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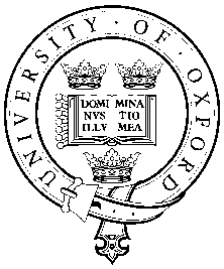

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Multidimensional Poverty Measures as Relevant Policy Tools

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Abstract
Poverty measurement is strewn with imperfection. And yet, even understanding limitations such as data quality and coverage, measures of multidimensional poverty have proven to be relevant policy tools. This paper first situates muldimensional poverty measures in the Sustainable Development Goals, which seek to End Poverty *in all its forms and dimensions* (italics added). It then explains a key distinguishing feature between multidimensional and monetary poverty measures, namely, that multidimensional poverty measures have an associated 'information platform' which provides the deprivations in each indicator, as well as the headcount ratio or poverty rate, and the intensity of poverty overall, and does so both nationally and for all groups by which the dataset can be disaggregated. Furthermore, multiple poverty lines are often set and reported. Bearing this informational richness in mind, the paper then canvasses the main ways that policy actors are using multidimensional poverty indices (MPIs) and their associated informational platform to shape policy. For example, a permanent official MPI complements the national monetary poverty measure, often drawing attention to different groups of poor persons. Also, the MPI design often includes participatory exercises and expert consultations, thus catalysing a national conversation about what is poverty. Like any national statistic, the MPI is used to monitor change and show the trend in a phenomenon of public importance. Further, the MPI, with its disaggregation by group and breakdown by indicator, is often used as part of the budget allocation formulae, for example, across subnational regions. The MPI is also used for targeting in two senses: targeting the poorest areas or social groups, and also (using a different dataset), targeting households that are eligible to benefit from certain schemes. One of the most powerful roles of the MPI is to support policy coordination which – in line with the SDG emphasis – facilitates integrated multisectoral policies that can be more cost-effective and high-impact methods for addressing interconnected deprivations and managing change. Finally, for many countries, the MPI is part of a new emphasis on the transparency and accountability of statistics, for example by posting data tables, or even datasets and computer algorithms online so students and researchers can fruitfully join the intellectual task of finding better ways to confront human disadvantage and suffering. The paper closes by referring to some new research areas that might further enrich this unfolding discipline.

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The Oxford Poverty and Human Development Initiative (OPHI) is a research centre within the Oxford Department of International Development, Queen Elizabeth House, at the University of Oxford. Led by Sabina Alkire, OPHI aspires to build and advance a more systematic methodological and economic framework for reducing multidimensional poverty, grounded in people's experiences and values.

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A few years ago, a colleague and I spoke to undergraduate students of different disciplines about our respective research. Against a backdrop of videos showing the sophisticated protein he studied, he described the research. Meanwhile we witnessed the molecules' haunting beauty – their symmetry, shapeliness, and slow, almost gracious, dance. In passing, he mentioned their beauty to be at times so enchanting it enticed one with seeming perfection.

Poverty research, in sharp contrast, is strewn with imperfection. When we present a paper based on survey data, we introduce it with a caveat, such as 'This survey overlooks the pavement dwellers and the institutionalized and the non-responsive.' Inwardly we also know (but too rarely say) that the data quality is compromised – by electronic mishaps, by team dynamics, by the lapses of concentration of the enumerators and respondents, by storms, violent conflicts, distractions, sampling frames, electronic glitches, and human error. We may triangulate participatory and qualitative work, yet we know this too to be imperfect and power-ridden and may not be able to judge well its accuracy. Normative or ethical views – which are needed in all poverty measures, especially from the protagonists of poverty themselves – are at least partially disputed in any society, although there are usually clear areas of agreement. So the voices of the poor are rightly sought and respected, but they may be cited with seeming authority (or overmuch simplicity) in other corridors. Further, our datasets may omit key deprivations like violence, disempowerment, or humiliation. In short, poverty research – whether engaging in data collection, measurement, or analysis – is strewn with imperfection. There is nothing giddy about it, no perfection to enchant. In fact, one frequently wonders whether the research is adequate to the task.

With this in mind, and the many caveats implied above understood and always borne in mind, I'd like to give a brief overview of the ongoing work on poverty research as it relates to multidimensional poverty measurement. Most discussions about the accuracy and relevance of measures of poverty and of analyses related to poverty-reduction have to do with the focal point, which is, rightly, poor, impoverished or disadvantaged persons. Creating measures that better convey their reflective experiences[1] is a fundamental aim – and so it should be. Understanding how aptly measures portray people's realities must be a center of gravity for poverty research, a cross-check that prompts us to ask hard questions, revise assumptions, and drive innovation.

1 As Nussbaum and Sen (1988) and Sen (1997) point out, reflective dialogue among 'insiders' may be an empowering and, in the long term, more effective way to challenge voices of patriarchy than imposing any normative framework.

Yet too often in research we overlook another key community: the policy actors or the 'research users'. These are people who because of their professional responsibilities and powers will make decisions that accelerate or decelerate a reduction of poverty. Often, we as academics do not read or follow policy outputs, much less regard them as being of equal or greater real import than our own. Some academics may give very ample policy recommendations and advice unilaterally. But the motivation behind this paper is to share how policy actors (from ministers of planning, social development and finance, to vice presidents or heads of state, to vice-ministers and local-level governments) are currently using counting-based multidimensional poverty indices. What we learn is that multidimensional poverty measures give them the ability to envisage cross-sectoral solutions. Also, it is not just a single 'measure' that is produced, but a measure *plus* an 'information platform' that shows *how* people are poor by each indicator – nationally and by group. So we observe how this platform makes information available at the governance level, where political decisions are taken. If one observes why poverty measures are used, the intuitiveness of the measures matters a great deal behaviorally – and policy-makers cite the public benefits of an easy-to-communicate headcount ratio and other forms of data visualization that are conducive to being used by non-technical policy actors. There is also the attractiveness of using a non-monetary poverty measure alongside traditional monetary measures, as a complementary viewpoint on poverty.

