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Monitoring and addressing global poverty: A new approach and implications for Australia

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Abstract

Tony Atkinson's death at the beginning of 2017 deprived economics of one of its leading contributors to research on public economics, inequality, poverty and the welfare state. This article focuses on his last official role, as Chair of the World Bank Commission on Global Poverty. The report of the Commission – already referred to as the Atkinson Commission – proposes a new approach to measuring and monitoring the global poverty reduction targets established as part of the Sustainable Development Goals agreed by the United Nations in 2015. Atkinson developed the framework and provided the academic impetus to the work of the Commission and wrote much of its report, assisted by comments provided by an Advisory Board of eminent experts in the field and a smaller working group of selected members. The article describes some of the main features of the report's 21 recommendations, focusing on the measurement of poverty in both monetary and non-monetary dimensions and its attempt to draw together national and global efforts to measure and reduce poverty in all its forms. It concludes with a discussion of the implications of the new approach for Australia, which like many other developed countries has so far failed to engage actively with the debate over addressing extreme global poverty.

JEL Codes: D63, I32

Keywords

Dollar a day poverty line, extreme poverty, multi-dimensional poverty, relative poverty

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Introduction

Like many economists of my generation with an interest in issues of inequality and poverty, I owe an enormous intellectual debt to Tony Atkinson. The breadth and quality of his academic work has been an inspiration, as has his encouragement and mentoring and – rare for someone of his stature – his modesty and genuine interest in the work and welfare of others. He was and did everything that those working on the economics of inequality aspire to, knew many (probably most!) of them and was always willing to discuss issues, share his insights and simply ask how things were going.[1] I had the privilege to meet him on several occasions, including at meetings of the Advisory Board of the Luxembourg Income Study (LIS) of which he was President until late in 2016.

When he first started to study poverty and income distribution, both were on the fringes of academic economics and empirical research on both using micro-data was in its infancy. The field of poverty research was changing in the wake of the publication of *The Poor and the Poorest* by Brian Abel-Smith and Peter Townsend, which demonstrated that poverty could be quantified using survey and administrative data (Abel-Smith and Townsend, 1965). Atkinson's *Poverty in Britain and the Reform of Social Security* (Atkinson, 1969) published several years later encapsulated everything I imagined that applied economics should be and do: provide an economic perspective on an important real-world problem, deploy complex data sets using sophisticated analytical techniques and – in combination with a comprehensive understanding of existing social security provisions – help identify where improvement and reform were needed.[2] The breadth of material covered and the meticulous attention to detail, combined with an acute awareness of the practical implications of the findings, are hallmarks of his later work that inspired other economists with an interest in social and distributional issues.

On the broader topic of income distribution, the Organisation for Economic Co-operation and Development (OECD) study by Sawyer (1976) illustrated the power of international comparisons in exploring and understanding national differences. It also highlighted the poor quality of much of the existing data and the need for researchers to have access to the unit record data in order to develop a conceptual and definitional template capable of producing genuine comparisons. This led to improvements in income data access and quality and facilitated the establishment of the LIS that Atkinson strongly supported (Atkinson, 1990, 2004; Atkinson et al., 1995; Smeeding et al., 1990). These developments were given further impetus in Atkinson's 1996 Presidential Address to the Royal Economic Society, in which he reflected on the relative lack of papers on income distribution in the EconLit database, noting that

> … what I missed when I read through these entries is research which ties income distribution centrally into analysis as to how the economy works. What is the connection between income inequality and the macro-economic variables that are centre stage in most economic debate? What is the inter-relationship between economic performance and income distribution? How can we use economic theory to explain what is happening to the incomes of individuals families and households? (Atkinson, 1997: 299)

These questions motivated much of his subsequent research on inequality and remain pertinent today.

The remainder of this article focuses on one of Tony's final achievements – his role as Chair of the World Bank Commission on Global Poverty. His leadership was pivotal in producing a Report that will have an enduring impact not only on how poverty is measured and monitored globally but also on how it is understood and addressed nationally (including in Australia). The report cuts through the complex arguments and controversies surrounding global poverty measurement and brings a fresh approach based on the hallmarks of Atkinson's work: conceptual clarity, technical excellence and sound judgement.

