Human Development and Multidimensional Poverty Alleviation Empirical Study on Egypt

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Abstract
The purpose of this study is to assess multidimensional poverty in Egypt during the last decade at both of national level and sub-national level and examine the role of human development strategies in alleviating poverty prevalence across different regions in Egypt. This paper uses national and subnational data to investigate how human development strategies can reduce multidimensional poverty rates. The data analysis indicates high variations in income poverty and human poverty between rural and urban regions as governorates in the rural areas- especially in Lower Egypt- have higher multidimensional poverty rates than upper urban governorates. The empirical analysis revealed that human development strategies must be used as a weapon against poverty. It has proven that adequate education and health policies enhancement lead to the reduction and alleviation of poverty and to eliminate the regional disparities of multidimensional poverty in Egypt.

1. Introduction

According to governments and policymakers, poverty is defined by the low-income level and standard of living. But from the poor people point of view, the poverty concept goes beyond the level of income as it includes deficiency of education and health care, poor housing, absence of empowerment, unemployment, and private security (Samuel, Alkire, Hammock, Mills & Zavaleta, 2014). Many various factors measure and contribute to the poverty rate, which makes poverty a multidimensional concept. In the global discussion on poverty, the focus on income alone dictates what is being prioritized. Yet (Amartya Sen, 1999) provided powerful arguments why this focus on income is too narrow. This research goes beyond a paper focusing only on income poverty. It analyses non-income-based dimensions of poverty in different regions of Egypt. The data analysis for multidimensional poverty index values and its components at the sub-national level in Egypt depends on the Demographic and Health Survey (DHS) of 2014, which is a nationally representative survey containing information on education, health, labour sources of household consumption, household characteristics and living conditions (OPHI. 2017). The dimensions selected for the

analysis comprise education, health, and living standards with their corresponding indicators which have been chosen for their intrinsic and instrumental importance, as is often the case in the development field (UNDP 1990-2014). The primary proposition for which the study was examined included that improving human development strategies can reduce multidimensional poverty rates in Egypt, especially in rural regions which have the highest MP indices. Data analysis was used to collect data about the aggregate MP Index and its components from OPHI's Global MPI Databank, World Bank data, and United Nations Educational, Scientific and Cultural Organization, Institute for Statistics database. This paper provides essential recommendations for policymakers in Egypt as it proves how human resources development strategies have been used effectively as a weapon against poverty in many developing countries independence of enhancement of education levels, improvement of health status, the gaining of skills and experience, increasing time away from home and choosing suitable occupations, all can contribute significantly to the reduction and alleviation of poverty.

2. Literature Review

2.1 Income Poverty and Multidimensional Poverty

Multidimensional poverty evaluates the nature and concentration of poverty by classifying multiple deficiencies either in education and health care or concerning the standard of living. The study uses data from household surveys and indicators of health, education, and income level (Alkire & Santos, 2010). Poverty refers to the lack of essential needs of persons, including both financial and non-financial poverty. The data analysis on income poverty and multidimensional poverty indicates that about 70% of multidimensionality poor households are not considered inadequate in terms of income poverty. The econometric consequences conclude that increasing income can decrease multidimensional poverty in each dimension with a limited effect (Wang, Feng, Xia & Alkire, 2016).

2.2 Poverty Trends in Egypt During the 2000s

Most of the governorates in Upper Egypt face high rates of structural poverty, which is related to deficiency of central infrastructure and lack of private capital accumulation and insufficient investment in human resources and the absence of related social programs. Those difficulties appeared in the form of a decline in living standards in Upper Egypt, compared to other Egyptian regions. The poverty rate is higher in Upper Egypt and specifically Rural Upper Egypt. It accounts for about 50% of the populations, followed by Urban Upper Egypt, with about 30% of the people facing multidimensional poverty. The least poverty rate in Egypt is in urban governorates, with less than 10% of the population. Overall, 30% of Egypt's urban population is in Upper Egypt, whereas a significant 45% of Egypt's rural population is in Upper Egypt (Egypt Network for Integrated Development, 2015). Tsuchiya (2016) investigated that the poverty rate has increased in Egypt after the 25th January Revolution in 2011, most in urban governorates.