Knowing this, we might aim not only to have measures and techniques that better reflect the experience of multidimensional poverty among men, women, and children, but also to undertake cross-cutting research on important applied questions and to generate highly relevant resources for those who are able to act on that evidence. Implicit in this analysis is attention to who is able to act on evidence and 'call the shots' in ways most beneficial to poor people and communities.

To develop this trajectory, we first review the space that has opened for policy action to end poverty in all its forms. We then describe the information platform of multidimensional poverty indices, which requires a brief intuitive explanation of their construction. Then we observe concrete ways that countries are using the Multidimensional Poverty Index (MPI), which in turn suggests avenues for research.

1. Ending Poverty in All its Forms

The interest in multidimensional poverty arose initially out of a concern that monetary poverty measures were not sufficiently capturing the multiple and overlapping deprivations experienced by the poor. Multidimensional measures – which consider poor people's simultaneous disadvantages, such as poor health, inadequate sanitation, and lack of schooling – can be used to create a more comprehensive picture and help drive multi-sectoral policies that efficiently address the pressing and interconnected disadvantages affecting poor people. Normatively, there are two distinctive characteristics of multidimensional poverty

measures. The first is the (now nearly universally accepted) recognition that non-monetary deprivations are part of what can accurately be termed poverty. The second, is that sometimes deprivations overlap. And the poorest of the poor experience a multiplicity of overlapping deprivations – what Wolff and DeShalit (2007) called the 'clustering' of disadvantages. An MPI measures the intensity of coupled deprivations. And it also, as we shall see, provides an information platform for addressing these in an efficient, integrated fashion.

Although initial conversations started and measurement tools were developed much earlier, the macro-climate has changed.[2] In the early 1970s both Latin America and Europe estimated counting-based headcount ratio measures and used these to inform policy applications. And 15 years ago, Sir Tony Atkinson, Francois Bourguignon, and Satya R. *Chakravarty* started to consider better measures of multidimensional poverty (Alkire et al., 2015). Meanwhile exercises such as the World Bank's *Voices of the Poor* rightly established that poverty looks multidimensional from the bottom up. Building on these and other pioneering work by people's movements, NGOs, academics, and governments in many countries, the emphasis has shifted and the multidimensionality of poverty and wellbeing is widely recognized. Formal documents authored by the UN Secretary General, the UN General Assembly and the Financing for Development Addis Ababa Accord have all called for better multidimensional measurement of poverty (United Nations, 2014, 2015; Addis Ababa Accord, 2015). Now, the Sustainable Development Goals (SDGs) mainstream the recognition that poverty has many forms and dimensions, that these are interlinked, and, accordingly, that policies to fight multidimensional poverty must also be integrated and multi-sectoral (United Nations, 2015). Indeed Goal 1 of the 17 SDGs is ending poverty in all its forms. This common ground in the SDGs represents a shift in the environment of academic research on poverty.

A key marker of this shift recently was the Commission on Global Poverty, chaired by the late and deeply respected Sir Tony Atkinson, who launched its report *Monitoring Global Poverty* in late 2016 (World Bank, 2017). Among a veritable wealth of insights, the report recommended that the World Bank regularly report non-monetary as well as monetary measures of global poverty. Of relevance to this paper, Recommendation 19 suggested that the global reporting include a multidimensional indicator based on the Alkire Foster (AF) methodology. His recommendation was that such a global non-monetary poverty measure not include monetary poverty as an indicator. Instead, it should cover complementary dimensions such as Health, Nutrition, Education, Living Standards, Work, and Violence (World Bank, 2017). The Recommendation was accepted by the World Bank, in a published cover note (Romer et al., 2016),

2 Chapter 4 of Alkire et al. (2015) outlines the histories of counting-based measures since the late 1960s in Europe, and since the 1970s in Latin America's tradition of Unmet Basic Needs. Tony Atkinson's seminal 2003 paper called for those working on measures from a welfare perspective to take seriously the counting methods and seek to join the two approaches.

although the cover note articulates a decision not to implement the Atkinson recommendation but instead to give primacy to monetary poverty and adjust it by some non-monetary indicators. Multidimensional poverty measures were also acknowledged in the World Bank's recent submission on poverty statistics to the UN Statistics Division (United Nations Statistical Commission, 2018). Hence there is a shift among international institutions and poverty experts towards recognizing the importance of the research and the policy activities related to the non-monetary dimensions of poverty.

