

CHAPTER FOUR THE INDIVIDUAL DEPRIVATION MEASURE A NEW TOOL FOR MEASURING POVERTY AND GENDER DISPARITY

BASED ON THE FIRST TWO PHASES OF RESEARCH AND REVIEWS OF EXISTING APPROACHES TO POVERTY MEASUREMENT, WE DEVELOPED AN INDIVIDUAL LEVEL MEASURE OF MULTIDIMENSIONAL DEPRIVATION. THIS INDIVIDUAL LEVEL MEASURE OF DEPRIVATION, WHICH WE CALL THE INDIVIDUAL DEPRIVATION MEASURE (IDM), IS TO BE USED FOR TWO PURPOSES.

The first is to identify those who should be categorised as deprived and to provide a picture of the nature and severity of their deprivation. The second is to construct population-level indices that reflect the level of poverty and gender inequality in that population. The majority of this chapter focuses on the first task—using measurement to identify individuals as deprived and to determine the extent of their deprivation. We describe the process by which information from the first two phases was used to develop the IDM and explain the various difficult choices and trade-offs involved in that process.

Dimension selection and description

For reasons briefly touched on in chapter one and explained in much more depth elsewhere (Pogge 2010b, pp. 199–221), we believe that a multidimensional, individual-level measure of deprivation is an indispensable tool for measuring social progress. We take “multidimensional” to mean that measurement should occur in a range of different dimensions or areas of human life and that indicators should be appropriate to those dimensions. In other words, we reject approaches

that would measure achievement or deprivation (such as freedom from violence, education, sanitation, health care, etc.) simply in terms of actual expenditure or an expenditure value imputing the income value to these dimensions.³³ In order to meaningfully capture information in these dimensions, measurement must use indicators appropriate to the dimension—such as whether you have been subject to violence, how long you have been in school and what has been learned, the kind of sanitation you use, the kind of health care you use or have access to, and so on. If it is correct that multidimensional poverty measurement in this sense is desirable, then we must have reasons for including dimensions or excluding them from a multidimensional measure.

Our participatory research and other research in development studies generated a long list of candidate dimensions that deserved consideration for inclusion in a multidimensional poverty measure. One might think that we could simply select the most important dimensions as ranked by our participants in the second phase. But there are other considerations that should bear on the construction of a multidimensional measure. Below are six desiderata that we have used to select dimensions for inclusion in the Individual Deprivation Measure.

1. Conceptual plausibility: is the dimension plausibly considered part of the concept under consideration? Can it plausibly be included as part of the ideas of poverty and hardship?

This desideratum is intended to maintain conceptual coherence and plausibility among the selected dimensions. Our measure intends to capture dimensions of deprivation that both participants and common linguistic usage identify as constitutive of poverty and its closely related hardships. This bundle of core deprivations certainly permits of different reasonable interpretations. But we think that some dimensions of life are clearly beyond the scope of this concept. Happiness and religious experience are two examples. Happiness is clearly central to a life that is going well, and many people place great importance on their relationship with God.³⁴ Nonetheless, because our measure focuses on poverty and closely related hardships, measures of subjective states of well-being or the quality and kind of religious experience a person has are best considered beyond the scope of our inquiry and ought not be the basis for evaluating progress in

33. Equivalent income approaches modify a person’s actual income by attributing to that income their consumption of non-income sources of welfare gains. For example, if a person uses health care or education without having to pay, this can be counted as ‘income’ gains in proportion to the monetary value of the services provided.

34. And happiness has rightfully been included in some approaches to assessing overall social progress. See, for example, McGregor, J. A., and Sumner, A. (2009) *After 2015: 3D Human Wellbeing*’ IDS In Focus Policy Briefing 9. Institute of Development Studies.

poverty eradication.³⁵ This does not exclude the possibility that happiness or religious experience might be part of broader systems of social valuation.³⁶ But it does mean that anti-poverty programming cannot count as successful in reducing deprivation if a person remains hungry or at risk of violence but becomes happier or strengthens her religious belief.

2. Moral importance: is the dimension morally significant for people?

Selected dimensions ought to be morally significant and of a certain fundamental importance relating to basic human interests. Failure to have adequate achievements in these dimensions is of normative concern, and public policy and individual action should be directed toward reducing these shortfalls. Our measure will not capture all morally important features of a person's life, but we aim to exclude dimensions that are not of moral significance. Any identified dimension should be such that it is not merely unfortunate but morally objectionable that a person fails to have adequate achievement in it.³⁷

3. Ease and reliability of measurement: are there good indicators for the dimension? Can information on these indicators be easily and reliably gathered for a particular individual?³⁸

Feasibility constraints play a significant role in the design of a multidimensional measure. If reliable and easily gathered information cannot be collected at the individual level, particularly in the difficult contexts in which severe deprivation exists, then these dimensions ought not be included in the measure. Adequate surveys of consumption expenditure and many multi-topic surveys are very expensive and time consuming to administer and often require significant capacity from the administering organisation. We have therefore selected dimensions and indicators that can be measured reasonably well at a reasonable cost even in the most difficult circumstances.

4. Suitability for institutional response: to what extent is the dimension something that can and should be directly or indirectly addressed through governmental or non-governmental action?

We intend our measure to be deployed in assessing the progress in eradicating poverty and gender inequity. The measure should be able to provide guidance in developing and assessing programs, policies and institutional designs. Therefore, any dimension that is included in the measure should properly be the subject of action by governments,

NGOs and civil society. In other words, if governments and NGOs ought not be involved in improving achievements in dimension X, X should be excluded from the measure. For example, strong religious faith or romantic relationships might be important for how well a person's life is going, but if governments and NGOs ought not be in the business of making people believe in God or fall in love with each other, then these dimensions should not be included in the measure.

5. Comprehensiveness: does the set of selected dimensions ensure that the concept being measured is adequately covered? Do individual dimensions help avoid any major or obvious 'blind spots' in the measure and do they avoid duplicating other included dimensions?

If we think of the measure as focusing on a core set of deprivations that constitute poverty and its closely related hardships, the selected dimensions should adequately cover the conception in hand, while avoiding unnecessary overlap. If the measure should cover biological and social needs, then it would be a mistake to have nearly all dimensions covering social needs and very few covering biological needs.

6. Usefulness and purpose: does the dimension serve the explicit purposes the project takes as fundamental?

Our project has several explicit purposes that the designed measure is expected to serve. For example, does the dimension help reveal important gender disparities? Does the dimension allow for comparison across context and over time? Does it allow for revealing other group disparities?

Fieldwork is relevant for (at least) desiderata 1, 2, 5, and 6. It tells us how participants view their deprivations, what they think is important, what range of dimensions covers

³⁵. Many participants did raise religious faith as a centrally important dimension that should be used to evaluate whether a person's life is free from poverty and hardship.

