Poverty redefined as low consumption and low wealth, not just low income: psychological consequences in Australia and Germany

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Abstract

This paper deals with two connected issues – how best to measure financial poverty and the psychological or subjective consequences of poverty. Measures of poverty are usually based only on low income. Arguably, this is conceptually incorrect; these measures lack validity. To be poor is to have a low material standard of living – involuntarily. So measures of poverty should probably also take account of household consumption and wealth. If a household has an adequate current level of consumption, it should not be classified as poor right now, even if its income is low. Similarly, if it has substantial wealth (net worth), it is arguable that it should not be viewed as poor because it could draw down wealth to boost current consumption. Data are drawn from Australian (HILDA) and German (SOEP) national socio-economic panel surveys.

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It is suggested that measures of financial poverty should be based on low consumption and low wealth, as well as low income. Having set out a case for doing this, we provide revised estimates of poverty based on all three dimensions of economic well-being. Then, using the revised measures, we reassess links between poverty and a range of subjective/psychological outcomes relating to life satisfaction, perceived standard of living, personal relationships and health. The reassessment indicates that poverty – measured in a more valid manner - has worse effects, a wider range of effects, and perhaps more complicated effects than most recent research has admitted.

Most research has found that income in general, and income poverty in particular, have statistically significant but only small effects on life satisfaction and some other aspects of well-being (Easterlin, 1974, 1995; Diener et al, 1999; Argyle, 2001; Clark, Frijters and Shields, 2008). However, a recent paper by Stevenson and Wolfers (2008) seriously challenges this finding and may yet win the day. The explanation usually given for the usual finding is that, in Western countries with welfare state programs, income mainly impacts life satisfaction through its effects on social status (Easterlin, 1974, 1995). That is, people with higher incomes than others in the same society feel slightly more satisfied with life, but only because they enjoy higher status. The Easterlin Paradox is that, even if everyone's income increased by the same amount – even if it was a large

amount - no-one would be more satisfied because status positions would be unchanged.

Social workers, welfare agencies and others who work directly with low income people have frequently expressed skepticism and dismay about interpretations which might be taken to imply that the detrimental psychological effects of poverty mainly relate to feelings of low status (Townsend, 1979). They have often reported evidence collected from poor people themselves about the humiliations of living in poverty, including humiliations related to not being able to keep up a 'mainstream' lifestyle and appearing to others as poor (Townsend, 1979; Mack and Lansley, 1985).

However, from a research standpoint, it ought to be conceded that most published work on poverty rests on measures of poverty which, from a theoretical point of view, are quite seriously flawed. The measures deal with *relative income poverty*, typically defined as an equivalised income below 50% or 60% of the national median. No account is taken of other dimensions of economic well-being. Further, the measures used are often cross-sectional; they only deal with current income, or income during the last year. Plainly, medium and long term poverty should be of greater humanitarian and policy concern than short term poverty. This latter concern has been addressed in panel studies, starting with the Michigan Panel Study of Income Dynamics (PSID), which invariably find that most poverty is short term, although people who have suffered spells of poverty in the past are at risk of recurrence (Duncan, 1984); Bane and Ellwood, 1986; Stevens, 1994).

Income-based measures do not adequately capture what economists and others usually say they mean by poverty. At a conceptual level, poverty is usually defined as *involuntary low consumption*. Low consumption *is* a low material standard of living. As Stein Ringen (1987) has observed, low income is only an indirect or proxy measure for low consumption. At best, income is a measure of potential standard of living or potential command over resources. Ringen (1987) has shown that in some countries there is only a moderate overlap between those who, at one moment in time, have low incomes and those who have low consumption.

The economist's concept of permanent income implies that individuals and household try to smooth consumption over a lifetime (Friedman, 1957). During periods of low income (e.g. during student years or in their twenties) individuals may be able to borrow to improve their consumption. They may also receive subsidies in cash or in kind from parents and other relatives. Later in life imputed rental income due to housing equity may boost 'real income' above 'nominal income'.

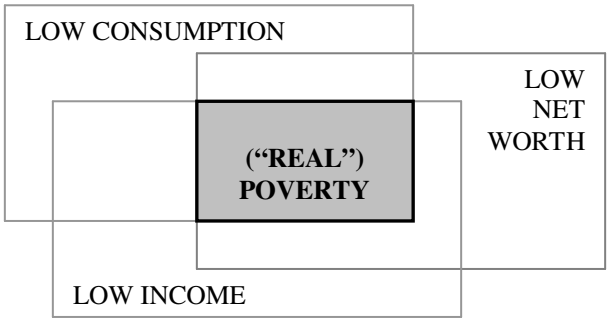
The reasons for taking account of net worth in measures of poverty are also quite compelling. If a family has a high or even moderate level of assets, it makes little sense to describe it as poor, even if its current income is low. This can be a substantively important point because, in some countries, there are many people who are moderately asset-rich but also income-poor. In Australia, the official Statistical Office reports that households in the lowest decile of income are, on average, in the middle quintile of net worth; many being older people who own their dwellings outright (ABS, 2005). Clearly, households with substantial assets may be able to ride out a period of low

income without a big fall in consumption. Clearly, this is easier if the assets are liquid, rather than in the form of property or other non-financial assets. (Later in the paper we use two alternative measures, one of which is restricted to liquid assets). It may be noted that some recent research has suggested that in several countries, including Australia and Germany, wealth has as much if not more impact on life satisfaction than income (Headey, Muffels and Wooden, 2008).

The multi-dimensional (income, wealth and consumption) concept of financial poverty preferred here can readily be illustrated in a diagram.

Figure 1

Redefining financial poverty: intersection of low income, low consumption & low net worth



As Figure 1 indicates, "real" financial poverty may be viewed as the overlap or intersection of low income, low consumption and low net worth. (Operational measures – or specific poverty lines – for low income, consumption and net worth are proposed later in the paper). It might reasonably be argued that the flip side of this conceptualization is that households which are close to or below poverty lines using measures of just one or two of these dimensions of economic well-being might be at risk of future poverty. This is an empirical issue as well as a conceptual one. In a previous paper the first author showed that households which, in year t, have low net worth, are in the bottom half of the income distribution and consume more than their current income, have about a 10% chance of becoming poor in year t+1 (Headey, 2008).

