Some Australian Evidence on the Consensual Approach to Poverty Measurement

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ABSTRACT

Estimates of poverty in Australia have relied exclusively on the Henderson poverty line, despite extensive criticism of its relevance to contemporary Australian conditions. This paper analyses data from Morgan Gallup Poll (MGP) surveys on the minimum income required by an Australian family of four to keep in health and live decently in order to assess community views on minimum income levels required in Australia. Analysis of how the average response to the MGP question has changed over the last four decades suggests that community views of adequate minimum income levels are adjusted upwards in line with average income levels. This evidence suggests that Australians see poverty more in relative than absolute terms. Data from the July 1987 MGP survey are then used to derive a consensual poverty line based on responses to the minimum income question. The resulting poverty line is well above the Henderson poverty line. The survey data are then used to provide an estimate of poverty among families of four in July 1987 and to investigate some aspects of how family needs vary with family circumstances.

1. INTRODUCTION

Twenty-five years after the 're-discovery of poverty' in America and the resulting 'war on poverty', poverty has re-emerged as a major social policy issue in many countries. Among the reasons for this is the awareness of evidence of the persistence of poverty throughout the long post-war economic boom of the 1950s and 1960s and its increase in the harsher economic climate since the mid 1970s. Particular concern has been expressed in a number of countries at the change in the structure of poverty, away from the elderly and towards families with dependent children (Smeeding and Torrey, 1988; Saunders and Whiteford, 1987; Sawhill, 1988). This shift in part reflects improved income support arrangements for the elderly consequent upon earlier evidence that old age was a major cause of poverty. But it also reflects rapid growth in the number of single parent families and, in the last five to six years, in the number of unemployed families with children (see Saunders and Whiteford, op. cit., Tables 1 - 3 for the Australian evidence). With increased economic uncertainty and reduced economic prospects relative to earlier decades, the willingness of governments to devote additional resources to income support for families has declined, further exacerbating the problem. Increasingly, income support policies are being geared toward encouraging economic independence through participation in the labour market. Whatever the merits of this policy approach in the longer-run, its immediate success depends upon the ability of the labour market to provide more employment opportunities that meet the requirements and match the skills of those seeking work. With unemployment high for the foreseeable future, this raises the question of what is to be done for those out of work (and their dependants) in the short-term.

In Australia, the government responded to these concerns with the announcement of its 'child poverty pledge' in 1987 which committed the government to ensure 'that by 1990 no child will need to live in poverty'. Analysis of the impact of the package of family assistance measures introduced in late 1987 has been undertaken by Saunders and Whiteford (1987) and Brownlee and King (1988). Such analysis indicates in broad terms what further will be required in terms of additional income support (and other) initiatives if the government is to achieve its child poverty pledge by 1990. Following almost all previous empirical research on poverty in Australia, these studies have utilised the poverty line employed by the Commission of Inquiry into Poverty to measure poverty in Australia in the mid 1970s, the so-called Henderson poverty line.

There has been widespread dissatisfaction expressed over the Henderson poverty line, and an extensive literature has developed which will not be reviewed here.[1] Although the Henderson poverty line has never been endorsed by any government in Australia, no official alternative been proposed despite the release in 1981 of a **Report on Poverty Measurement** undertaken by a government agency (Social Welfare Policy Secretariat, 1981). This lack of an alternative poverty line, combined with the fact that comparisons of changes in poverty since the early 1970s must by necessity use the Henderson poverty line, explains its continued use by researchers in Australia.

Somewhat surprisingly, in light of the criticisms directed at the Henderson poverty line, no serious attempts have been made to construct an alternative. Instead, research has focused on attempts to refine the detailed calculations underlying the Henderson poverty line such as the index used to update it over time, the equivalence scales it embodies, and so on, according to the particular aspects seen as most unsatisfactory by individual researchers. In consequence, while the Henderson poverty line remains the general framework for empirical poverty research, its detailed application has undergone such revision that there is a danger that the underlying social problem of poverty has become obscured by disagreement over the statistical basis on which poverty estimates are derived. The Henderson poverty line is nonetheless lacking in both political validity and research methodology.

This paper describes an alternative approach to poverty measurement that attempts to overcome these difficulties. Survey data from the Morgan Gallup Poll that cover a period of over four decades are used to investigate how community views in Australia on the income levels seen as necessary for minimum subsistence have changed over time. This information is of relevance to the issue of how the poverty line should be adjusted over time, and to the broader question of whether poverty is, in the minds of the population at large, an absolute or a relative concept. It is also possible to use the Morgan Gallop Poll data to derive a poverty line based on responses to the survey questions relating to the minimum incomes required for subsistence. In order to do this, the methodology developed by researchers working at Leyden University in the Netherlands is employed. The adoption of this methodology has lead to the development of what is now referred to in the literature as the consensual approach to poverty measurement. The Leyden

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1. For a summary of the issues see Saunders (1980) and Manning (1982). The derivation of the Henderson poverty line is discussed in detail in Appendix A of Saunders and Whiteford (1987). For some, this obsession with the way poverty is measured has served to deflect concern from the need to address the real underlying issue of poverty itself. For example, in a recent paper Bryson (1988) refers to a Scandinavian social scientist's suggestion that obsession with statistics about poverty and poverty lines in Australia reflects the lack of concern over more fundamental welfare issues like coverage, universalism and the ideology of welfare.

methodology is outlined in the Appendix and it is used to derive a poverty line for Australia for July 1987, and estimates of the extent of poverty in that month among families of four, using the Morgan Gallup Poll data.

The paper is organised as follows: In Section 2 the concepts of absolute and relative poverty are briefly reviewed, and the merits and limitations of the consensual approach are discussed. Section 3 describes the Morgan Gallup Poll data and Section 4 analyses longer-run trends in the data. Section 5 illustrates how the data can be employed to derive a consensual poverty line at a point in time (in our case, July 1987), estimates poverty using the resulting poverty line, and compares some aspects of the equivalence scales derived from the consensual approach with those implicit in the Henderson poverty line. The main conclusions of the analysis are presented in Section 6, and the more technical aspects of the analysis are described in an Appendix.

2. ABSOLUTE POVERTY, RELATIVE POVERTY AND CONSENSUAL POVERTY

Two major issues stand out in the very extensive debate on the theory of poverty and how poverty should be measured. These relate to the question of whether poverty is an absolute or a relative phenomena, and whether it is possible to establish a poverty line that is objective rather than a subjective concept incorporating explicit value judgements. This raises the supplementary question that if subjective judgements are to be used in setting the poverty line, whose judgements should they be?

Questions relating to the definition and measurement of poverty are central to the task of understanding the nature and causes of poverty, and designing effective anti-poverty policies. As Sawhill (1988) notes in a recent review of the American literature on poverty:

> ......unless we can agree on a yardstick for measuring change, it will be impossible to say what has happened. (Sawhill, 1988, p. 1074)

Recent reviews on poverty measurement by Atkinson (1985), Piachaud (1987) and Ringen (1988) reflect the emerging consensus that poverty is a relative phenomenon.

Indeed, Ringen (1988) argues that agreement on this has in fact been apparent for some time, when he states that:

> There never was such a thing as an absolute concept of poverty and no one has argued that there should be. The absolute concept is not the concept of the old men, but a straw man erected by younger men for their own purposes. (Ringen, 1988, p. 353)

To support this view Ringen refers back to the pioneering work on poverty in Britain by Seebohm Rowntree (1901), as well as to the writings of Adam Smith (1776), both of whom recognised that even subsistence concepts of poverty could not be defined independently of what the customs of the day defined as socially necessary for subsistence.