2.3 Human Development and Poverty

Human development includes that at all levels of development, people aspire to have long and healthy lives, get knowledge, and have access to resources needed for a decent standard of living. From a human development view, poverty means the denial of choices and opportunities for a tolerable life. But for policymakers, the poverty of options and possibilities is often more relevant than the poverty of income, for it focuses on the cause of poverty and leads directly to empowerment

strategies and other actions to enhance opportunities for everyone. Poverty must be addressed in all its dimensions, not income alone (UNDP, 2009). To reduce poverty, there first must be an improvement in human resources and increased investment in human capital (Li Wei, 1994). The importance of human development investments for eliminating multidimensional poverty may be summarized in two strands; the first is indirect through shaping and accelerating the long-term development vision of the country by creating a labor force that is more disciplined and productive. The second strand is related to the experience resulting from these interventions shows that high-quality education, effective training, efficient skills, and good health have significant impacts on poverty alleviation through improved productivity and incomes (Siddig, 2010).

2.4 How Can Human Development Strategies Contribute to Poverty Alleviation?

Poverty does not mean that individual get a law income or live in a low standard of life and that set. Many social and qualitative features should not be ignored, and the poverty level should not be analyzed in isolation of those features. Poverty, in its dimensional form, refers to the deficiency of individuals' capabilities, including both monetary and non-monetary components of poverty. The data analysis related to income poverty and non-income poverty indicated that about 70% of poor people who face multidimensional poverty are not considered inadequate in terms of income poverty as it was concluded that increasing income might have significant positive impacts on every pillar of multifaceted poverty (Wang et al., 2016). If uneducated individual lives over the income poverty line, his educational status will remain unchanged.

In contrast, a person with physical disabilities needs more income to have a suitable life status than others. Enhancements in non-income elements like health and education could positively affect public goods and services (Bourguignon and Chakravarty, 2003). Using sectional and time series data of developing countries, Bourguignon et al. (2010) proved that there is no empirical evidence to conclude that decreasing income poverty leads to improvements in non-income pillars of life. In the absence of oriented social policy targeting enhancements in main capabilities, more people near the poverty line may fall into poverty while eliminating income poverty. So, social policies' implementation should have more emphases on affording human capabilities during decreasing monetary poverty in a way that helps people access more educational opportunities and get better health care to keep them out of multidimensional poverty (Drèze and Sen 2013).

3. Data & Methodology

This study assesses multidimensional poverty in the different four central geographic regions of Egypt. It explores how human development strategies can help alleviate poverty according to the needs and requirements of every part. Considering geographical distribution, Egypt consists of four central regions: the first region includes Cairo, Suez, Port Said, and Alexandria governorates which are so-called "Metropolitan region" and is categorized as a Lower Urban region. The second region is in Lower Rural Egypt, including urban and rural areas of Sharkia, Qualiobia, Damietta, Dakahlia, Kafr el-Sheikh, Garbeyya, Beheira, Ismailia, and Menoufia governorates. The third region is in Upper Urban, and Upper Rural includes urban and rural areas of Giza, Menia, Assiut, Sohag, Bani Suef, Fayoum, Qena, Aswan and Luxor governorates. The fourth region is Border Urban and Border Rural, which includes urban and rural areas. Therefore, an analytical approach has been employed using panel data regarding Multidimensional Poverty Index (MPI) and its main factors: education, health, and living standards. Data have been analyzed using the Household Income, Expenditure and

Consumption Surveys (HIECSs), which is the main source of data for poverty monitoring in Egypt and has the great advantage of large sample size; this allows estimating poverty at the governorate and district levels, not just the national level. Subnational data were collected from the global OPHI's estimations for MPI and its components across the subnational level (OPHI, 2016).