The arithmetic relationships between household income, consumption and net worth should be borne in mind.

HH Consumption =HH Disposable income – HH Change in net worth

In any given year a household's material standard of living or consumption is going to depend on its disposable income minus its change in net worth (assets minus debts). If it wants to spend more than it earns, it runs down wealth/savings, or borrows. If it earns more than it spends, it foregoes consumption and its wealth increases. The definition of consumption here includes the market value of consumption goods, plus imputed rental values for durables (e.g. housing; see below). Household disposable income includes Government benefits and is net of taxes. Capital gains or losses, whether realised or unrealised, are included in income. Net worth comprises all assets (both financial and non-financial) minus all debts.

The above equation might be taken to imply that, in making survey-based measures of financial poverty, we could rely on consumption measures alone, or alternatively measure any two of the three concepts and calculate results for the third. In practice this would not be sensible because, as economists and Government statistical offices are well aware, there is considerable measurement error in survey measures of wealth, income and consumption. So in practical terms it makes sense to 'triangulate' and directly measure all three concepts.

The most serious practical problems hindering implementation of the concept of financial poverty preferred here has been perceived inability to measure household expenditures and consumption in a standard survey format. It is generally believed that the only valid approach is to get respondents to fill in a shopping diary for at least a week, as is done in Government household expenditure surveys. This time-consuming approach

is out of the question for panel surveys like HILDA and SOEP, which are essential if we want to measure long-run or "permanent income", as theory requires. But the effort to measure consumption in a panel survey does not need to be abandoned. Building on Canadian work (Browning, Crossley and Weber, 2003), the HILDA team has developed a page of expenditure questions which appear to give reasonable estimates of over 50% of total household expenditure. This methodological issue and others are addressed in the next section.

METHODS

The Australian HILDA Panel Survey 2001-

The HILDA Survey is commissioned by the Australian Government and conducted by The Melbourne Institute of Applied Economic and Social Research at the University of Melbourne. It is a national household panel survey with a focus on issues relating to families, income, employment and well-being. Described in more detail in Watson and Wooden (2004), the Survey began in 2001 with a national probability sample of households occupying private dwellings. Interviews are conducted annually with all household members aged 15 and over. The initial household response rate was 66%, with 13,969 individuals completing interviews. By 2006 the sample size was 12,905. As is the case in most national panel surveys, sample representativeness is maintained not just by reinterviewing sample members who stay in the same household, but also by following 'split-offs' (that is, individuals who leave to form separate households) and adding members of their new households. So, for example, young people who leave home to get married remain in the sample, and their new partners are added.

Measuring consumption

As noted earlier, the general view has been that to ask expenditure questions in a standard survey format would yield invalid data because, without the assistance of a diary, respondents would be unable to remember how much they spent on many goods and services.

However, recent work in Canada has shown that, in fact, some items of expenditure are more validly reported in standard surveys than a diary, in part because respondents tell us how much they 'usually' spend on items, which is exactly what we want to know for the purpose of analyses which investigate individual or household relationships between consumption, other measures of well-being, and social and economic outcomes more generally (Browning, Crossley and Weber, 2003).[1] A defect of diaries for these purposes is that they record expenditures in a specific time period (usually a week or two), which may or may not be typical for an individual respondent or household. Consequently, individual or household level correlation and regression analyses cannot sensibly be undertaken, although aggregate national estimates for each variable should be correct.[2]

Further, the Canadian researchers showed that total household expenditure can be accurately extrapolated from the validly reported items.[3] The official Canadian statistical agency, Statistics Canada, now regularly uses standard

[1] The authors showed that in Canada one can account for about 79% of the cross-sectional variance total household non-durable expenditures with a regression equation which includes standard demographics plus questions eliciting spending on 4 items: food eaten at home, food eaten out, telephone costs, and gas, electricity and water.

[2] Given a national representative sample and a representative time slice.

[3] It is far from certain, however, that a *longitudinal series of estimates* of total expenditure could be validly obtained in this way. In other words, a few items may or may not provide an adequate basis for estimating annual *changes* in expenditure. Clearly, the prime purpose of HILDA is to provide longitudinal estimates.

survey methods to collect expenditure data.[4] It should be noted, however, that their instrument appears too long for inclusion in panel surveys like HILDA and SOEP.

For the HILDA panel, the data managers have developed a page of questions which appear to provide valid measurement of a wide range of household expenditures, but not all. The approach is to divide expenditure into weekly, monthly and annual items. It seems natural or at least sensible for some items (e.g. groceries, public transport and taxis) to ask how much is spent in 'a typical week'. For other items (e.g. motor vehicle fuel and telephone calls) the HILDA survey question relates to how much is spent in 'a typical month', and for a third set (e.g. holidays, costs of education) the question relates to the whole year.

In the 2005 Survey all the consumption goods on which households spend at least a moderate amount of money were included: groceries, meals eaten out, alcohol, cigarettes and tobacco, public transport and taxis, motor fuel, car repairs, telephone costs, utilities (gas, electricity, other heating fuels), home maintenance, health insurance, education, clothing and footwear, health care, holidays, hobbies and child care. The only consumer durable that was included was housing, both mortgages and rents. Other durables were omitted in 2005, but then were attempted in the 2006 and 2007 Surveys.

[4] The ABS Household Expenditure Surveys ask for some items to be recorded in a 'shopping diary' and uses a survey recall method for other more 'lumpy' items.

Benchmarking HILDA consumption data for 2005[5]

The obvious way to assess measurement validity is to make an adjustment for inflation and benchmark results against the latest official survey for which published data are available, namely the Australian Bureau of Statistics (ABS) Household Expenditure Survey (HES) for 2003-04. In benchmarking we mainly rely on comparisons between mean expenditures reported in HES and in HILDA. The standard deviations reported in the HES are in many cases much higher than in HILDA precisely because, for some items, HES did not ask about 'usual' expenditures but recorded expenditures in a survey/diary week. Inevitably, this led to inclusion of some expenditures which were unusually high or low for the households concerned, so inflating standard deviations.