Yet, despite Ringen's claim, the concept of absolute poverty is alive and well, in the minds of some politicians at least, and probably others as well. In their work on poverty in Britain, for example, Mack and Lansley (1985) cite the following quotation from Sir Keith Joseph, a key member of the early Thatcher Governments:

> An absolute standard means one defined by reference to the actual needs of the poor and not by reference to the expenditure of those who are not poor. A family is poor if it cannot afford to eat. (Quoted in Mack and Lansley, op. cit., p. 16)

In this general context, Sen (1983), has argued that:

> There is......an irreducible absolutist core in the idea of poverty ....If there is starvation and hunger, then - no matter what the **relative** picture looks like - there clearly is poverty.....absolute considerations cannot be inconsequential for conceptualising poverty. (Sen, 1983, p. 159; emphasis in the original)

Sen goes on to argue for the distinction between capabilities and commodities, in which the ownership of commodities provides the capability to satisfy needs. Sen gives the example of the ownership of a bicycle (a commodity) which provides the owner with the ability to move (the resulting capability). He argues that poverty is an absolute notion in relation to capabilities, but may take a relative form in relation to the commodities required to achieve those capabilities. To extend his earlier example, the ability to move in today's society may require ownership of a car, whereas fifty years ago a bicycle would have been sufficient. Sen himself recognises that - in terms of commodities at least - poverty can only be established relative to the social environment. His argument that

there is an absolutist core in the idea of poverty may be of greater relevance to the study of poverty in developing countries. In contrast, in advanced capitalist economies Sen's approach has not seriously affected the very broad consensus that poverty is fundamentally a relative concept.

This consensus is one with which we would concur. Poverty is relative because it cannot be meaningfully measured by abstracting from the social environment within which needs are generated and must be met. An implication is thus that the poverty line will change, over time within countries or across countries at a point in time, as the social environment changes. We would reject totally the views of those (e.g. Nicholas, 1988) who continue to argue for a subsistence concept of poverty that can be defined solely in terms of physical needs that are independent of the social environment. To acknowledge that the poverty line should reflect changes in the social environment is not, of course, to pre-judge the precise form that this relationship will, or should, take. This is a logically distinct issue that requires further, more detailed, consideration.

It does not of course, follow that because poverty is relative, it can never be eliminated This line of reasoning results from a confusion between poverty and inequality. It is true that the abolition of relative poverty requires a redistribution of income and thus a reduction in inequality, and that relative poverty will not be removed by economic growth alone (unless accompanied by changes in the income distribution). It is, for example, possible in principle to remove relative poverty entirely by appropriate redistributive policies, even ones that maintain considerable inequality in the income distribution as a whole. Nevertheless, to argue that poverty and inequality are separate issues, is not to argue that they are completely independent. As Piachaud (1988) has recently argued:

> Poverty must be seen as part of broader economic inequality......This is not to suggest that they are the same thing or that all inequalities are a cause for concern. Some inequalities might better be called equalising differences. Other inequalities are causes of deprivation and poverty. (Piachaud, 1988, p. 13)

That poverty is a relative concept also appears initially to conflict with public opinion poll results which indicate that wide sections of the community view poverty primarily in absolute or subsistence terms. Thus for example, Taylor-Gooby (1987) reports survey results for Britain that indicate the predominance of an absolute or minimum subsistence conception of poverty in the minds of most people. When asked whether they agreed or disagreed with three alternative definitions of poverty, 95 per cent of respondents agreed that they would describe someone as being in poverty if 'they had not got enough to eat and live without going into debt'. In contrast, only 25 per cent agreed with a poverty

definition in which people 'had enough to buy the things they really needed, but not enough to buy the things most people take for granted'. (Taylor-Gooby, 1987, p. 9). In a similar vein, Townsend (1979) reports that 31 per cent of his UK survey described poverty in subsistence terms and a further 8 per cent described it in terms of starvation, while only 2 per cent described poverty relative to others. (Townsend, 1979, Table 6.1, p. 240).

However, while it appears true that such survey evidence indicates that at a **point in time,** poverty is commonly perceived in subsistence or absolute terms, it is also the case that the evidence suggests that **over a period of time** the income levels seen as necessary to avoid poverty increase more in line with average community incomes than with prices. This observation was first noted by Rainwater (1974) who analysed responses to the following Gallup Poll question asked in the United States to national samples of households over the years between 1946-1969:

> **What is the smallest amount of money a family of four needs to get along in this community?**

Rainwater found that the mean response to this question increased significantly in real terms over the period, but stayed at essentially the same proportion of average disposable income. Regression analysis indicated a very close and proportional relationship between the mean response and family disposable personal income. In a more recent analysis of American responses to this question, Kirkpatrick (1973) indicated that the mean response increased in real terms, but by not as much as average community incomes. The essential point nonetheless remains. Despite the fact that descriptions of poverty may be couched in absolute or subsistence terms, 'what constitutes a minimum subsistence income is clearly socially defined' (Sawhill, op. cit., p. 1076) so that it is the **relative** view of poverty that ultimately prevails in the community. In Section 4 below, we will explore Australian data to see whether a similar picture emerges here.[2]

Whether poverty is considered to be relative or absolute, value judgements will necessary to set the poverty line. If one accepts the need for **someone's** judgements to be used in

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2. Some are obviously already convinced that it does. For example, in a recent report the Office of EPAC (1988) argues:

    It is probably true that most people think about poverty in absolute terms - insufficient food, the absence of decent housing and clothing, and so on. Even so, most people's ideas about the minimum acceptable standards of food and clothing are affected by prevailing community standards. Thus even poverty standards established by prescribing a minimum acceptable standard of living tend to move upwards with average incomes. (Office of EPAC, 1988, p. 13)

establishing a poverty line, the central question becomes whose judgements are to be used, and how should they be translated in order to set the poverty line and measure poverty. In most instances, this has been left to the judgement of experts, whether it be those of Seebohm Rowntree in his calculations of what constituted the basic necessities of life in England in the late nineteenth century, or of Ronald Henderson and his associates when setting the Australian poverty line in the 1960s at the basic wage plus child endowment for a two adult, two child family.

This reliance on the judgement of experts in the construction of the poverty line has led to a certain amount of unease in some quarters. As Townsend notes:

> .....'poverty' can be given different meanings by professions, governments and bureaucracies. One of the tasks of the social scientist is to bring out how concepts tend to be creatures of the arbitrary exercise of power; and to look beyond them to a more democratic representation of interests in the meanings that they are given, and to the even more elusive pantheon of scientific 'objectivity'. (Townsend, 1981, p. 477)

One particular problem with relying on experts to make judgements about the level of income below which poverty is assumed to exist is that the incomes enjoyed by such experts are likely to be so far above the poverty line that they are poorly placed to make judgements about the adequacy of income levels far removed from their own experience.

These observations have led to the development of an alternative approach to the derivation of the poverty line based on asking a sample of the population what income level in their view corresponds to the minimum required to make ends meet. We shall refer to this method henceforth as the consensual approach to poverty measurement following the terminology of Piachaud (1987), Walker (1987) and Veit-Wilson (1987). As already noted, the consensual approach to setting the poverty line was developed in the 1970s by researchers at Leyden University in the Netherlands and has formed the basis for a number of studies of poverty (Goedhart et. al., 1977; van Pragg, et. al. 1980; van Pragg, et. al. 1982; Hagenaars, 1986; Buhmann et. al., 1988). The precise details of how the methodology is used to derive a poverty line are described in the Appendix. Here we concentrate on a general discussion of the strengths and weaknesses of the consensual approach in establishing a set of social judgements on which the poverty line can be based, before turning to its application to Australian data.

The consensual approach to poverty measurement replaces the single judgement of a group of experts by the aggregated judgement of a random sample of the whole population. In this sense, the approach can be seen as an attempt to democratise the process of establishing the poverty line. As a consequence, the political validity of

poverty measures may be enhanced. It is worth noting, however, that the resulting poverty line will be sensitive to the method chosen to aggregate the individual responses, particularly where the variation in responses is great. More significantly, the consensual approach does not entirely avoid the input of experts. As Piachaud observes:

> The social consensus approach still requires expert involvement in defining questions and interpreting answers, it fails to resolve the problem that the practices of the poor do not correspond with the priorities prescribed by the majority, and it does not necessarily   produce   a poverty level which taxpayers will pay for. (Piachaud, 1987, pp. 151-2)

On the latter point, Veit-Wilson argues that:

> It is illogical and perverse to embrace the values implicit in consensual approaches, those of democracy and citizenship, and apply them only to the empirical discovery of poverty lines but not to the design, implementation and administration of social security scales. (Veit-Wilson, 1987, p. 202)

But this does not imply that individuals will be willing to finance through taxation income support payments which ensure all are raised above the consensual poverty line. Some may regard the role of income support payments being to provide only part of the income required to escape poverty, while others may perceive other economic and social objectives as taking priority over poverty alleviation.