2. Information Platform associated with Multidimensional Poverty Indices

Consider the ways in which the counting-based approach to multidimensional poverty measurement – which James Foster and I suggested (2011) and many others have improved – can provide information that can be used to improve policy actions. To describe this information platform we first intuitively review measurement construction. Amartya Sen (1976) observes that poverty measurement has two steps: identification and aggregation. Identification starts at the level of individual households or people. Like any poverty measure, the first step is to produce some meaningful number or aggregate for each person or household in the dataset. In a multidimensional measure, this unit-level assessment is based on a set of indicators and indicator-specific cutoffs. The fundamental point is that each unit of identification (person or household) obtains its own profile according to the set of indicators (having a deprivation status of 1 if they are deprived and zero otherwise). Their deprivation profile – a vector of zeros and ones – shows the indicators in which she is deprived. So if there are two persons, Ana and Miriam, and four equally weighted dimensions, we might have the following situation:

					Deprivation	
	Nutrition	Schooling	Work	Housing	Total	Score
Ana	1	0	0	1	2	50%
Miriam	0	0	1	0	1	25%

The counting-based approach then applies weights and aggregates the 0-1 deprivation status entries into a deprivation count, and score for each person or household. The deprivation score is evaluated by a poverty cutoff to identify who is poor. That is, just as a person can be identified as poor by comparing her income to the poverty line, she can be identified as poor by comparing her deprivation score to a poverty cutoff. Naturally the direction differs: whereas a person is income-poor if she has too little income, whereas she is in multidimensional poverty if she has too many weighted deprivations. In this way each person in a survey sample, for example, is identified as poor or non-poor. In our example, if the poverty cutoff is 50%, only Ana is identified as poor.

Aggregation creates society-wide poverty measures. For example, if the poverty cutoff above is 50%, then

half of the population are poor and the MPI is 0.25. In this environment, the MPI is usually taken as the official measure of the level of poverty because it can be broken down by indicator, and it reflects changes in the intensity of poverty for the poorest. In terms of the information platform, we are concerned to elaborate the information an MPI gives to different policy actors. We title this an 'Information Platform' because there is a headline which is a single number – the MPI, also called the adjusted headcount ratio. Yet the MPI is always reported as part of a fuller information platform that has two partial indices of indicence and intensity denoted (H, A), and a set of indicator-level subindices, each of which provides useful information for policy. And of course, all components can be disaggregated (data permitting) to zoom into smaller regions or population groups. The two-part information platform arises because the MPI can be equivalently computed in different ways, such as the product of incidence and intensity (MPI = H×A) or the weighted sum of deprivations faced by people who are poor and deprived in each indicator.

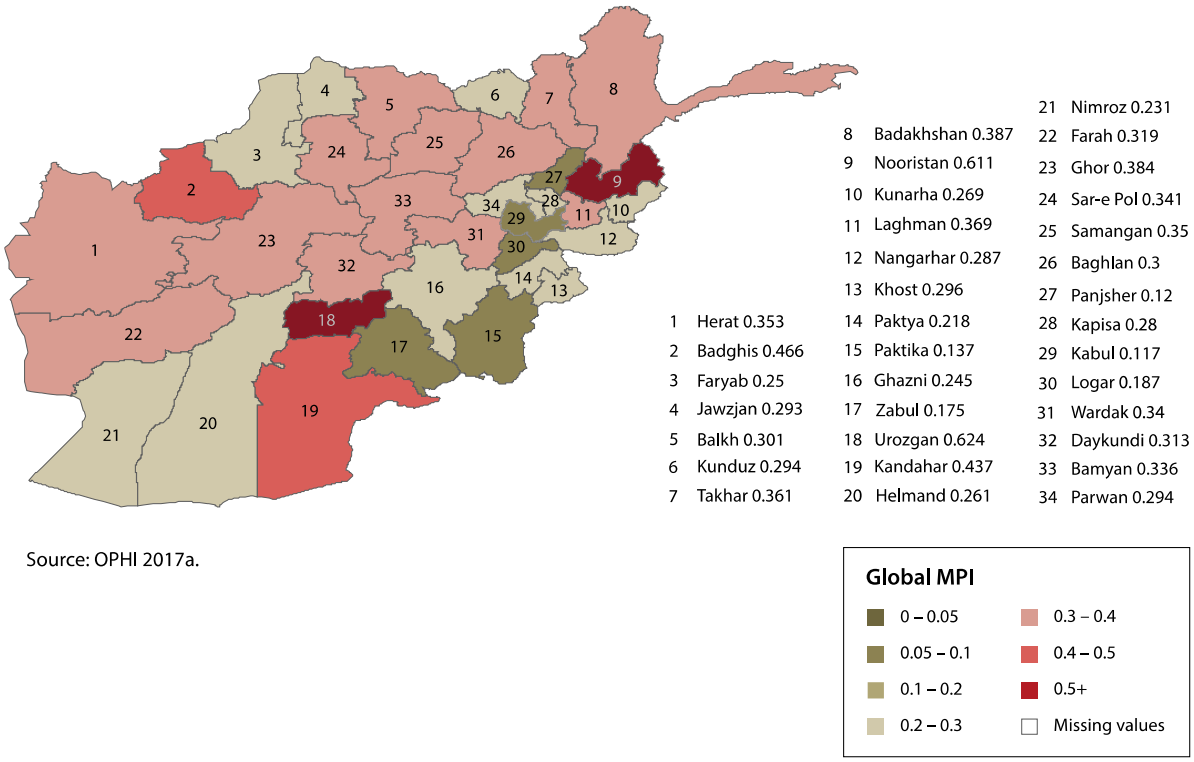
i) Partial Indices MPI=H×A. First, the MPI is equal to the percentage of people who are poor (headcount ratio or incidence) multiplied by the average deprivation score among poor people (intensity). So the headcount ratio and intensity are each 'partial indices' on the information platform. The headcount ratio – the percentage of people who are poor in a multidimensional sense – is important. It is readily understood by policy-makers as it has the advantage of familiarity and intuition.[3] Also, it can be contrasted with the poverty rate assessed by monetary poverty measures. The MPI and headcount ratio and intensity can all be disaggregated to compare the level of poverty across regions, or ethnic groups, or households with different disability status, or age cohorts of the population, to provide information pertinent to different levels of government and different populations of interest. In this way the MPI and headcount ratio can be used to compare levels of poverty, insofar as present data permit.[4]