It transpires that HILDA appears to have recorded accurate measurement (to within about plus or minus 10%) of items comprising 53.4% of total household expenditure on goods and services.[6,7] The validly measured items were the first twelve on the list above, starting with groceries, plus housing and rent (see Appendix 1). The items for which HILDA estimates proved inaccurate were the last five on the list, starting with clothing and footwear.

[5] Only the 2005 HILDA data are used for benchmarking. The 2006 and 2007 data further removed in time from the 2003-04 HES benchmark data.

[6] We allowed ourselves a bit of leeway over 10% where there was good reason to believe that the HILDA estimates might be reasonably satisfactory. In particular, in view of large housing price increases in recent years, we accepted that HILDA's high estimate of housing consumption might well be valid.

[7] Total household goods and services expenditure recorded in HES 2003-04 was $893 per week. This figure includes payments of mortgage interest but not principal. In HILDA the question about mortgage payments made no distinction between interest and principal. So, for comparison with HILDA, one must add to $893 a sum of $36 which was the mean weekly amount of principal repayments in 2003-04. HILDA appears validly to measure items which in HES amount to 53.4% of $929 ($893+$36).

In regard to the validly measured items, the total expenditure figure in HILDA differs by only 3.8% in real terms from the HES total for the same items, after adjusting for inflation.[8] A key point is that the putatively validly measured items correlate 0.76 with total household expenditure.[9] Further, and relevant to the measurement of poverty, the same correlation was found for low income households. Finally, it may be noted that, within the HES data set, a regression equation which uses just those items that appear to be well measured in a survey format, plus standard demographics, accounts for 78.3% of the variance in total household expenditure.[10]

On the basis of the benchmarking evidence, it appears reasonable to regard the sum of expenditures on the well measured HILDA consumption items as a valid proxy for total household expenditure. We can then proceed to calculate measures of consumption poverty. It should be recognized that doing this implies an assumption that households are placed in correct ratio scale order for total expenditure on the basis of their measured consumption goods expenditures plus housing. Here it needs to be conceded that the distinction being made between household expenditure and consumption is fairly crude. Conceptually, the difference is that expenditure is just out-of-pocket expenses, whereas consumption also includes benefits in kind. In this paper, expenditure estimates are treated as equivalent to consumption, except in the case of owner-occupier housing.[11] Here the consumption

[8] Given good economic growth, one would expect a real increase of about this amount between the mid-point of the HES in January 2004 and September-October 2005 when the HILDA Survey was conducted.
[9] This correlation was supplied by ABS, based on the HES for 2003-04.
[10] See Browning, Crossley and Weber (2003, p. 557) for a similar result in Canada.
[11] This seems realistic, given the list of items accurately measured. Clearly it would not be realistic if more consumer durables, in addition to housing, were included.

benefit has been equated to a rental value set at 4% of the current value of the house if sold today (as estimated by HILDA survey respondents).[12]

Further in regard to measurement issues, it should be recorded that over 80% of households provided information about their expenditures for all items included in the 2005 and 2006 HILDA Surveys. Imputed values for total consumption (but not individual items) were added for the remaining households who had some missing data.[13] The Pearson correlation between household consumption measured in 2005 and 2006 was 0.80. This is a higher correlation than was found for disposable income (0.69), indicating consumption smoothing. Also, as permanent income theory would predict, consumption was also more equally distributed than income. For example, the Gini coefficient of household consumption in 2005 was about 20% lower the Gini for income.

Measures of income and wealth in HILDA

The validity of the measures of income and wealth collected in HILDA has been assessed in previous publications and will only be briefly summarized here (Watson and Wooden, 2004; Headey, Marks and Wooden, 2005).

HILDA collects annual data on all main sources of labour income, asset income, private transfers and Government benefits. Income tax, the Medicare Levy and Family Tax Benefits are imputed by the survey data

[12] 4% of current sale value is a fairly standard rule of thumb for the rent which a dwelling would be likely to attract. Clearly, actual rental values in specific suburbs can differ quite widely from this guideline.
[13] The imputation was done by the author, using the SPSS MVA (missing values analysis) program. The imputation is likely to be revised in future years, when it is expected that the HILDA statistical team will undertake a longitudinal imputation of the kind already done for individual and household incomes and wealth.

managers. The HILDA totals for gross incomes (income from all sources, including Government) and disposable incomes match up well with ABS sources.

HILDA measured wealth – assets and debts - in 2002 and then again in 2006. Most household and individual level surveys seriously underestimate wealth, when matched up against aggregate data sources. However, when the HILDA data are benchmarked against ABS and Reserve Bank of Australia sources, it appears that under-estimation is only moderate. Average (mean) financial and non-financial assets in HILDA are both over 90% of the appropriate benchmark, and debts are over 80% (Headey, Marks and Wooden, 2005).[14]

Operational definitions of financial poverty – 50% and 60% of median

In Australia poverty lines based on 50% of median income are still generally used, whereas in the EU a 60% line is preferred.[15] In line with the view that poverty should be measured as a combination of persistent low income, low income and low liquid assets, we regard an individual as persistently poor if he/she has an equivalised income below either (1) 50% of national median equivalised income and 50% of median equivalised consumption or (2) 60% of median income and consumption. Additionally, a person is only defined as poor if he/she is also poor in terms of net worth or liquid assets (see definitions below).

[14] For reasons explained in Headey, Warren and Wooden (2007), we use an ABS benchmark for financial assets and an RBA benchmark for non-financial assets and specifically housing.

[15] Strictly speaking, the EU refers to households below the 60% line as being 'at risk of poverty'. However, the line is conventionally referred to as the EU's measure of relative income poverty.