After describing the background that led to the establishment of the Commission, the following discussion outlines the development of the 'dollar a day' poverty line before turning to the Commission's views and recommendations on this and the related issues covered in its Terms of Reference. Some of these recommendations will have important implications for Australia, and these are then discussed, before some final reflections.

Background and context

On 25 September 2015, the General Assembly of the United Nations (UN) adopted the Sustainable Development Goals (SDGs) to replace the Millennium Development Goals (MDGs). Goal 1 of the MDGs was to 'Eradicate Extreme Hunger and Poverty' and Target 1 within that goal was to 'Halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day'. The latest World Bank estimates indicate that this target was achieved ahead of time, the percentage of the global population living below USD1 a day declining from 37.1% in 1990 to 14.5% by 2011 and to 12.8% by 2012. The reduction was not, however, evenly spread, with some areas (East Asia and the Pacific and South Asia) performing better than required, but others (sub-Saharan Africa) failing to achieve the target and others again (mainly in the Middle East and North Africa) unable to provide the requisite data. Interestingly, Europe and Central Asia, where welfare states are most developed, also failed to achieve the target, the extreme poverty rate rising slightly (from a very low base) between 1990 and 2011/2012 (Ferreira et al., 2016: Table 8).

Despite the controversy over the methods used to measure extreme poverty, the extent of the decline in global poverty over this period was a formidable achievement. That success contributed to the willingness of world leaders to adopt the more ambitious 2030 targets embedded in the SDGs. The SDGs comprise a set of 17 'aspirational' global goals containing 169 targets. Goal 1 is to 'end poverty in all its forms everywhere' and the first two Targets within that Goal are, 'By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day' and 'By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions'.

Speaking at a 2015 UN Summit meeting 2 days after the SDGs were adopted, Australia's Foreign Minister Julie Bishop (2015) described the target to end extreme poverty within a generation as 'an ambitious, bold – and necessary – objective' and pledged that 'In giving effect to the new agenda, we can share lessons from our own experience'. There is, of course, more to the 2030 agenda than the poverty reduction targets, although their place at the top of the list signifies the key role they will play in shaping the overall success of the SDG agenda.[3]

Several features of the SDG poverty reduction targets are worth highlighting. First, the new target refers to the need to reduce the absolute *numbers in poverty* ('all people everywhere') not to a reduction in the *poverty rate* (as was the case with the MDGs). The numbers in poverty must therefore fall in absolute terms, not just rise more slowly (or fall more rapidly) than the size of the global population. Second, the reference to 'men, women and children of all ages living in poverty' highlights the aim of reducing the *number of individuals living in poverty*, not just the *number of individuals living in households below the poverty line*, which is what most existing poverty measures capture. Third, the reference to 'poverty in all its dimensions according to national definitions' is an important change for two reasons: first, because it acknowledges that poverty is not just about a lack of income but is multi-dimensional in terms of how it is identified and measured and second, because the reference to 'national definitions' draws attention to the fact that tackling extreme poverty is a goal for all countries (including rich countries like Australia), not just for those where extreme poverty is most pronounced. Finally, it is important to note that both the MDG and SDG poverty reduction targets refer explicitly to the 'dollar a day' poverty line first set by World Bank economists in the early 1990s (Ravallion et al., 1991), revised subsequently to USD1.08 in 1993, to USD1.25 in 2005 and to USD1.90 in 2011.[4]

These features mean that monitoring the SDGs will change the way that countries like Australia engage with the debate and monitor their own performance. Under the SDG agenda, all countries will be required to produce (or be subject to the World Bank producing) evidence on how poverty is tracking nationally, using both the global measures (derived by the World Bank) and their own (internal) measures. This is a significant shift from the approach adopted in the MDG framework, and some of its implications for Australia are discussed later.

Farewell 'dollar a day'?