³⁶. For example, we think it is important that women have apparently made little progress on self-reported happiness as compared with men in the United States, and public policy should be responsive to this finding. However, we do not think that an individual's subjective state should be the source of her claim for anti-poverty resources. Rather, we think other measures, including the IDM, better serve this purpose. It is harder to justify including measures of the strength of one's religious commitment or experience in official measures of progress, though some countries have gone in this direction, for example Nepal.

³⁷. This deprivation is morally objectionable in the standard case in which deprivation is unchosen. However, if a person voluntarily chooses not to work, or becomes deprived through freely chosen illegal activities for which he is eventually prosecuted, then his deprivation may not be objectionable.

³⁸. More on indicator selection below.

the relevant conception they have in mind and (perhaps to a lesser extent) how a measure of deprivation can serve our explicit purposes, including revealing gender disparity.

Selected dimensions

Based on the above listed desiderata, we have assembled a list of dimensions to be included in our measure of deprivation. By way of review, phase one played an important role in determining the dimensions that were included in the second phase exercise and the range of achievements included in the dimension description. But it also influenced our thinking on the final construction of the measure. The second phase exercise helped refine the dimensions that should be included in a composite measure and also helped in setting the relative weights those dimensions should have.

All of the dimensions ranked highly in phase two should be included. Among these are food, water, shelter, health care, education and sanitation.

Because of the potential overlap between cooking fuel and electricity, we combined these dimensions into a single dimension of energy (consistent with global efforts in this sphere³⁹). Similarly, there is considerable overlap between personal care and clothing (both reflect a person's ability to present herself decently according to the standards of her society), suggesting these two dimensions should be combined. Family relations and the environment are the next highest ranked dimensions on our list and deserve inclusion in the measure based on participant preferences. Because single individuals may be free from deprivation but have no direct family relations, for the purposes of the third phase we refer to this category as 'Decision-Making and Personal Support', reflecting the two components of family relations that are of concern but may be evaluated for single individuals as well as those living with family members.

Of the remaining middle ranked dimensions, some may be excluded for other reasons. Location of services is very important, but can be reflected by assessing individual use of particular services and/or the time spent in accessing those services. It need not stand alone as an independent dimension. Property rights may be very important for people in some communities (such as rural landowners) but much less important for people in other communities (such as renters in urban areas). Treatment of property rights is also complicated in cultures where communal or clan rights are recognised and where traditional property rights might be linked with one group (for example women in traditional matrilineal areas in Solomon Islands) but, in practice, decision-making control sits elsewhere. For these reasons, we determined that property rights were not as useful given the need for making comparisons across context and over time. Furthermore, it can be quite difficult to evaluate property rights at the individual

level. In many cases the strength of a person's property rights can only be evaluated once they are challenged and the institutional environment is relied upon to protect one's property. Therefore, while property rights could be included in a multi-topic survey as an additional module in contexts where it is quite important, it is probably best excluded from an internationally comparable composite measure of deprivation.

Freedom from violence, family planning, voice in the community and time-use were all ranked slightly lower in Phase 2, and could be included or excluded based on the second phase data alone. We have chosen to include these dimensions because each, in different and important ways, is capable of revealing gender disparity. From existing data collection efforts, we know that these are areas in which significant gender disparities can occur,⁴⁰ and that deprivations in these areas can have significant impacts not only in their own right (the immediate harm of being subject to violence) but also instrumental impacts (for example, the economic, social, and psychological costs to the victim of being subject to violence).

Discretionary items, sexual autonomy, freedom from debt and access to financial services, freedom from the disruptive behaviour of others and freedom of movement have all been excluded from the measure, though we still recognise that important deprivations may occur in each of these dimensions.⁴¹ Access to information and communication has also been excluded, although we capture information about the household ownership of a TV, phone and radio through a survey question on asset ownership.⁴²

Financial and work status

In the first phase, participants identified employment and income as important components of a life free from poverty and hardship. Some participants also identified freedom from debt and access to financial services. Some of these dimensions (employment and income) were deliberately excluded from the second phase ranking exercise because they are instrumentally related to most other dimensions. A participant might plausibly think that with secure employment and reasonable income, all (or at least many) of their other deprivations would go away. We therefore include these two dimensions based on first phase participatory input but do so on a separate axis of deprivation.

39. Available at www.sustainableenergyforall.org

40. Among many other sources, see Revenga, A. & Shetty, S. (2011). *World Development Report 2012: Gender Equality and Development*. Washington D.C.: World Bank.

41. The survey also captures to a more limited extent a person's access to information and communication by determining whether the family owns a cell phone, radio, or TV, though we do not use this for purposes of developing an indicator of access to information and communication.

42. This information on access to information and communication technologies does not inform the final score.

To capture a person's financial situation, we propose that information be collected for a second 'axis' of information. We follow the recently released Mexican multidimensional poverty measure,⁴³ which (at the household level) identifies on one axis income well-being and on a second axis the person's status according to seven social deprivations.

In the IDM we use a household asset index to estimate individual financial status, as income and consumption-expenditure are difficult to measure reliably in a short survey.⁴⁴ See page 37 for more information.

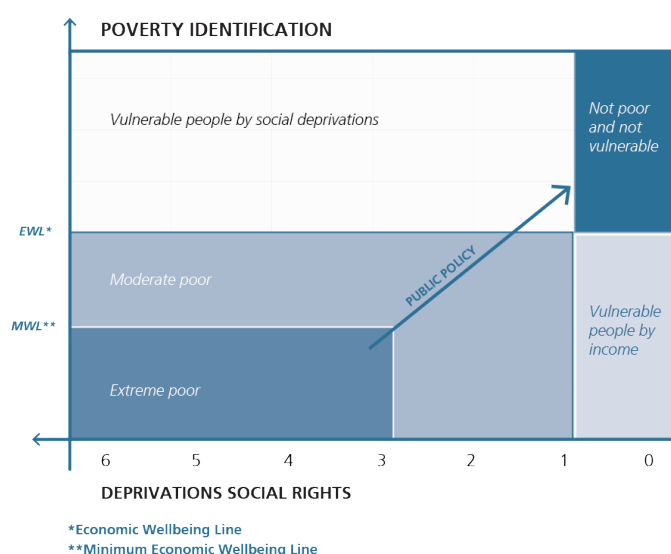


FIGURE 3: ILLUSTRATION OF THE MEXICAN MULTIDIMENSIONAL POVERTY MEASURE

The issue of employment and work is difficult to handle in a multidimensional measure of deprivation. Many participants, unsurprisingly, noted the importance of employment and jobs for living a life free from poverty and hardship. Most poor people don't have secure, formal employment, but are rather involved in a mix of non-cash economic activity, subsistence production and economic activity in the informal sector. Even aside from income generating activities, much informal work helps satisfy needs (care work, house work, subsistence agriculture, etc.). Further challenges arise in that the work opportunities of a single family member may generate welfare gains for all other members. It may therefore be misleading to count as deprived in the dimension of work a person who could find suitable employment but instead chooses to rely on the employment of a family member. We therefore leave some work-related welfare gains to be reflected in the asset index.

