present no evidence of the pattern of fluctuations in income distribution which occurred during the period, and is limited to drawing broad conclusions as to the direction

37. Jones, F.L., 'The Changing Shape of the Australian Income Distribution', 15 (1975) 1.

of change. There are certain problems of comparison inherent in a study based on such distant surveys and the findings can at best be indicative of the actual pattern of change.

By separating male from female earners, Jones attempts to avoid distortions in the income distribution pattern which may be linked to changes in workforce participation by gender. Lorenz curves of male and female income distribution show that the trend in size distribution for men has unmistakably been towards a reduction in inequality. The Gini coefficient decreased from 0.409 in 1914-15 to 0.354 in 1968-69.

At low incomes, however, Jones notes that the 1914-15 Lorenz curve lies inside the 1968-69 curve, and the share in the bottom 20 per cent of male income earners fell from about 6.5 per cent in 1915 to 5 per cent in 1969. Jones concludes that contrary to appearances, this does not represent immiserisation of the poor but is due to the fact that pensioners were excluded from the 1915 War Census and included in the 1968-69 survey. He presents figures to show that the inclusion of pensioners in the 1915 Census would have increased the degree of inequality, and the Gini coefficient would be increased from 0.409 to 0.420.

Looking at the top wealth holders, Jones concludes that the decline in the share of the very rich is even more marked than the overall change. The comparable figures for the top 10 per cent are 39.6 per cent of total income in 1914-15 and 31.5 per cent in 1968-69.

Butlin<sup>38</sup> argues that Jones' conclusions are dependent on an assumption regarding the comparability of the 1915 and 1968-69 surveys. He points out that 'both the 1915 census and the 1968-69 survey yielded a mish-mash of income concepts with significantly different coverage'.<sup>39</sup> He also advocates caution in interpreting Jones' results as implying a gradual shift towards greater equality: '... given the two wars, a massive depression and a major restructuring of the economy ... it would be unwise to assume that there

38. Butlin, N.G., 'Trends in Australian Income Distribution: A First Glance', Department of Economic History, Research School of Social Sciences, ANU, Working Paper No. 17, September 1983.

39. Butlin, *ibid.*:2.

were no contrary movements towards and away from egalitarian income distribution'.<sup>40</sup>

As well as critically examining Jones' study, Butlin brings together a variety of data sources in order to discuss the overall feasibility of making long-term comparisons of income distribution. An estimate of the income distribution for New South Wales is constructed for 1901 from taxation and other statistics. This is compared with the 1968-69 survey. Gini coefficients of 0.45 and 0.46 respectively are calculated for the two periods although the Lorenz curves cross in such a way to suggest a higher proportion of individuals in receipt of low incomes in 1968-69. However, problems relating to changes in the age/sex structure of income recipients, shifts in the representation of occupational groups and an alteration in the proportion of the population recorded as being in receipt of income limit the extent to which conclusions can be made regarding apparent differences in equality.

Emphasis is also placed on the need to provide interpolations between dates for which full income distributions are available. As an example, Butlin constructs a time series of the ratio of 'unskilled' male labourers and selected skilled (male) wage rates between 1828 and 1981. This suggests a move towards greater equality during the 19th Century until the depression of the 1890s when unskilled labourers lost considerable ground. Recovery in the early 20th Century and post-World War I saw unskilled wages rise to a trend peak of 90% of skilled wages. Slow economic growth and structural change in the 1920s followed by the depression of the 1930s brought a halt to this egalitarian trend although the move to greater equality re-appeared in the years following World War II.

A considerable amount of historical data exists for employees in the public sector and this is used by Butlin to construct Gini coefficients for the period 1828-1938. He finds a trend towards a much more egalitarian distribution of income with Gini coefficients of 0.50 in 1828 and 0.19 in 1938. The effect of the 1890s depression in reversing the trend to greater equality is again apparent in this data.

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40. Butlin, *ibid.*:2.

Jones' article is also reviewed by Ternowetsky<sup>41</sup> in his study of change in income inequality from 1955-56 to 1974-75. He suggests that the use of only two data sources so distant from each other masks the fact that while income equality grew during the earlier stages of Australian industrialisation, it has stabilised since World War II. In support of this argument, he looks to Berry<sup>42</sup> who concluded in his study of income distribution from 1922-23 to 1972-73 that most of the improvement in income equality over this period occurred just prior to and during the war.

Ternowetsky goes on to present evidence based on taxation statistics which shows that although middle income earners have benefited from the fruits of growing industrial capacity in the post-war period, the lowest deciles have been left behind. In presenting this analysis, he points out that one of the deficiencies of using Gini coefficients to summarise income inequality is that they are insensitive to exacerbated inequalities between the poorest and other members of society (see Section 1). This point is clearly borne out by the figures for 1972-73 which show a sudden drop in income inequality, reflecting the dramatic wage and salary rises of the Labor Government in 1972. The figure is misleading, however, because the threshold level for tax payments was raised at the same time, thus removing more than 8 per cent of the lowest income earners from the taxation statistics. Ternowetsky concludes that the exclusion of these people results only in an apparent lowering of inequality, rather than the substantial reduction indicated by the Gini score.