How best to measure low wealth or low net worth (assets minus debts) for present purposes? One simple practical approach is just to exclude any individual/household with substantial net worth from being defined as poor. Here we say that any household with a net worth of $200,000 or more is automatically excluded from poverty. A second approach has been developed by Caner and Wolff (2004). They have proposed several measures of what they term 'asset poverty'. Their basic idea is that a household is 'asset poor' if it lacks enough wealth to survive for three months in an emergency (caused by, say, ill-health or an unexpectedly large bill) with an income above a designated income poverty line. They propose several alternative measures; the one used here relates to the availability of liquid/financial assets valued at three times the income poverty line, so enabling them to stay out of poverty for three months in emergency. In other words, they exclude non-financial assets like housing, businesses and farms which cannot easily be cashed in to cope with an emergency.

For comparison with the 'poor', we also define two other groups. A 'middle' group was designated whose equivalised incomes and consumption were above income and consumption poverty lines but not in the top quintiles of these distributions, and who were also not poor in terms of low net worth, but not in the top quintile of net worth either. The 'well-off' will be defined as those who had an equivalised income, equivalised consumption and a level of net worth which placed them in the top quintile of these three distributions.

Measures of life satisfaction and well-being

Now the measures of life satisfaction and well-being. Life satisfaction was measured on a single item 0-10 scale, where 0 meant 'completely dissatisfied' and 10 meant 'completely satisfied'. This measure is widely used in national and international social and economic surveys, including household panels like HILDA, and is regarded as adequately reliable and valid for many purposes (Diener et al, 1999). However, it is clearly less reliable and valid than well constructed multi-item scales.

We also consider the impact of poverty on several other measures relating to well-being and stress. Satisfaction with 'your financial situation' and 'your relationship with your partner' were measured on the same 0-10 scale, and were included in batteries of questions assessing satisfaction with a wide range of different aspects of life.

General health and mental health were assessed by the SF-36 Health Scale, a well regarded survey instrument designed to provide self-assessed health measures; that is, designed for completion by the general public (or patients) rather than health professionals (Ware, Snow and Kosinski, 2000). General health and mental health are recorded on standardised 0-100 scales, where a high score means 'good' health.

For presentation in tables all the well-being measures have been transformed to run from 0 to 100. So results can be interpreted as quasi-percentiles.[16] This arithmetic transformation does not in any way distort comparisons

[16] Of course, they are not true percentages. One cannot say, for example, that someone who scores 80 on the 0-100 scale is twice as satisfied or healthy as someone who scores 40.

between groups, and avoids the confusion sometimes caused by giving results based on a variety of scales, which have differing (and arbitrary) lengths.

RESULTS

Estimates of financial poverty in 2005-07 based on wealth and consumption, as well as income[17]

In Table 1 results are first given for poverty lines based solely on low income. This is the conventional approach. Next we observe lower poverty rates given by consumption measures. Then we see how big a difference it makes to estimated rates when income and consumption are combined to provide income+consumption poverty lines. Finally, measures of net worth (or asset poverty) are added to give multi-dimensional income+consumption+wealth lines.

[17] Strictly speaking, the dates of the wealth, consumption and income poverty measures are not the same. The wealth and consumption measures apply to the dates on which the Survey was conducted (September-October 2007). The income measures relate to Financial Year 2006-07.

Table 1

Australia: Measures of Financial Poverty in 2007 Based on
(i)Income
(ii) Consumption
(iii) Income + Consumption
(iv) Income + Consumption + Net Worth (Liquid Assets)[a]

	<50% of median pov. line %	<60% of median pov. line %
income poor	13.7	19.9
consumption poor	9.9	15.9
income poor + consumption poor	3.6	7.2
income poor + consumption poor + net worth poor[a]	**3.2**	**6.3**
income poor+consumption poor + liquid asset poor[a]	**2.5**	**4.9**

Source: HILDA (2007).
a. Two alternative measures of low wealth are given in the last two rows of the table.

It can be seen that in Australia the choice of whether to define and measure poverty in terms of just income, or both income and consumption, makes a huge difference to how many people (and, as we shall see, which groups of people) are designated as poor. Inclusion of low wealth (whether taking account of all assets, or just liquid assets) at the last step makes only a small difference to cross-sectional results. Fundamentally, the reason why inclusion of consumption has such a large effect is that consumption is about 20% more equally distributed than income. It is also only moderately highly correlated with income; the Pearson correlation in 2006 being 0.52.[18] It is also clear from Table 1 that choice of poverty line (50% or 60% of median) makes a large difference to estimated poverty rates.

[18] It also quite important to realise that household consumption is more highly related to net worth (correlation in 2006=0.62).

Income+consumption poverty lines give much lower estimates of poverty than income lines. Many households appear to engage in consumption smoothing, maintaining their standard of living during putatively temporary periods of low income. Adding in net worth or liquid asset poverty then reduces estimated poverty rates a little more.

Next we show how the new multi-dimensional measures could be used to provide revised estimates of the persistence of financial poverty. As noted earlier, poverty persistence is of much greater normative and policy significance than short term poverty, or poverty at one moment in time. However, with only three years of data for the new measures, the evidence is purely illustrative; plainly a three-year measure cannot sensibly be described as indexing 'persistent' poverty. Using each of the alternative measures, Table 2 shows how many Australians were not poor in any year in 2005-07, how many were poor in just one of these years, how many were poor for two (any two) of the three years, and how many were poor for three years running. Results for the rest of the paper are only shown for the 60% of median poverty line.

Table 2

Australia: Three-Year Persistence of Financial Poverty in 2005-07
Based on 60% of Median Poverty Lines:
(i) Income Poverty
(ii) Consumption Poverty
(iii) Income + Consumption Poverty
(iv) Income + Consumption + Net Worth (Liquid Assets)[a]

N times poor in 2005-07	Income poor 60% line %	Consump. poor 60% line %	Income & consump. poor 60% line %	Income, consump. & net worth poor 60% line %	Income, consump. & liquid asset poor 60% line %
Never poor	69.8	75.5	87.4	88.8	92.3
1 year poor	12.6	9.9	6.4	5.3	3.1
2 years poor	7.1	6.8	3.5	3.3	2.4
All 3 years poor	**10.6**	**7.8**	**2.7**	**2.6**	**2.2**
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Source: HILDA (2007).
a. Two alternative measures of low wealth are given in the last two columns of the table.