However, there is another component of a person's work that is also important—quality work may be in part about a person's status, identity and empowerment, in addition to financial gain. Many people in the communities where our research has been conducted are involved in dangerous, degrading, and gruelling work whose disutility extends beyond the limited financial return the work provides. We have attempted to address these deprivations through a module on the nature (safety

and status) of a person's paid and unpaid work as part of the multi-topic survey, which is reflected on the axis measuring multidimensional deprivation. Considering both paid and unpaid work reflects our commitment to develop a gender-sensitive measure⁴⁵ and recognises the anomaly of excluding unpaid housework and care work from calculations of Gross Domestic Product.⁴⁶

Indicator selection

Just as one needs to carefully reflect on dimension selection, so too one needs to reflect on the reasons for selecting indicators that measure a person's achievement or deprivation in each dimension to be included in the measure.

Participant dimension description

In selecting indicators we have tried, insofar as possible, to be faithful to the descriptions participants provided of key dimensions in phase one. For every dimension, descriptions provided by participants and recorded in country reports are far richer and deeper than the indicators selected. Considerations of feasibility and usefulness thus require narrowing our focus for the purposes of measurement. But anti-poverty policies, programs and institutional designs need not be insensitive to the range of important considerations involved in the dimensions investigated here that are not captured by our recommended indicators. For example, even though our recommended measure does not capture information on the diversity of food sources, anti-hunger programs should be properly concerned with monotonous and nutritionally deficient diets. We encourage readers of our work to investigate the greater detail provided by country and site reports as well as other published work from the project.

43. Available at www.coneval.gob.mx/Paginas/principal_EN.aspx.

44. The individual portion of our survey can be completed in under an hour.

45. Across the world, women continue to spend more time on unpaid household and care work than men, ranging from twice as much time in Sweden to 4.6 times more in Ghana to 6 times as much in Pakistan (Revenga & Shetty 2011, p.297). This is so even when women earn most of the income (Wisor 2012b). This has lifelong implications for their economic circumstances.

46. The System of National Accounts (SNA) distinguishes production that should be included in calculations of GDP and production that should be excluded. SNA work includes the production of all goods (whether or not they are sold on the market). In contrast, only services that are sold on the market are included. Extended SNA refers to work that is excluded from the calculation of GDP; this includes housework in one's own home, and unpaid care for children, elderly people, the ill and people with disability. United Nations Research Institute for Social Development, *Why care matters for social development*, UNRISD Research and Policy Brief 9; citing Budlender, D. (2008). *The statistical evidence on care and non-care work across six countries*. Gender and Development Programme, Paper No. 4, UNRISD, Geneva.

The space of measurement

Once dimensions have been selected, indicators must be identified that can capture desired information within the dimension. But this step also requires critical reflection, as there are many different indicators that could be chosen for any given dimension.

For any given dimension, one could measure:

1. The availability of resources in that dimension (how much food is around in, say, your village)
2. A person's access to resources in that dimension (how much food do you have)⁴⁷
3. A person's use of resources in that dimension (how much food do you eat)
4. A person's achievement in that dimension (how well-nourished you are)
5. A person's subjective state of happiness or preference satisfaction within that dimension (how pleased or satisfied you are with your nutritional situation); and
6. The importance the person assigns to their current or possible position in that dimension (how important your nutrition is to you).⁴⁸

The table below details each of these spaces of assessment for four candidate dimensions.

DIMENSION	FAMILY PLANNING	EDUCATION	ENERGY	FOOD
AVAILABILITY	What family planning methods are available in your locale?	What educational resources (schools, books, teachers) are around?	How much energy is around?	How much food is around?
ACCESS	What family planning methods do you have access to?	What educational opportunities do you have access to?	How much energy do you have access to, that is, have it in your power to eat?	How much food do you have access to, that is, have it in your power to eat?
USE	What family planning methods do you use?	How much education do you use (days in school, teacher time, etc.)?	How much energy do you use?	How much food do you consume?
ACHIEVEMENT	Have you been able to have children at the pace you desire and avoid STDs?	How well educated are you (can you read and write, do math, critically reason, etc.)?	How well 'energised' (food heated and cooked, lights lit, phone charged, etc.) are you?	How well-nourished are you as a result of your food consumption?
HAPPINESS/ SATISFACTION	How satisfied are you with your family planning?	How satisfied are you with your level of education?	How satisfied/ happy are you with your energy consumption?	How satisfied/ happy are you with your food consumption?
IMPORTANCE	How important to you is your current achievement/ deprivation in family planning?	How important to you is your achievement/ deprivation in education?	How important to you is your achievement/ deprivation in energy?	How important to you is your achievement/ deprivation in food?

TABLE 7: ASSESSMENT FOR FOUR CANDIDATE DIMENSIONS

Rejecting availability, happiness and importance

Availability (one) is not a suitable space for measuring individual deprivation. The existence of ample food in one's district does nothing toward helping a person avoid deprivation, for example, so long as this person cannot get any of the available food (Sen 1982).

Happiness, or a person's subjective pleasure or displeasure with his or her achievement in a given dimension (five) is also inappropriate as an indicator of deprivation or poverty. First, subjective assessments of a person's status within a dimension raise challenges of comparability: does an Afghani woman saying she is pleased with her nourishment really mean the same thing as an Australian woman saying she is pleased with her nourishment? Second, assessments of happiness or subjective pleasure in a given dimension face the problem of adaptation—a person's satisfaction or pleasure with a given dimension may be a response to a lack of opportunity or to unjust circumstances (Sen 1999, p.62). A person may be satisfied with low-quality sanitation or very little education merely because she lives in circumstances in which access to education or adequate sanitation is denied. Third, participants did not place much weight on the 'subjectivist' metric of assessment in our participatory exercises.⁴⁹ That is, participants largely discussed the actual situation of individuals living in deprivation, such as having bad housing or inadequate clothing, as opposed to discussing whether individuals were unhappy with their housing or clothing. And fourth, given the purposes of our proposed new measure—to guide resource allocation and the evaluation of projects and institutional designs—it seems inappropriate that governments and other organisations may improve persons' deprivation score merely by changing their subjective pleasure with their dimensional status rather than changing the objective circumstances in which they find themselves.

A related problem for resource allocation is that a person with objectively better achievements in a given dimension may appear more deprived if she is subjectively unhappy

47. The question of accessibility is best assessed in terms of a person's access to all relevant dimensions, rather than any individual dimension. Given a limited budget, a person might be able to afford food, water, or sanitation, but not be able to afford all three together.

48. The space of importance might have several different meanings, depending on how it is specified. It may mean: how important is this dimension to you, irrespective of your current status in that dimension; how important is this to you, given your current status in this dimension; or how important is this dimension to you, given a certain incremental gain that you might have in the dimension, as compared to similar incremental gains in other dimensions. Regardless, we reject the relevance of subjective importance of a dimension to the participant for the purposes of indicator selection, while recognising that importance might play a role in the subsequent process of weighting dimensions.