For example, Figure 1 shows the sub-national regions in Afghanistan. In Nooristan and Urozgan, 94–95% of the population are identified as poor, whereas in Kabul, 25% are poor (OPHI, 2017a). Disaggregation is vital because it brings out internal contrasts and illuminates who is poorest.

3 This could be nicely related to the behavioral economics literature on why headcount ratios are psychologically important, and to the sociology of numbers in public policy (Grusky and Kanbur, 2007).

4 The methodological notes explain exactly any adjustments to the core methodology that are required and have been undertaken in each dataset, with sufficient detail to enable the results to be replicated by other analysts. Naturally, these affect the comparability of indicators – for example Afghanistan's MPI unfortunately lacks nutrition (8 of 104 countries lack nutritional data).

Figure 1: MPI of Sub-National Regions in Afghanistan (2015/16)

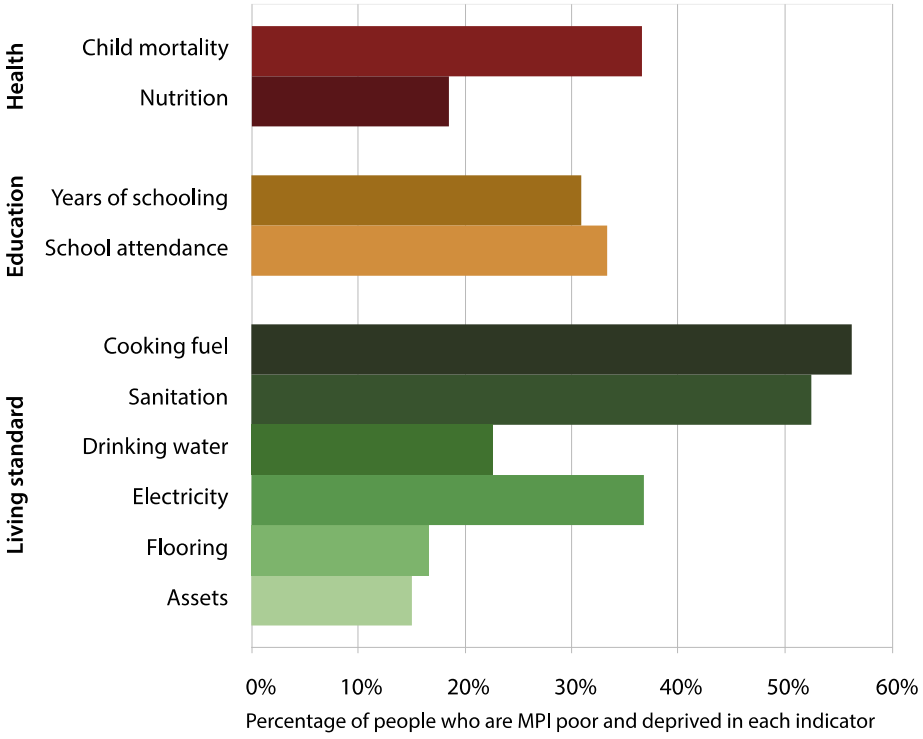


Source: OPHI 2017a.

ii) Indicator-level Detail. The second way of computing the MPI is useful to show the composition of poverty. This composition breaks poverty down into its different indicators. Very simply the MPI value can be computed equivalently by adding up the weighted censored headcount ratios of each indicator, where these are censored to focus only on deprivations of poor people. Thus, there is a very clear and direct connection between each indicator and the overall MPI. What this means for policy is that if you improve any indicator by removing a deprivation for any poor person, MPI goes down (dimensional monotonicity). The composition of poverty by indicator provides information that policy-makers want to have about *how* people are poor. As we will see, this can influence different decisions, ranging from resource allocation or targeting to programming or multi-sectoral policies.

For example, Figure 2 shows the percentage of people who are multidimensionally poor and deprived in each of the ten indicators in Côte d'Ivoire (OPHI, 2017c). This provides an overview of the composition of MPI at the national level. Going further, the indicators (like the MPI) can be decomposed by groups by which the sample is representative. So, the information platform can also include the composition of poverty by different groups. The question of relevance remains, however: how can this information shape action? How are policy-makers able to use it?