There can be little doubt that the 'dollar a day' poverty line has been an important and extremely influential poverty measure. The idea of setting a poverty line as an absolute floor on how much income (or consumption) is needed to meet basic survival needs in the world's poorest countries was a defining moment in the fight against extreme poverty, as was its simple and accessible (if slightly inaccurate) description.[5] Its ability to convey in simple terms how a complex concept like extreme poverty can be measured has helped to mobilise global action in the fight against poverty. The dollar a day line has become so much a part of the global language on poverty measurement that the estimates based on it are now commonly used as a short-hand way of describing the overall economic situation of a country. The statement that 'more than one-third of the citizens of Country X are surviving on less than a dollar a day' conveys a powerful message about the economic state of that country and the perilous conditions facing its people. No other poverty measure has achieved the same ability to convey both what poverty means (lacking economic resources) and how it is measured (using a poverty line) without getting bogged down in the technicalities of either.[6]

These features explain the popularity and endurance of the dollar a day measure and caution against any attempt to replace it. Against this, there are concerns about the legitimacy of adopting an approach that expresses how poverty is measured in the poorest countries in the world using the currency of one of the richest. More fundamentally, the whole approach assumes that it is conceptually possible to monitor national poverty reduction performance using a single monetary metric, that is, conceptually meaningful and cross-nationally comparable. This latter view has been widely disputed on both theoretical and practical grounds, generating a chorus of calls to abandon the dollar a day measure. There is space here only to consider those claims and counter-claims that are relevant to the issues discussed later.[7]

Among the most vocal critics, Reddy and Pogge (2010) have argued that the dollar a day line suffers from three basic flaws: first, it represents an arbitrary threshold that does not reflect the real needs of human beings; second, the purchasing power parity (PPP) adjustment required to express the line in national currencies 'is neither well defined nor appropriate for poverty assessment' (p. 43) and third, the global poverty estimates (and trends) extrapolate incorrectly from the available data. They conclude that these (and other) problems imply that poverty estimates derived from the dollar a day line 'cannot adequately serve the purposes they are intended to serve' (p. 79) and that an alternative approach to measuring poverty is needed that reflects Sen's notion of capability fulfilment (Sen, 1999). This latter proposal is likely to create problems too, although it does avoid the need to express national poverty lines in a common monetary unit through currency conversion. In contrast, functioning achievements (or capabilities) are outcome-based and not resource-based so that the conversion issue does not arise – although reaching agreement on what the relevant achievements are is likely to generate intense debate both within and between countries, particularly when it comes to the details.[8]

The OECD and Eurostat (2012) have noted that the role of the PPP conversions produced by the International Comparison Program (ICP) is to 'convert different currencies to a common currency and, in the process of conversion, equalise their purchasing power by eliminating the differences in price levels between countries' (p. 13). The PPP estimates affect both where the global poverty line is set for the selected group of poorest countries and how it translates into other national currencies. Clearly, equalising purchasing power across countries is essential if the poverty line (and the standard of living that it represents) is to be the same in countries that have different currencies (and different living standards). If the PPP conversions cannot achieve this equalisation, the whole process of comparing poverty rates cross-nationally and the basis for aggregating the national estimates to arrive at a global headcount are seriously undermined. This issue was the subject of Angus Deaton's (2010) Presidential Address to the American Economic Association, where he described the impact of changes to the PPPs as akin to 'an earthquake whose size seems to be increasing' (p. 9). He also showed that the changes had large effects on the estimated level of global poverty and its regional distribution (but had less of an impact on the overall trend, which was always declining).[9]

Whatever the theoretical merits of the PPP conversions – and most economists would agree that they are considerable – it is clear that they are subject to several major practical drawbacks when used to measure and monitor trends in global poverty. One of these is that because the PPP estimates are derived from household surveys, they reflect how much low-income people *actually do spend* – and thus can afford – not what they *need to spend* in order to satisfy their needs. Another limitation is that (with some notable exceptions) they take no account of within-country variations in consumption expenditures (e.g. as between urban and rural households) or of differences in the prices paid by poor and non-poor households. Both issues can in principle be addressed, although neither has been so far – at least for the vast majority of countries that form part of the ICP. Added to these problems, concerns have also been raised about the quality of the consumer expenditure data used to derive the PPPs in some countries, and the methods used to impute (or account for) missing data in others.

