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A CRITICAL REVIEW IN THE ARAB STATES

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POVERTY AND INEQUALITY IN THE NON-INCOME MULTIDIMENSIONAL SPACE: A CRITICAL REVIEW IN THE ARAB STATES

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ABSTRACT

This paper examines the substantive pros and cons of the multidimensional poverty index (MPI) recently developed by Oxford University's Poverty and Human Development Initiative (OPHI). It provides comparative cross-country and country-specific discussion on multidimensional poverty and inequality in the non-income space, with a special reference to the countries in the Arab region. Despite the large degree of subjectivity in selecting the dimensions and the cut-off threshold ($k=3$) determining the minimum number of dimensions required to identify whether or not a household is multidimensionally poor, the MPI has an important advantage of capturing more dimensions of human deprivations and includes both the level of human deprivation and a measure of the intensity of poverty using micro survey data.

Using survey data from 13 Arab countries with a combined population of 221.2 million in 2007, the OPHI estimated that 41.2 million people, representing 18.64 per cent of the combined population were living in multidimensional poverty in 2007, with an average intensity of 50.9. It is shown that the average intensity (A) has a strong positive correlation to headcount (H) in the Arab region. Somalia has the highest MPI value, 81 per cent of the population, with deprivation concentrated in indicators of living standard. The United Arab Emirates, the only Gulf Cooperation Council (GCC) state considered here, has the lowest MPI value, 0.57, with deprivation concentrated in education. Arab Mashreq countries have highest deprivation in both education and health, while Arab Maghreb countries have low deprivation in health and education but also in standard of living compared to both Arab Least Developed Countries (LDCs) and Arab Mashreq countries.

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Taking the ratio of rural to urban MPI as a measure of multidimensional inequality, analysis of data in the Arab region shows that rural populations suffer from deprivation rates far higher than urban populations. In particular, huge variations of multidimensional inequality exist within Maghreb countries and between the countries in that sub-region. Moreover, investigating inequality in each dimension in the Arab region shows that deprivation rates are generally much higher in living standards than in health and education dimensions, with the multidimensional rural–urban inequality unthinkable large in the Arab Maghreb countries.

Having found that, what can be done differently and what can be made better in development policy debate and intervention? By and large, reduced income poverty does not necessarily coincide with reduced multidimensional poverty. Thus, while there is much to gain from improving the delivery of basic public services, national and local development policies should be balanced, in the sense of taking equal responsibility for the welfare of rural and urban areas in the same country and being more sensitive to rural–urban inequality in the multidimensional space of deprivations, to deliver the right kind of development.

This is particularly critical in the general course of economic development where a large part of the population lives in rural areas and where the income poverty is largely a rural phenomenon, i.e. where income and non-income poverty intersect. Since imbalanced development has been going on for many years, it is certainly going to be a major challenge for current and future governments, given the mounting social pressures demanding distributive justice—namely, fair distribution of incomes, assets, basic infrastructure and access to opportunities within the population.

Key words: Arab Region, Poverty, Capability, Inequality, Multidimensional Index

JEL Classification Codes: I3, I32, D63, O1

1 INTRODUCTION

Enormous criticism has already been made over the past half century regarding the misuse of the gross domestic product (GDP) and national accounts metrics as measures of social development and well-being of the general public and regarding the idea that economic growth is a reliable proxy for improved well-being.

There is a long line of thinking on measuring society, and in this paper particular attention is paid to work done in the context of the United Nations (UN). Several UN initiatives have called for improving the indicators of social development and well-being.

Aggregate alternatives devised and implemented by the United Nations Development Programme's (UNDP) Human Development Initiative have been suggested since the 1990s to measure the progress of individual well-being, with the successful introduction of the Human Development Index (HDI). The first Human Development Report (HDR) published in May 1990 defines the concept of human development as “a process of enlarging people's choices. The most critical ones are to lead a long and healthy life, to be educated and to enjoy a decent standard of living. Additional choices include political freedom, guaranteed human rights and

self-respect.” The HDI combines GDP and other non-GDP measures in a composite index and focuses only on longevity, knowledge and decent living standards. It technically contributed to improving measurement and was practically used to guide decisions in policymaking and evaluation where GDP continued but played a less dominant role. The indicator set in the HDI has emphasised economic performance and aggregate measures more than social cohesion. Countries eagerly competed on the hottest titles and ranking in the HDI, and governments were very successful in crunching the numbers, but people found few intrinsic results and had to experience difficult realities. People started to realise that something was wrong. Thus the HDI measurement was not enough. A general tendency was to go beyond such macroscopic traditional indicators as GDP per capita and life expectancy at birth to microscopic measures from micro surveys that measure the pulse of realities on the ground, introduce a closer social link and better guide policy interventions for cohesive development.¹ Massive work was conducted to adjust the HDI, especially in more recent years. There was also widespread agreement on a new separate set of indicators called ‘missing dimensions of HDI measurement’. Still, the adjustments failed to strengthen the HDI’s signalling functions of human development.

Since the beginning of the new millennium there has been a wide range of indicators in the context of the UN Millennium Development Initiative. In September 2000, the UN General Assembly adopted the Millennium Declaration which was signed by leaders of 189 countries. Subsequently, the General Assembly recognised the Millennium Development Goals (MDGs) as part of the roadmap for implementing the Millennium Declaration. Eight MDGs with 18 measurable time-bound targets and 48 indicators were drafted to translate that commitment into reality by the end of 2015. The goals cover major aspects of social development, including eradicating extreme hunger and poverty; achieving universal primary education; promoting gender equality; reducing child mortality; improving maternal health; combating HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and developing a global partnership for development. Measuring socio-economic progress gained pace, and demand for indicators from micro surveys increased. The MDGs challenge the traditional economic indicators approach, but the framework does not have any explicit reference to human rights, political freedoms or good governance—the so-called ‘missing millennium development goals’—which have not yet been integrated into a broader and fuller MDGs framework.² It is not hard to imagine situations where all the MDGs are achieved under oppression and tyranny, two of the most powerful things that destroy people’s lives.

Oxford University’s Poverty and Human Development Initiative (OPHI) recently developed the multidimensional poverty index (MPI), a composite measure from micro surveys with a set of indicators that has overlapping areas with the MDGs. The MPI provides a single achievement index, whereas the MDGs do not. Moreover, the introduction of the MPI has significantly extended the frontiers of measurement and enriched policy analysis and debate. Indeed, making it theoretically viable and empirically applicable to 104 countries across the globe was a significant success, and the index has been included in the HDR since 2010.

2 THE OPHI’S MULTIDIMENSIONAL POVERTY INDEX

According to Oxford University’s OPHI, a new MPI was developed and applied with UNDP support and was featured in the 20th anniversary edition of the UNDP’s HDR in 2010 (Alkire and Santos, 2010). The MPI supplants the *macroeconomic* Human Poverty Index (HPI), which had been included in the annual HDR since 1997 and earned a worldwide reputation for

measuring multidimensional poverty. The MPI uses *microeconomic* survey data to reflect the combination of overlapping deprivations that strike a household's well-being in three areas: education, health and living conditions.³

A household is identified as being multidimensionally poor if, and only if, it is deprived in some combination of 10 indicators (also called dimensions and denoted by d) whose weighted sum exceeds a cutoff $k = 3$ or 30 per cent of deprivations. The dimensions and their pertinent weights in the MPI are:

1. Health (each indicator is weighted equally at 1/6)
 - a) **Child mortality:** If a child of any age has died in the family
 - b) **Nutrition:** If any adult or child in the family is malnourished.⁴
2. Education (each indicator is weighted equally at 1/6)
 - a) **Years of schooling** (if no household member has completed five years of schooling)
 - b) **Child enrolment** (if any school-aged child is out of school in years 1 to 8).
3. Standard of living (each of the six indicators weighted equally at 1/18)
 - a) **Electricity** (no electricity is poor)
 - b) **Drinking water** (MDG definitions)
 - c) **Sanitation** (MDG definitions, including that toilet is not shared)
 - d) **Flooring** (dirt/sand/dung are poor)
 - e) **Cooking fuel** (wood/charcoal/dung are poor)
 - f) **Assets** (poor if household does not own more than one of: radio, TV, telephone, bike, motorbike).

The sum of the weights adds up to the number of dimensions, and the MPI is calculated as the product of two numbers—the headcount (H) or proportion of people who are multidimensionally poor, and the average intensity of multidimensional deprivation (A)—which reflects the proportion of dimensions in which households are deprived.

$$MPI = H \times A$$

The headcount ratio is $H = q/n$, where q is the number of multidimensionally poor people in the population, and n represents the incidence of multidimensional poverty. As such the MPI defines the proportion of multidimensionally poor people in the population, adjusted by the intensity of their poverty, and thus satisfies many desirable properties, including monotonicity, transfer, focus etc. Moreover, the MPI can be at most equal to the

headcount ratio when all households that are deprived in k or more dimensions are indeed deprived in d dimensions, thus making the average intensity reach the maximum of 1.