The global multidimensional poverty index is based on three dimensions, including ten indicators: education (years of schooling and child school attendance), health (child mortality and nutrition) and standards of living (accesses to electricity, improved sanitation, safe drinking water, flooring, cooking fuel and assets). Each dimension is equally weighted, each indicator within a dimension is also similarly weighted and depending on those ten indicators, a person is considered "multidimensionally poor" if he is deprived of at least one-third of the weighted indicators shown above, which mean that the cut off for poverty (k) is 33.33%. The proportion of the population that is multidimensionally poor is the incidence of poverty, or headcount ratio (H). The average proportion of indicators in which poor people are deprived is described as the intensity of their poverty (A). The MPI is calculated by multiplying the incidence of poverty by the average intensity of poverty across the poor (MPI = H x A); thus, it reflects both the share of people in poverty and the degree to which they are deprived. The person who is deprived in 20-33.3% of the weighted indicators is considered "Vulnerable to Poverty", and the person who is deprived in 50% or more (k = 50%) is identified as being in "Severe Poverty" (OPHI, 2016).

The empirical study depended on a combination of inductive and deductive approaches by using the collected data and analyzing how the improvement of human development strategies contributes to eradicating multidimensional poverty in Egypt. The inductive method has been employed to process the comprehensive data that can represent the part of our interest. The deductive approach further helps determine if more data or themes are required from the previous set to evaluate the established set (Creswell, 2013). In such a manner, the mechanisms of increasing human development in multidimensional poverty alleviation have been developed. Based on three dimensions of poverty, the factor is calculated in numeric as the Multidimensional Poverty Index (MPI). The inductive data is then compared with the additional parameters, including particularly education, health care and living standards indicators, through statistical analysis using the rural and urban sample data of Egypt during the period 2004-2014 to provide a basis for the establishment of a national multidimensional poverty reduction strategy and policy.

4. Data Analysis and Discussion
4.1 Poverty Trends and Disparities at the Sub-National Level

The increasing prevalence of income poverty in Egypt during the last decade is compounded by the majority of poor living conditions and inadequate access to education and health services, resulting in extreme multidimensional poverty among 11.9% of the population in 2011. The poverty map indicates a significant disparity among regions as Upper Egypt shows the highest prevalence rate (18%) compared to all other areas, much higher than Lower Egypt and urban governorates with rates of 8.7% and 6.8%, respectively (Ellaithy and Armanios, 2013). The prevalence of poor living standards is generally high in rural areas; sanitation deprivation is as high as 87% in Rural Upper Egypt and 47% in Rural Lower Egypt. Governorates that demonstrate the highest income poverty rates are also those with the highest rates of extreme multidimensional poverty (Egypt Network for Integrated Development, 2015). Table 1. Indicates the value of multifaceted poverty and its two elements at the sub-national level: the occurrence of poverty (H)

and the average concentration of deprivation faced by the poor (A), and the last two columns present the proportion of the people vulnerable to multidimensional poverty and living in severe poverty, respectively (OPHI, 2017).

Region	Percentage of Population	MPI (H*A)	Incidence of Poverty (H)	Average Intensity Across the Poor (A)	Percentage of Population Vulnerable to Poverty	Percentage of Population in severe Poverty
Frontier Governorates	1.4%	0.32	7.7%	41.4%	8.2%	1.9%
Lower Egypt Rural	31.4%	0.015	4.1%	37.7%	4.4%	0.6%
Lower Egypt Urban	11.3%	0.005	1.5%	35.8%	0.5%	0.1%
Upper Egypt Rural	25.5%	0.059	13.8%	42.7%	19.2%	2.6%
Upper Egypt Urban	11.7%	0.015	3.8%	39.0%	4.7%	0.7%
Urban Governorates	18.7%	0.009	2.3%	36.5%	1.3%	0.2%

Table 1: Multidimensional Poverty across Sub-national Regions, 2016. (Source): Oxford Poverty and Human Development Initiative (OPHI), Country Briefing; Egypt, 2017.

As shown in table 1, the data indicates the significant disparity among regions as Upper Egypt rural shows the highest MPI (0.059), the highest percentage of the population vulnerable to poverty (0.19.2%) and the highest rate of the people in severe poverty (2.6%) compared to all other regions, much higher than Lower Egypt urban with the lowest MPI (0.005), the lowest percentage of the population vulnerable to poverty (0.5%) and also the highest rate of the people in severe poverty (0.1). Although poverty in urban and rural regions is concentrated in definite areas, there are high living standards' differences from one village to another within the same area. For example, about 30% of the poorest Egyptians concentrated in the most impoverished villages of Menia, Assiut, and Suhag governorates.