The 2005 revisions to the PPPs had a large impact on the estimates for that and earlier years, muddying the waters about the trend in global poverty and adding further fuel to the fire of discontent surrounding the dollar a day poverty line.[10] Klasen (2013: 38) has argued that this problem will worsen as the focus shifts from monitoring the *trend* in global poverty (as required under the MDGs) to monitoring its *level* (as required by the SDGs) and as the focus shifts from measuring the reduction in the global poverty rate to measuring the decline in the numbers who are poor. Whether the dollar a day line can withstand these challenges was one of the key questions that prompted the World Bank to establish the Commission on Global Poverty, and it is to the work of the Commission that the discussion now turns.

The Commission on Global Poverty

The Commission on Global Poverty was established by the then World Bank Chief Economist Kaushik Basu in June 2015. Its task was to advise the Bank on two broad questions:

1. What should be the interpretation going forward of the definition of extreme poverty, set in 2015 at 1.90 PPP–adjusted dollars a day per person, in real terms?
2. What choices should the World Bank make regarding complementary poverty measures to be tracked and made available to policy makers?

The Commission was headed by Atkinson and included an Advisory Board of 23 international economists with expertise on poverty, 7 of whom formed a core group that worked with Atkinson to identify issues, map out the report's structure and seek feedback from other Board members. The Board contained leading contributors to the debate on measuring global poverty, many of them holding strong (but sometimes contradictory!) views. It was Atkinson's role to reconcile these differences where this was possible or to reach a considered judgement where it was not.[11] Only someone with his professional standing, widely acknowledged wisdom and fair-mindedness could have achieved this.

Following an initial meeting of the core group in June 2015, Advisory Board members were invited to respond to a list of key issues and questions. A draft report was then prepared and circulated to members for comment in March 2016, followed by a revised report circulated for comment in July 2016. Final revisions were made and the Commission's approach and recommendations were discussed at a workshop in Washington in September 2016, after which it was finalised and published (World Bank, 2017). In addition to the input provided by the Board members, external input was invited from a number of organisations and individuals with relevant expertise and 122 submissions were received.

The body of the Report contains 21 recommendations, 10 in relation to the first goal identified above (measuring and monitoring extreme poverty), 9 that go further to address the second goal (the role of complementary indicators) and 2 concerned with practical issues of implementation. Many of these recommendations address important data issues that, although implicit in much of the past debate, have not been accorded the priority they deserve – at least not systematically and publicly. This emphasis reflects Atkinson's awareness of how important these issues are – all the more so because as the numbers in extreme poverty decline the 'difficult cases' where data limitations are most serious will become increasingly dominant. But there are also recommendations that will have a more profound impact on how the global poverty count is constructed, contextualised, communicated and interpreted.

From the outset, Atkinson saw the problems involved in linking the global poverty line to the PPP estimates derived from the ICP as a major weakness – conceptually as well as practically. The first two issues raised for Board members to consider in mid-2015 relate to how best to treat future revisions of the PPP and the resulting discontinuities, and whether or not it was preferable to simply update over the period from 2011 (the base year for the new PPPs) to 2030 (the end year for the SDGs) in line with movements in each country's consumer price index (CPI). It was noted that the latter approach 'avoids the inconsistency problems between national CPI series and successive revisions of the PPPs' – a comment that foreshadows the emphasis given to closing the gap between global and national poverty lines and measurement.

Reinforcing this latter point, the Report questions the use of the USD as the appropriate national currency in which to express the global poverty line. This might be justified in rich countries like Australia where most are familiar with thinking in terms of USD values but is far less compelling in poorer countries where citizens and governments are less likely to think in those terms. Replacing the USD by another national currency would not avoid the PPP sensitivities that have plagued past efforts to establish the global poverty trends. Only a totally new approach could achieve this.