3 ARAB STATES DEFINED

Various organisations and institutions do not have an 'Arab Region' classification. For example, the World Bank and International Monetary Fund use Middle East and North Africa (MENA) to indicate, for the most part, the Arab States. However, this classification includes Iran, Israel and Turkey. The UN organisations also use West Asia, which is similar to MENA.

The League of Arab States⁵ (LAS) classifies member states into four groups:

- **Least Developed Countries (LDCs):** Somalia, Comoros, Mauritania, Djibouti, Yemen, and Sudan.
- **Maghreb:** Algeria, Libya, Morocco and Tunisia.
- **Mashreq:** Egypt, Iraq, Jordan, Lebanon, Occupied Palestinian Territories, and Syria.
- **Gulf Cooperation Council (GCC):** Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates.

According to OPHI researchers who analysed 104 countries all over the world to calculate MPI, 11 Arab States are included in the 'Arab Region' (Alkire and Santos, 2010). However, their defined region mistakenly excluded both Northeast African Mauritania and Comoros. The latter were included in sub-Saharan Africa. The MPI analysis did not cover nine Arab countries: Sudan from LDCs; Bahrain, Kuwait, Oman, Qatar and Saudi Arabia from the GCC; Algeria and Libya from Maghreb; and Lebanon from Mashreq. In the following, we will correct the MPI results for the 'Arab Region' to compensate for this mistake.

4 OPHI'S DATA SOURCES ON MULTIDIMENSIONAL POVERTY

The data sources for the MPI are mainly three cross-sectional surveys of households in each country using a stratified random sampling of clusters that are chosen to be representative of the population of urban, rural and other types of population:⁶ World Health Survey (WHS), the Multiple Indicator Cluster Survey (MICS) and demographic and health surveys (DHS) are national, cross-sectional, household surveys.

The WHS is a household survey programme developed by the World Health Organization (WHO). The WHO compiles comprehensive baseline micro data on the health of populations and on the outcomes associated with the investment in health systems. The MICS is a household survey programme developed by UNICEF to assist countries in filling data gaps for monitoring the situation of children and women. The programme produced statistically sound, internationally comparable estimates of the relevant indicators with respect to national goals and global commitments over three rounds.⁷ DHSs are national household surveys implemented by Macro International, Inc. in about 75 countries and funded by the United States Agency for International Development (USAID) with contributions from other donors such as UNICEF, UNFPA and WHO. Typically, a DHS collects data and information on fertility, reproductive and maternal health, child health and nutrition among women and children.

Indeed, there is some degree of reliable and comparable information and metadata consistency, and these surveys are used to monitor inputs, functions and outcomes with respect to national goals as well as global commitments, including the MDGs, especially as the target year 2015 approaches. After all, these are different surveys conducted with different, but some intersecting, strategic objectives. Table 1 reports a summary of data sources for the MPI. It can be demonstrated that these various surveys produce some reliable measures of deprivation that are conceptually very close to each other (Gordon et al., 2005). Accordingly, some compromise always has to be made when dealing with different survey data in a combined data set for a single analysis.

Globally, most of the data comes from the DHS, followed by the MICS. For the Arab Region the reverse is true. The data source for eight out of 13 countries comes from MICS.

TABLE 1

Summary of Data Sources for the MPI

	International		National*			Total
Survey	MICS	WHS	DHS	ENNyS	ENSANUT	
Number of countries	35	19	48	1	1	104
Percentage	34%	18%	46%	1%	1%	100%
From which: Arab countries	8	2	3	0	0	13

* ENNyS 2005: National Ministry of Health of Argentina National Survey of Health and Nutrition and ENSANUT 2006: The National Institute of Public Health (INSP) National Survey of Health and Nutrition. For these surveys, core household socio-economic conditions and qualitative dietary intake, participation in food programmes and affiliation with health systems are assessed.

The surveys cover different years between 2000 and 2008, with only three countries having data from 2008 surveys—namely, Egypt, Ghana and Tanzania.

5 RESULTS OF MEASURING MULTIDIMENSIONAL POVERTY THE GLOBAL RESULTS

The OPHI researchers analysed survey data from 104 countries with a combined population of 5.2 billion (78 per cent of the world total) in 2007. According to the MPI results, for $k = 3$ weight points deprivation there are 1.7 billion people in the 104 countries covered—a third of their entire population—living in multidimensional poverty. This exceeds the 1.3 billion people⁸ in those same countries estimated to be living on or below the 2005 purchasing power parity (PPP) US\$1.25 a day, the international measure of ‘extreme’ poverty. This result, however, should be taken with utmost reservation. According to the MPI, missing data on income poverty are counted as zeros, which is absolutely false. For specific example, because of missing data on income poverty in the Occupied Palestinian Territories, Jordan, Syrian Arab Republic, Iraq and Somalia, the number of people living in poverty of \$1.25 a day in the Arab Region—after correcting for Mauritania and Comoros but not for the missing data—is a very low figure of 3.5 per cent and affecting only 7.749 million of the total 221.2 million people in 2007.

Figure 1 shows the regional distribution of the multidimensionally poor population in millions for $k = 3$ weighted points of deprivation. Among the 1.66 billion people worldwide defined by the MPI as living in multidimensional poverty, 2.5 per cent of them live in the Arab States, which means that 41.225 million people are multidimensionally poor in this region of the world. Approximately half of the world's multidimensionally poor people live in South Asia (51 per cent or 844 million people) and over one quarter in Africa (28 per cent or 458 million) and 15 per cent or 255 million people in East Asia and the Pacific, of whom 165.8 million live in China. Interestingly, less than 1 per cent of multidimensionally poor people live in Central and Eastern Europe and the Commonwealth of Independent States (CIS), and 3.1 per cent in Latin America and the Caribbean.

FIGURE 1

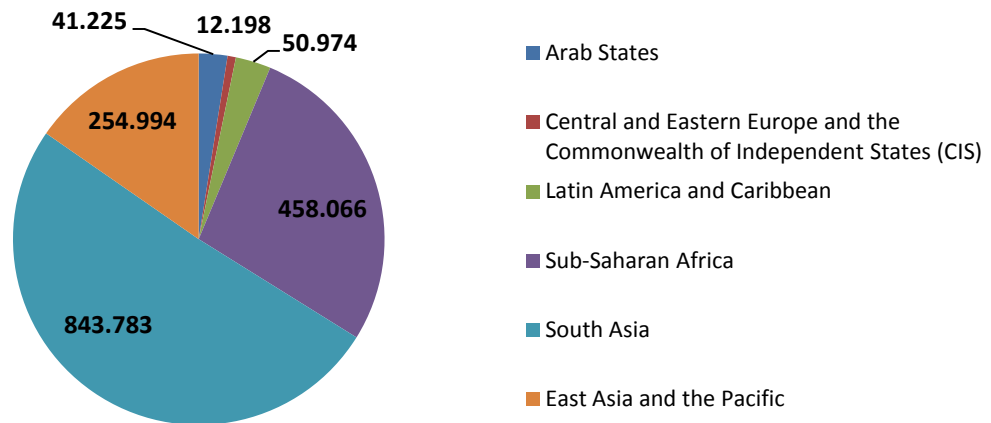
Regional Distribution of Multidimensionally Poor Population (millions)

Figure 2 shows both the headcounts and average intensity components of the MPI for $k = 3$ weight points for the various regions in the world. Regional headcounts are population-weighted averages, while regional intensities are multidimensionally poor population-weighted averages.⁹ World average intensity of deprivation for the 104 countries is 53.20 per cent. The regional average of South Asia, which includes only five countries and over 1.5 billion people, is similar to the world average, but the highest deprivation (58.10 per cent) occurs in sub-Saharan Africa, and the lowest (42.10 per cent) intensity occurs in Central and Eastern Europe and the CIS. The Arab Region's average intensity of 50.9 per cent is below the world average, but both Latin America and the Caribbean and East Asia and the Pacific have average intensity much lower than that of the Arab Region—namely, 46.1 per cent and 46.5 per cent, respectively. In general, the intensity of deprivation is clearly a large component of adjusting the MPI, even in the cases where the headcount ratio is small.