Figure 2: Chad – Censored Deprivations in Each Indicator

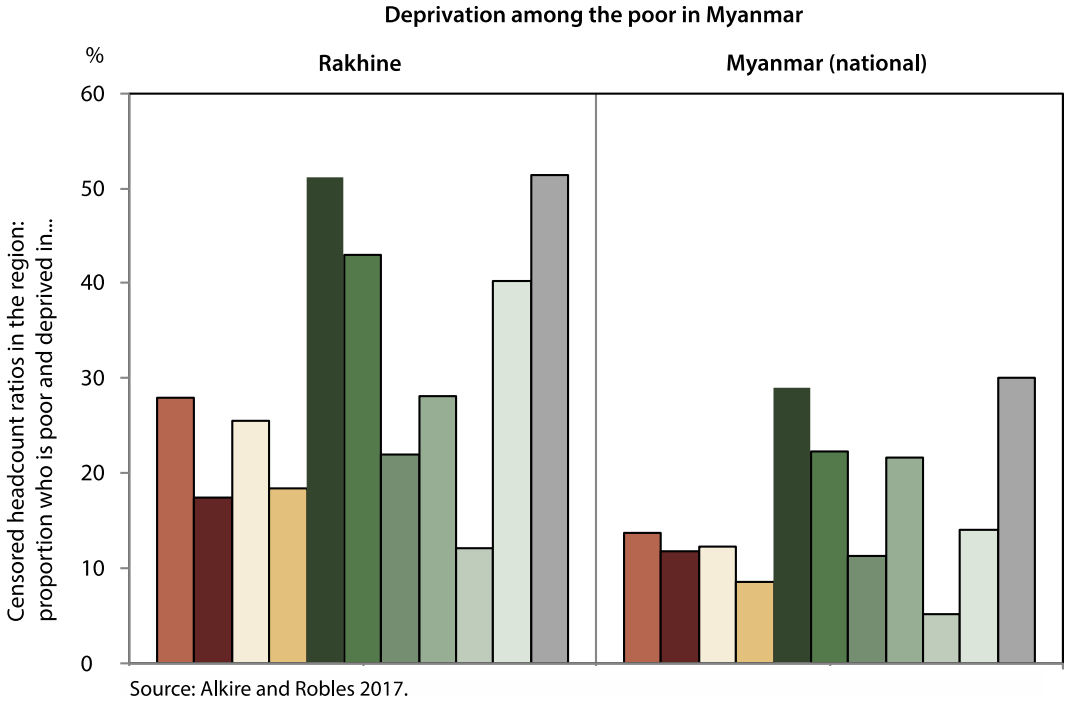


Source: OPHI 2017c (re-arranged).

Let's look at two subnational examples before returning to that question. One instructive example can be seen in Myanmar in Figure 3 (Alkire and Robles, 2017). On average, 30% of people in Myanmar are poor, but in Rakhine, which is the poorest state, 50% are poor. So a benefit of MPI is that it can be easily disaggregated by administrative or political units if data permit, hence making its insights more relevant to specific policy-makers responsible at different levels of governance. Also, you can compare the national composition of poverty by indicator with that in Rakhine state and see that it is often similar, but that electricity deprivation is lower in Rakhine state and malnutrition higher. Still, the composition is overall quite similar.

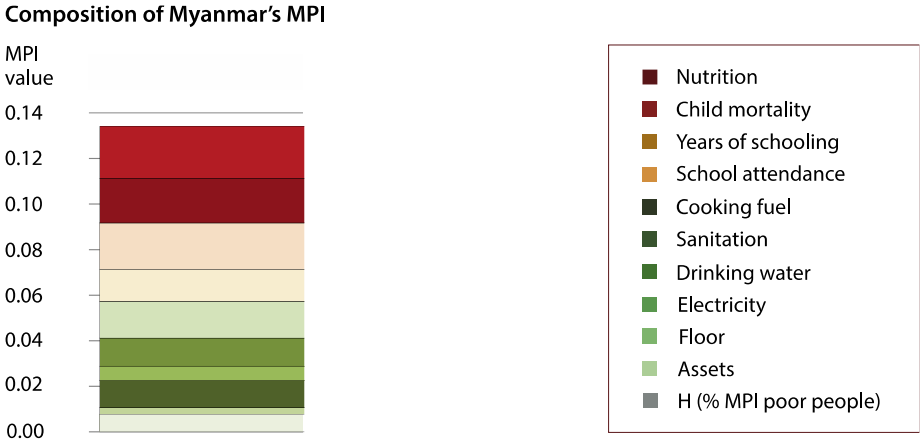
Figure 4 is another visual depiction of the composition of poverty, now reflecting indicator weights. The MPI (Adjusted Headcount Ratio) is a weighted sum of the indicators so the height of this bar is the MPI value for Myanmar, which happens to be 0.134, and each of the smaller bars shows the weighted contribution of each indicator to overall poverty. That is what the dimensional breakdown axiom permits us to do. Even though there are wonderful measures that are very simple, like the headcount ratio, or more complex measures that incorporate inequality among the poor, it's impossible for them to provide this information. Countries use the MPI because it can be broken down by dimension, making it very policy-salient.

Figure 3: Censored Headcount Ratios in Myanmar (2016)



Source: Alkire and Robles 2017.

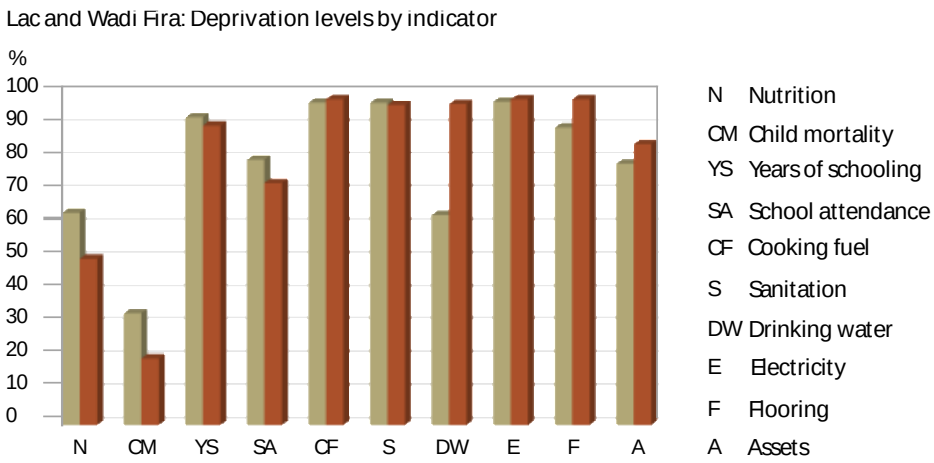
Figure 4: Dimensional Contribution to MPI in Myanmar (2016)



Source: Alkire and Robles 2017.