The report proposed the establishment of a new 'International Poverty Line' (IPL) that maintains the real value of the 2011 PPP-based dollar a day line by regular updating in line with movements in each country's CPI. This approach will maintain the real value of the IPL *within* each country rather than seeking to maintain its parity *between* countries (which is what the PPP conversion seeks to achieve).[12]

The proposed new IPL is followed by a second recommendation that is likely to be equally profound in its impact. This is that national poverty statistics reports (NPSRs) be produced for each country, setting out the local currency value of the IPL and its relation to official poverty lines used in the country. Each NPSR would also provide details of national trends in poverty using both the IPL and national measures and incorporate a set of complementary poverty indicators (discussed further below). The NPSRs are intended to further close the gap between global and national poverty measurement, promote the sharing of national experience and serve as a forum for discussing methodological data and measurement advances. They are also designed to ensure that all nations (and national governments) have a stake in, and are actively engaged with, the attack on global poverty that is central to the SDG agenda.

Moving beyond income poverty

The second part of the Report addresses the role and use of complementary poverty measures and what form they should take. The need to take a broader view of poverty than one focused entirely on economic resource measures (income or consumption-based) is implicit in SDG Goal 1.2, which is to reduce poverty among men, women and children 'in all its dimensions'. The terminology links to the literature on multi-dimensional poverty to which several of the Commission's Board members (and its Chair) have made important contributions (e.g. Alkire et al., 2015; Alkire and Foster, 2011; Atkinson, 2003; Ravallion, 2011, 2016). The approach favoured by the Commission emphasises that the proposed complementary indicators (CIs) should (a) complement (not replace) the headline global poverty measures or counts already discussed, (b) be sufficiently small in number to receive prominence in public debate and policy making and (c) be based on an explicit set of principles that is endorsed by a process of external consultation.

The first CI proposed is the mean poverty gap – measured over the whole population and expressed relative to the poverty line.[13] Other extensions that fall within the economic resource approach recommended by the Commission include the development of subjective assessments of poverty, of a needs-based estimate of extreme poverty that can be used to establish what the IPL can buy in each country and of a 'societal headcount measure' that combines both absolute and relative components of poverty. This latter idea is the subject of a separate recommendation for an extended poverty measure that takes account, above a threshold level, of the actual standard of living in each country. The reasoning behind this recommendation rests on the idea that the levels of consumption needed to achieve certain levels of functioning or achievements vary with the overall standard of living in a country, so that (to paraphrase Sen, 1993) a standard that is absolute in the space of commodities will vary relatively over time and across countries in the space of resources, as is evident from the contributions by Ravallion and Chen (2011, 2013) and Chen and Ravallion (2013).[14]

The Report contains a fascinating discussion of the merits and weaknesses of these and other possible CIs that should be essential reading for all those interested in poverty measurement. Here again, the analysis illustrates Atkinson's awareness of the importance of context and practicality and the soundness of his judgements. The use of alternative poverty lines, for example, is rejected not because they serve no useful purpose (a position that is at odds with Atkinson's seminal contribution to the literature on dominance conditions, see Atkinson, 1987) but because there is no clear justification for deciding what these alternatives should be (e.g. simple multiples of the base line or other possibilities?). A range of poverty lines tied to the IPL itself would run the risk of further undermining its legitimacy by replicating its problems and weaknesses.

The strengths of the capability approach developed by Sen (1985, 1999) are discussed with specific emphasis given to its ability to highlight the *interdependence* that exists between different individuals (and groups) in society. Functionings such as 'appearing in public without shame' and 'taking part in the life of the community' depend not only on an individual's access to resources (broadly defined) but also on the resources, attitudes, norms and behaviour patterns of other members of society. These inter-dependencies provide a way of understanding the links between capabilities, social exclusion and Townsend's formulation of poverty as existing when people 'lack the resources to … participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong' (Townsend, 1979: 31).