49. That said, we did not actually prompt people to respond to this direct question.

50. Arguably, while variable satisfaction should not matter, general satisfaction does matter. For example, when the question is whether having to share a toilet with the members of another family adds to deprivation, then it's plausible to say that this depends on how people generally feel about such toilet sharing. If they generally dislike it, then it should count as adding to deprivation even in the case of those individuals who don't mind.

with her status in that dimension—again, a person with moderate access to clean water who is very displeased with this situation will appear worse off than a person with bad access to clean water who is not displeased with the situation. It is surely mistaken for governments to allocate resources to the person with moderate clean water access at the expense of the person with little or no access on the grounds that the former is more displeased with her situation than the latter.⁵⁰

For similar reasons, we reject using indicators that reflect the importance an individual assigns to a dimension or their status within that dimension. Whether a person finds education really important or not at all important is irrelevant to identifying how badly off she is in that dimension.

It may be possible to develop a weighting scheme that is sensitive to individual or group-based preferences, which is sensitive to the importance placed on a given dimension, but the question of weighting individual deprivations is different from determining the objective status of a person's deprivation. Weighting schemes may be varied by users of data for different purposes, based upon different rationales. But initial measurement must provide data users a morally plausible and empirically adequate set of indicators from which to work. We believe these indicators cannot be found in subjective assessments of achievement within given dimensions.

At this point one might object: how can you argue that people's perceptions (either at the individual or group level) are not important in determining how badly off they are? Isn't that the whole point of the project? Are you not committed to participation after all? This objection can be resisted. For the purposes of guiding resource allocation and the measurement of progress, we can reject happiness or importance as relevant to determining how badly off a person is in a given dimension, while still recognising, and indeed embracing, that the same person can (and did) contribute to an interpersonal conversation about what objective dimensions of life should be central to measuring how badly off someone is. The existence of preference adaptation and the problem of comparability provide decisive reasons to reject measuring dimensions in the space of happiness or importance, but don't weigh against using participation and public reason to construct a multidimensional measure of deprivation. This is in part because worries about preference adaptation are mitigated when participation is deliberative, and includes large numbers of participants from diverse social locations. And worries about comparability in using deliberative participation are mitigated particularly when the conversation focuses on objective states of affairs (such as third party evaluations of deprivation) rather than internal subjective assessments (such as what it is like to be poor).

Endorsing access, use and achievement

Having rejected availability, happiness and importance, we endorse using indicators regarding 3) access, 4) use and 5) achievement. We find good reasons to measure a person's deprivation in some or all of these spaces for each of the 15 dimensions we sought to measure. For some dimensions, we have multiple indicators in multiple spaces. In other dimensions, we have a single indicator.

There are two ways to understand the spreading of indicators across these three spaces, as opposed to a principled commitment to only measure in a single space. One might hold that it just is the case that to determine how badly off a person is one must assess her access, use, and achievement in various dimensions. If we learn that a person has plenty of food, eats plenty, but is nonetheless malnourished (for example, because she has contracted a disease that depletes her consumed calories), it is hard to deny that the malnourishment should affect our assessment of how badly off she is. Alternatively, one might hold that all we actually care about (for moral or philosophical reasons) is, for example, access to resources. But a proponent of this view might think that indicators in use and achievement are decent proxies for a person's access to resources. It would then be an empirical matter to determine whether indicators of use and achievement are close proxies for access.

It is important to note here that we have taken feasibility considerations very seriously in constructing the new measure. We have designed a multi-topic survey that can be administered in roughly an hour in diverse circumstances with enumerators who do not require any special training or expertise.⁵¹ Longer and more technically advanced surveys, such as the Demographic and Health Surveys, can generate rich information on individuals in developing contexts. These surveys are indispensable for much important information collection, but they are also costly and difficult to administer and do not currently generate composite measures of individual deprivation. Therefore, one consideration in the selection of indicators is whether we could easily and reliably collect the needed information. As one example, in the dimension of food, one might measure the micronutrients in a person's blood as an indicator of achievement. But given the added cost and difficulty of including this in our survey, we have no such indicator. We only include a series of questions on the hunger that a person has faced in the last month.

⁵¹ The individual portion of the survey can be completed in under an hour. The participant in each household who is most knowledgeable about the age, completed education and other characteristics of household members will also be asked to complete a short household survey. For the respondent completing both surveys, the full interview can be completed in around 90 minutes.

Objective and perceived status

In some dimensions we use an individual's perception of their objective status within a particular dimension. For example, in violence we ask about whether a person believes they will be subject to violence in the next year. In water, we ask about whether a person has enough water to meet her daily needs. These perceptions are needed to assist in measuring an individual's access, use, or achievement in a particular dimension. Perceptions of objective status are used in particular when we think this provides needed information to portray an adequate picture of individual deprivation. This should not be confused with measuring in the space of happiness or importance. We are not relying on subjective assessments, but rather, making objective assessments on the basis of subjective reports. If it were possible to avoid such subjective reports, we would have done so, but in many cases this is simply not possible. For example, in measuring the degree to which a person has control over decision-making in their household, we must rely on the participant's assessment of their control. Absent the time to conduct experimental studies which might generate a more objective account of a person's situation, this is the only option. In chapter 6 we will return to examining this method and will, in particular, explore whether it systematically biases the objective assessments we make toward understating women's deprivation.

Households and individuals

A fundamental commitment of the project is that individuals ought to be the unit of analysis in poverty measurement. This is necessary to be able to reveal intra-household distribution and any gender disparities within the household. Individuals are also, in our view, the ultimate unit of moral concern, and morality requires that social valuation be sensitive to the multiple deprivations they suffer. Therefore, whenever possible, we select indicators at the individual level. However, some dimensions are about resources that are difficult to measure at the individual level. For example, we attribute to individuals the financial status of their household, through a simple asset index. We attribute to all household members the materials of their dwelling, absent reason to believe (or time to investigate) whether individual members have differential experiences of housing quality under the same roof. While recognising that this will fail to reveal individual-level differences in financial status, the IDM includes a sufficient number of individual-level indicators to reveal intra-household difference in deprivation.

An ecumenical approach

Data collection has improved markedly in recent years as a result of multiple efforts to improve the quantity, quality, reliability, and availability of information on human progress.⁵² There is still much more work to be done to improve information collection. We are conscious that our recommendations for data collection join many calls for new and better information. We have therefore aimed for our survey design to be consistent with a range of information collection exercises underway. That is, we believe that with minor modifications to survey questions and modules, all of the information needed to populate the measure we recommend can be gathered by means of commonly used survey instruments, including the Demographic and Health Surveys, the Living Standards Measurement Surveys, the Core Welfare Indicator Questionnaires, the Multiple Indicator Cluster Surveys and other multi-topic nationally representative survey efforts. Our recommendations do not necessarily require entirely new surveys and information collection. Needed information could be gathered through relatively minor modifications to these widely adopted surveys. Of course, the survey we have designed and administered can also be used to populate our recommended measure. To be ecumenical, where possible we drew indicators and survey questions from existing data collection efforts. We have also attempted to draw on the latest comparative research regarding the most robust indicators and survey questions, particularly for the purpose of comparison across contexts and over time.