I the case of Rakhine state and Myanmar generally, there was not much contrast in terms of the composition of poverty, but in a final example we look at Chad, a country where 87% of people are poor. In Lac and Wadi Fira, a very troubling 99% and 98% of people are poor respectively (OPHI, 2017b). You would think that since these two regions have such high levels of poverty, there would be nothing that a multidimensional analysis could add for policy action. But if we look at the composition of poverty, what we see is that in Wadi Fira, 90% of people lack access to safe water, whereas in Lac, it is 60%. On the other hand, we see that in Lac, child malnutrition is much higher. Even in these very poor regions policy responses need to differ. The information platform associated with MPIs can provide this detailed analysis to help guide policy.

Figure 5: Censored Headcount Ratios for Two Provinces in Chad (2015)



Source: Alkire and Robles 2017.

These examples provide a very basic tour of the information platform that multidimensional poverty indices offer. In sum, a multidimensional measure of poverty is not just a single number. Rather, it has an associated information platform, which enables the single overarching indicator (MPI) to be taken apart and scrutinized from different angles, each of which draws directly on poor people's deprivation profiles.

3. Using the MPI Platform to Shape Actions: Country Examples

Our next question is how policy-makers are using the information platform that the MPI provides to shape action. In particular, we observe how governments are using their own official national MPIs, which are increasingly being reported as permanent statistics alongside measures of monetary poverty. We will then consider what kind of research might make the emerging efforts even more effective. The policy applications point to some very important research areas that could lead to poverty reduction (as well as to a highly cited paper, such as many junior researchers rightly seek).

The examples shared are drawn from a community of users, the Multidimensional Poverty Peer Network (MPPN.org), which comprises policy-makers from countries with an interest in developing and promoting multidimensional poverty measures. There were 16 countries present at its launch meeting in 2013, and the network has now grown to 54 countries, with several events held annually. It is a network of heads of state, ministers of planning, ministers of social development, vice-ministers, statisticians, technical advisors and so on, who come to share their experiences and the insights which are emerging as they use the MPI tools with innovation and commitment. Policy actors are using MPIs to shape interventions in a number of ways; a few of these are introduced below.

3.1. Complementarity. The first possible use of the MPIs by policy-makers is to complement the monetary poverty rate and provide a more accurate understanding of poverty. We use both of our eyes in

order to see in three dimensions. So too, using a monetary and a multidimensional poverty measure together – like having two eyes – provides a clearer picture of what poverty is. Both measures provide important information. It is worth recognizing that in 2009 one country – Mexico – combined its monetary poverty measure with six social rights into one indicator that replaced the former monetary poverty statistic (CONEVAL, 2010). But in every other case, when a country has launched a national MPI, it has framed the MPI as a complementary and equal measure of poverty – a second eye – instead of as a replacement for the monetary poverty measure. Why is a complementary measure useful? In some cases, there can be benefit in terms of legitimacy, because people who actually consider that they are poor, and are so viewed by their communities, may not be identified as poor by a national monetary measure. Consider the example of Chile, where 14.4% of people were identified as monetarily poor when the country released its national monetary poverty updates in 2015. The same day, it launched its first national MPI, which showed that 20.4% of people were multidimensionally poor (Government of Chile, 2015). But what fascinated the newspapers was that only 5.5% of people were poor by both measures. Thus, the multidimensional poverty measurement was making visible a group of the population that was facing many disadvantages but that had previously been invisible because of the limited reach of monetary poverty measures. It was also changing the discourse about what poverty *was* to better reflect voices of the poor.

3.2 New Conversations. The process of MPI design can also be a creative one, involving poor persons and communities and those who work alongside them on the one hand, and statistical communities working alongside policy actors on the other. For example, El Salvador used a participatory exercise to identify the dimensions and indicators of poverty. When they launched their national MPI, they knew and could show how it reflected the voices and the values of poor people in their communities (Government of El Salvador, 2015; Moreno, 2017). The participatory process led to some new emphases –relating to violence and the lived environment. When Ecuador launched its national MPI, it was not only the then Head of State, Rafael Correa, who spoke, but also the Head of Statistics and the key ministers who planned to make use of the MPI. Ecuador, which updates its MPI annually, is using multidimensional poverty measures to complement monetary measures and shine a light on the populations that social policies are intended to address (Government of Ecuador, 2016).

3.3 Monitoring. A closely related use of the MPI as an official statistic is to track poverty over time. Tracking the MPI and its information platform over time allows for comparisons across different political or economic climates and provides an overview of progress made in reducing poverty.