Clearly, three-year poverty persistence is estimated to be a great deal lower if income-based measures are replaced by measures which also incorporate consumption, or consumption plus net worth. This is further evidence of consumption smoothing. If the 60% income-based poverty line is used, three-year poverty is estimated at 10.6%, while if income, consumption and net worth are all included, the rate is 2.6% (2.2% if liquid asset poverty is used instead of low net worth).

In summary, if the logic behind including these revised measures of poverty is accepted as sound, it also has to be accepted that existing income-based measures are seriously in error. The results they give are much too high. Saying this does not in any way diminish the importance of financial poverty as a public policy issue. The key aim is to define and measure poverty more accurately in order to provide improved evidence for public policy intervention.

Who is income poor but not consumption poor – and vice-versa?

Given that the groups diverge, it is valuable to ask 'Who is income poor but not consumption poor – and vice-versa?' Three hypotheses may be suggested about the characteristics of the first group. First, we might expect that many would be homeowners who have completely or nearly paid off their mortgage, and so are living more or less 'rent-free'.[19] Secondly, we might expect that some young people with high levels of human capital but a low current income would take a chance on consuming more than they earn because they consider that they can afford to take on debt. Thirdly, and overlappping with the second group, we might expect to find some young people consuming more than earn due to gifts from parents and relatives.[20]

All three hypotheses receive some confirmation. The largest set of people who lack income but whose consumption levels appear adequate are those who own their homes outright. Many are of course older people who have retired. For example, the estimated rate of poverty in 2007 for households

[19] Note that, in this article, the value of their homes is included in our measure of net worth. An alternative approach (see Frick and Grabka in this volume) is to include an estimate of imputed rent in a revised measure of income.

[20] In principle, gifts should be recorded as income in HILDA, but survey research experience suggests substantial under-recording.

headed by people aged 65 and over falls from 24.6% if the 60% of median income-based poverty line is used, down to 7.3% if a parallel measure combining income, consumption and net worth is used.

Younger well educated people also have a fairly high rate of income poverty. As noted above, they may be borrowing to consume, or perhaps living partly off a parental subsidy.[21] Their decisions to spend more than they earn may be quite rational in so far as they have high earnings expectations down the track. Single women are particularly likely to have higher levels of consumption than earnings, and may perhaps receive some subsidies from partners and boyfriends, in addition to borrowings and possible parental subsidies. In general, households headed by individuals or couples of prime working age (25-54) are less likely than households headed by younger or older people to be income poor but still have adequate levels of consumption. It proved harder to identify specific groups who are consumption poor but not income poor. However, renters who have low incomes and pay a high proportion of what they do earn in rent are one such group.[22]

Life satisfaction, personal relationships and other outcomes related to health and well-being

The outcomes we are trying to account for in Table 3 are life satisfaction and other well-being outcomes in 2007. Only poverty measures based on 60% of median income and consumption lines (together with wealth measures) are used.

[21] As noted earlier, parental subsidies should be recorded in surveys as inter-household transfers but are, in practice, often omitted as a source of income.
[22] It is not really clear why. In some cases they may be saving a lot; for example, to buy a house.

Table 3

Australia: Comparing The Poor (Low Income+Low Consumption+Low Net Worth)[a] With Middle and Well-Off Groups - Linkages to Life Satisfaction, Financial Satisfaction, Personal Relationships and Health 2007

	Poverty: low income, consumption & net worth			Middle income, consumption & net worth			High income, consumption & net worth		
	All	M.	F.	All	M.	F.	All	M.	F.
		%			%			%	
Life satis. (0-100)	75	74	76	79	79	79	82	81	83
Financial satis. (0-100)	53	51	54	67	67	67	79	78	79
Partnered (%)	39	44	35	66	68	65	75	75	76
Partner satis. (0-100)	78	82	76	82	84	80	83	85	81
General health (0-100)	56	57	56	69	69	69	74	74	74
Mental health (0-100)	66	65	66	75	77	74	79	81	77

*Population weighted results.

a. Low income and low consumption are defined as < 60% of equivalised median income and equivalised median consumption. Low net worth is < $200,000.

Plainly, the gaps between the 'poor', 'middle' and 'well-off' are substantial (not merely statistically significant) on most of these measures of well-being. Furthermore, the gaps found using our revised multi-dimensional measures of poverty are for all variables greater than if a purely income-based measure had been used (see Appendix 2).[23] The most eye-catching finding is the difference in percentages who are partnered. Only 39% of prime age poor people – and only 35% of the women - were partnered, compared with 66% in the middle group and 75% in the well-off group. It appears that to be poor is to be unable to get or keep a partner. However in some cases –

[23] However, contrary to expectation, it is not the case that people who had already been poor for 2 or 3 years in 2007 reported lower scores on most of these measures than people who were 1-year poor. The opposite is true. It appears that, from a subjective standpoint, the shock of becoming poor has a larger effect than persistent poverty. This accords with much research on the impact of life events on life satisfaction, where it is found that the impact of most events is greatest at first and then tends to diminish rapidly.

especially single mothers - individuals would have become poor as a consequence of their partnership splitting up, rather than being unable to get a partner because of poverty.

The other substantial differences between the three groups relate to satisfaction with 'your financial situation', to general health and mental health. The first finding may appear self-evident, but notice that the financial satisfaction of poor men is lower than that of poor women, probably reflecting the fact that prime age men feel particularly humiliated by not earning a good living. The health findings gaps between the well-off and the poor may appear striking to a lay-person, although no surprise to public health researchers or medical practitioners. Again, some reverse causation is certain to be at work. In other words, not only is it the case that poverty damages physical and mental health, but also poor health can be one cause of poverty.