What makes good indicators?

In selecting indicators for our dimensions, we have aimed for indicators to have the following features:

Validity: The indicator should measure the event or condition it is intended to measure.

Reliability: The indicator should produce the same results when used more than once to measure the same condition or event.

Specificity: Indicators should only measure the condition or event they are intended to measure.

Feasibility: Indicators should be selected that can feasibly be included in measurement exercises, given foreseeable constraints of limited finances and technical capacity.

Comparability: Indicators should be comparable across contexts and over time.

52. The Marrakech Action Plan for Statistics, the Partnership for Statistics for Development in the 21st Century, the Millennium Development Goals, and multiple initiatives from international and national institutions have improved the frequency and quality of data collection in developing countries.

These are general criteria that make for good indicators. We should note that it would require much more extended study to determine how well our indicators fare according to these criteria in comparison to alternative indicators. When possible, we have drawn on comparative studies that already exist to select the best indicators. In other cases, we have used untested or relatively new indicators and so are less certain of their performance against these criteria.

Scoring individual deprivation

While this survey provides useful information on individual deprivation, this information will be usable in evaluating an individual's poverty status only if it can be converted into a quantitative assessment of deprivation. Doing so requires several steps.

First, categorical information about a person's deprivation in a given dimension is recorded, for example, the kind of toilet they use.

Second, this categorical information is translated into an ordinal ranking of the categorical information. For example, we assume that a personal flushing toilet is better than a shared flushing toilet, which is better than a shared improved latrine, which is better than a shared unimproved pit toilet, which is better than no improved sanitation. In most cases we think the ordinal ranking of categorical information is uncontroversial.

Third, and perhaps most controversially, the ordinal ranking of a person's achievements is placed onto an interval scale, from one to five, reflecting a person's overall achievement.⁵³ Roughly, a score of one is intended to reflect extreme deprivation and a score of five is intended to reflect adequate achievement for a minimally decent life. This is not to deny that welfare gains above a score of five are significant and may need to be tracked and captured for purposes of overall social valuation and measurement of gender equity, but simply to note that our measure focuses on deprivation and that gains above a certain level (which we designate with a score of five) can no longer plausibly be counted as reducing deprivation. This decision respects what is known in the literature as the deprivation focus axiom, which requires that a person's achievements above some minimally adequate level of achievement in one or more dimensions cannot compensate for shortfalls below such a minimally adequate level in other dimensions.

Fourth, once individual deprivations have been placed on a one to five interval scale, they are then weighted both within and across dimensions. Within a dimension, each step between intervals is adjusted to give greater significance to lower increments. Thus, an individual moving from level one to level two is deemed a greater gain than an individual moving from level four to level

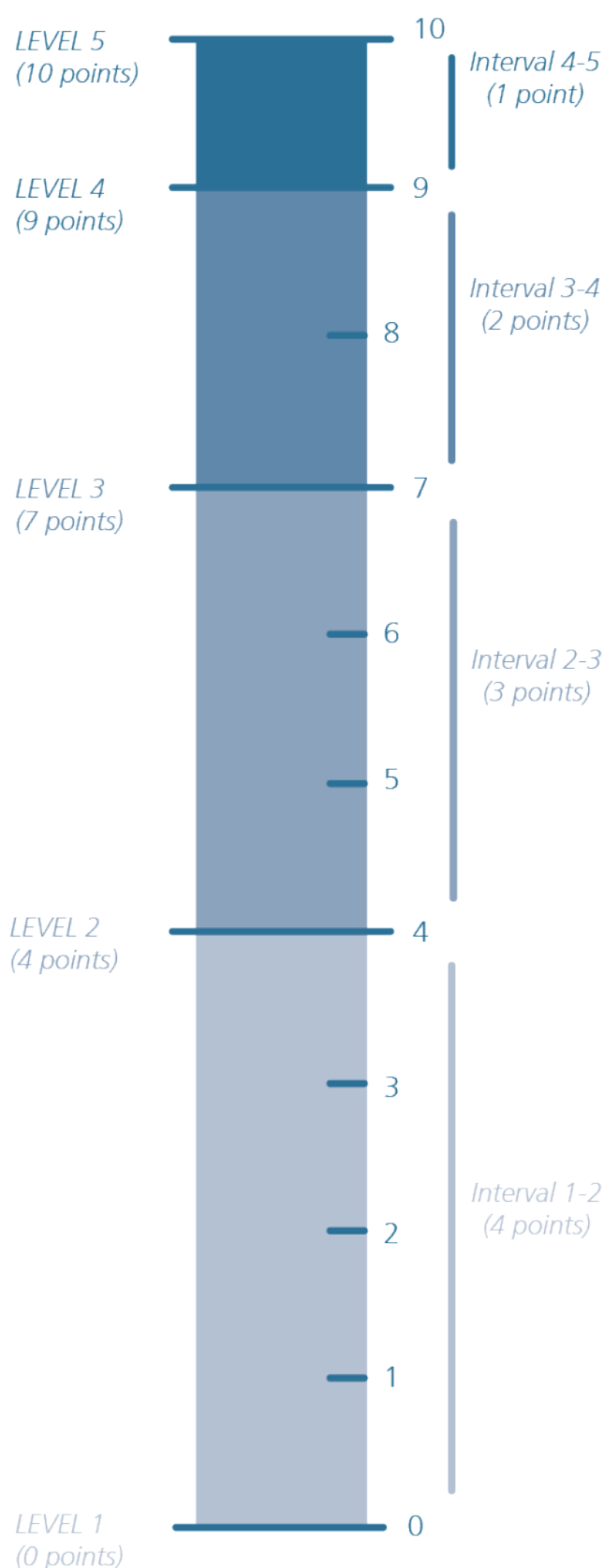


FIGURE 4: SCORING INDIVIDUAL DEPRIVATION

53. The reader may find the survey questions used to gather information for the IDM illuminating, but reject that individuals should be scored on an interval scale, or that these interval positions should be aggregated into a single composite figure. In what follows we attempt to explain why we think this is valuable. However, it is important to note that if one rejects the scoring and aggregation methods we recommend, one might still endorse our recommendations for dimensions, indicators, and survey questions.

five; and, conversely, a person falling from level two to level one is deemed a greater loss than a person falling from level five to level four. This prioritarian weighting within each dimension is justified by a range of considerations: there is greater moral marginal benefit to increasing the position of the worst off; more severe deprivations can have longer lasting negative impacts on individuals; and more severe deprivations tend to be more difficult to escape.