The basic idea behind the consensual approach remains nonetheless an attractive one, even though it may require considerable further refinement along the lines proposed by Walker (1987). Some link between the research method and output and community perceptions is necessary for the attainment of a politically valid poverty line. The importance of this link was clearly understood by Ronald Henderson and his colleagues in proposing the method that eventually gave rise to the Henderson poverty line. In defending the poverty line used in their study **Poverty in Melbourne**, Henderson, Harcourt and Harper (1970) argued:

> This is a definition of poverty so austere as, we believe, to make it unchallengable. No one can seriously argue that those we define as being poor are not so. (Henderson, et. al, 1970, p. 1)

There is an implication in this remark of the need for a poverty line definition to receive some measure of acceptability by the community as a standard for poverty measurement,

an idea not too far removed from the underlying basis of the consensual approach. In the remainder of this paper, we apply the consensual approach to setting an Australian poverty line, in order to shed light on some of the issues raised in this section. Before this, we describe the survey data used in the analysis.

3.   THE MORGAN GALLUP POLL DATA

Currently, the only Australian data that allow the consensual approach to be considered empirically are those produced - for a period of over forty years - by the Morgan Gallup Poll (MGP). Since 1945, MGP has regularly asked respondents in its consumer surveys the following question:

> **In your opinion, what is the smallest amount a family of four - two parents and two children - need a week to keep in health and live decently - the smallest amount for all expenses including rent?**

This question has been asked regularly since 1945 to national samples of around 2000 households.

Whilst the wording of the question has remained constant over the period, the survey methodology has changed somewhat, though full documentation of the methodology in the earlier years in unavailable (for some information, see Goot; 1969). The most important change in the survey methodology occurred in 1965, when the scope of the sample was expanded to include 14-20 year olds. However, this is not likely to have had much impact. Examination of data from the July 1987 survey indicates that the population including this group gave a mean response only 3 per cent higher than that of the adult population alone - a difference that was not statistically significant.

Clearly, the precise wording of the MGP minimum income question (MMIQ) is significant. In the current context, several aspects of the question are worthy of comment: First, the question asks respondents to provide information not about their **own** circumstances, but about another specified family type, i.e. a family of four, comprising two parents and two children. Even where respondent families themselves correspond to the specified family type, the question does not ask for a direct evaluation of their **own** situation, as does the minimum income question normally used in the consensual approach, but rather refers to the situation for families of four in **general**. Secondly, the terms 'health' and 'decency' are possibly more ambiguous for current purposes than an evaluation in terms of 'making ends meet'. 'Health' suggests a notion akin to Rowntree's conception of the 'maintenance of physical health' as a defining characteristic of

subsistence poverty. 'Decency', in contrast, has more relativistic and culturally determined connotations as a definitional characteristic of poverty.

Thirdly, ambiguity also arises in the concept of income implicit in the survey question. The term income is not in fact mentioned in the MMIQ. Rather, respondents are asked to indicate 'the smallest amount for all expenses including rent' required to keep in health and live decently. Emphasis is thus on expenditure rather than income as such, which raises the question of the extent to which dis-saving among low income groups is assumed by respondents to be a reasonable way of maintaining health and decency. The question also does not make it entirely clear whether a gross or net figure is required, although it seems most reasonable to assume that responses refer to a net (after-tax) amount. Finally, even the concept of the specified family is somewhat imprecise, as no reference is made to the age of the children nor to the workforce status of the parents, both of which affect the detailed Henderson poverty lines developed by the Poverty Commission.

These comments are, of course, in a sense unfair. They are made from a perspective that wishes to use the responses to the MMIQ for a purpose for which the survey was not intended. In making them, we do not seek to imply criticism of the MGP itself, nor of the organisation that runs the poll. Rather, the comments are intended to convey a sense of caution in giving too precise an interpretation to the results that follow. Despite these reservations about the data, they nonetheless do provide a very rich source of information on the perceptions held in the Australian community about the income levels necessary to attain minimum standards of health and decency over the entire post-war period.

4.   CHANGING PERCEPTIONS OVER TIME

Perhaps the most valuable feature of the MGP data examined here is the potential to provide insight into changes in community perceptions over a period of more than four decades. In Table 1, the mean response to the Morgan Gallup Poll 'health and decency' (MMIQ) question is provided for the entire period for which the data are available. Although it is not appropriate to refer to the estimates shown in Table 1 as constituting a poverty line, it is of interest and relevance to consider how the average response to the MMIQ has varied over time. As noted above, this has some bearing on the issue of the appropriate method to be used to adjust the poverty line over time. Debate on this question has tended to proceed from two positions. Those who conceive of poverty in absolute terms argue for price adjustment to maintain the purchasing power of the poverty line constant over time. In contrast, those who see poverty in relative terms argue for

Table 1: Average Response to the Morgan Gallup Poll Minimum Income Question, 1945 to 1988

Year	Month	Response ($/week)	Year	Month	Response ($/week)	Year	Month	Response ($/week)
1945	Feb.	12.80	1963	Feb.	37.80	1979	April	183.00
1946	Feb.	13.00	1964	Feb.	38.20	1979	July	191.00
1949	Feb.	14.90	1965	July	40.60	1980	Feb.	206.00
1949	July	16.40	1966	July	44.60	1980	July	209.60
1950	Feb.	16.90	1967	July	46.80	1981	Feb.	227.00
1951	Feb.	20.00	1968	Aug.	50.70	1981	July	238.00
1951	Aug.	21.60	1969	Aug.	55.40	1982	Feb.	266.00
1952	Feb.	23.30	1970	Oct.	60.20	1982	July	267.00
1952	Aug.	25.00	1971	Oct.	71.20	1983	Feb.	277.00
1953	Feb.	25.70	1973	May	87.00	1983	July	280.00
1953	Aug.	27.30	1974	Feb.	98.00	1984	Feb.	298.00
1954	Feb.	26.50	1974	Aug.	110.00	1984	July	301.00
1954	Aug.	26.40	1975	Feb.	119.00	1985	Feb.	321.00
1955	Feb.	28.80	1975	July	123.00	1985	July	327.00
1956	Feb.	29.60	1975	Oct.	129.00	1986	Feb.	341.00
1957	Feb.	30.90	1976	Feb.	137.00	1986	July	356.00
1958	Feb.	30.50	1976	July	151.00	1987	Feb.	369.00
1959	Feb.	32.50	1977	Feb.	156.00	1987	July	376.00
1960	Feb.	33.50	1977	July	165.00	1988	Feb.	392.00
1961	Feb.	36.00	1978	Feb.	171.00	1988	July	391.00
1962	Feb.	36.40	1978	July	172.00			

Sources: Pre - 1973: Australian Public Opinion Polls, Findings/Newspaper
Clippings, various years.

1973 to 1988: Morgan Gallup Poll (1988).

adjustment so that the poverty line maintains a constant relativity with some measure of the average level of community incomes.

Our first examination of the data in Table 1 thus considered whether the movements in community responses to the MMIQ followed more closely price or income movements, or some combination thereof. In Figure 1, we show the mean response to the MMIQ over the 1949 - 1988 period in constant (1988) consumer prices.[3] This analysis reveals that since 1949, average community opinion in Australia on the level of income required for a family of four to live in health and decency has almost doubled in real terms. The increase was most rapid during the years between 1966 and 1975. If 'health and decency' is to be our yardstick, then, clearly the Australian community in general does not share the opinion of those who argue for a minimum income standard held constant over time in real terms.

We turn now to examine the extent to which movement over time in the average response to the MMIQ reflects movements in alternative measures of average community incomes. Constrained by availability of consistent data over such a long period of time, we have selected three indices of average community income. The first, reflecting the reference to expenditures in the MMIQ, is private final consumption expenditure per capita (PFCEPC). Our second income measure, reflecting gross wage and salary movements only, is an index of male average weekly earnings (MAWE). Our third income measure is the National Accounts concept of household disposable income per capita (HHDIPC), currently used to update the Henderson poverty line. While preferable to MAWE as a broad index of average community disposable income, HHDIPC also includes insurance claims and imputed dwelling incomes, while deducting indirect taxes, fees, fines, consumer debt interest and transfers overseas. However, while it is possible to adjust for these factors in later years, limited data make this impossible over the whole period. Even with these relatively simple national account measures, data was not available for the earlier observations from 1945 to 1949. The analysis is therefore conducted on the remaining 58 surveys carried out between 1950 and 1988.[4]

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3.   The price deflator used is a linked series of consumer price indices. (Source: EconData, 1988).