Much recent research in economics has focused exclusively on the relationship between income and life satisfaction, which is treated as the main outcome of interest. In one sense this may lead to misleading conclusions or conclusions which are too sweeping. Even with the revised measure of poverty used here, we find quite small differences between the persistently poor, middle and well-off. The gap between the poor and the well-off for the total population is 7 points on the 0-100 scale. Further, in multivariate analysis the gap fall to just 2% (see below); statistically significant at the 0.001 level, but substantively minor.

However, the main conclusions to be drawn from the evidence in Table 3 relate not to life satisfaction but to other more substantial differences in well-being between the three groups. These differences are surely not just due to status. We return to this issue in the Discussion section.

Multivariate results for the same six outcomes

Plainly, some of the results given in Table 3 could be spurious due to omitted variables correlated with both poverty and the outcome variables. Table 4 gives multivariate results for the same six outcomes, with 'controls' consisting of a range of variables generally associated with subjective outcomes: gender, age, partner status, number of children in the household, years of education, unemployment status (1-0), disability status (1-0), being born in a non-English speaking (NESB) country, and the personality traits of neuroticism and extroversion (Costa and McCrae, 1991). The poverty measure used here is again the low income (60% line)+low consumption (60% line)+low net worth index for 2007, and results in Table 4 come from OLS regressions, with the exception of the outcome 'partner status' for which a marginal effects probit regression was appropriate.

Table 4

Australia: Financial Poverty - Linkages to Life Satisfaction, Financial Satisfaction, Personal Relationships and Health 2007: OLS and Probit

	Life Satis. (0-100)	Fin. Satis. (0-100)	Partner status (1-0)	Partner Satis. (0-100)	Health (0-100)	Mental Health (0-100)
Poverty: low inc, consump. & net worth	**-1.92*** **	**-11.53*** **	**-0.25*** **	**-3.08***	**-5.36*** **	**-4.24*** **
Female	0.70***	0.53	-0.07***	-2.31***	0.21	-2.50***
Age	0.47***	-0.68***	0.05***	-0.59***	-0.11	-0.09
$Age^2/10$	0.06***	0.09***	0.00***	0.07***	0.00	0.02***
Partnered	4.06***	6.33***	-	-	0.65	2.63***
N. children	-0.25	-1.25***	0.14***	-1.12***	0.59**	0.06
Years educ.	-0.22**	0.95***	0.01***	-0.02	0.52***	0.15
Unemployed	-2.70**	15.14***	-0.19***	-5.43***	1.65	-2.50*
Disability	-4.82***	-5.69***	-0.05***	-1.45**	-19.83***	-8.79***
Foreign (NESB)	-1.79***	-1.22	-0.02	-0.71	-1.01	-1.79***
Neuroticism	-2.37***	-2.43	0.01*	-3.00***	-3.98***	-5.41***
Extroversion	1.43***	0.48*	0.02***	0.79***	1.69***	1.85***
Adj. R^2	11.7%	14.3%	17.5%[a]	5.7%	28.8%	22.9%
N	9935	9934	9937	6778	9112	9211

Source: HILDA (2007).

a. Pseudo R^2.

*** significant at 0.001; ** significant at 0.01; * significant at 0.05

It is clear that, net of controls, four of these six outcomes are strongly associated with poverty. (Again, though, it should be noted that two-way, rather than just one-way causation is certain to be involved). A poor person's chances of finding and keeping a partner are 25% less than a non-poor person's. Poor people rate 11.5% (quasi-percentiles) lower than others on 'satisfaction with your financial situation', 5.4% lower on the SF-36 General Health Scale and 4.2% lower on the SF-36 Mental Health Scale. On

the other hand, the satisfaction levels of the poor with 'your relationship with your partner' were only about 3% lower than for the non-poor, and life satisfaction was only about 2% lower.

Psycholgical consequences of financial poverty in cross-national perspective

To test the cross-national robustness of the subjective consequences of poverty, we also used data from the German Socio-Economic Panel (SOEP). SOEP is a multidisciplinary representative longitudinal study in Germany starting in 1984, in which direct annual interviews are carried out with all individuals of respondent age (16 and older) who live together in the same household (Wagner et al. 2007). The SOEP includes annual measures of household income, earnings, satisfaction, labor market participation, education, and socio-demografic characteristics of individuals and the household[24]. Wealth was surveyed as a special module in 2002 (and repeated in 2007)[23.] In 2005 the SOEP added special topical modules on personality concepts[25]. Further measures of health[26] have also been added and they are included for the 2005 population as well.

In this paper empirical analyses of the SOEP are mostly restricted to the cross-sectional population of wave 22 (2005), with more than 22,000 individual respondents living in about 12,000 households. The longitudinal

[24] Partnership has been included as a household variable - 'being partnered or living in a household where the heads are living in partnership'.

[25] The personality inventory used here is based on empirical work indicating that personality differences between individuals can be attributed to five basic traits (McCrae, Costa 1987): openness to experience, extroversion, conscientiousness, agreeableness, and neuroticism. To apply this concept within the SOEP representative survey, a short version of items has been used with at least three items per dimension to get robust results (Gerlitz, Schupp 2005). In fact, the five factor structure was replicated and tests of reliability and validity confirmed the use of this concept within the SOEP representative survey.

[26] Physical and mental health derived from the SF-12 concept (Ware, Kosinski, Keller 1998).

character of the survey has been used to include health and wealth measures from previous waves and for a long-term measure of poverty. Wealth was measured as a special module in 2002 – net worth has been imputed for the same households in 2005[27].

For Germany, using the same measure, we find a slightly lower income poverty rate than for Australia: in 2005 17.2% of the total population and 15.5% of the adult respondent population were living below the EU's 60% of median income poverty line (Table 5). The long-term poor comprised 10.3% of respondents (long-term poverty is measured according to the procedure for the EU-Laeken-indicators as being relative-income-poor in the current year *and* poor for at least two of three previous years; see Atkinson et al. 2002, Marlier et al. 2007; Krause, Ritz 2006).

[27] For new households joining the sample after 2002, this value is missing.