FIGURE 2

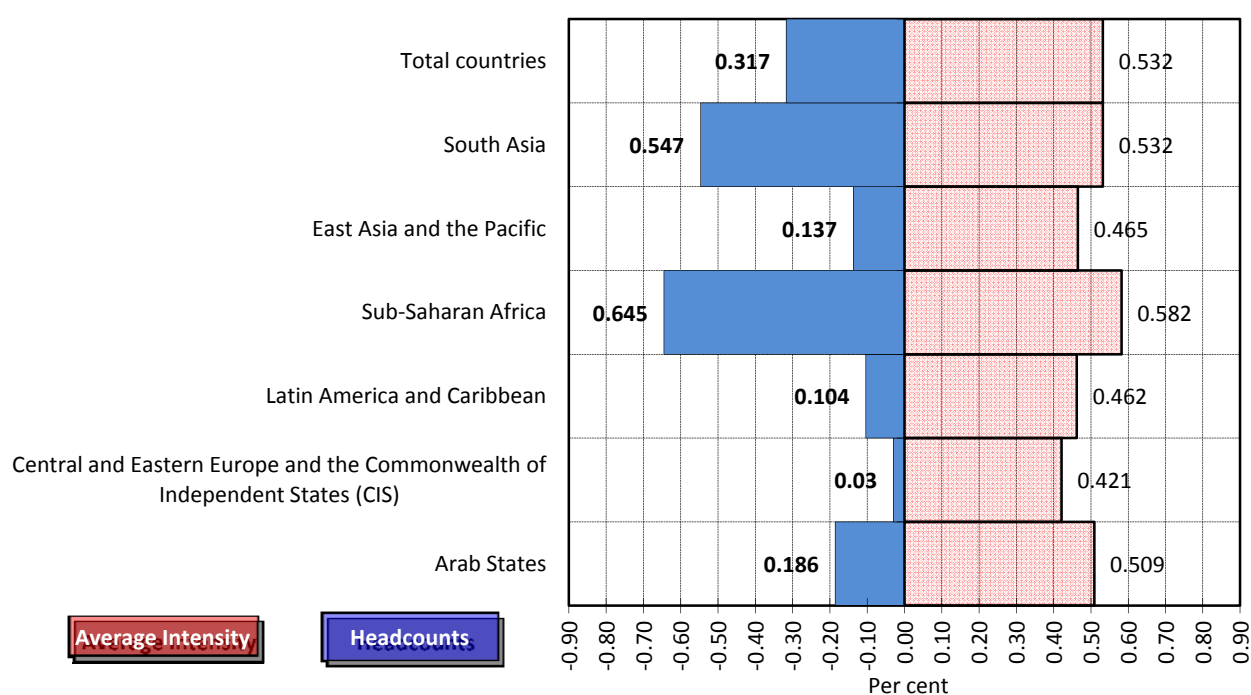
Components of the MPI, by Region

Figure 3 shows the percentage contribution of each dimension to worldwide overall multidimensional headcount poverty. The data reveal that except for South Asia and sub-Saharan Africa, where standard of living contributes more than each of the education and health deprivation dimensions to the incidence of poverty, education contributes the highest percentage to overall headcount poverty in the Arab Region and the other regions. The percentage contribution of education to overall MPI in the Arab Region is 43.34 per cent, followed by health at 34.91 per cent, in contrast to the rest of the world, where standard of living is the second most important contributor to overall MPI.

6 A CLOSER LOOK AT THE ARAB REGION

As mentioned in the previous sections, the Arab Region is divided into four groups of countries: GCC, LDCs, Maghreb and Mashreq. With data available for only one GCC country—the UAE—we cannot count on it as representative of the GCC countries, because it only represents about 12 per cent of the GCC population in 2007. Figure 4 shows that these groups are heterogeneous. The Arab States—including both Mauritania and Comoros¹⁰—have MPI headcounts as low as 7.6 per cent for Mashreq and as high as 60.2 per cent in LDCs, which includes Somalia, the sixth poorest country among the 104 countries. On average, for weight points deprivation the region's MPI headcount is 18.6 per cent, which means that about 41.225 million people are multidimensionally poor. Figure 5 shows the distribution of the multidimensionally poor people in the Arab Region given the 2007 population. Half of them live in the LDCs, while a quarter live in Mashreq countries.

FIGURE 3

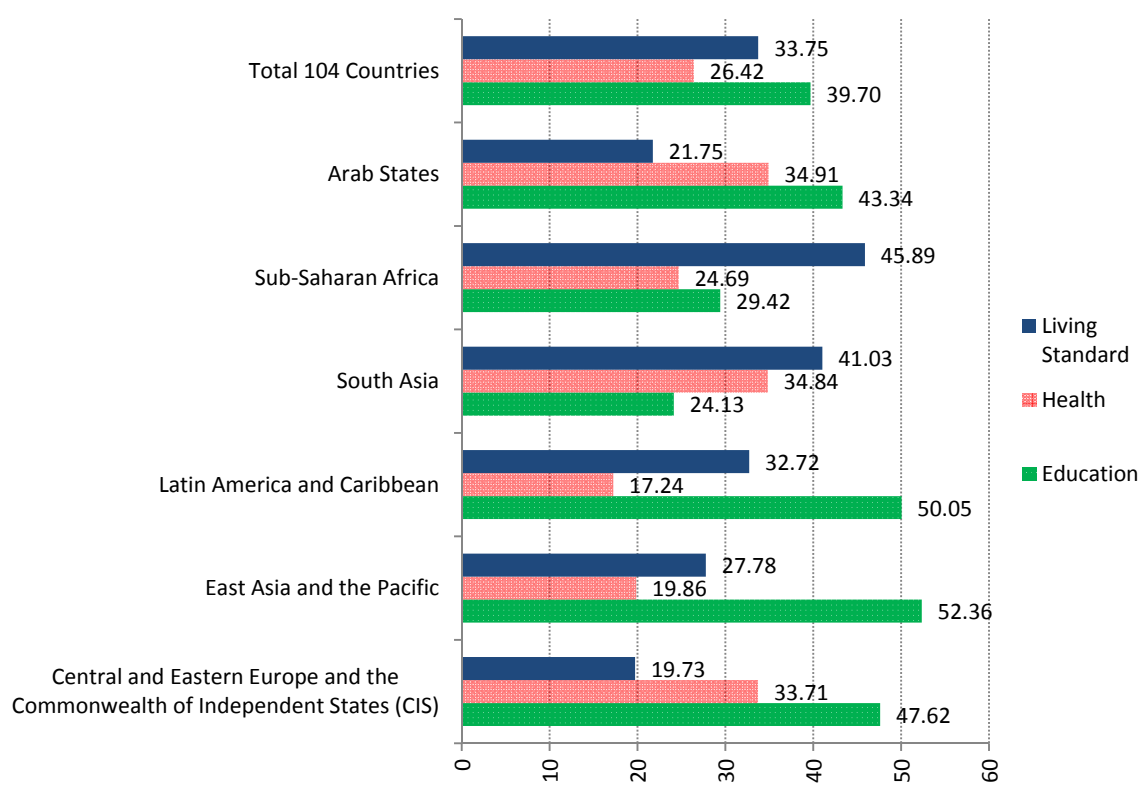
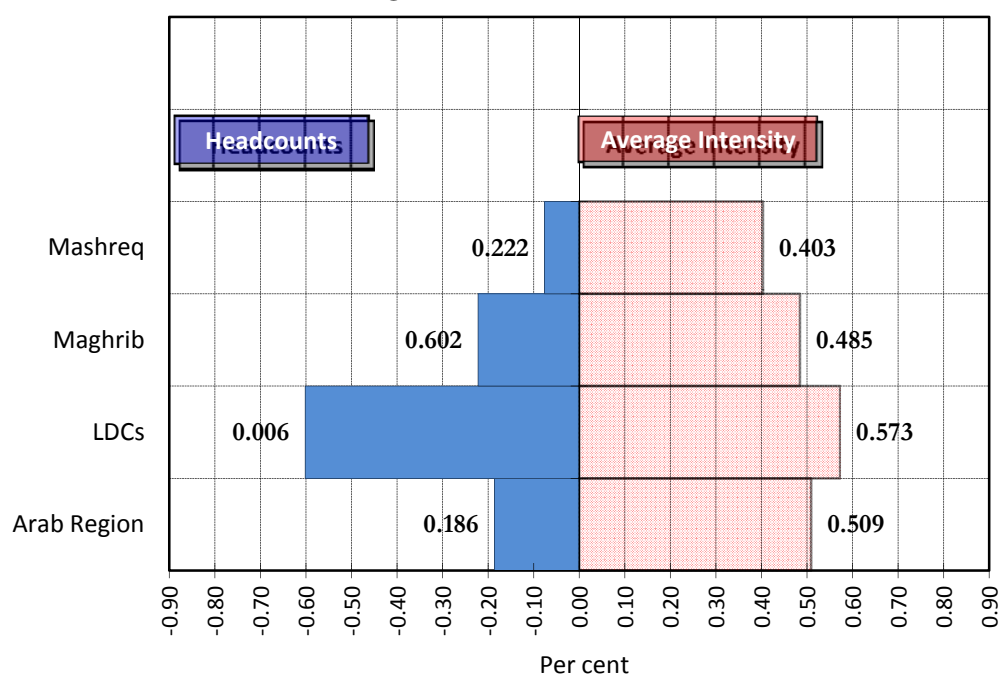
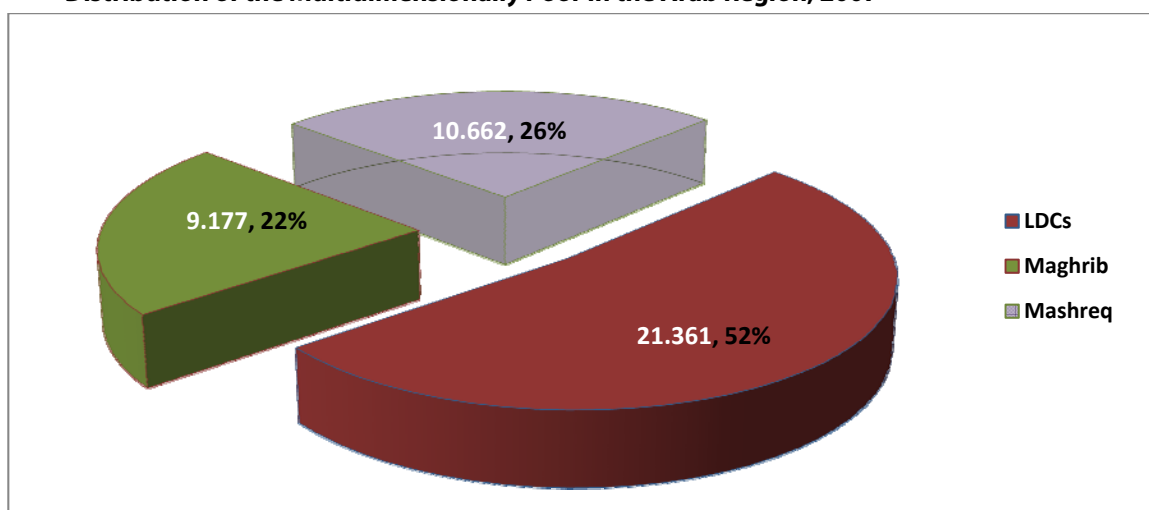
Percentage Contribution to Overall MPI