In other words, a person receives no points for being fully deprived. Moving from the first level to the second counts for four points, moving from the second to the third counts for three points, moving from the third to the fourth counts for two points, and moving from the fourth to the fifth counts for one point. This makes the lowest increment four times as important as the highest. This scoring reflects the decreasing importance assigned to less deprived individuals, but we recognise that alternative intra-dimensional weighting schemes could also preserve this feature.

A further adjustment is made in the weighting of dimensions when the dimension scores are aggregated into a composite, multidimensional deprivation score. This dimension weighting is intended to reflect the differential importance of some dimensions of deprivation over others. Deprivations of food and leisure time are both important—but, everything else being equal, deprivations of food are more important than deprivations of leisure time. Absent further investigation into the relative weights of different dimensions (to be discussed in Chapter 6), we have adopted a simple three-tiered weighting scheme based on the rankings participants provided in the second phase.

Each dimension is initially scored out of 10. The most important dimensions (dimensions one to five) are multiplied by 1.5. The second most important cluster of dimensions (dimensions six to 10) are not adjusted. And the third most important dimensions (dimensions 11 to 15) are multiplied by 0.5.

DIMENSION	INDICATORS	WEIGHTING
1. Food/ nutrition	Hunger in last 4 weeks	<i>X 1.5</i>
2. Water	Water source, water quantity	<i>X 1.5</i>
3. Shelter	Durable housing, homelessness	<i>X 1.5</i>
4. Health care/ health	Health status, health care access; for women pregnant now or within the last 3 years, substitute pre-natal care, birth attendance and actual/ intended place of birth	<i>X 1.5</i>
5. Education	Years of schooling completed, literacy and numeracy	<i>X 1.5</i>
6. Energy/ cooking fuel	Source of cooking fuel, any health impacts, access to electricity	<i>X 1.0</i>

7. Sanitation	Primary toilet, secondary toilet	<i>X 1.0</i>
8. Family relationships	Control of decision-making in household, supportive relationships	<i>X 1.0</i>
9. Clothing/ personal care	Protection from elements, ability to present oneself in a way that is socially acceptable	<i>X 1.0</i>
10. Violence	Violence (including sexual and physical assault) experienced in the last 12 months, perceived risk of violence in the next 12 months	<i>X 1.0</i>
11. Family planning	Access to reliable, safe contraception, control over its use	<i>X 0.5</i>
12. Environment	Exposure to various environmental harms that can affect health, wellbeing, income and livelihood prospects	<i>X 0.5</i>
13. Voice	Ability to participate in public decision-making in the community, ability to influence change at community level	<i>X 0.5</i>
14. Time-use	24 hour clock (labour burden, leisure time)	<i>X 0.5</i>
15. Work	Status of/ respect in/ for paid and unpaid work; safety/risk in relation to paid and unpaid work	<i>X 0.5</i>

TABLE 8: IDM WEIGHTING: SOME DIMENSIONS ARE MORE IMPORTANT THAN OTHERS

The table below illustrates the impact of this weighting scheme on the scoring of various levels of achievement within each dimension, from fully deprived to not deprived, across the 15 dimensions.

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL POVERTY DIMENSION SCORE
<i>Dimensions 1-5</i>	0	6	4.5	3	1.5	15
<i>Dimensions 6-10</i>	0	4	3	2	1	10
<i>Dimensions 11-15</i>	0	2	1.5	1	0.5	5

TABLE 9: WEIGHTING WITHIN AND ACROSS DIMENSIONS

Therefore, across all 15 dimensions, there are a possible 150 points that can be accumulated. A person who is not deprived in any of the 15 dimensions will score 150. A person fully deprived in all 15 dimensions receives a 0, (it is unlikely that any human beings could survive for much time at this level).

As a final step, we place these scores on a scale from 0 to 100. This allows for ease of interpretation, and allows for calculating scores for respondents who did not receive a score in every dimension, by dividing the participant's actual score by their potential score, (the potential score is 150 if the respondent answers all questions, and less if she does not answer some questions).

In some dimensions, we have collected multiple indicators. In other dimensions we have only one. As discussed elsewhere (in the section on indicator selection), multiple

indicators were chosen when adequate coverage of a given dimension required gathering information on more than one indicator, and this information could be feasibly and reliably gathered in a brief multi-topic survey. We apply dimension weights to the average of (prioritarian adjusted) indicator scores. Of course, alternative weighting schemes across indicators could be applied, just as different weighting schemes within and across dimensions could be applied. We adopt equal weighting for multiple indicators within a dimension in the absence of reasons to prefer an alternative scheme.

Missing variables

In calculating a person’s composite deprivation score, many of which include multiple indicators, we quickly encounter the problem of missing variables. Respondents may choose not to answer some questions, or provide answers that cannot be scored. Incorrect or incomplete answers may also arrive through errors involving data enumerators and data entry.⁵⁴ We therefore calculate composite deprivation scores for all individuals who have scores in 12 or more dimensions. When an individual is missing scores, we calculate her score as a fraction of her received points over her possible points, thereby maintaining comparability with other individuals who have recorded answers for more or fewer dimensions.

Categories of poverty

Once an individual’s composite quantitative deprivation score has been calculated, the final stage is to organise by levels of individual deprivation. Rather than simply being above or below the poverty line, individuals may usefully be assigned to different categories of deprivation. Our participatory research, in which participants made scalar assessments of deprivation in their communities and reflected these assessments in different categories of deprivation, identifying different defining features for each, confirms this intuition. A series of thresholds designating moves between categories of deprivation helps to focus anti-poverty policy on the various stages of progress in poverty reduction rather than simply on moving people above a single threshold. It also helps to preserve a prioritarian commitment to the worst off. By identifying some individuals as extremely poor, this designation helps to emphasise that the most deprived are more deserving of consideration in anti-poverty policy and may be facing deprivation that is different not just in degree but in kind compared to other individuals.⁵⁵

For the purposes of the IDM, which is calculated on a 0 to 100 scale, we have established the following thresholds for assessing the deprivation of individuals.

FROM 90-100, WE CATEGORISE INDIVIDUALS AS NOT DEPRIVED.	While these individuals do fall below what is meant to be a threshold deemed sufficient for a minimally decent life in some dimensions, we think it is fair to categorise them as not deprived as these individuals’ shortfalls must be of moderate depth and few in number to stay above 90. For example, an individual could be at level five in most dimensions, but have a score of four because they believe it is difficult to effect change in their community or a score of three because they feel they do not have a lot of control over decisions that affect their life. Such a person could be slightly deprived; but given their achievements in all other dimensions they ought not to count as deprived.
FROM 80-89.9, WE CATEGORISE INDIVIDUALS AS SOMEWHAT DEPRIVED.	Falling in this category indicates that an individual suffers from non-negligible deprivations, but is still relatively well off. In our experience many individuals who have received a score in the 80s may suffer from several important deprivations, but reach the minimal thresholds in most other deprivations.
FROM 70-79.9, WE CATEGORISE INDIVIDUALS AS DEPRIVED.	These individuals fall below the minimum threshold in a range of deprivations and some of their shortfalls are significant. They might occasionally be hungry, have a house that is made of some rudimentary materials, share a toilet with members of another household rather than have their own, and lack some control over decision-making in their household.
FROM 60-69.9, WE CATEGORISE INDIVIDUALS AS VERY DEPRIVED.	These individuals are deprived in a larger number of dimensions or are more severely deprived in the dimensions where they fall short. A person who is sometimes hungry, has low quality shelter, lacks running water and is subject to violence may be typical of this range.
BELOW 60, WE CATEGORISE INDIVIDUALS AS EXTREMELY DEPRIVED.	These people will be deprived in a large number of dimensions, and be very deprived in at least some subset of those dimensions. A person who is regularly hungry, who lacks any sturdy materials for housing, uses no improved sanitation, cooks with dirty fuel, has little influence over the community, is subject to violence and perhaps suffers several other deprivations is typical of this category.