It is by drawing out these linkages that the Report provides the rationale for focusing on the non-monetary dimensions of poverty and on the role of multi-dimensional poverty indicators. The logic of this sequencing is reinforced by a brief discussion of human rights, where it is noted that such rights relate to individuals, are universal and cover many non-economic areas, including access to clean water, adequate shelter and clothing and to basic education and health services. It thus follows that 'the argument for considering dimensions in addition to economic resources follows naturally from the capability and human rights approaches' (p. 139). But how are these additional dimensions to be determined? Gordon (2006: Appendix 2.1) and Gordon and Nandy (2012: 79–92) have argued that it is important to establish that they capture important dimensions of *poverty* (as opposed to contributing to, or detracting from, *well-being* more generally) and that this needs to be confirmed using statistical reliability and validity analysis.

Notwithstanding these issues, the multi-dimensional approach to poverty measurement is already being applied in countries like Bhutan and Mexico and in the multi-dimensional poverty index (MPI) produced by the United Nations Development Programme (UNDP, 2010) *Human Development Report* since 2010. The Report acknowledges the merits of these developments and recommends a 'dashboard' approach covering key domains that would be shaped by external consultations on what to include. It is proposed that the starting point would be the following six key dimensions: nutrition, health status, education, housing conditions, access to work and personal security, with indicators developed within each domain that 'must be seen as part of the wider global assembly of social indicators, and specifically of those designed to monitor the SGDs as a whole' (p. 146). The report also recommends the development of an 'overlapping poverty measure' derived from the identified dimensions that involve a (limited) application of the aggregative MPI approach.[15]

Implications for Australia

What does all this mean for Australia? A useful and informative starting point is to consider whether or not extreme poverty currently exists in Australia, when measured using the existing dollar a day poverty line. While many might see this as a pointless exercise since that type of deep poverty was eradicated long ago, the evidence does not appear to support this position. Combining data from the 2011–2012 Australian Bureau of Statistics (ABS) *Survey of Income and Housing* (SIH) – the source of most Australian poverty studies (Redmond et al., 2013; Saunders et al., 2016; Wilkins, 2007) – with the updated dollar a day line of USD1.90 (or AUD2.87 per person per day or AUD20.10 a week) produces an extreme poverty rate of 0.59%. This estimate implies that just over 130,000 Australians (adults and children) were living on incomes below the poverty lines that exist in the world's poorest countries.[16] Most of these households were headed by someone who was self-employed, and if they are removed from the calculations, the extreme poverty rate declines to 0.14% and the number in poverty drops to 25,000.[17] These estimates require further examination to assess their validity but at face value they suggest that Australia may have no cause for complacency when it comes to its record on eradicating the most severe forms of poverty.

The proposed IPL will presumably be published regularly by the World Bank and is likely to form part of future poverty studies that will use it to set a floor on the level of Australian poverty.[18] An Australian version of the proposed 'societal' poverty line will also need to be developed and compared with other available measures, including those based on median income. Comparisons between the updated IPL and the 'societal' measure and needs-based (budget standards) estimates will provide a basis for establishing what families can actually buy with the relevant incomes, what they are forced to go without and how far their living standards are above subsistence. No longer will it be possible for senior Australian politicians to strut the world stage proclaiming Australia's support for the UN's efforts to tackle extreme poverty without acknowledging that this is an issue for 'us' as well as for 'them'.

Australia will also be the subject of a two-page NPSR that describes how it is measuring and monitoring poverty. The World Bank has already indicated its support for this recommendation, which is seen as 'a demanding requirement … but one that is fundamental to one of the central themes of the Atkinson report, namely to better link the global poverty monitoring exercise to poverty analysis undertaken at the national level' (Romer et al., 2016: 2). Although responsibility will lie with the Bank, it seems likely that the reports will draw on material provided to them by national governments. This will mean that the Australian Government will be required to provide the relevant data, including the AUD value of the IPL and its relation to existing poverty lines, to explain how these are constructed and what they imply for the level and change in poverty, and to describe the portfolio of complementary poverty indicators (including non-monetary indicators) that are being used (or considered).