4.   Sources of data: **National Accounts** data for the years prior to 1959 were collected from Norton and Garmston (1984) with averaged financial year data used for July and August datapoints. Later data is from ABS, **Quarterly Estimates of National Income and Expenditure** (Cat. No. 5206.0), **Historical Series of Estimates of National Income and Expenditure** (Cat. No. 5207.0) and EconData (1988). Seasonally adjusted measures of HHDI and PFCE were used. Population data are from ABS, **Population Estimates, Australia** (Cat. No. 3219.0) and **Australian Demographic Statistics** (Cat. No. 3101.0). Male Average Weekly Earnings data are from EconData (1988).

Figure 1 Average Response to the Morgan Minimum Income Question, 1949 to 1988
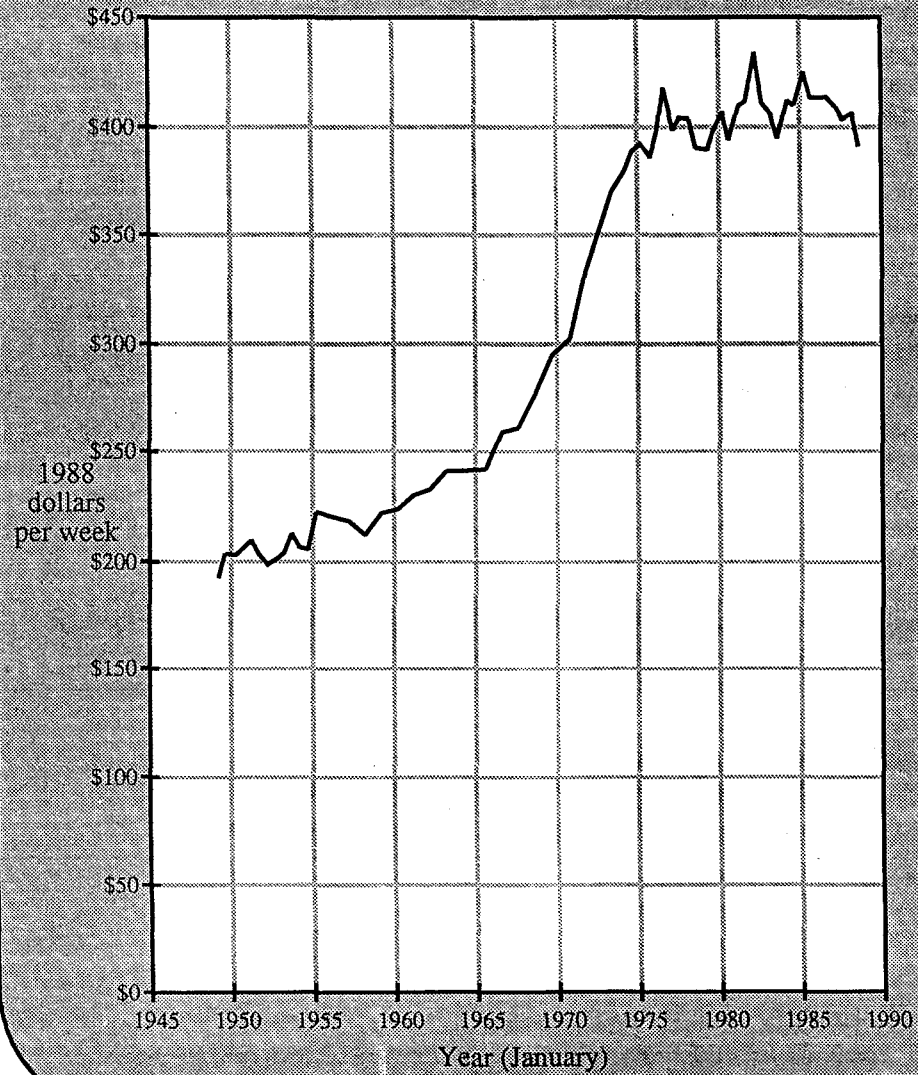
In order to establish the nature of the long-run relationship between the responses to the MMIQ (Y*), actual average community income (Y) and the price level (P), the following general model was estimated using the three alternative income measures:

$$\text{Log } (Y^*/P) = \alpha + \beta \log(Y/P) \qquad (1)$$

Assuming that our income variables reflect community income movements relevant to a relative poverty concept, it follows from (1) that if poverty is seen as a relative concept the response to the MMIQ (Y*) and average income (Y) should move in line, and the estimated coefficient β should equal 1. If in contrast, an absolute poverty concept is relevant, $\beta = 0$, implying that Y* and P move in line. An estimated value of β falling between zero and one implies a partial adjustment of the poverty line to community income levels.

Estimates of equation (1), for the three income measures, are given in Table 2. The value of β - which is the elasticity of the MMIQ response with respect to average community income - is not significantly different from one for both the HHDPIC and PFCEPC income measures. However, for the MAWE income measure the elasticity is significantly less than one, but significantly greater than zero, and still much closer to one than zero. This latter result probably reflects the increasing divergence between gross and net wages over the period, due to rising income tax rates. The results in Table 2 thus provide strong support for the view that the Australian community sees poverty in relative terms.[5]

The long-run constancy of the ratio of the MMIQ response to our three income measures is illustrated in Figure 2. When expressed relative to household disposable income per capita, the average MMIQ response has remained remarkably constant over four decades. However, over the period there have been significant short-run deviations away from this relationship as Figure 2 illustrates. The statistically significant Durbin-Watson statistics in Table 2 suggest that these fluctuations are not random. The residuals from equation (1) (and indeed the patterns shown in Figure 2) suggest a possible structural break after 1970.

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5.   Equation (1) was also augmented with a zero-one dummy variable to capture any changes consequent upon the inclusion of youth into the MGP sample in 1965. The coefficient on the dummy variable proved insignificant in all cases, confirming the pattern noted in the July 1987 survey.

Table 2: **Estimated Relationship between the Real Minimum Income**
Response (Y*/P) and Real Average Income (Y/P)[a]

$$\log (Y^*/P) = \alpha + \beta \text{ Log } (Y/P)$$

Income Measure	Sample Size	α	β	R^2	DW[b]
1. Household Disposable Income per Head (HHDIPC)	58	0.62 (7.1)	1.00 (51.8)	0.979	0.77
2. Private Final Consumption Expenditure per Head (PFCEPC)	58	0.58 (5.4)	1.03 (41.8)	0.968	0.44
3. Male Average Weekly Earnings (MAWE)	58	0.30 (2.7)	0.91 (43.6)	0.971	0.93

Notes: (a) T-statistics are shown in brackets.

(b) DW = Durbin Watson Statistic.

Figure 2 Ratio of Morgan Minimum Income Question to Measures of Household Incomes and Consumption, 1950-1988

Legend:
— MMIQ / PFCEPC
— MMIQ / HHDIPC
— 2 * MMIQ / MAWE
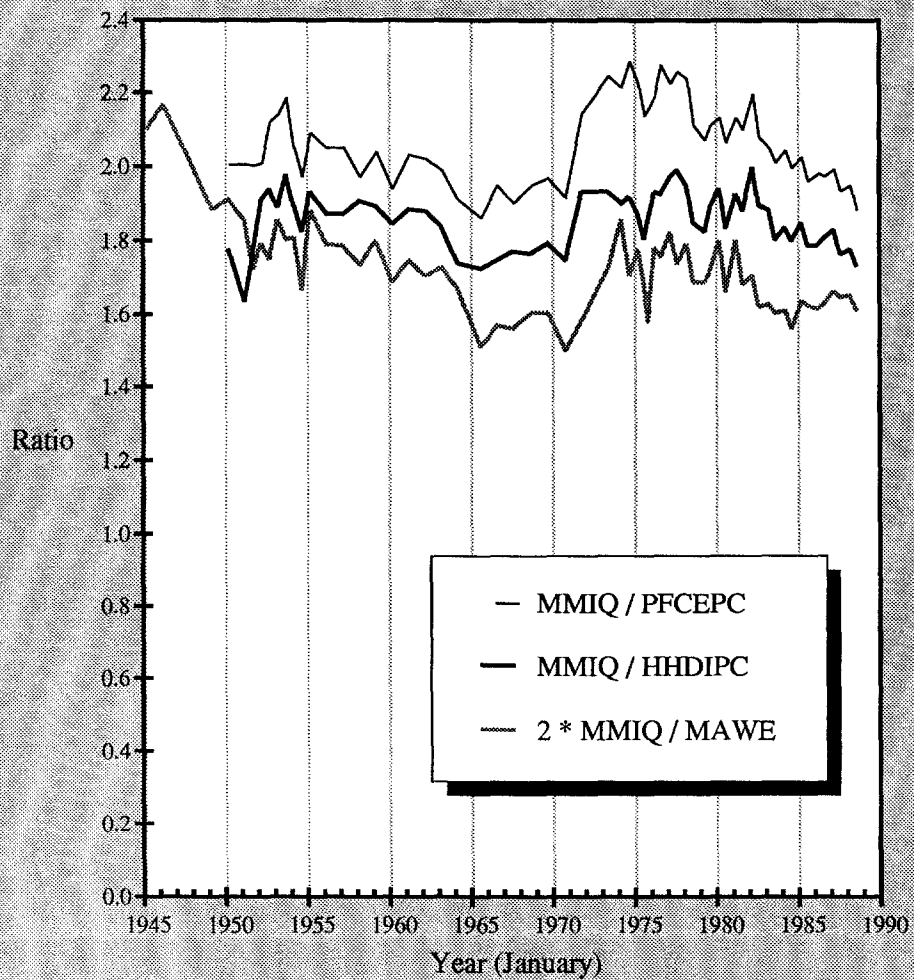
Note: Variables defined in text.