TABLE 10: THRESHOLDS FOR ASSESSING THE DEPRIVATION OF INDIVIDUALS

54. The third phase survey undertaken in the Philippines to gather data to populate the IDM had a very low level of missing data. In only four of the 15 dimensions was there missing data (freedom from violence; family planning; voice; and respect at/for paid and unpaid work), and in most of these cases the missing data was because respondents chose not to answer a particular module (freedom from violence) or because the module was not relevant (for example family planning for females 50 and over and for other respondents who did not consider it relevant to their current life circumstances). For more details, see Chapter 6.

55. On the definition of chronic poverty, see Moore, K., & Grant, U. (2008). *Very poor, for a very long time, in many ways... Defining ‘the poorest’ for policymakers*. Working paper No 124. Chronic Poverty Research Centre. Brookes Worlds Poverty Institute, University of Manchester, UK.

These thresholds need to be validated against the perceptions of individuals in poor communities and the scores that are calculated in a range of different contexts. It is our hope that future tests of the IDM can compare the IDM categorical designations to participants' perceptions of people in their community.

Two axes of achievement

The composite figure of deprivation tracks an individual's status in 15 dimensions of material and social importance. However, these dimensions do not capture a person's financial status. As discussed earlier in this chapter (in the section on work and financial status), monetary poverty is an undeniably important component of poverty, and the lack of income and wealth was heavily emphasised by participants in the first phase. We therefore recommend that tracking individual deprivation take account of both financial deprivation and deprivation in other dimensions of life. We follow the recently debuted Mexican multidimensional poverty measure in tracking material deprivation on one axis and multidimensional deprivation on another. Doing so allows anti-poverty policy makers to track when multidimensional deprivation is related to financial deprivation, and when it is not. Furthermore, it recognises that financial deprivation is an important component of poverty, independent of its relationship to multidimensional deprivation.

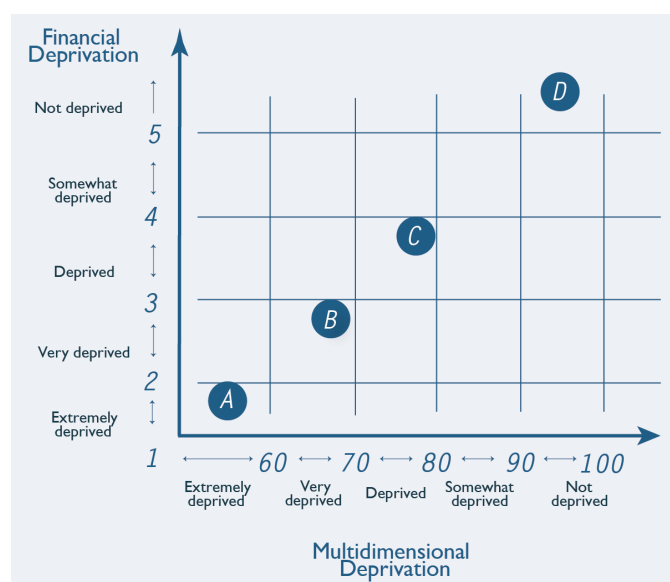


FIGURE 5: THE TWO AXES OF ACHIEVEMENT

In the graph above, the person A has very few assets (level one) and many multidimensional deprivations (falling in the extremely deprived category). Person B has a few assets (level two) and still a considerable number of multidimensional deprivations (falling in the very deprived category). Person C has some assets (level three) and some multidimensional deprivations (counting as deprived). Person D has many modern assets (level five) and very few multidimensional deprivations (not deprived).

Using this framework, the aim of anti-poverty work is to move individuals up and to the right, i.e., to increase their financial status (as reflected crudely in our measure by household assets) and to reduce their deprivations in the 15 dimensions of the IDM.⁵⁶ By keeping the two axes separate, we do not specify any terms of trade between financial and multidimensional deprivation. Rather, we assert that both are relevant for evaluating and addressing disadvantage.

Initial objections and responses

Some authors have objected to the use of scoring systems that require cardinal or interval interpretation of ordinal information in multidimensional poverty measurement. This is in part because the underlying data—for example, the materials used to build a person's house, or the likelihood that they will be subject to violence in the next year—is not cardinal. However, we believe it is both possible and valuable to give a fair cardinal interpretation of the underlying achievements. This is of course an imprecise effort, and is more plausible in some dimensions than in others. But these imprecisions are necessary if we seek to improve upon the obvious limitations of binary data.

One prominent approach to multidimensional poverty measurement is the Alkire-Foster method. Alkire-Foster use a dual-cut-off method for identifying a person or household as poor. First, within each dimension, Alkire-Foster identify a line below which a household is identified as poor. For example, in health care (in the Multidimensional Poverty Index), if a child has died in the family, the household is identified as deprived. Second, a minimum number of weighted indicators⁵⁷ is identified such that, if a household is deprived in more than that number of indicators, it counts as poor.

On one version of this approach (used in the recently released MPI), only binary information is needed—whether a person achieved 5 years of schooling or not, whether a person has died or not, whether a household has an adequate number of assets or not, and so on. While this approach does avoid forcing non-cardinal data onto a cardinal scale, it has a considerable drawback. Namely, the first cut-off requires insensitivity to the degree of achievement either below or above the cut-off if the underlying data are ordinal. For example, Alkire-Foster can

56. Alternatively to the two axes approach, a single composite figure including the financial scores and achievement scores can be calculated. This overall composite figure would then include information both about a person's financial situation and her achievements in a range of deprivations. However, we prefer treating financial status as a separate category, by which one can crudely evaluate whether a household is converting their financial status into deprivation reduction in the 15 dimensions we investigate. This also helps to highlight where deprivations exist that cannot be easily addressed primarily through financial transfers, such as violence, poor governance or voice.

57. Extensive information on the MPI is available at www.ophi.org.uk/policy/multidimensional-poverty-index/.

be sensitive to achievements below the dimensional cut off when using cardinal data, such as years of schooling, and thus reflect the difference between a person who has achieved one year of school and four years of schooling, by using a poverty gap index or squared poverty gap index. However, this method is not able to be sensitive to the difference between a person who often goes hungry and one who sometimes goes hungry.