FIGURE 4

Components of the MPI, in the Arab Region

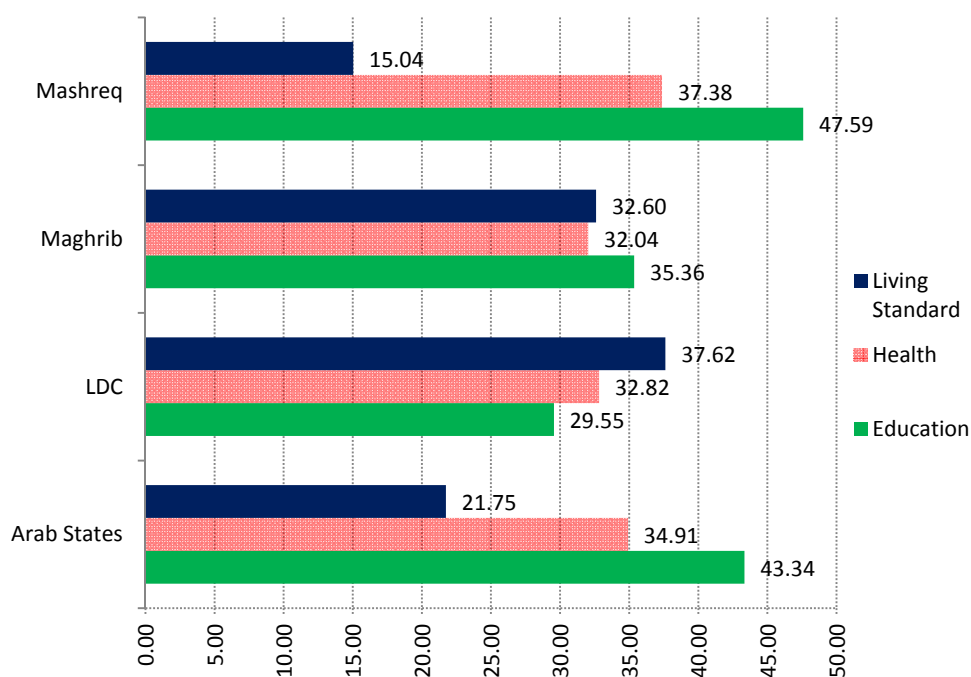
Looking at the average intensity of deprivation, we find that it ranges from 40.3 per cent in Mashreq to 48.5 per cent in Maghreb and 57.3 per cent in LDCs. However, clearly, the variation in the average intensity of deprivation is much less than that of headcounts, and on average it is 50.9 per cent in the Arab Region.

FIGURE 5

Distribution of the Multidimensionally Poor in the Arab Region, 2007

Analysing the percentage contribution to overall MPI in the Arab Region can help identify poverty traps and strengthen the impact of policies to reduce poverty in specific areas. Figure 6 shows the three areas of deprivation included in the MPI.

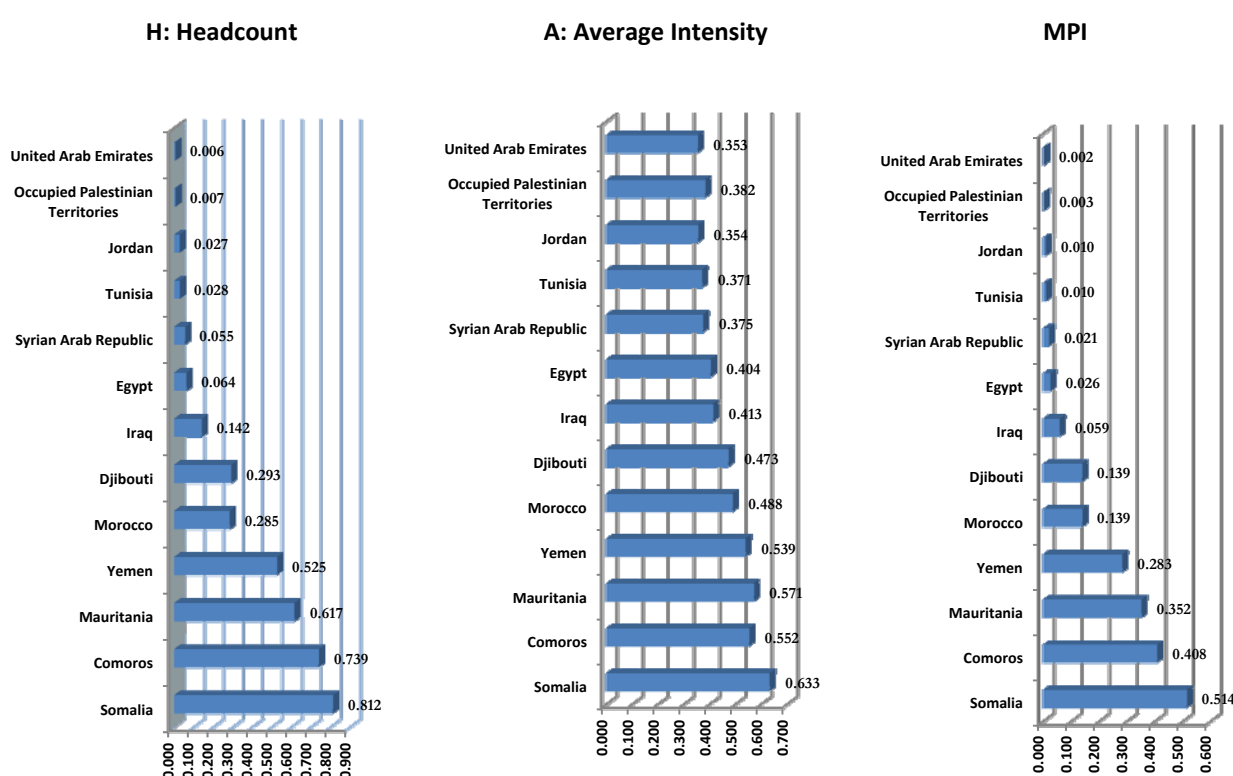
FIGURE 6

Contribution to Overall MPI

Regarding health, as measured in terms of malnutrition and child mortality, Mashreq countries seem to have experienced the highest deprivation in health compared to the other countries in the region, followed by the LDCs. Mashreq countries have also experienced the highest deprivation in education, again followed by the LDCs. In terms of standard of living, clearly, the LDCs are much deprived in clean drinking water, improved sanitation, clean cooking fuel, electricity, flooring material and ownership of assets, as evidenced by the highest percentage contribution of the standard of living indicators to the overall MPI, compared to other countries in the region. Mashreq and Maghreb countries seem to be the least deprived in terms of all indicators that comprise the standard of living.