3.4 Budget Allocation. Another area in which an MPI is being used to shape policy, which would benefit from further research, is budget allocation. Most governments that have an official MPI use it to shape

both sectoral and regional budget allocation. The allocation formulae vary greatly. But the MPI is one consideration. For example, when Costa Rica launched its national MPI in October 2015, the government analyzed their budgetary allocations and found that they were not allocating more resources to the least poor regions (Costa Rica 2015). Furthermore, in terms of sectoral allocation, some of the MPI indicators had no budgetary resources allocated to addressing them. So the MPI sparked off an analysis aimed at reducing duplication of programming and reallocating budget according to the indicator and deprivation levels revealed by the MPI, among other policy priorities. Subsequently, the President issued a decree that – because the changes were important – subsequent budget allocations would need to reflect the levels of monetary and multidimensional poverty (*Dimensions* 4, 2017). In terms of research questions, there could be a value in articulating how the MPI could rigorously inform public expenditure modeling, and how to estimate user costs when the cost of delivery varies for average service provision in comparison to remote communities.

3.5 Targeting Groups: To Leave No One Behind. The MPI is always disaggregated by population subgroups, and changes over time are reported across subgroups as well as nationally. This makes visible whether the poorest regions are enjoying the fastest progress in poverty reduction – so are catching up – or whether their progress is slower than less poor regions – so they are gradually being left behind. It also allows processes of more intensive support – SDG localization – and program interventions – to be directed to the poorest groups and regions. A good example of this is Panama, where disaggregation showed the poverty rates ranged from less than 5% in the least poor region to over 90% in the indigenous *comarcas* (regions). In a number of countries, census data are used to compute the MPI – at least using a subset of the variables – in order to have high-resolution geographical mapping of it, to inform local responses and target the poorest more precisely.

3.6 Targeting Households. Another use of the MPI is to identify which poor people are to be recipients of service-related benefits. There is widespread recognition of the limitations of proxy means tests, because of the errors of inclusion and exclusion (Brown et al., 2016); also, it may be that services seek to target those who are deprived in a service directly. For example, the government of China has since 2014 used household-level targeting. Its methodology identifies as poor, people who are lacking in any indicator – so a union-based approach – of the 'two no worries and three guarantees': covering compulsory education, basic medical care, safe housing, food and clothing, and having a sufficient income or livelihood. Seventy million people were identified as poor in 2014 and the aim is to reduce this to zero by 2020. This is a very large-scale project, targeting both monetarily poor and multidimensionally poor people. Similarly, Costa Rica and Colombia target poor people using their national MPI.

Mexico did something different, by targeting a subset of the people they had identified as poor using their

official national MPI, which includes income poverty and six social rights (Zavaleta and Moreno, 2017). Following a significant increase in food costs, they set up a crusade against hunger at the national level, with the participation of all 17 federal ministries and a large allocation of fiscal resources. They targeted people who were poor according to the definition of extreme poverty in their national MPI, as well as those who experienced food insecurity, totaling seven million people. The reason a National MPI can be used for targeting is that it usually draws on survey questions that can be directly incorporated, with minor modifications, into short eligibility questionnaires. Still, the accuracy of MPI-based targeting would benefit from careful qualitative study, and the magnitude of errors of inclusion and exclusion should be compared to the magnitude of errors of proxy means tests, which are often considerable, to assess which is 'least bad'. Doing this is challenging, because it requires comparing alternative targeting measures for their accuracy in identifying 'who are the real poor'; yet that benchmark itself is not easy to establish in a neutral way, so requires triangulation and dialogue (See also Dominican Republic 2017).

3.7 Policy Coordination. Perhaps the most common and extensive use of an MPI is to coordinate policies across sectors or levels of government. This use is several steps removed from measurement research. Here, there may be questions for political theorists and those who are more engaged in procedural and institutional approaches or management practices about research can support these coordination processes. For example, in the 2030 Agenda for Sustainable Development, governments are advised to adopt integrated and multi-sectoral policies to achieve the SDGs, because in many studies during the years of the Millennium Development Goals, such policies were found to reduce poverty more cost-effectively than isolated sectoral policies or a 'silo approach'. Integrated policies are likely to recognize the overlapping deprivations poor people face and address them together, insofar as doing so is more efficient both for the poor people as participants and also for the governments in terms of the costs of service delivery. But how this coordination works and cuts costs varies, depending on what level of government is engaged and also on the national context.

In Colombia, President Santos been both Head of State and Head of Government since the country launched its National MPI in 2011 with the aim of reducing national poverty from 35% to 22% by 2014, a target that it met, after which it set another target for 2018 – 18% – which has also been met. So here we see a target-driven, management delivery kind of approach. What Colombia did to achieve this was to update the MPI every year and catalyze policy coordination through a 'Poverty Roundtable' chaired by the President. The roundtable included 15 ministers, who were not permitted to send deputies (Zavaleta and Angulo, 2017). It reviewed the levels of the 15 indicators in Colombia's National MPI, while looking at the target the country was supposed to reach in 2014, to see in which indicators they were on track to achieve their targets and in which they were lagging behind. Each of the indicators in which they were behind created an 'alert' that triggered a policy response to accelerate progress. In the series of

interchanges at this roundtable members considered how they could work together to nudge forward progress on lagging indicators by adjusting policies.[5]

The MPPN meeting in Colombia included a panel interview with leaders who participated in this roundtable. Ministers, many of whom were young and quite open, were interested in recounting their experiences. The Minister of Health spoke about how he learned from the roundtable that he needed the ministers of environment, housing, water, and education to support different aspects of the health goals, in order to achieve these goals effectively. He also spoke of the use of the MPI in Colombia as a monitoring tool which identifies when sectors are lagging behind and can also be used to evaluate the impact of policies and projects, another policy application. While there were some very well-trained academics in the government, there is not yet a more substantive body of literature on how the MPI can support coordination and management practices, how it can set key performance indicators and targets and how it can be used to track deliverables. It would be interesting to see how other management practices consider a set of interlinked indicators in a framework of multidimensionality and plan actions.