In the second half of his article, Ternowetsky presents a set of analyses whereby he splits the income earning population into those who earn more than the statistical 'equal share' of total income and those who earn less, and compares the results. (Average income, or the income which each recipient would earn under complete equality of distribution is represented by that point on the Lorenz curve at which a tangent parallels the line of unity or 45 degree line of exact equality of income distribution.) In doing so,

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41. Ternowetsky, G.W., 'Taxation Statistics and Income Inequality in Australia: 1955-56 to 1974-75', *A.N.Z.J.S.*, 15, No. 2 (1979) 16-24.
42. Berry, M.I., 'Inequality', in Australian Society: A Sociological Introduction, A.F. Davies, S. Encel and M.J. Berry (eds.), 3rd ed. (Melbourne, Longman Cheshire, 1977).



he shows that the proportion of the tax-paying population which earns less than its 'equal share' is smaller in 1974-75 than it was in 1955-56, but that when the poorest segment which is no-longer taxed is included, the proportion of the population earning less than its equal share is in fact larger in the latter period than the former.

Other results emerging from this analysis show that the average standing of the lowest 40 per cent of male earners is worse at the end of 1975 than it was in 1955-56. Of the redistribution which does occur during this period, the bulk of the loss after tax takes place among the top 5 per cent of income earners. Most of this income appears to have been transferred to the fourth quintile and remaining 15 per cent of the top quintile, while the relative income shares of the lowest two quintiles of male earners falls by 3.5%.

The conclusions which can be drawn from the work of Jones, Berry and Ternowetsky are contradictory. Among the concluding remarks of his article Jones quotes from Tawney who comments that whatever the distribution of income over the past forty years, an increase in the social income - 'the rise of this rudimentary communism' - enabled by 'equitable' tax policies, has gone some way to improving the standard of living of 'the great mass of the community.'<sup>43</sup> Ternowetsky, on the other hand, concludes that 'there is evidence to suggest ... that Australian capitalism has been able to reverse, or even retard, the movement towards increasing income inequality. Instead, the findings support the position that income inequality will endure because it is necessary, unavoidable and intrinsic to the capitalist mode of production.'<sup>44</sup>

#### 2.4 Annotated List of References on Distribution of Income

1. J.T. Sutcliffe, The National Dividend (Melbourne University Press, 1926).
  - i. Income Unit: individual
  - ii. Time Period: 1920-21

43. R.H. Tawney, quoted in Jones (1975), p.34.

44. Ternowetsky (1979), p.23.

- iii. Data: award wages (adjusted for duration of unemployment)
- iv. Inequality Measure: Lorenz Curve

Estimates are presented of the national product using a variety of sources and techniques. Chapter IV deals explicitly with how the national product is distributed. Considerable inequality is found with approximately 20 per cent of the population receiving only 5 per cent of national product. Considerable care needs to be taken in interpreting these findings given the exclusion of over-award payments.

- 2. H.P. Brown, 'Estimation of Income Distribution in Australia' in Milton Gilbert and Richard Stone, Income and Wealth, Series VI (London, 1957).
  - i. Income Unit: individuals
  - ii. Time Period: 1948-49 to 1942-43
  - iii. Data: income tax statistics
  - iv. Inequality Measure: 'inferiority index'

The paper provides a brief historical overview of attempts to measure income distribution in Australia. Problems related to the use of taxation statistics are discussed. These statistics are used to estimate income distributions for 1938-39 to 1942-43. The population is sub-divided according to quinquennial age groups, employees, proprietors and rentiers and by each individual State. A measure of inequality, the 'inferiority index' is derived and used to show that despite very large changes in the level of income and the number of income recipients, there was little variation in inequality over the period.

- 3. Butlin, N.G., 'Trends in Australian Income Distribution: A First Glance', Department of Economic History, Research School of Social Sciences, ANU, Working Paper No. 17, Sept. 1983.
  - i. Income Unit: individual
  - ii. Time Period: 1828-1981
  - iii. Data: a) NSW (1901)
    - o tax data relating to gross income in excess of £200;
    - o estimate by Coghlan for 1898 of size distribution of farm incomes and self-employed receiving in excess of £200 gross income;
    - o public sector employment statistics;

- . detailed survey of manufacturing earnings;
- . detailed specification of non-industrial occupational earnings;
- . census returns
  - b) NSW (1968-69)
- . Australia, Income Distribution 1968-69: Consolidated and Revised Edition, Australian Bureau of Statistics, 6505
  - c) ratio of 'unskilled' males labourers and selected skilled (male) wage rates between income statistics, NSW 1828-1938
- iv. Inequality Measure: Lorenz curve, Gini coefficient