Poverty rates in Urban and Rural Upper Egypt regions accounting for 18.6% and 39.1% respectively. In contrast, Egypt's least multidimensional poverty rate was found in the Metropolitan region accounting for 5.7%. Although Rural Lower Egypt represent the more inferior region in Egypt with the highest average poverty rate (about 16.8%) compared to the poverty rate in Urban Lower Egypt (about 9.1%), More than 14% of the population in Upper Egypt are extremely poor. The disparity also appears between the Metropolitan region with a poverty rate of (0.8%) and the Lower Egypt region with (2.5%) poverty rate. Additionally, the poverty rates are still increasing in Upper Egypt areas, which is due to a more decrease in living standards for people in that area. Poverty rates are higher in rural areas and, specifically, in Upper Egypt, and rural areas have higher poverty rates than their urban areas in Lower and Upper Egypt. While the share of the rural regions in the total population was just 56%, the poor in these areas represent no less than 80. Statistics also showed the variances in poverty among specific governorates within each region. In contrast, Upper Egypt governorates generally suffer from high rates of poverty, the poverty rate in Fayoum governorate in Upper Egypt's is considered as relatively low (about 12%), and that would also be applied for Giza governorate with a poverty rate equals to 13% compared to high poverty rates in some Lower Egypt governorates such as Sharqueya, Behera, and Menufeya which suffer from relatively high percentages poverty which exceed 28% in the most impoverished areas. The latter governorates also showed the highest rates of near-poor (close to 30% of their total population). The governorate where

the poor are most understated is Cairo, while the poor are utmostly overrepresented in Assiut (El-Tawila, Gadalla &Ali, 2013).

Table 2 shows the aggregate values of multidimensional poverty and its two components in Egypt at the sub-national level, the frequency of poverty (H) and the average strength of deprivation between the poor populations (A). It also indicates the percentage of the people vulnerable to poverty, the percentage of the people living in severe poverty, and the percentage of the population who are considered deprived persons according to more extreme indicators. The level of inequality among the poor was calculated using a decomposable inequality measure. The population-weighted regional figures on MPI, headcount ratio (H), and intensity (A), sum to the national statistics on MPI, H and A. (OPHI, 2017). The table also shows the high disparity in poverty rates between governorates, as Alexandria and Port Said have the lowest value of MPI (0.003) compared to Assuit, with the highest MPI value (0.38)

| Region | MPI (H*A) | H (Incidence) K ≥ 33,3% | A (Intensity) | Percentage of Population | | | Inequality among the MPI Poor | Population Share |
				Vulnerable to Poverty k=20%-33,3%	In Severe Poverty k ≥50%	Destitute		
Egypt	0.14	3.6%	38.1%	5.4%	0.4%	0.7%	0.050	100%
Urban	0.008	2.1%	36.8%	1.0%	0.3%	-	-	37.2%
Rural	0.017	4.4%	38.5%	8.0%	0.5%	-	-	62.8%
New Valley	0.003	0.8%	34.0%	3.0%	0.2%	0.3%	0.082	0.2%
Port Said	0.003	1.0%	33.3%	2.1%	0.0%	0.00%	0.003	0.4%
Alexandria	0.004	1.3%	34.4%	0.1%	0.0%	0.00%	0.000	4.4%
Dakahlia	0.005	1.5%	35.4%	3.0%	0.0%	0.2%	0.005	7.3%
Kalubia	0.005	1.4%	36.5%	3.3%	0.0%	0.0%	0.009	4.7%
Gharbia	0.006	1.6%	34.6%	2.6%	0.2%	0.5%	0.028	6.3%
Kafr El-Shekh	0.006	1.7%	34.6%	2.4%	0.0%	0.3%	0.009	3.9%
Cairo	0.006	1.8%	33.9%	0.3%	0.1%	0.2%	0.008	9.0%
Suez	0.008	2.3%	34.7%	1.1%	0.1%	0.1%	0.015	0.1%
Menoufia	0.008	2.2%	37.5%	3.3%	0.3%	0.7%	0.064	4.7%
Ismailia	0.009	2.5%	35.5%	1.9%	0.1%	0.2%	0.018	0.8%
Shakia	0.010	2.4%	39.1%	9.8%	0.1%	0.7%	0.024	8.8%
Damietta	0.012	3.1%	37.3%	11.4%	0.0%	0.9%	0.013	1.7%
Behera	0.012	2.9%	41.8%	10.5%	0.8%	0.6%	0.077	8.5%
Aswan	0.013	3.4%	37.8%	7.1%	0.1%	1.1%	0.058	1.8%
Qena	0.015	4.2%	35.4%	6.5%	0.0%	0.7%	0.010	3.4%
Red Sea	0.015	3.7%	41.0%	4.2%	0.9%	1.6%	0.069	0.3%
Luxor	0.015	4.0%	38.4%	7.4%	0.2%	0.6%	0.036	1.0%
Beni Suef	0.017	4.7%	35.9%	3.4%	0.2%	0.4%	0.018	3.5%
Giza	0.018	4.7%	37.7%	3.3%	0.6%	1.5%	0.041	9.6%
Menya	0.022	5.7%	38.6%	6.4%	0.8%	1.0%	0.062	5.6%
Fayoum	0.022	5.8%	38.8%	7.1%	0.9%	1.0%	0.068	3.3%
Souhag	0.035	8.6%	40.4%	10.1%	2.0%	0.7%	0.057	4.9%
Matroh	0.036	8.8%	40.7%	14.6%	1.4%	1.0%	0.091	0.3%
Assuit	0.038	9.6%	39.4%	11.4%	1.1%	1.9%	0.072	5.5%