Table 5

Germany: Incidence of Multi-Dimensional Financial Poverty, 2005

2005	Total Population			Respondents (age 17+)		
	poor (%)	(N)	N-wght (1.000)	poor (%)	(N)	N-wght (1.000)
Type of poverty						
poor (60%-med)	17.2	2.996	14.044	15.5	2.205	10.525
long-term poor	11.7	1.591	8.048	10.3	1.206	6.126
low wealth	26.9	5.352	19.734	25.8	4.033	15.728
poor & low wealth	7.9	1.400	5.827	7.1	990	4.340
long-term poor & low wealth	6.2	903	4.070	5.6	667	3.129

*Poor – less than 60% of median equivalent income (rev. OECD scale); long-term poor – relative-income-poor in current year and in at least 2 of the three previous years; low wealth – net worth (from 2002), equivalised < 3 months of equivalised household net income at current poverty line.

One quarter of the population in Germany in 2005 lived in households with equivalent net worth less than 3 months of their equivalent incomes at the current poverty line. Taking income poverty and wealth deprivation together, the population at risk declines to 7.1% - and further to 5.6%, if long-term poverty is taken into account. That is, 5.6% of all respondents were living in Germany in 2005 in long-term poverty (according to the EU-Laeken-Indicators) with little net worth to fall back on in order to keep them for at least 3 months above the income poverty threshold. Given that lack of consumption is not yet taken into account, this rate appears quite similar to the corresponding value in Australia (see Tables 1 and 2).

Table 6

Germany: Comparing The Poor (Low Income +Long Term Poor+Low Net Worth)[a] With Middle and Well-Off Groups: Linkages to Life Satisfaction, Financial Satisfaction, Personal Relationships and Health 2005

	Poverty: low long term income, & low net worth			Middle income, & net worth			High income, & net worth		
	All	M.	F.	All	M.	F.	All	M.	F.
	%			%			%		
Life satis. (0-100)	58	56	60	69	69	69	74	74	73
Financial satis. (0-100)	39	35	41	63	62	63	74	73	74
Partnered (%)	49	50	46	76	82	71	81	82	80
Living standard satis. (0-100)	55	53	56	71	70	71	78	76	79
General health (factor loading)	29	27	30	30	30	31	32	34	31
Mental health (factor loading)	28	26	29	32	31	32	32	34	31

*Population weighted results. SOEP.

a. Low income is defined as < 60% of equivalised median income. Low net worth is (equivalized) assets less than 3months of equivalent hh-net-incomes at pov-line.

To test the robustness of results relating to the subjective consequences of poverty, we now compare results for Australia (Table 3) with corresponding calculations for Germany (Table 6). For satisfaction with life, financial satisfaction and satisfaction with living standards (which refers to the subjective aspects of consumption) the subjective levels for the most financially deprived are lower in Germany (life satisfaction 58 compared to 75 in Australia; financial satisfaction 39 compared to 53 in Australia). So the gaps between 'poor', 'middle', and 'well-off' appear greater than in the Australian data. As in the Australian data, the differences between the poor and the well-off in subjective well-being are greater for the revised measure

of multi-dimensional poverty compared to the more simple income-based differences (see Appendix 2, Table A3).

The differences in those who are partnered show the same pattern in both countries – under 50% of those in multi-dimensional financial poverty are living in Germany in partner-households (partnered themselves or living in a household of partnered male and female heads) – compared to more than 80% in the well-off group.

The big differences in health found in the Australian data between poor and non-poor were not replicated for Germany. The operationalization of the constructs for physical and mental health is somewhat different between the two countries, so we cannot yet be sure that health conditions really differ. However, given the high quality German health care system, the result could well be valid.

Multivariate analyses, using OLS and probit regressions (Table 7) with sets of control variables corresponding to those used in the Australian data (Table 4), underpin the robustness of previous results. Low satisfaction with household incomes and partner status are very strongly associated with poverty. Net of controls, the German data mostly show higher negative impacts of multidimensional poverty than in Australia, although the general patterns are similar. Financial satisfaction of the poor in Germany is 15% lower than for the non-poor (12% lower in Australia). The chances of a poor person being partnered are 29% lower in Germany compared to the non-poor (25% lower in Australia). In Germany even life satisfaction is quite clearly lower for the poor than the non-poor; 5% lower compared with 2% lower in

Australia. Finally, unemployment seems to have greater negative impact on subjective well-being in Germany. The life satisfaction of the unemployed is 13.2% lower than the rest of the population, compared to 2.7% lower in Australia.

Table 7

Germany: Multi-Dimensional Financial Poverty: Linkages to Life Satisfaction, Financial Satisfaction, Personal Relationships and Health 2005:

OLS and Probit

	Life Satis. (0-100)	Fin. Satis. (0-100)	Partner status (1-0)	Health (f.load.)	Mental Health (f.load.)
Poverty: low long-term income & low net worth	**-5.19*** **	**-15.24*** **	**-0.29*** **	**-2.49** **	**-2.66** **
Female	1.75***	1.65***	-0.10***	-0.77	-0.79
Age	-0.32***	-0.38***	0.02***	0.16*	0.33***
$Age^2/10$	0.03***	0.05***	-0.00***	-0.03***	-0.03***
Partnered	3.26***	6.30***	-	-1.97***	-.39
N. children	0.17	-0.79***	0.16***	1.06***	0.41
Years educ.	0.28***	0.69***	-0.01***	0.33***	-0.01**
Disability	-7.30***	-5.70***	-0.01	-	-
Unemployed	-13.22***	-20.01***	-0.10***	0.30	0.45
Neuroticism	-4.48***	-2.84***	0.02***	-1.00***	-2.45***
Extroversion	1.62***	0.83***	-0.00	0.22	0.84***
cons	71.28***	56.86***		30,0***	23.6***
Adj. R^2	15.5%	16.2%	10.3%	2.5%	1.3%
N	15619	15372	(15643)	15722	15722

Source: SOEP (2005).

a. Pseudo R^2.