Table 3, as a consequence, presents three further extensions to the models of Table 2. The first model for each income measure allows for first order serial correlation in the error terms. The second model also adds a dummy variable which takes the value of one for observations after 1970, and zero up to 1970, and the third model adds an interaction term permitting the estimated elasticity to vary between the two periods. The results in Table 3 indicate that adjusting for first order serial correlation causes a slight decline in the estimated income elasticity, to around 0.95 for HHDIPC and PFCEPC, and to 0.84 for MAWE. Whilst the t-statistics of the parameters of the models including the dummy variables cannot be interpreted in a simple probabilistic sense, given the ex post specification, they are consistent with there having been a structural change over the period. Inclusion of the structural break dummy causes a substantial decline in the elasticity and the dummy itself appears highly significant with a value of between 0.14 and 0.19. The interaction term is negative in all three cases, implying a lower elasticity after 1970, although this effect is only significant in the case of the PFCEPC variable. These results thus imply an income elasticity of the MMIQ response with respect to HHDIPC of 0.75 over the whole period, elasticities with respect to PFCEPC of 0.85 and 0.53 in the pre-1970 and post-1970 periods, and an elasticity with respect to MAWE of 0.63 over the whole period.[6]

The conclusions from this analysis are to some extent ambiguous. Over the long run the average MMIQ response has remained at the same proportion of the national accounts measures of income and consumption. This provides strong support for the relativist hypothesis of poverty definition. However, the data suggest a structural break in this relationship in 1970. Assuming this to be the case a lower estimate of the relationship is obtained. A one per cent increase in incomes is estimated to lead to around a three quarters of a per cent increase in the mean response to the MGP minimum income question. Whilst this evidence does not fully support the relative poverty hypothesis, it is still far closer to it than the absolute poverty hypothesis.

We also do not know what may have lead to the structural break in the MMIQ series in 1970. One possibility may be the re-emergence of poverty as a social and political issue around this time with the publication of **Poverty in Melbourne**, the establishment of the Poverty Commission and, more generally, with the gathering political strength of the ALP. Whether these changes were significant enough to lead to a continuing 16 per cent

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6.   Interestingly the serial correlation is significant for the National Accounts income measures, but not for MAWE, when the dummy variable is included. This is suggestive of some temporal variations in the non-wage components of incomes which are not related to community perceptions of living standards.

Table 3:   **The Minimum Income Response and Real Incomes: Alternative Models**[a]

$$\log (Y^*/P) = \alpha + \beta \log (Y/P) + \gamma\, D1970 + \delta\, D1970 \,.\, \log (Y/P)$$

Income Measure		Estimates:[b]					
		α	β	γ	δ	ρ[c]	$\overline{R}^2$
HHDIPC	①	0.87 (4.5)	0.94 (21.9)			0.68 (7.0)	0.983
	②	1.65 (8.0)	0.75 (15.7)	0.15 (5.5)		0.55 (4.6)	0.988
	③	1.55 (5.8)	0.78 (12.2)	0.50 (0.8)	-0.08 (-0.5)	0.52 (4.2)	0.987
PFCEPC	①	0.91 (3.0)	0.96 (13.9)			0.82 (10.9)	0.982
	②	1.57 (6.7)	0.79 (14.2)	0.14 (5.1)		0.66 (6.2)	0.988
	③	1.34 (5.7)	0.85 (14.8)	1.58 (3.1)	-0.32 (-2.7)	0.40 (3.0)	0.986
MAWE	①	0.70 (3.0)	0.84 (18.9)			0.64 (6.5)	0.973
	②	1.68 (9.2)	0.63 (17.3)	0.19 (8.3)		0.10 (0.8)	0.985
	③	1.54 (7.9)	0.66 (16.8)	1.11 (2.0)	-0.17 (-1.7)	0.10 (0.7)	0.985

Notes: (a) The variable D1970 takes the value 1 for observations after 1970, zero otherwise.

(b) T-statistics are shown in brackets.

(c) The estimated first order serial correlation parameter.

increase in the minimum income question response is, of course unclear.[7] Another hypothesis is that there was some significant change in the survey methodology at this time. Whilst we have not been able to find any evidence of this, documentation of the surveys of this period is very sparse, and so this must remain a possibility. Finally there is the possibility that this apparent break is a statistical artifact and that the simple model of Table 2 is most appropriate.

In any event the data and results are conclusive in indicating that minimum income levels necessary to maintain health and decency are adjusted upwards over time as the average community income level rises. In the minds of everyday Australians, poverty is much more a relative than an absolute phenomena, even though its description may be portrayed in subsistence or absolute terms.

5.   EVIDENCE ON THE CONSENSUAL APPROACH TO POVERTY MEASUREMENT

The previous section discussed some of the factors contributing to the longer-run trends in results produced by the Morgan Gallup Poll minimum income question (MMIQ). In this section we focus more specifically on the use of responses to the MMIQ to establish a consensual poverty line for Australia and use it to measure the extent of poverty. For these purposes, we required detailed information on the individual responses to the MMIQ and other sections of the Morgan Gallup Poll survey. The information was provided to us by the Roy Morgan Research Centre Pty Ltd based on the survey it conducted in July 1987. Some of the summary statistics from that survey are provided in Table 4.

The average response to the MMIQ of the entire sample in July 1987 was $376 a week. For respondents who were themselves living with their spouse and two children, the average response was almost identical, at $372 a week. This similarity lends some support to the notion that the population as a whole can make sensible judgements of the needs of a particular family type. These figures compare with the Henderson poverty line for the September quarter 1987, for a couple (one in the workforce) with two children of $285 a week (Social Policy Research Unit, **Newsletter**, December 1987). Were such a family to be dependent on unemployment benefit their family income (assuming rent assistance was received, and including family allowance) would have been $244 a week.

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7.   From the second equation for HHDIPC in Table 3, the exponential of the coefficient on the dummy variable (equal to 0.15) is equal to 1.16.

Table 4: **Summary Statistics from the Roy Morgan Research Centre's**
Cost of Living Survey of July 1987.

	All Respondents	Respondents in households consisting of a couple plus two dependant children
Number of cases [a]	2096	231
Mean MMIQ response ($/week)	376	372
Gross household income ($/week)	617	625
Net income ($/week) [b]	(c)	474
Female respondents (percent)	49	50
Percentage of respondents aged:		
under 20	12	0
20-29	22	25
30-44	33	70
45-59	18	5
60 +	15	0

Notes: (a) All the results reported here are based on the sample weighted back to its original total sample size. The weighted number reported here for sub-populations will not necessarily be the same as the unweighted number of cases.

(b) A simple model was used to estimate tax liability for couples with dependants.

(c) not available.

Even after the introduction of the Family Assistance Package in December 1987, their income would rise to only $271 a week, assuming one child was aged under 13 and the other 13 or over. Thus, this evidence suggests that in July 1987, families on unemployment benefit were not only well below the Henderson poverty line, but also well below the income levels regarded generally in the community as necessary to maintain minimum standards of health and decency.