At the country level, the LDCs—Somalia, Comoros and Mauritania, in particular—are the highest contributors of poverty in the Arab Region, as shown in Figure 7. Additional details are reported in the Annex Tables A-1 and A-2.

FIGURE 7

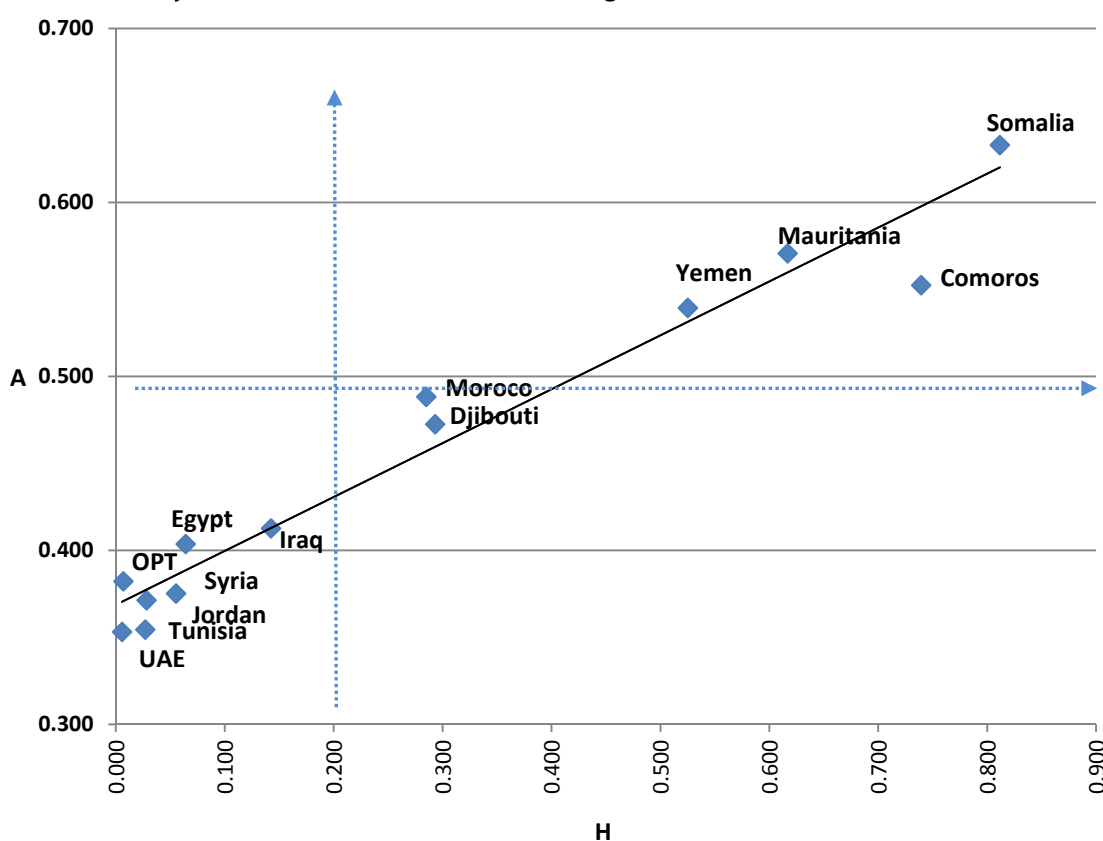
Country-level MPI and its Components

The UAE, Occupied Palestinian Territories, Jordan, Tunisia, Syria and Egypt have MPI headcounts below 7 per cent. Somalia has the highest MPI value (51 per cent), followed by Comoros (41 per cent), Mauritania (35 per cent) and Yemen (28 per cent), and an average deprivation share not less than 47 per cent (between 47 and 63 per cent). However, despite the low value of the MPI (which is a minimum of 0.2 per cent in the UAE), the average intensity of deprivation is not low (between about 35 and 40 per cent).¹¹ Unexpectedly, we notice that

both Djibouti and Morocco have the same MPI value. The population of Djibouti is very small (0.8 million) compared with the population of Morocco (31.2 million). However, the headcounts for both are very close (28.5 per cent for Morocco, and 29.3 per cent for Djibouti), while Djibouti's average intensity of deprivation (47.3 per cent) is lower than Morocco's (48.8 per cent), so that they have nearly the same MPI value (14 per cent).

Exploring further how the MPI headcounts are related to average intensity of multidimensional poverty across the Arab countries, we find that the two sub-indices strongly relate to one another. Figure 8 plots the scatter of average intensity (A) versus headcount (H). The intensity of deprivation is higher in the countries with higher MPI headcounts and vice versa. The relationship is much stronger than what is found globally, with higher correlation ($R^2 = 0.95$) and, interestingly, no outliers.

FIGURE 8

MPI Intensity Increases with Headcount, Arab Region

Thus, LDCs contain half of the Arab States' multidimensionally poor people. Their highest deprivation concentrates mainly in the standard of living, but they also have considerable deprivation in both health and education. Somalia is the worst of the LDCs. It has the highest MPI value: between 64 and 81 per cent of the population is deprived in some of the indicators of living standard. Mashreq countries contain one quarter of the Arab States' multidimensionally poor people, and their highest deprivation concentrates mainly in both education and health, with lower deprivation than LDCs in standard of living. Maghreb countries contain less than one quarter of the Arab States' multidimensionally poor people and have lower deprivation in health, education, and standard of living than both LDCs and Mashreq countries.

7 SOME EVALUATING REMARKS ON THE MPI

What can be done differently and what can be made better not only for the construction of a well-developed MPI but also to be able to suggest meaningful policy intervention? This re-thinking is vital for relevant debate that surrounds multidimensional poverty reduction, including improving the quality of life of deprived populations. There are several points in this context:

1. Combining micro data from MICS, WHS and DHS surveys in a single analysis, given the definitional and operational differences among these surveys and among the various rounds of the same survey, make the exercise of the MPI particularly challenging. For example, the MICS 1, MICS 2 and MICS 3 differ in their methodologies. The OPHI introduced a single composite index, MPI, in an attempt to bring together multidimensional features of deprivation. Calculating the same MPI from a variety of surveys for all countries may not have been the best alternative. Rather than having a 'one-size-fits-all' measure, an MPI-1 for some countries and MPI-2 for other countries would better reflect socio-economic differences among the countries and regions—for example, perhaps including unemployment as a dimension, at least for those countries for which unemployment data are available, to begin including such a dimension.¹²
2. The results reported on income poverty using the MPI should be taken with utmost reservation. According to the MPI, missing data on income poverty are counted as zeros, which is absolutely false. For example, because of missing data on income poverty in the Occupied Palestinian Territories, Jordan, Syrian Arab Republic, Iraq and Somalia, the number of people living at or below the \$1.25 poverty line in the Arab Region—after correcting for Mauritania and Comoros—is a very low figure of 3.5 per cent of the total population, only 7.749 million of the total 221.2 million people in 2007.
3. To perceive a main difference between the MDGs and multidimensional poverty is equivalent to answering the question 'Is the glass half empty or half full?' In the MDGs survey data are used to report the progress made towards attainable values of quantitative, specific and time-bound target indicators. In the MPI the survey data are used to quantify what was not achieved, i.e. the progress gap in selected dimensions. One of the most important targets that entered the MDGs in 2008 and on which reporting started in 2009 was decent and productive employment. Taking the 'half empty' perspective, one can see that even a long time ago with Arthur Okun, macroeconomic unemployment was taken *cardinally* as part of the multidimensional 'misery' index. Relaying this dimension into a context of microeconomic household surveys and ordinal data and to broaden the deprivation analysis in line with the MDGs, researchers can look at the ordinal situation where the economically active but unemployed individuals of the household are youth (aged 18–24), young adults (aged 25–34), women, and other types of employment status such as 'own account' and 'contributing family workers' that can be coded by ordinal or categorical data.¹³