*** significant at 0.001; ** significant at 0.01; * significant at 0.05

As mentioned before, it should be borne in mind that, with most of these linkages, some reverse causation might be at work. So further panel regression models are necessary to clarify the different paths of causation – for example, whether poverty prevents individuals from finding a partner and causes separations, or whether not having a partner increases the risk of falling into poverty. The current state of the evidence is that cross-national comparisons provide rather strong support for the inference that poverty – and especially multi-dimensional financial poverty - has strong negative psychological consequences.

DISCUSSION

The revised measure used here indicates that financial poverty has strong associations with a wide range of well-being outcomes. Recent research linking wealth and income to well-being has focused heavily on 'life satisfaction' as the outcome of interest (Veenhoven, 2003; Clark, Frijters and Shields, 2008; Headey, Muffels and Wooden, 2008; Stevenson and Wolfers, 2008). The evidence in this article suggests that other outcomes are affected more seriously. The evidence also indicates that it is incorrect to claim that income levels and poverty only relate to well-being via their impact on a person's social status. Not having a partner and having low levels of physical and mental health are plainly not just matters of status. They are seriously detrimental in themselves and may perhaps be regarded as links in the chain leading from poverty to low life satisfaction.

Our proposed multi-dimensional measures of financial poverty lead to much lower estimates of poverty in the population than standard income-based measures (see Appendix 2 for results using standard measures). It also

appears to be true that the commonly reported result that poverty, measured by income alone, has quite modest relationships with subjective outcomes is partly a consequence of misclassification of poor and non-poor people. Once we measure poverty more validly, its impact is seen to be considerably greater.

Appendix 1

Benchmarking: Household Expenditure Items Measured Validly In HILDA 2005 Compared With HES 2003-04

This appendix benchmarks HILDA results for 2005 against the Household Expenditure Survey (HES) for 2003-04. Weekly expenditures are shown. The HILDA figures have been deflated by 4.7% to allow for the increase in CPI between January 2004 (mid-point of the HES data collection) and September 2005 (mid-point of the HILDA data collection). Only items which appear to be reasonably accurately measured in HILDA are shown. A margin of plus or minus 10% between HILDA and HES was considered reasonably satisfactory, subject to a few small additional deviations explained below. In general, one would expect the HILDA figures to be a few percent higher than the HES figures, because real disposable per capita (and hence per household) incomes increased in the 21 months between the two data collections. In fact, this is what we do find.

Using a band of plus or minus 10%, the well measured items amount to 53.4% of total household expenditure on goods and services as reported in HES.[28] Within HES these items correlated 0.76 with total expenditure. Also within HES, a regression equation using these items plus standard demographics accounted for 78.3% of the variance in total expenditure.

[28] The HES total for the items was $929, being $893 for what HES terms 'total goods and services expenditure', plus $36 for mortgage principal repayments. HES separates out mortgage interest and mortgage principal and does not include the latter in total goods and services expenditure. By contrast, the HILDA mortgage repayment question made no distinction between interest and principal payments.

Table A1

Household Weekly Expenditures

	HES 2003-04	**HILDA 2005***
Groceries (note i)	$131	$142
Alcohol	$23	$22
Tobacco	$12	$13
Public transport & taxis	$7	$7
Meals eaten out	$42	$41
Motor fuel	$33	$34
Car maintenance	$14	$15
Telephone	$27	$26
Home fuel	$23	$22
Home maintenance	$21	$19
Health insurance	$17	$15
Education	$18	$16
Mortgage payments (note ii)	$82	$92
Rent (note iii)	$46	$51
Total	**$496**	**$515**

*HILDA figures deflated by 4.7% for CPI.

Notes: Items which did not benchmark satisfactorily, but which we attempted to measure in HILDA 2005, were: clothing and footwear, holidays, recreation, health care and child care.

(i) The HILDA question, which was made more precise in 2006, is related specifically to food, cleaning products, pet food and personal care products.

(ii) The difference between HES and HILDA is a little over 10%. Given the big increase in house prices in recent years this difference seems acceptable. Note that households are included even if they pay no mortgage.

(iii) The difference between HES and HILDA is a little over 10%. Given the increase in rents in recent years this difference seems acceptable. Note that households are included even if they pay no rent.

Appendix 2

Comparing The Psychological Consequences Of Income-Based Poverty With Poverty Defined As Low Income+Low Consumption+Low Wealth

This appendix is included to enable comparisons to be made between the psychological consequences of poverty measured in the standard income-based way with the consequences as assessed by a measure based on income+consumption+wealth.

It is plain that differences between the poor, on the one hand, and middle and well-off groups are much larger if account is taken of all three dimensions of economic well-being.

Table A2.1

Australia: Comparing The Income Poor With Middle Income and Well-Off Groups - Linkages to Life Satisfaction, Financial Satisfaction, Personal Relationships and Health 2007

	Income poor: below 60% of median			Middle income: not poor & not in top quintile			High income: top quintile		
	all	men	women	all	men	women	all	men	women
	%			%			%		
Life satisfaction (0-100)	77	76	77	79	78	79	79	79	81
Financial satisfaction (0-100)	60	57	61	65	65	66	73	73	74
Partnered (%)	51	57	46	62	61	62	69	66	72
Partner satisfaction (0-100)	82	85	80	81	82	80	82	83	81
General health (0-100)	59	58	60	69	70	69	74	73	74
Mental health (0-100)	69	70	69	75	76	74	77	78	76

*Population weighted results.

Table A2.2

Germany: Comparing The Income Poor With Middle Income and Well-Off Groups - Linkages to Life Satisfaction, Financial Satisfaction, Personal Relationships and Health 2005

	Income poor: below 60% of median			Middle income: not poor & not in top quintile			High income: top quintile		
	all	men	women	all	men	women	all	men	women
	%			%			%		
Life satisfaction (0-100)	62	58	64	68	68	68	74	73	74
Financial satisfact. (0-100)	45	39	48	60	59	60	73	72	74
Partnered (%)	54	58	52	71	77	67	79	80	78
Living Standard satisf. (0-100)	59	56	61	68	68	69	77	76	79
General health (f.loading)	28	27	28	30	30	30	32	34	31
Mental health (f.loading)	27	27	27	31	31	30	32	33	31

*Population weighted results. SOEP.

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