Table 2: The MPI value and its two components in Egypt at the governorates level, 2016.
Source: Oxford Poverty and Human Development Initiative (OPHI), Country Briefing; Egypt, 2017.

4.2 Dimensions and Indicators of MPI at the Sub-National Level

Alkire and Foster (2007, 2011) state the AF technique to establish the MPI and the global MPI. The AF technique first sets the "dimensional cutoff" for each measurement. It then judges whether a person is poor through a calculation using a "poverty cutoff" like that used for the estimation of "incidence of poverty". Deprivations may be assessed using a vector of relative weights. When a person is inadequate in some amount in one dimension, he considered multidimensionally inferior. The following table shows the proportion of people who are MPI poor and experience deprivations in each of the indicators of every MPI dimension in Egypt 2011 and 2015 at the national level:

Dimension	Indicator	Relative weight	Proportion of People who are deprived in.. (% of Population)	
			2011	2015
Education	Schooling	1/6	2.6	1.7
	School Attendance	1/6	4.4	2.6
Health	Child Mortality	1/6	3.7	2.1
	Nutrition	1/6	1.7	1.1
Living Standard	Electricity	1/18	0.2	0.0
	Improved Sanitation	1/18	1.0	0.5
	Drinking Water	1/18	0.3	0.2
	Flooring	1/18	2.3	0.6
	Cooking Fuel	1/18	-	-
	Asset Ownership	1/18	1.4	0.2

Table 3: The proportion of people who are deprived in each of MPI's indicators. 2011 &2014. (Source): Alkire, s., and Robles, G. Multidimensional Poverty Index, Brief Methodological Notes and results, OPHI, University of Oxford, 2017.

It can be observed through the last table that the proportion of people who are deprived in all MPI's indicators –As an average proportion for Egypt- decreased in 2015 compared with the same indicators in 2011, but what is the trend of those indicators at the sub-national level? At the sub-national level, it has been indicated that there is a noted disparity between Egypt' governances as shown in the previous table, which reports and assess the very high disparity across subnational MPIs. For example, with respect to education as the first dimension of MPI, Assuit –governance in Upper Rural Egypt-has the percentage of the height of people who are poor and deprived in both two indicators as 4.8% of the population are deprived in schooling, and 7.1% are deprived in school attendance, whereas those percentages in governance such as Port Said- a Border Urban governance-are 0.1% and 0.7% respectively. This disparity among the rest of the dimensions and indicators can also be observed from the last table's data which shows the extent of inequality not only among the regions but also between governments in the same region (such as Assuit versus Souhag, which are fully upper rural governances and Alexandria versus Sues (which are fully lower urban governances) as shown in table 4.