4. Compared to the MDGs, where health represents three of the eight goals (MDG4 on child mortality, MDG5 on maternal health and MDG6 on HIV/AIDS, malaria and other major diseases) and includes about one third of the main MDGs indicators, the health dimensions in the MPI are very limited, with only two indicators.
5. Standard of living in the MPI construction is a typical 'asset index' approach¹⁴ that relies on DHS data to measure non-income poverty. More assets owned by a household means a potential increase in household capabilities and freedom to lead a long, healthy and creative life. While it is important to measure durable goods in the household to help understand and assess human deprivation, the MPI uses data on ownership of durable assets in the households including radios, which are no longer a good indicator, as they have become broadly available. However, some household productive assets, especially domestic appliances, are in common use by most households—for example, washing machines, gas ovens, sewing machines etc.—and they have greater impact on capabilities and functioning.
6. Because of its dependence on micro survey data which are characterised by a time lag and associated data analysis, the MPI fails to address pressing emerging issues such as what happened to deprivation as a result of the global financial crisis or the food price crisis, as it employed old data sets. All data are as old as 2000, and the most recent data, from DHS 2008, are for only three countries (Ghana, Egypt and Tanzania).
7. Multidimensional deprivation has a cut-off of $k = 3$ weight points. This is not equivalent to three out of the 10 dimensions. For example, a household deprived on two dimensions (one in health with a weight of 1.66 and one in education also with a weight of 1.66) will be considered poor, because the weight sum exceeds 3 weight points. However, a household deprived in five dimensions in standard of living each with a weight of 0.56 will not be considered poor, because the weight sum of 2.78 does not exceed 3 weight points. Thus, holding k constant, the multidimensional poverty result will be sensitive to the imbalance in choosing the number of dimensions within each area—namely, the current version of the MPI adopts a 2: 2: 6 dimensions structure for health, education and standard of living, respectively.
8. The selection of $k = 3$ seems arbitrary. Why does a 30 per cent cut-off define multidimensional poverty? One might suggest cutting in the middle: $k = 5$. One might also say, however, that selecting a higher cut-off would reduce multidimensional poverty, as it is inversely related to k . The matter is definitely debatable. The problem is that OPHI researchers reported tiny results only for $k = 3$, instead of providing a big picture to the users of the MPI, especially since most users do not have access to the survey data or—perhaps—the specific technicalities to run the code to do these calculations. Thus, for the sake of completion, these partial results should be augmented by calculating and reporting $k = 1, 2, 3, 10$, where $k = 1$ means $1 \leq k \leq 10$ overall deprivations.
9. A key issue in the MPI is the absence of the synergy between dimensions when mapping their impacts on the MPI aggregation method. Contrary to the formula of the HPI, which uses the generalised means,¹⁵ the MPI aggregation method is

‘neutral’ in that an individual i ’s poverty level $M_0(Y_i; Z)$ has a vanishing cross partial derivative for any pair of dimensions in which i is deprived. It is often argued that this cross partial derivative can be positive, reflecting a form of complementarity across dimensions; or negative, reflecting a form of substitutability across dimensions. In addition, the MDG framework does not place the MDG indicators into any specific causal sequence, because they are ‘combinatorial’, and often do not arise automatically, but rather are created consciously through policy interventions. National MDG reports, therefore, sometimes attempt to make explorations to help us understand the interconnections among different kinds of deprivations.¹⁶

10. Assigning (1/3) equal weight to living standard, health and education is somewhat disturbing. Logically, a higher weight to living standard would be expected not only because of the (six) variables included but also because of the high synergy between living standard and health and education. In particular, health depends particularly on living standards.

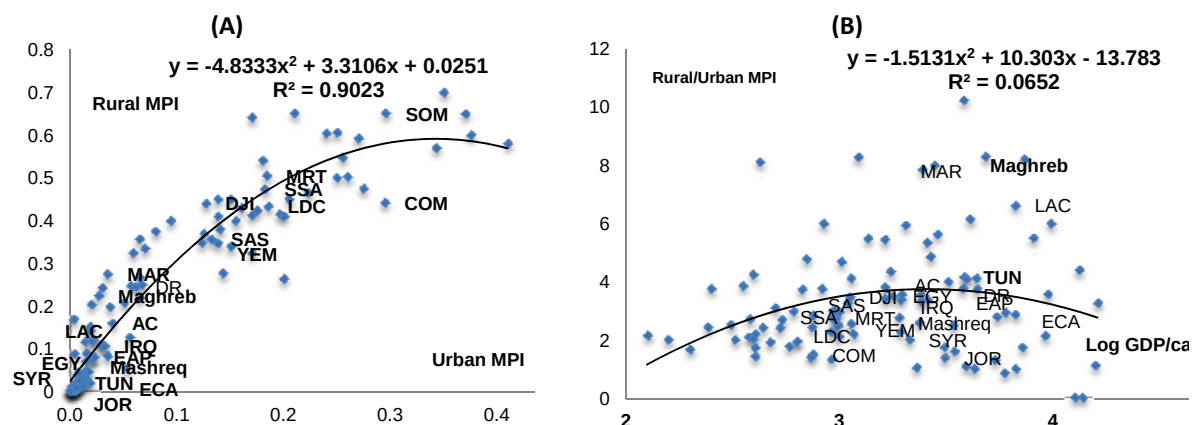
Although there is much to be reconsidered with regards to the MPI, this is not the end of it. Making it theoretically viable and empirically applicable to 104 countries across the globe is a significant success. This is why it is not surprising that the MPI was still experimentally adopted by the HDR Office for inclusion in the 2010 HDR.

8 INEQUALITY IN MULTI-DIMENSIONAL NON-INCOME SPACE

Inequality in human deprivation has generally received far less attention than inequality in the distribution of expenditure. This section extends multidimensional poverty to multidimensional inequality by considering multidimensional poverty at the sub-national level for poor people in Arab countries. For multidimensional inequality, a straight but different principle of assessment inspired by the OPHI is adopted—namely, the ratio of multidimensional poverty in rural areas to that in urban areas.

FIGURE 9

Rural and Urban MPI (A) and the Rural to Urban MPI Ratio versus GDP per capita (B), 2000–2007

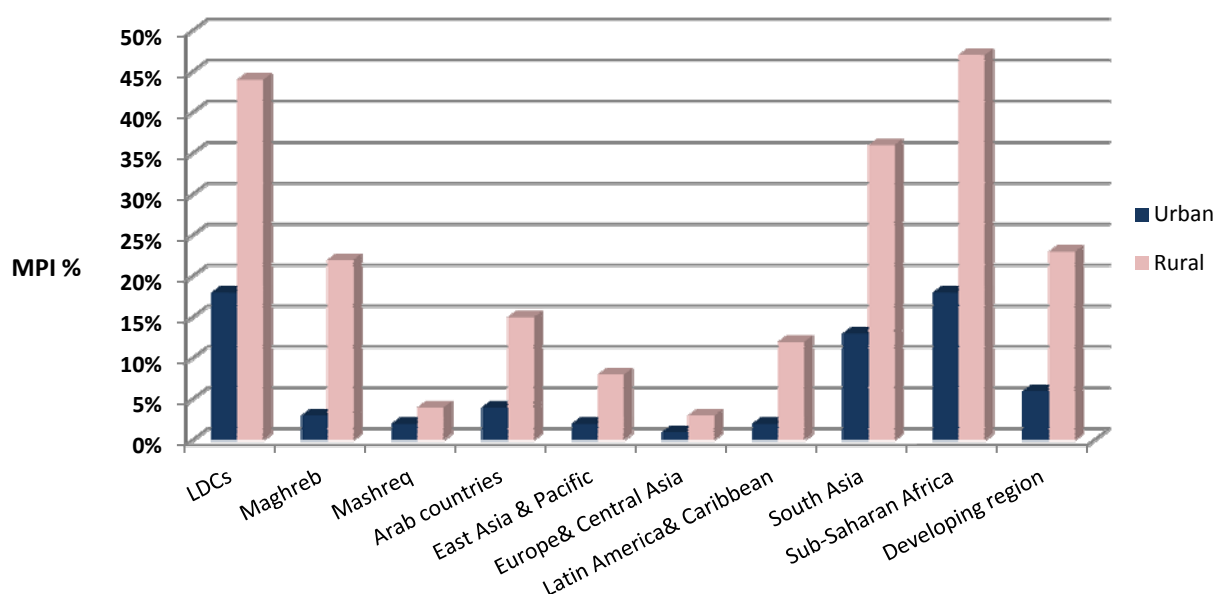


Source: Author estimates based on data from OPHI and the UNSD.