Another fascinating and extraordinarily rich example of this use of an MPI is China's Accurate Poverty Targeting program. Here, the Chinese government coordinates the different aspects of the program remarkably effectively and there is not enough space to discuss it in detail. The Leading Group on Poverty (LGOP) coordinates over 45 ministries and has offices at the national, provincial, city, and township levels. Even at the local level, elected representatives are engaged in the very ambitious goal of reaching a poverty rate of 0% by 2020, which was set by President Xi Jinping. One new feature of China's work is intriguing, and that is the one-to-one contact person scheme. This scheme is structured so that there are poverty-reduction professionals in the LGOP, and village officers who have access to financial resources for each of their priority indicators and are supported by the LGOP township people to offer particular support. But the government also wanted a back-up system, so they assigned poor families to higher-level civil servants. The job of these civil servants (in addition to their ongoing professional responsibilities) is to be in touch with their assigned poor families and to make sure they leave poverty behind. One practical aspect of this is that each poor household has the phone number of their assigned civil servant written by their front door and can call them in times of distress. The civil servant is supposed to visit regularly and be the person of last resort who can connect the poor family with the existing extensive financial and institutional resources, if these connections have not already been made.

This kind of activity is not required anywhere, to my knowledge, of poverty researchers. But it would be interesting if we also had to accept that kind of responsibility. It might benefit our research if we, like the

5 For more information on the Roundtable see Zavaleta and Angulo 2017.

civil servants in China, were required to have a direct responsibility for connecting poor families with the services intended to help them. Doing this might enable us to better understand the kinds of pressures experienced by poor people – and also the achievements of policy-makers and the gaps in the policy response – the two-way relevance discussed earlier.

3.8 Transparency and Accountability. Another policy application is simply increasing transparency and accountability. Many countries are putting their national survey data online, with publicly accessible micro-data; they also post the Stata or R or SAS or SPSS files required to replicate official national statistics. In many cases, methodological notes, data tables, and presentations are also posted online. This is now a real resource for academics, as we can obtain official files and replicate the poverty figures easily to further analyze some issues related to policy.

This concludes a very brief overview of the ways in which multidimensional measures are and can be used as policy tools. Yet each experience brings up additional research questions: Why are there mismatches between multidimensional poverty and monetary poverty? How widespread are such mismatches and what are their policy implications? Here the problem is far from solved, and more research and insights are needed. Why has Ecuador's or any other country's MPI changed over time? Can we find natural experiments, or identify the policy sequences, and institutional and management practices that have generated the highest impacts with the lowest fiscal burden? The national MPI data are dispersed, but there are now enough data on outcomes for researchers to begin serious research on the determinants of poverty. And other methodologies are needed to open other angles of investigation related to budget allocation, targeting, coordination, policy design, and the sequencing of interventions.

4. Closing Observations

In doing research on poverty, the mind must focus in part on the poor man, woman or child whose troubling life circumstances have motivated work on this topic. Yet the researcher might also consider the situations of those who can create policies that accelerate poverty reduction, and seek to understand the constraints they are under and the opportunities they have – and in far greater detail than has been presented here. Relevant research would include relevance of two kinds: relevance to impoverished persons and their communities, and relevance to policy-makers.

The ways forward in terms of research are myriad, covering improvements regarding indicators and datasets, and extensions into special groups such as MPIs for children, the elderly, minorities, refugees, or people with disabilities. There is a need for research on each of the policy uses specified above, as well as on issues of political economy and on how MPIs can also empower the poor people themselves, for example if information from the survey is shared with respondents directly, or if the analysis is

communicated to them.[6] There are methodological gaps that need to be filled in, for example on robustness standards. Also, there are unanswered questions about whether to include volatile variables with short recall periods in a survey – such as (often) consumption, time use, or employment – in an MPI. There are also big questions about how this work – which has taken form as a South–South movement – may be taken up in more high-income countries, and what kinds of networking best strengthen political leadership to end poverty.

The best examples of relevant research on poverty measurement and related topics will still be strewn with imperfection. They may not have the allure of the pure sciences. But as the closing words of the Atkinson Commission Report on Global Poverty expressed it, there may still be a value in advancing such research actively:

> The estimation of the extent of … poverty is an exercise in description … As Commission member Amartya Sen has written, 'description as an intellectual activity is typically not regarded as very challenging.' However, as he goes on to say, 'description isn't just observing and reporting; it involves the exercise – possibly difficult – of selection … description can be characterized as choosing from the set of possibly true statements a subset on grounds of their relevance' (World Bank 2017).

Understanding the choices underlying poverty indicators and their full implications is indeed challenging. There will undoubtedly be differences of view, and we welcome them. But it is hoped that the ensuing debate will bring together all those concerned and provide a basis for action to tackle one of the gravest problems facing the world today.

6 Alkire (2018) articulates some areas for research more comprehensively than can be presented here.

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