This paper considers the question of whether income distribution over long periods of time can be measured in Australia and some of the limitations in comparing Lorenz curves over long periods. A second question is the stability of income distribution. Data from a variety of sources are gathered for NSW in 1901 and the resulting income distribution is compared with the ABS 1968-69 survey. The difficulties in making such a long-term comparison are discussed. A further indication of long-term trends is gained by examining the ratio of unskilled to skilled wages over the period 1828-1981. This suggests a movement towards greater equality although there are some significant differences from trend. Finally, data is presented for public sector income distribution in NSW for the period 1828-1938. This again suggests a move towards greater equality accompanied by some significant movements away from trend.

4. Cox, J.P. 'The National Survey of Income, Income Distribution and Temporary Poverty', Economic Record, 52 (1976) 423-442.
- i. Income Unit: family
  - ii. Time Period: August 1973
  - iii. Data: National Survey of Income, published in Commission of Inquiry into Poverty (First Main Report), Poverty in Australia (AGPS, Canberra, 1975)
  - iv. Inequality Measure: Percentile shares

The paper aims to assess the accuracy and usefulness for Australian policy makers of the temporary poverty hypothesis by analysing data collected in the National Survey of Income (August 1973, Australian Bureau of Statistics). The survey was a cross-sectional one and while it is noted that a longitudinal survey would be essential to provide conclusive evidence

of temporary poverty, the paper concludes that the data and its implications are consistent with the view that much poverty in Australia is temporary. Statistics are presented and analysed in support of the argument. Final comments concern the implications of temporary poverty for public policy.

5. Edwards, M. 'Economics of Home Activities', Australian Journal of Social Issues, 15 (1980) 5-16.

This paper explores the contribution of unpaid home activities to the economic welfare of the family. It begins with a review of the conventional economic framework on how household decisions are made. It deals with the modifications which take into account unpaid work in the home. The concept of 'imputed income' from home activities (like housework and child care) is then introduced before several possible methods of measuring that income are assessed. The final section of the paper analyses some policy implications which follow from recognising imputed income as part of family income.

6. Edwards, M. 'Financial Arrangements within Families', Social Security Journal, Dec. 1981, pp.1-16.

This article presents the results of a survey of the internal financial arrangements of 50 families living in Queanbeyan, N.S.W., in late 1980. The study was prompted by a concern that social policy decisions should be based less on impressionistic judgements and more on facts about the extent to which family income is pooled and its benefits shared. The findings on types of financial arrangements, the distribution and use of personal spending money, the use and importance of family allowances and attitudes to credit are summarised. Comments on the policy implications of the findings are included.

7. Jones, F.L. 'Sources of Gender Inequality in Income: What the Australian Census Says', Social Forces (1983) in press.

The paper aims to identify the main factors that contribute to the lower earnings of women relative to men in Australia, given that gender ceased to be an explicit principle in wage setting in 1975. Data is derived from the 1976 census. Analysis is based on estimates of individual incomes in terms of the different characteristics that workers bring to the labour

market. The paper concludes that occupational segregation by gender, discontinuous career patterns and part-time employment are major factors which continue to depress the earnings of women.

8. Jones, F.L. 'The Changing Shape of the Australian Income Distribution, 1914-15 and 1968-69', Australian Economic History Review, 15 (1975) 21-34.

- i. Income Unit: a) individual  
b) individual
- ii. Time Period: a) 1914-15  
b) 1968-69
- iii. Data: a) 1915 War Census  
b) Income Distribution Australia, 1958-69 Part 1, Australian Bureau of Statistics, Canberra (6502.0)
- iv. Inequality Measure: Lorenz curve

The article makes an assessment of long-term trends in the distribution of income by comparing data from the 1915 War Census with that of the 1969 Quarterly Population Survey conducted by the ABS. Problems associated with the 1915 data and the difficulties of direct comparison of the findings of the two surveys are first discussed. Statistics derived from each survey are then presented and analysed. The author concludes that there has been a significant reduction in equality of income distribution among men, but that changes in distribution of female incomes are virtually impossible to assess.

9. Murray, D. 'The Inequality of Household Incomes in Australia', Economic Record, 57 (1981) 12-22. (Ab. prov.)

- i. Income Unit: family, family member and equivalent income (i.e., equivalent income is defined for single persons and families with a head and a dependent spouse and none to six children)
- ii. Time Period: 1968-69, 1973-74
- iii. Data: a) Income Distribution, 1968-69: Consolidated and Revised Edition, Australian Bureau of Statistics, Canberra (6505.0)  
b) Income Distribution Australia, 1973-74, Parts 2, and 3, Australian Bureau of Statistics, Canberra (6503.0 and 6504.0)
- iv. Inequality Measure: Gini coefficient, coefficient of variation and percentile shares