From Figure 9A, we can clearly see a close relationship between urban and rural MPI. Namely, countries which have a low degree of multidimensional human deprivation in rural areas are also likely to have a low degree of multidimensional human deprivation in urban areas and vice versa. However, as Figure 9B indicates, the ratio of rural to urban deprivation is not linear across country income groups. Indeed, in the poorest countries it tends to be low, since both rural and urban areas have a relatively high incidence of multidimensional human poverty. As economies undertake structural transformation, economic development is initially concentrated and led by non-agricultural urban areas; therefore, one would expect an increase in the rural to urban ratio, which is taken here to measure rural–urban inequality, as countries move from the low- to middle-income group range.

Furthermore, during the structural transformation process, as countries move from the middle-income to high-income group range, a broader-based pattern of economic development is expected to prevail. Thus the rural–urban inequalities are expected to recede. To sum up, similar to the Kuznets Curve, we expect an inverted U-shaped inequality in the distribution of human deprivation as GDP per capita rises. This shape is plotted in Figure 9B, where the cluster of a majority of Arab countries can be spotted in the centre of the graph. Hence, we would expect Arab countries to have a higher level of inequality between rural and urban areas relative to other country groups (see Figure 10).

FIGURE 10

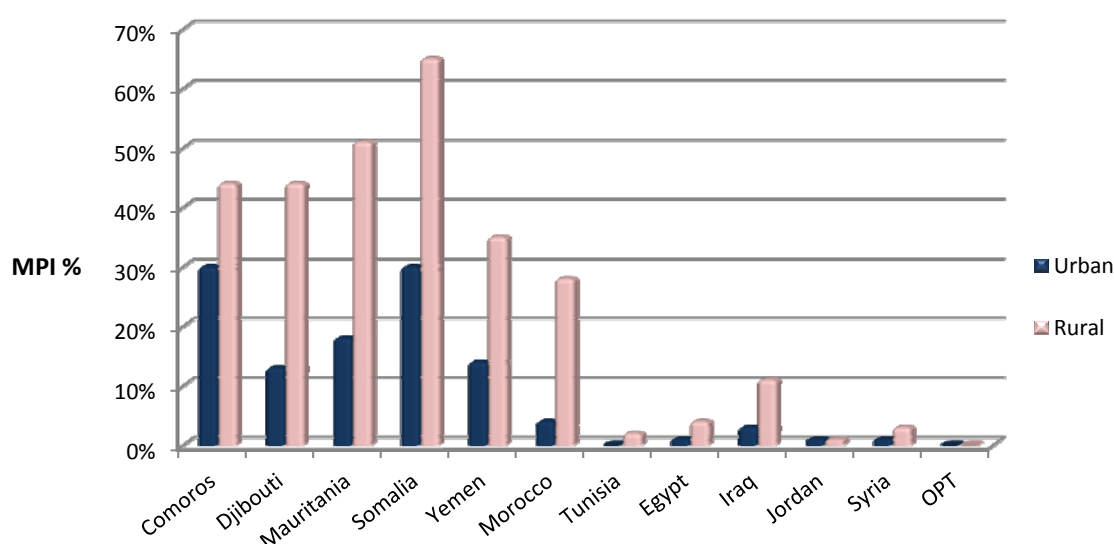
Rural and Urban MPI, by Region

Indeed, this expectation is confirmed in Table A-3, where the region is shown to have a higher ratio of rural to urban poverty (3.5) than the other developing regions, with the notable exception of Latin America and the Caribbean (6.5) - it is important to highlight the very high inequality in the Maghreb region (8).

At the country level, data from the OPHI plotted in Figure 11 shows heterogeneity in levels and relative measure of inequality.

FIGURE 11

Rural and Urban MPI in Arab Countries



On the dimension-by-dimension basis, Table A-4 shows that the highest inequality in the Arab region lies in floor type (8.57), followed by electricity (6.62), sanitation (6.57), drinking water (6.5), cooking (6.06), assets (5.68), schooling (4.12), child enrolment (3.39), nutrition (2.57) and mortality (2.12). Thus, the highest incidence of multidimensional inequality is in the living standards. The second highest is in education, and then in health. Huge variations exist within the Arab Region, where the Maghreb countries are not only the worst sub-region in each dimension, but incidence of multidimensional rural–urban inequality is the worst in the world. Clearly, according to the statistics, residence-based discrimination in national development planning remains a major issue in the global economy in general, and in the Arab Region in particular.

9 CONCLUSIONS

Now, where do we go from here? How do we make use of the results of the analysis above, and how do we see that from the perspectives of cohesive development policy and a poverty reduction strategy?

The results of the analysis are sending out clear signals to development partners in terms of the basis for monitoring development, policy evaluation and targeting. For the Arab Region, the existence of a huge rural–urban divide in multidimensional deprivation helps us understand what is going on in certain countries quite naturally in terms of civil unrest and less social cohesion.

National and local development policies should be balanced, in the sense of taking equal responsibility for the welfare of rural and urban areas in the same country and being more sensitive to rural–urban inequality in the multidimensional space of deprivations, to deliver the right kind of development. This is particularly critical in the general course of economic development where a large part of the population lives in rural areas and where income poverty is largely a rural phenomenon, i.e. where income and non-income poverty intersect. Since imbalanced development has been going on for many years, it is certainly going to be a major challenge for current and future governments, given the mounting social pressures demanding distributive justice—namely, fair distribution of incomes, assets, basic infrastructure and access to opportunities within the population.

ANNEX

TABLE A-1

Poverty in the Arab States

Country	Survey	Year	Multidimensional Poverty Index (MPI)		Population in Multidimensional Poverty		Percentage of People Deprived			Contribution of each Dimension (%)			Population 'at risk' (%)
			MPI (%)	Rank	Headcount (%)	Intensity of deprivation (k=3) (% of deprivations)	Education	Health	Standard of living	Education	Health	Standard of living	Deprived in at least two indicators (k=2)
			2000–2008	2000–2008	2000–2008	2000–2008	2000–2008	2000–2008	2000–2008	2000–2008	2000–2008	2000–2008	2000–2008
United Arab Emirates	WHS	2003	0.20	6	0.57	0.353	0.569	5.418	0.000	94.39	0.37	5.25	2.58
Occupied Palestinian Territories	MICS	2006	0.27	8	0.69	0.382	14.612	2.750	0.759	62.14	20.93	16.93	3.13
Jordan	DHS	2007	0.96	25	2.70	0.354	10.644	11.872	0.187	34.49	59.19	6.32	9.38
Tunisia	WHS	2003	1.05	26	2.82	0.371	1.060	13.060	6.922	25.05	47.31	27.64	7.01
Syrian Arab Republic	MICS	2006	2.07	34	5.53	0.375	20.367	13.618	1.322	45.43	42.73	11.84	13.17
Egypt	DHS	2008	2.59	36	6.41	0.404	17.960	16.905	0.936	48.40	37.16	14.44	17.74
Iraq	MICS	2006	5.88	45	14.25	0.413	32.016	19.988	5.154	47.53	32.12	20.35	28.55
Djibouti	MICS	2006	13.85	55	29.32	0.473	39.307	25.630	28.140	38.30	24.57	37.13	39.87
Morocco	DHS	2004	13.92	56	28.50	0.488	36.252	31.519	21.417	38.70	27.09	34.21	45.41
Yemen	MICS	2006	28.32	71	52.51	0.539	54.489	34.378	38.237	27.04	40.51	32.45	78.39
Mauritania	MICS	2007	35.20	83	61.68	0.571	55.303	44.128	66.840	31.96	21.58	46.46	79.24
Somalia	MICS	2006	40.85	99	81.16	0.633	74.511	47.596	86.683	34.16	18.63	47.21	90.63
Comoros	MICS	2000	51.37	89	73.93	0.552	60.070	45.716	90.283	32.13	22.10	45.76	85.17
Arab Region							27.940	21.756	13.317	43.34	34.91	21.75	

Source: Alkire and Santos (2010).