However, just as responses to the MMIQ vary over time with general community income levels, they might also be expected to vary with the income levels of the individual respondents. It is debatable whether the derivation of a consensual poverty line should accord the same importance to the inflated needs and expectations of higher income earners as it does to those respondents whose own circumstances place them nearer to the poverty line. The methodology developed by researchers at Leyden University in the Netherlands is designed specifically to control for this 'preference drift' effect. The details of the methodology are explained more fully in the Appendix, but the basic principle is simple. It is to estimate the income level at which people would evaluate **their own** incomes as being exactly at the minimum level required for 'health and decency'. Because of the wording of the MMIQ, this hypothetical question is only relevant in the Australian context to those living in a family of four themselves.

To describe the relationship between MMIQ responses and actual household income, the following equation was estimated for families of four:

$$\log (Y^*) = 4.37 + 0.25 \log (Y)$$
$$(15.6) \quad (5.0)$$
$$[R^2 = 0.11; \text{ s.e. } = 0.28]$$

where Y^* is the response to the MMIQ, Y is a measure of net family income and t statistics are given in parentheses.[8] (This relationship corresponds to that referred to as $Y^* = F (Y)$ and shown in Figures A.1 and A.2 in the Appendix). The estimated equation implies that a four per cent increase in income results on average in a one per cent increase in the average response to the survey question. Whilst statistically significant, this estimate is significantly lower than that found by the Leyden researchers for their minimum income questions. Goedhart et. al. (1977) for example, found an elasticity of around 0.6, compared with this value of 0.25 for Australia. The difference probably

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8. Only gross income (in discrete categories) of the head and spouse was recorded in the Morgan Gallup Poll survey. Income tax was imputed on the basis of the personal income tax scale for the 1987-88 tax year (taking account of the Medicare levy and the dependent spouse rebate).

stems from the fact that respondents to the Leyden Survey were explicitly requested to consider the needs of their own family in their current circumstances. By asking about families of four generally, the MMIQ may thus lead to a weaker relationship between the two variables.[9]

However, the fact that responses do increase with actual income suggest that the sample average of the MMIQ response may not adequately reflect the perceived needs of low income families. Following the method described in the Appendix, the estimated equation implies that such families will (on average) evaluate their own income at being at the level required for 'health and decency' when that income is $333 per week.[10] This is significantly below the overall average response to this question by all families of four ($372), though is still much above the Henderson poverty line and prevailing benefit levels. These results thus suggest that application of the MGP survey data and the consensual approach to poverty measurement produces a poverty line that is considerable above the Henderson poverty line for families of four. In July 1987 the difference amounted to $48 a week with the consensual poverty line 16.8 per cent higher than the Henderson poverty line. Taking the simple average response to the MMIQ, the poverty line would have exceeded the Henderson poverty line in July 1987 by $87 a week or 30.5 per cent. Such findings present a serious challenge to those who argue that use of the Henderson poverty line **overestimates** the extent of poverty in Australia. Our analysis, based on the views of a sample of the population, in fact suggest quite the opposite.

Whether one accepts the average response to the MMIQ or the estimated consensual poverty line, it is interesting to compare the impact of these alternative poverty definitions on the extent of poverty. This can be done by using the MGP data to compare the actual incomes of families with the consensual 'own income' poverty line, the simple average response to the MMIQ, and the Henderson poverty line.

In interpreting these results, it is important to bear in mind that the income information provided as part of the MGP is somewhat crude for these purposes, in that only the gross income of head and spouse in discrete categories is provided,. Income tax has been roughly estimated from this information using the 1987-1988 income tax schedule and

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9.   For the whole MGP sample, the relationship between the MMIQ response and own income was even weaker, with an elasticity of around 0.05.

10.   That is, $333 = \exp(4.37/(1-0.25))$. An approximate 95 per cent confidence interval for this estimate is from $313 to $354 per week. A linear specification of the relationship between the minimum income required and household income gave an own income level of $349 per week (with 95 per cent confidence internal of $370 a week). However the fit of this equation was not as good as that of the constant elasticity (logarithmic) specification.

taking account of the dependent spouse rebate and the Medicare levy. Our results indicate that in July 1987, 18 per cent of families of four had after-tax incomes below the consensual poverty line estimate of $333 a week. This compares with 36 per cent of such families with an income below the simple average response to the MMIQ of $376 a week. Using the Henderson poverty line of $285 a week, only 7 per cent of families of four were in poverty in July 1987. Clearly, the poverty line selected makes an enormous difference to the estimated poverty rate.

However, measuring poverty using the consensual approach does not correspond to comparing the actual income of families with what they consider to be the minimum income level they require to live in health and decency. Of the 18 per cent of families of four with incomes below the consensual poverty line estimate of $333 a week, over one fifth (23 per cent) gave a response to the MMIQ which implied that their incomes were above what they perceived as the minimum necessary for a life of health and decency. In contrast, of the 82 per cent of families of four whose incomes were above the consensual poverty line, again about one fifth (21 per cent) gave a response to the MMIQ which implied that they perceived their actual income as not sufficient for a life of minimum health and decency. Thus, if one had measured poverty as comprising those families of four whose response to the MMIQ exceeded their current actual net income, the poverty rate would have been 31 per cent.[11] These differences illustrate the point made earlier, that while the consensual approach is based on individual perceptions of minimum income levels, it does not simply equate poverty with the subjective assessment of individual's own situations.

One aspect of the data from the MGP that has not been emphasised so far is the wide variation in responses to the MMIQ. As already noted, the mean response to the MMIQ for the whole sample was $376. However, the variation in response from the first to the ninth decile was from $250 to $500 a week.[12] The absolute variation for families of four was identical. In part, this diversity could reflect the differing needs of different types of four person families. The detailed poverty lines used by the Poverty Commission, for example, assumed that the needs of families comprising two adults and two children varied according to the age and workforce status of the parents, as well as with the ages of the children. In the first column of Table 5, we present multiplicative approximations to the relative needs (or equivalence scales) implied by the detailed Henderson poverty line.

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11. $0.31 = (1 - 0.23).(0.18) + (0.21).(0.82)$

12. Most responses were given to the nearest $50 a week.

Table 5:   Estimates of the Relative Needs of Families of Different Ages and Workforce Composition: Families Comprising a Couple with Two Children

Family Composition	Relative Needs		Confidence Interval[a]
	Henderson Scale	Consensual Estimate	
Reference Family [b]	1.00	1.00	
Husband aged 40 or over	0.99	1.12	(0.88 - 1.37)
Husband not working	0.91	1.06	(0.54 - 1.58)
Wife aged 40 or over	1.00	0.90	(0.68 - 1.12)
Wife working	1.16	0.97	(0.86 - 1.08)
One Child aged 6 - 15	1.05	1.00	(0.93 - 1.06)

Notes: (a)   Plus or minus two standard errors

            (b)   The **reference family** comprises a family with the husband aged under 40 and working, the wife aged under 40 and not working, and both children aged under 6. The other families are identical except for the single characteristic listed.

These represent a simplified version of the Henderson equivalence scales, which are a complicated combination of additive and multiplicative factors. The table implies, for example, that the needs (and hence the poverty line) for a family of four where the mother is in the workforce are 16 per cent higher than if the mother is not in the workforce. Similarly, for each child aged between 6 and 15 years, the family's needs increase by 5 per cent. Where both the mother is in the workforce and where one child is aged between 6 and 15, the needs increase by a factor of $(1.16).(1.05) = 1.22$, or 22 per cent, and so on.

By distinguishing within families of four according to these family characteristics, it is possible to derive a set of consensual poverty lines, from which the corresponding relative needs or equivalence scales can be derived. This was done by modelling the minimum income response as a function of actual family income and other relevant family characteristics. For each family type described by these characteristics, an 'own income' consensual poverty line is derived and these are compared to derive the equivalence scale estimates (see Appendix for more details). The regression estimates used for this estimation are presented in Table 6.