Producing these statistics and analyses will be unfamiliar territory for Australia, where the ABS does not currently publish estimates of the numbers below the widely used poverty line set at 50% of median income, although the methodology used to produce these estimates is identical to that used to produce the detailed income distribution tables that the ABS regularly produces (e.g. ABS, 2015). It would take a minor effort to extend the income distribution tables to include poverty rates measured using median income-based poverty lines.

There has to date been little work done on developing a MPI for Australia – in part because of the lack of a single data source that covers the various dimensions of poverty. There are, however, some notable exceptions, including the 'freedom poverty measure' (FPM) developed by a group of health economists (Callander et al., 2012, 2014) and the 'individual deprivation measure' (IDM) developed by Bessell and colleagues (Bessell, 2015; Crawford et al., 2014). The FPM has three dimensions: income poverty (measured using the median income approach), health status (measured by the presence of a disability) and educational attainment (at least to year 12). The IDM is based on 15 indicators that cover hunger, access to water, access to health care, years of schooling, control of decision-making within the household, experience of violence, control over use of contraception and status and respect in paid and unpaid work (see Bessell, 2015: Table 1).

While both applications are innovative and important, doubts exist over whether the dimensions/indicators are measuring the different dimensions of *poverty* in the sense that Gordon has emphasised (see above). They are a valuable first step on what is likely to be a long journey – albeit one that has become more feasible with the inclusion in 2014 of a suite of questions on material deprivation in the Household, Income and Labour Dynamics in Australia (HILDA) survey.

These efforts will help to bring Australian poverty research 'in from the cold' and accord it the priority it deserves among those setting policy. No longer will it be possible for governments to ignore the impact on poverty when designing new policies or assessing the impact of existing ones. The Atkinson Report provides a blueprint for countries like Australia to show that they mean business when it comes to tackling poverty, domestically as well as globally, relatively as well as absolutely and above all, multi-dimensionally.

Final reflections

Tony Atkinson made seminal contributions to the economic analysis of poverty and inequality that were pivotal in encouraging a generation of applied economists to follow in his footsteps, resulting in stronger analysis, improved data, better policies and improved outcomes for the poor and vulnerable. From his first book on poverty in the UK published in 1969 to the Atkinson Report on Global Poverty published almost 50 years later, his work has made economics more able to contribute to the task of making the world a better place.

It is fitting that his final contribution is directed at improving the measurement and monitoring of poverty among the poorest countries in the world, since this is where improved understanding and extra effort is most needed and likely to produce the greatest benefit. The fact that he was able to devote the last months of his life to such an important venture speaks volumes about the quality of his work and the qualities of the man. Stephen Jenkins has recently described Tony Atkinson as 'My Hero' and many others will echo that assessment, including myself. Many scholars have been similarly affected by his work and his personal decency, as the recent paper by Brandolini et al. (2017) demonstrates. Given the quality and scope of his contributions to the discipline of economics, how he never won the Nobel Prize is beyond me. What a record. What a man. What a loss.

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Notes

1. Stiglitz (2017) has recently reinforced this observation, noting in a reflection on his seminal work on public economics with Atkinson that 'I must add a word about Tony himself, to say how much our friendship and collaboration meant to me, how I admired and respected him in every aspect of how he led his life and treated others' (in Brandolini et al., 2017: 15).
2. It is perhaps worth noting that empirical poverty research at that time was (at least in Europe) dominated by sociologists, following major contributions in Britain by Abel-Smith and Townsend (1965) and Townsend (1979) and in Sweden by the emergence of the *Level of*

Living surveys (Johansson, 1973). Although Abel-Smith was a health economist, his substantive appointments at the London School of Economics (LSE) were in the Department of Social Administration set up by Titmuss (see Sheard, 2013). Atkinson (2015) has acknowledged that the impetus for his 1969 book came from the work of Abel-Smith and Townsend.