TABLE A-2

Details of Headcounts Ratios of Multidimensional Poverty in the Arab States

Country	Survey	Year	Education		Health		Living Standard						MPI Rank
			Years of Schooling	Child Enrolment	Mortality (any age)	Nutrition	Electricity	Sanitation	Drinking Water	Floor	Cooking Fuel	Asset Ownership	
United Arab Emirates	WHS	2003	0.006		0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	6
Occupied Palestinian Territories	MICS	2006	0.004	0.006	0.000	0.003	0.000	0.000	0.000	0.005	0.000	0.002	8
Jordan	DHS	2007	0.002	0.017	0.016	0.018	0.002	0.003	0.004	0.000	0.001	0.002	25
Tunisia	WHS	2003	0.008		0.018	0.012	0.002	0.014	0.012	0.004	0.005	0.015	26
Syrian Arab Republic	MICS	2006	0.013	0.044	0.032	0.021	0.002	0.010	0.017	0.010	0.001	0.005	34
Egypt	DHS	2008	0.027	0.049	0.040	0.018	0.002	0.011	0.004	0.024		0.015	36
Iraq	MICS	2006	0.049	0.119	0.076	0.038	0.010	0.051	0.064	0.040	0.027	0.024	45
Djibouti	MICS	2006	0.135	0.183	0.098	0.106	0.204	0.163	0.067	0.178	0.088	0.226	55
Morocco	DHS	2004	0.176	0.147	0.130	0.096	0.161	0.159	0.159	0.142	0.080	0.156	56
Yemen	MICS	2006	0.125	0.335	0.344		0.312	0.257	0.319	0.208	0.284	0.274	71
Mauritania	MICS	2007	0.360	0.315	0.266	0.190	0.530	0.545	0.454	0.449	0.534	0.432	83
Somalia	MICS	2006	0.618	0.435	0.274	0.300	0.758	0.691	0.700	0.644	0.810	0.762	99
Comoros	MICS	2000	0.308	0.479	0.270	0.272	0.543	0.728	0.450	0.283	0.723	0.637	89

Source: Alkire and Santos (2010).

TABLE A-3

MPI for Rural and Urban Areas for Arab Countries and Developing Regions, 2000–2007

Country/Region	National	Urban	Rural	Rural/Urban
Comoros	0.41	0.30	0.44	1.50
Djibouti	0.14	0.13	0.44	3.46
Mauritania	0.35	0.18	0.51	2.74
Somalia	0.51	0.30	0.65	2.20
Yemen	0.26	0.14	0.35	2.52
Morocco	0.09	0.04	0.28	7.86
Tunisia	0.01	0.00	0.02	4.17
Egypt	0.03	0.01	0.04	3.50
Iraq	0.06	0.03	0.11	3.38
Jordan	0.01	0.01	0.01	1.37
Syria	0.02	0.01	0.03	2.00
Occupied Palestinian Territories	0.00	0.00	0.00	1.06
Regional average				
LDCs	0.33	0.18	0.44	2.46
Maghreb	0.11	0.03	0.22	7.99
Mashreq	0.03	0.02	0.04	2.77
Arab countries	0.09	0.04	0.15	3.56
East Asia & Pacific	0.06	0.02	0.08	3.32
Europe & Central Asia	0.02	0.01	0.03	2.78
Latin America & Caribbean	0.08	0.02	0.12	6.63
South Asia	0.29	0.13	0.36	2.72
Sub-Saharan Africa	0.37	0.18	0.47	2.55
Developing region	0.17	0.06	0.23	3.55

Source: *ibid.*

TABLE A-4

Ratio of the Rura–Urban MPI in Each Dimension in the Arab Countries and Regional Averages (people who are multidimensionally poor and deprived)

Country	Education		Health		Living Standard					
	Schooling	Child Enrolment	Mortality (any age)	Nutrition	Electricity	Sanitation	Drinking Water	Floor	Cooking Fuel	Assets
Comoros	1.68	1.51	1.47	0.51	1.70	1.40	1.32	2.56	1.56	1.57
Djibouti	3.81	2.52	0.72	1.46	4.39	5.20	12.04	4.67	11.26	3.97
Mauritania	3.71	2.24	1.50	1.00	4.31	3.10	2.50	3.74	3.03	4.57
Somalia	2.51	2.43	1.40	1.09	2.07	2.68	2.56	3.07	1.72	2.04
Yemen*	4.97	3.01	1.26		13.56	18.26	5.04	9.65	81.84	9.44
Morocco	7.50	7.20	3.97	9.50	22.92	19.36	42.91	55.87	145.36	14.82
Tunisia*	2.83		3.54	18.06	29.17	39.02	90.63	8.01	72.92	28.39
Egypt*	2.40	3.24	3.55	6.93	10.49	4.37	9.09	10.96		5.31
Iraq	3.66	2.99	2.00	3.12	43.88	5.63	16.28	25.55	62.44	6.99
Jordan	2.28	0.86	1.36	10.75	5.47	2.84	4.39	1.00	17.77	15.94
Occupied Palestinian Territories	0.06	1.33	1.00	46.95	6.12	1.06	0.29	0.47	1.00	0.75
Syrian Arab Republic [†]	2.06	1.79	1.57	9.39	3.33	5.83	6.21	15.60	5.00	4.29
Regional averages										
LDCs	3.18	2.73	1.34	0.98	3.93	4.36	3.49	4.33	3.63	3.53
Maghreb	7.64	7.51	4.09	10.03	23.92	20.46	45.28	54.97	147.65	15.66
Mashreq	2.62	2.47	2.24	4.20	13.37	4.01	8.65	13.64	28.84	5.47
Arab countries	4.12	3.39	2.12	2.57	6.62	6.57	6.50	8.57	6.06	5.68
East Asia & Pacific	4.38	2.77	1.06	1.62	5.73	5.14	6.71	9.12	6.48	3.85
Europe & Central Asia	1.58	0.88	3.99	3.29	4.43	9.20	23.01	19.28	12.63	5.10
Latin America & Caribbean	5.98	6.76	6.35	2.21	22.05	8.15	18.00	12.45	9.66	12.74
South Asia	3.06	2.07	1.96	2.25	6.47	3.21	4.50	5.08	3.44	3.13
Sub-Saharan Africa	3.54	2.43	1.83	0.73	3.23	2.43	3.45	3.93	2.38	2.85
Developing region	4.32	2.74	2.38	2.13	5.74	4.12	5.34	6.39	4.31	4.18

* The dark blank cells refer to that the indicator was not estimated from the survey data.

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NOTES

1. In the UNDP *Human Development Report 2010* these dimensions include empowerment; sustainability and vulnerability; human security; perception of individual well-being and happiness; and civic and community well-being.
2. Since 2008 the official MDG framework has included some modifications, most importantly a target on decent employment.
3. Some indicators of the standard of living area such as clean drinking water, improved sanitation, clean cooking fuel, and flooring material can give proxy to the health status such that people without deprivation in these dimensions may indicate good health. For example, access to safe drinking water serves directly to satisfy the need of hydration and hygiene. Hygiene is also facilitated by access to improved sanitation and flooring material. Clean cooking fuel prevents respiratory diseases, which are a leading cause of preventable death, and contributes to a healthy home environment.
4. For adults a weight-for-height index is used, and for children a weight-for-age index.
5. LAS is a sort of 'United Nations' organisation for Arab States. It was formed in Cairo on 22 March 1945. The Charter of the organisation is that of a 'league' rather than united 'nations', because the founding leaders contended that all Arabs are one 'nation'.
6. Some other types may include, for example, 'nomadic' population.
7. Six Arab countries plan to conduct the fourth round of the MICS in 2010. These are: Somalia, Mauritania, Djibouti, Iraq, Occupied Palestinian Territories and Sudan.
8. More remarks on the MPI will follow in the following sections.
9. The region headcount income poverty for \$1.25 a day and \$2 a day is reported incorrectly.
10. Excluding both Mauritania and Comoros from sub-Saharan Africa and including them in the Arab LDCs, the Arab Region becomes 13 instead of 11 countries. Then, the result is clearly different: increasing headcount ratio and, therefore, the MPI value for the countries in the Arab Region as considered by the MPI in 2007. Namely, the MPI headcount ratio increases from the reported 17.9 per cent to 18.6 per cent, and average intensity of multidimensional deprivation increases from 50.6 per cent to 50.9 per cent.
11. The UAE data show that there is no deprivation in health, due to the availability of better health care services. Yet, it is highly deprived in education, where the percentage contribution of education to overall MPI stood at 94 per cent.
12. It is noteworthy that the HPI was developed and applied by the UNDP in two versions: HPI-1 for developing countries and HPI-2 for selected developed countries.
13. Currently available data can be used to calculate deprivation in the unemployment dimension not necessarily for all countries but at least for those countries for which unemployment data are available, to begin including such a dimension.
14. A typical 'asset index' approach uses data on ownership of durable assets in the households, characteristics of the habitat as well as access to certain basic public services as indicators to construct the index.
15. This is acknowledged in the paper by Alkaire and Foster (2008) where a γ -transformation requires dimensions to be all substitutes or all complements, and with a strength that is uniform across all pairs and for all people. This seems unduly restrictive.
16. For example, the *Syria National MDG Report* explored, among other things, the interconnection between child mortality and other socio-economic indicators. See State Planning Commission and UNDP (2010) Box 4-1.



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