The estimated equivalence scales that resulted are shown in the second column of Table 5, along with the 95 per cent confidence intervals for each estimate. The considerable width of the confidence intervals reflect the diversity of responses on the one hand, combined with the small sample size on the other. Two conclusions can be drawn from these results: Firstly, the estimates of the minimum amount required for health and decency for families with the given characteristics are in all cases not significantly different from those for the reference family. Second, and more interesting, however, is that for some of the characteristics there is a significant, or almost significant, difference between the flat estimated consensual equivalence scale and the Henderson scale. In particular, the consensual scale provides a much lower estimate (in fact it is negative) of the costs of wives working (a 95 per cent confidence interval of minus 14 per cent to plus 8 per cent). Also, the much lower estimate for the additional costs of older children is almost significant. Combined with the earlier results on the level of the consensual poverty line relative to the Henderson poverty line, the different equivalence scales implied by Table 5 indicate that the consensual approach to poverty measurement would produce both an **overall level** of poverty as well as a **structure** of poverty quite different to that resulting from use of the Henderson poverty line.

It is difficult to give sensible interpretation to some of the features of the results in Tables 5 and 6. However, it is important to recall that the MMIQ asks respondents to consider the situation of families of four **in general**, rather than their **own particular circumstances**. Thus the characteristics of the respondent's families may not have much

Table 6: **Response to the MMIQ Among Families Comprising a Couple Plus Two Children Aged Under 16**

Variable	Estimate	t-statistic
Constant	4.13	12.9
Log (net income)	0.28	5.4
Husband aged 40 or over (a)	0.10	1.3
Husband not working (a) (b)	0.07	0.4
Wife aged 40 or over (a)	-0.8	-0.9
Wife Working (a) (b)	-0.02	-0.5
Number of Children aged 6-15	0.0008	0.0
Sample Size		231
$\bar{R}^2$		0.11

Notes: (a) Zero-one dummy variables

(b) 'Working' means employed, either full or part-time.

impact upon the way they respond to the question,and so the equivalence scales estimated by this method may lead to an understatement of the differences in needs between families. For this reason we do not attach much weight to the results in Table 5, although they are suggestive of the need for further work along those lines.

6. CONCLUSIONS

In this paper, we have outlined the methodology underlying the consensual approach to poverty measurement, and pointed to some of the benefits and problems with the approach. Although conscious of the fact that the consensual approach does not avoid the involvement and judgement of experts in deciding the precise wording of the minimum income question, the consensual approach nonetheless provides a framework for deriving a poverty line based on community perceptions of the minimum incomes families need in order to make ends meet. The method does not, however, assess the poverty status of families according to their own subjective evaluations of actual income in relation to perceptions of the minimum income required. Rather it is based on comparing actual family incomes with a poverty line derived using the methodology of the consensual approach. This means that some families whose responses imply that their income is below what they see as necessary to make ends meet may be considered not in poverty, while others whose incomes exceed their evaluation of the minimum levels they need are considered to be in poverty. The consensual approach uses community opinion to set the poverty line. It does not measure poverty according to how individuals assess their income relative to the minimum they see as necessary in their circumstances.

Having outlined the consensual approach, we have illustrated the method using Australian data produced by the regular consumer surveys conducted as part of the Morgan Gallup Poll. While not ideal for this purpose, these data provide some useful insights into community perceptions of the income levels required by Australian families of four to live in health and decency. Analysis of these data over a period of four decades establishes quite clearly that community perceptions of the minimum income required to live in health and decency move over time more closely in line with general community income levels than with prices, despite the fact that the question from which the responses were derived emphasises minimum standards of living. The Australian community thus apparently shares the perceptions of communities in other countries that poverty is more of a relative than an absolute phenomenon.

Our detailed analysis of data from the July 1987 Morgan Gallop Poll further illustrates the usefulness of the consensual approach. Although the data are not ideal for the purpose,

application of the consensual approach produces a poverty line for a family of four of $333 a week, well above the Henderson poverty line and the level of unemployment benefit. Measuring poverty using the consensual approach indicates that 18 per cent of families of four were in poverty in July 1987, compared with only 7 per cent of such families using the Henderson poverty line. However, some of these 18 per cent apparently regard their current income as more than adequate to allow them to live in health and decency, while some of the remaining 82 per cent regard their current incomes as inadequate to allow this. Our investigation of how the needs of families of four vary with the age and workforce status of parents, and with the age of children, has produced results quite different from those implied by the detailed Henderson poverty lines. We do, however, have serious reservations about these results because the data used to derive them are not strictly appropriate. We see them as suggestive of the need for further work, rather than being in any sense definitive.

The Morgan Gallup Poll data analysed in this paper have allowed a first step to be taken towards the development of a consensual poverty line based on the perceptions of the Australian community. To take the method further, survey data designed specifically with the consensual approach to poverty measurement in mind are required. Such data are currently being collected as part of a wider Survey of Attitudes to Public and Private Welfare in the Australian Community. These data will allow a more formal application of the consensual approach and a more detailed consideration of its strengths and weaknesses. The results of this exercise will be reported in due course.

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Appendix

This Appendix outlines the more technical aspects of the consensual approach to poverty measurement developed by researchers at Leyden University and utilised in Section 5 of the paper on the Australian data. The minimum income question (MIQ) approach to consensual poverty measurement originally proposed by Goedhart et. al. (1977) was based on the following question:

> **We would like to know which net family income would, in your circumstances, be the absolute minimum for you. That is to say, that you would not be able to make both ends meet if you earned less.**

Three comments are worth making at this stage about the wording of this question. Firstly, respondents are asked for information that is relevant to their subjective evaluation of their own personal circumstances. Secondly, the use of the phrases 'absolute minimum' and 'to make both ends meet' carry with them a clear emphasis on subsistence concepts of minimum income. Third, respondents are asked to provide the minimum income necessary to make ends meet in their own (current) circumstances. This last point raises serious questions in interpreting which particular circumstances respondents assume to be unchanged in providing their response. Family circumstances are clearly one that would most probably be assumed constant, and this is desirable. But what about other circumstances, those relating to financial commitments, for example? Home purchasers with high mortgage payments, for example, will presumably hold these constant in framing their response, so that their minimum income response is likely to be high as a consequence. But what of those who may have similar incomes, but choose to live in cheaper housing situations and spend more heavily on dining out or going to the theatre? Their stated minimum income may be far lower, simply because the pattern of consumption they have chosen is different to an extent that influences the degree of flexibility they have to curtail current expenditures. Fortunately, the method allows in principle for the impact of these factors to be evaluated, if sufficient information on the current circumstances of respondents is collected. Most studies, however, focus on only one aspect of current circumstances, that relating to the family situation. For ease of exposition in explaining the method, we will also restrict ourselves to this interpretation.

We turn now to an explanation of how the consensual poverty line is derived from survey responses to the MIQ. Let Y^* be the response to the minimum income question by a

respondent whose current income is Y and current family circumstances are denoted by C. (One can think of C as a variable reflecting the number of individuals in the family, for example). The following general relationship is then posited between these three variables:

$$Y^* = F(Y, C) \qquad\qquad (A1)$$

As the work of the Leyden researchers demonstrates, the partial relationships between Y^* and Y, and between Y^* and C are both positive, i.e. the stated minimum income increase with actual income for a given family size, and increase with family size for actual income.

The average relationship between the response (Y^*) to the MIQ and actual income (Y) is shown for a particular family type by the relationship marked $Y^* = F(Y)$ on Figure A.1. Also shown is the 45° line (OX), at all points along which Y^* and Y are equal by definition. Consider now a family whose current income is equal to Y_1. Figure A.1 shows that the predicted response of such a family to the MIQ is Y_1^*, i.e. this is their average estimate of the minimum income they require to make ends meet. Now assume that this family's actual income fell to Y_1^*, or to the level shown as Y_2 on Figure A.1. Their new response to the MIQ will now also fall (to Y_2^*), but it will not fall by as much as actual income falls. A further reduction in actual income to Y_3 (equal to Y_2^*) will cause yet a further fall in response to the MIQ, and so on. In other words, the relationship $Y^* = F(Y)$ shown in Figure A.1 reflects the idea that the response to the MIQ depends upon the actual income level currently being experienced.

How, then is the poverty line to be established? The Leyden method proposes setting the poverty line at the point where actual income equals the response to the MIQ, i.e. at the point P in Figure A.1. The Leyden poverty line for this family is thus equal to an income level of Yp as shown in Figure A.1. The Leyden method has the advantage that it is the average views of those families whose actual incomes are close to the poverty line that determine where the poverty line is set. It is important to note, however, that it is not only the views of families close to the poverty line that matter, since the views of all families will influence the shape and position of the curve shown in Figure A.1 and hence determine the intersection point (P). This feature of the method avoids what initially appears to be a circularity of argument in defining a poverty line on the basis of the views of families whose current incomes are close to the poverty line.