3. The fact that this article focuses on this aspect of the SDGs should not be taken to imply that the other goals and targets are not also important. They are.
4. The methods used to derive the different versions of the extreme poverty line are described in Ravallion et al. (2009) and Ferreira et al. (2016).
5. The original estimate of the dollar a day line was produced by 'inspection' of the poverty lines used in eight very poor countries and was set at USD31 per person per month or USD1.01 a day, which was then rounded to a dollar a day (see Ferreira et al., 2016: Table 1).
6. The only other widely used International Poverty Line (IPL), equal to one-half of median (equivalised) income, is less obviously acceptable as an appropriate benchmark and incapable of being expressed in a single, universal monetary amount.
7. Fuller accounts of the merits and limitations of the dollar a day measure can be found in several papers in Anand et al. (2010) and a recent special issue of *The Journal of Economic Inequality* edited and summarised by Lustig and Silber (2016). See also Klasen (2013) and Part 2 of Ravallion (2016).
8. Other critics of the dollar a day line include Klasen (2013), who notes that the dollar a day line often bears little relation to national poverty lines – even for some countries whose poverty lines were used to develop the global poverty line in the first place. He also notes that the purchasing power parity (PPP) estimates used to convert the global poverty line to national currencies are subject to regular revision, and this has a huge impact on estimated levels of (and changes in) national and global poverty.
9. Deaton's calculations indicated that the global poverty rate using the then latest (2005) PPPs declined from 51.9% in 1981 to 39.2% in 1993 and to 25.2% in 2005 (Deaton, 2010: Table 2). The numbers in absolute poverty declined over this period from 1.90 to 1.37 billion, much of it occurring after 1993.
10. For example, Chen and Ravallion (2008: Table 2) show that the estimated number in income poverty in China in 1993 changed from 249 million using the 1993 PPPs and the USD1.08 per person per day poverty line to 473 million using the 2005 PPPs and the USD1.25 poverty line – a difference of 224 million. The World Bank Chief Economist at the time, François Bourguignon, has noted that explaining the reasons behind this difference to the Chinese authorities 'proved to be a considerable challenge'.
11. The Commission has been described by the World Bank's Francisco Ferreira as 'The Atkinson Commission' because of Atkinson's 'intellectual leadership and drive', combined with the fact that he 'almost single-handedly wrote the final report' (Ferreira and Ravenga, 2017) – a feat that is remarkable given the health problems he was battling at the time.
12. It should be noted that the link between the IPL and the dollar a day line is not severed entirely since they are both equal in the base year (2011), and the World Bank will continue to convert and provide (as 'ancillary explanation') the updated national lines back to their USD values using the PPPs (Romer et al., 2016).
13. Although use of the mean poverty gap can be seen as problematic since it gives greatest weight to those who are furthest below the poverty line and thus magnifies any errors in the data for those reporting very low incomes, this could be remedied by replacing the mean by the median.
14. The 'weakly relative' poverty line proposed by Ravallion and Chen (2013) is set at USD1.25 for those countries with mean consumption per capita below this level and at USD1.25 plus half of the excess of mean consumption over USD1.25 for other countries.

15. The report also recommends that the MPI be based on the adjusted headcount ratio proposed by Alkire and Foster (2011) which multiplies the headcount ratio by the severity of deprivation among the poor. This ensures that the measure satisfies dimensional monotonicity and thus declines whenever any individual ceases to be deprived on any dimension.
16. These calculations ignore the difference between the equivalence factor used in conventional poverty studies and the per capita adjustment that is embedded in the global poverty line calculations. However, this difference is likely to have a minor impact on the results presented, which are in any case intended to be illustrative only.
17. It can be argued that many of the low-income self-employed are inappropriately identified as poor because their incomes are artificially reduced by the deduction of business losses. There is an element of truth in this and for this reason, many poverty studies exclude the self-employed from the calculations (Saunders et al., 2016).
18. Work is underway in the United Nations (UN) Human Development Report Office to expand the coverage of its multi-dimensional deprivation Index (MDI) to include Australia as part of the 2017 *Human Development Report*.

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