Because it is important to reveal the range of achievements or deprivations within various non-monetary dimensions—such as the quality of a person's housing or the adequacy of their health care or the frequency with which they go hungry—we believe it is valuable to score indicators for these dimensions on an interval scale even if the underlying data is ordinal. Therefore, for each indicator, we use the admittedly crude 1 to 5 scale so as to be able to reveal a person's progress away from deprivation.⁵⁸ In fact, we cannot see how sensitivity to these important deprivations can be built into a multidimensional measure without attributing cardinal values to this data.

It is important to note that by anchoring the score of 5 as the top end of a dimension, and making it mean that any achievements above this level are beyond what is required for a minimally decent life, we ensure that the measure remains deprivation focused. The deprivation focus axiom requires that any change in a dimension in which a person is non-deprived leaves this person's overall deprivation level unchanged. For example, consider a person with ample leisure time (six hours per day) and not enough food (1200 calories per day). Should her calories fall further, this should count as rendering her more deprived even if she also gains in leisure time. To preserve the deprivation focus, we define the top end of the dimension as that which represents a sufficient level of achievement for a decent life, such that achievements above it do not change poverty identification, but deprivations below it do.

A controversial step is to aggregate this information into a composite figure for an individual person. Again, some authors have objected to multidimensional aggregation.⁵⁹ Their complaints are, first, that this requires comparing incomparable information, such as health care and access to educational achievement, and, second, that the implicit weighting system implies implausible terms of trade among dimensions.

Our responses are two-fold. First, without aggregation into a single composite figure, it is not possible to identify individuals as multi-dimensionally poor. One could of course assert that this is acceptable and the only plausible form of poverty identification is income or consumption-expenditure based. But we would reject this out of (widely shared) dissatisfaction with income or consumption based measures. If one agrees that it is valuable to identify individuals as poor in a multidimensional space, it is necessary to engage in multidimensional aggregation. By having a single figure that takes account of a

person's achievements and deprivations across a range of dimensions, they can be adequately categorised or identified. Without aggregation, identification is impossible.

Second, it is true that aggregation across dimensions requires comparing information that is in some strict sense incomparable.⁶⁰ It requires, implicitly or explicitly, specifying terms of trade among health, education, sanitation and so on. This is a difficult and imperfect exercise to be sure. But we do not find such index construction inherently invalid. Composite multidimensional indices can provide useful information which reveal different, more comprehensive and more morally plausible patterns of deprivation than their uni-dimensional (consumption or income) peers.⁶¹ Furthermore, it is a basic fact of life for people living with and struggling against deprivations, and for those working on anti-poverty policies and projects, that comparisons across dimensions must be frequently made. NGOs, for example, must decide how much of their limited budgets should go to each of a range of sectors.⁶² We therefore accept, as everyone else must, that some terms of trade must be specified across very different dimensions. We do not claim that the weighting of each dimension we use is the moral fact of the matter about how significant health care is versus how significant education is versus how significant food is and so on. We more modestly claim that some weighting scheme which allows for aggregation is a useful tool that helps illuminate the multiple deprivations people face, and that linking this weighting scheme to the views of participants enhances its moral legitimacy and avoids charges of arbitrariness. We make the weighting scheme transparent and the data easily accessible to data users, so that they can vary the 'terms of trade' among dimensions and examine what impact this has on overall evaluations of poverty and gender equity.

58. A similar 5 point interval scale is used to construct indices measuring social and economic conditions by Dulani, B., Mattes, R., & Logan, C. (2013). *After a Decade of Growth, Little Change in Poverty at the Grassroots*. Afrobarometer. Policy Brief No. 1. Available at www.afrobarometer.org/files/documents/policy_brief/ab_r5_policybriefno1.pdf.

59. See, for example, M. (2011). On multidimensional indices of poverty. *Journal of Economic Inequality*. 9(2): 235-248.

60. For a philosophical discussion of the meanings and significance of incomparability and incommensurability, see Chang, R. (1997). *Incommensurability, incomparability, and practical reasoning*. Harvard University Press, 1997.

61. On the very large differences in identification that result from different poverty conceptions and measures, see: Laderchi, C.R., Ruhi, S & Stewart, F. (2003). Does it matter that we do not agree on the definition of poverty? A comparison of four approaches. *Oxford Development Studies*. 31(3):243-274.

62. On the trade-offs involved in NGO resource allocation, see Wisor, S. (2012a). How should INGOs allocate resources? *Ethics & Global Politics*. 5 (1): 27-48. DOI: 10.3402/egp.v5i1.828 and Pogge, T. (2007) Moral Priorities for International Human Rights NGOs. In Bell, D.A. & Coicaud, J.M. (Eds.). *Ethics in action: the ethical challenges of international human rights nongovernmental organisations*. Cambridge University Press, 2007.

Poverty and gender equity indices

From the composite deprivation score, we can construct population level indices of poverty, and one measure of gender disparity across the population. For example, the Foster, Greer, Thorbecke (FGT) class of poverty measures provide a method for assessing the overall level of poverty in a given population. The first measure, the headcount index, provides the portion of the population who are poor. The second measure, the average poverty gap, is the total amount of shortfall from the poverty line. That is, it reveals not just how many people are poor but, on average, how far they are from the poverty line. Graphically, it is the total space between the individuals' achievements in the space measured (monetary or otherwise) below the poverty line and the poverty line. The third measure, the squared poverty gap, is the average of the square of the distance below the poverty line. This has the effect of 'penalising' inequality below the poverty line. The squared poverty gap gives greater weight to those who are farther from the line. All three measures may be calculated using the composite IDM score.

Because the IDM measures deprivation at the individual level, the composite figure can also be used to calculate gender equity. For example, the gap between men's achievements and women's achievements overall in relation to the 15 dimensions captured in the IDM can be easily measured across a population. Alternatively, gender gaps can be investigated by subgroups, for example within particular wealth quintiles or within individual households. By collecting information on linguistic group, geographic region, disability and more, we can also measure horizontal inequalities among other groups.

Because the composite figure can be decomposed into its constituent parts, it is also possible to produce dimension specific calculations of gender equity, complementing existing composite measures, the limitations of which were noted in chapter one.

The focus of our project has been the construction of the IDM. We will not enter extensively into debates about how population level indices should be constructed.⁶³ However, we note that data collection along the lines we support for the IDM can generate many of the indices that should be in a country's or agency's suite of measures of social progress.

63. For recent discussion on the construction of the world's most prominent multidimensional index, the UNDP's Human Development Index, see Ravallion, M. (2012). Troubling tradeoffs in the Human Development Index. *Journal of Development Economics*. 99(2): 201-209. Also Klugman, J., Rodríguez, F., & Choi, H.J. (2011). The HDI 2010: new controversies, old critiques. *The Journal of Economic Inequality*. 9(2): 249-288.