It is worth noting that the Leyden method can be used to produce estimates of the poverty line for different family types. It also thus provides estimates of the equivalence scales that translate family incomes into a common measure of family welfare that can be

Figure A.1 : Derivation of the Consensual Poverty Line
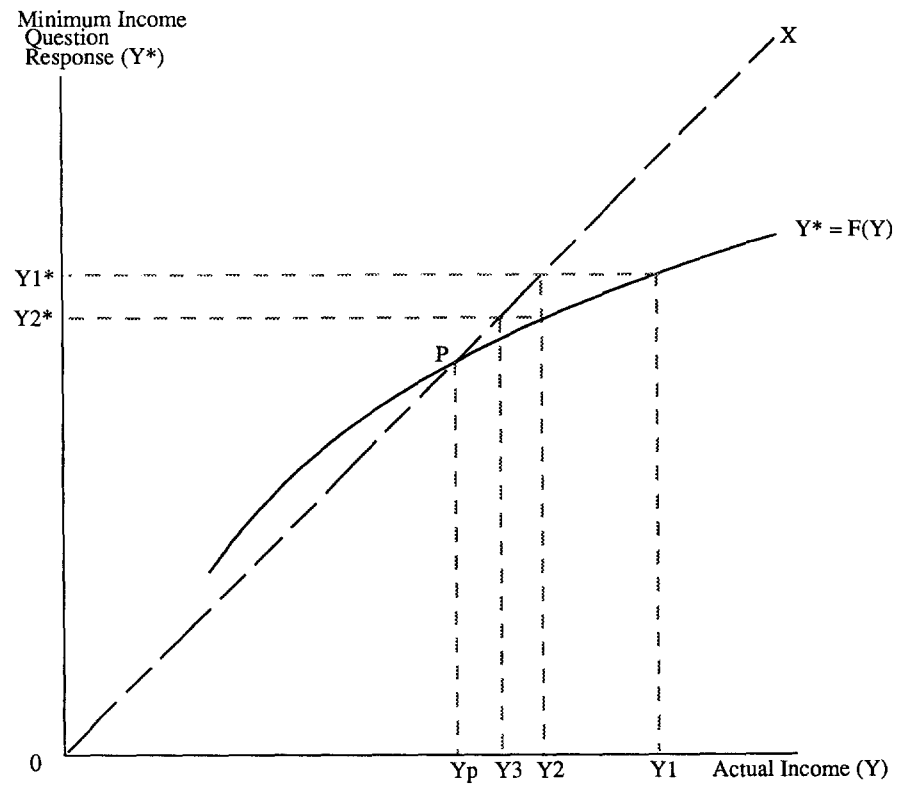
directly compared for different family types. This can best be illustrated with the help of a specific (logarithmic) form of the relationship shown in Figure A.1. Assuming that the relationship for family type 1 takes the following form:

$$\log (Y^*) = \alpha_1 + \beta_1 \log (Y) \tag{A2}$$

it follows that the consensual poverty line for this family (CPL_1) is obtained by setting $Y^* = Y$ in (A2), i.e.

$$\log (CPL_1) = \alpha_1/(1 - \beta_1) \tag{A3}$$

For family type 2 we have the following relationship:

$$\log (Y^*) = \alpha_2 + \beta_2 \log (Y) \tag{A4}$$

and their consensual poverty line (CPL_2) is obtained from:

$$\log (CPL_2) = \alpha_2/(1 - \beta_2) \tag{A5}$$

The equivalence scale (ES_{21}) which translates income for family type 2 into units of income equivalent to those for family type 1 is then equal to the ratio of the two consensual poverty lines, i.e.:

$$ES_{21} = CPL_2/CPL_1 = \exp \{ \alpha_2 / (1- \beta_2) - \alpha_1 / (1- \beta_1) \} \tag{A6}$$

A more general discussion of the use of consensual methodology in the calculation of equivalence scales is found in Bradbury (1989).

There is one further feature of the consensual approach to poverty measurement to emphasise. This can be explained with the assistance of Figure A.2, which is drawn for just a single family type for ease of exposition. Application of the consensual approach as explained earlier produces an estimate of the poverty line for this family type at an income level equal to Y_p. Consider now all those families of this type whose actual income exceeds Y_p. By definition, according to the consensual approach none of these families are in poverty. Yet some of them may have responded to the minimum income question by indicating that the income level they require to make ends meet is greater than their current actual income. An example of such a family is indicated by the point Z1 on Figure A.2. For this family, its responses to the MIQ suggest that, on the basis of

Figure A.2 : The Leyden Poverty Line and Subjective
Evaluation of Poverty Status
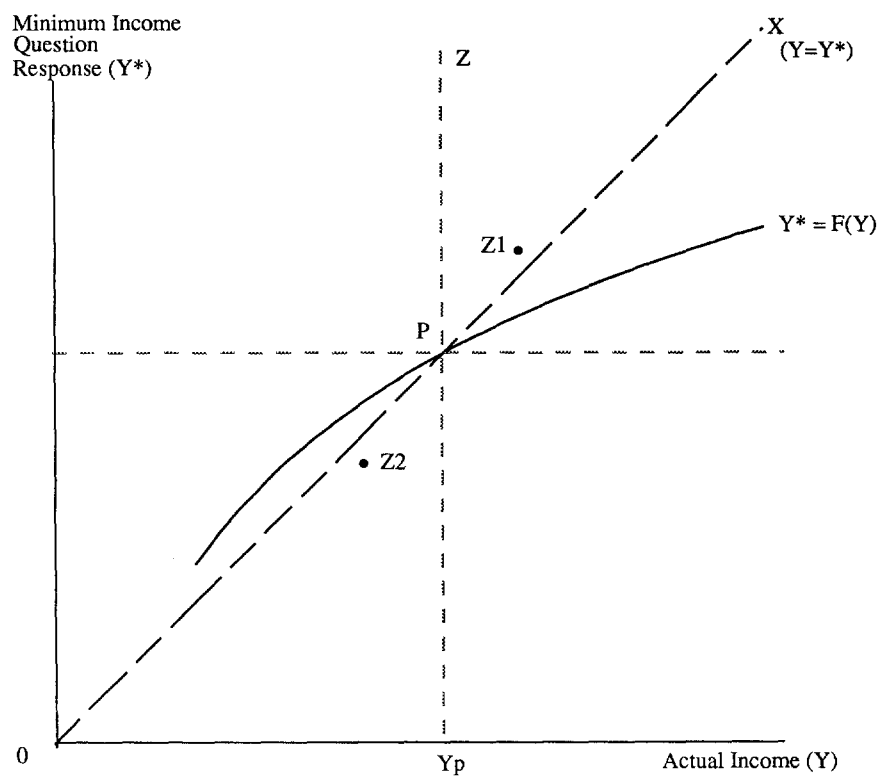
their own evaluation of their current circumstances, their income is adequate to make ends meet, yet the consensual approach to poverty measurement will define them as not being in poverty. By a similar line of reasoning, family type Z2 is not apparently evaluating its current income as inadequate to make ends meet, but will be defined as being in poverty using the consensual approach. In fact, all families whose responses to the MIQ fall within the region bounded by the lines PZ and PX may be thought of as 'inappropriately' defined as not-poor using the consensual approach, while all families whose responses fall in the region between the line OP and the vertical line PYp may be thought of as in a sense 'inappropriately' defined as poor using the consensual approach.

These examples are, of course, not inappropriate in the sense that they arise because of any misapplication of the consensual approach. Rather, they may be thought of as inappropriate from the perspective of those who would prefer poverty measurement to be based solely on the subjective assessment of the adequacy of current income levels by respondents. This latter approach would lead to no single poverty line definition at all, but would define as poor all families whose actual income (Y) is less than their minimum income (Y^*), i.e. all those families whose responses to the MIQ lie above the line OX in Figures A.1 and A.2. Thus, while the consensual approach to poverty measurement is based on family assessments of the minimum income required to make ends meet, it does not use the self-evaluation of the adequacy of actual income implicit in such assessments to define poverty. The subjective assessments of income adequacy by respondents to the MIQ are used to derive the poverty line under the consensual approach, but are not used to measure the extent of poverty itself.

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