Region (Governorate)	Percentage of People Who are poor and deprived in … % of Population								
	Education		Health		Living standards				
	Schooling	School attendance	Child mortality	Nutrition	Electricity	Improved sanitation	Drinking water	Floor	Asset ownership
Alexandria	0.7	0.6	0.7	0.6	0.0	0.0	0.0	0.0	0.0
Assuit	4.8	7.1	5.3	3.3	0.1	1.1	0.1	3.6	0.7
Aswan	0.6	2.4	2.5	1.5	0.0	0.1	0.0	1.5	0.0
Behera	1.9	2.0	1.6	1.0	0.0	0.9	0.2	0.2	0.1
Beni Suef	2.2	3.8	3.1	0.4	0.0	0.2	0.2	1.1	0.3
Cairo	1.0	1.3	0.9	0.4	0.0	0.0	0.0	0.0	0.0
Dakahlia	0.6	1.1	0.9	0.3	0.0	0.1	0.0	0.0	0.1
Damietta	0.7	1.7	1.3	2.4	0.0	1.4	0.0	0.4	0.0
Fayoum	3.8	4.1	2.9	1.6	0.0	0.6	0.1	1.5	0.2
Gharbia	0.6	1.2	1.0	0.6	0.0	0.0	0.2	0.1	0.0
Giza	2.3	3.7	2.3	1.6	0.1	0.9	0.2	0.0	0.1
Ismailia	1.1	1.7	1.4	0.8	0.1	0.3	0.0	0.0	0.1
Kafr El-Sheikh	0.9	1.4	1.0	0.1	0.0	0.2	0.0	0.1	0.1
Kalyubia	0.7	0.9	1.0	0.2	0.0	0.2	0.1	0.0	0.1
Luxor	0.9	2.8	2.9	1.3	0.0	1.0	0.2	1.9	0.2
Matroh	4.3	6.7	4.0	4.4	0.1	0.0	4.9	0.0	0.1
Menoufia	1.4	1.5	0.9	0.8	0.0	0.0	0.1	0.3	0.1
Menya	2.9	4.5	3.5	1.3	0.1	0.7	0.1	0.9	0.5
New Vally	0.4	0.5	0.6	0.2	0.0	0.0	0.0	0.2	0.0
Port Said	0.1	0.7	0.9	0.1	0.0	0.1	0.0	0.0	0.0
Quena	0.5	3.2	3.3	1.4	0.0	0.5	0.1	0.7	0.1
Red Sea	1.8	2.3	1.7	1.4	0.1	0.5	1.7	1.2	0.9
Sharkia	1.4	1.6	1.4	0.5	0.0	1.3	0.6	0.1	0.1
Souhag	2.3	6.7	6.0	4.0	0.2	0.6	0.0	2.8	1.3
Suez	0.2	1.7	1.5	1.2	0.0	0.9	0.0	0.2	0.0

Table 4: Censored headcount ratios for sub-national regions (Source): OPHI, 2017.

Although the goal here is to alleviate poverty, it is essential to distribute the fruit of poverty alleviation by all needy people in all regions to ensure that those with a more significant number of multiple deprivations have been benefitted. To achieve that goal, we need to assess the contribution of each dimension and indicator to Multidimensional poverty across both of national level and sub-national level, which can be shown within tables 5 and 6:

Dimension	Percent contribution to MPI	Indicator	Percent contribution to MPI
Education	52.8%	Schooling	20.4%
		School Attendance	32.4%
Health	39.6%	Child Mortality	25.7%
		Nutrition	13.9%
Living Standard	7.6%	Electricity	0.2%
		Improved Sanitation	2.5%
		Drinking Water	0.8%
		Flooring	3.0%
		Cooking Fuel	-
		Asset Ownership	1.0%

Table 5: Percentage of each dimension's and indicator's contribution to MD in Egypt, 2014. (Source): OPHI, 2017.

As shown in table 5, education is the dimension with the highest contribution to multidimensional poverty in Egypt, with 52.8% contribution. The indicator of school attendance has the most contribution to MPI with a percentage of contribution equal to 32.4%. These percentages may indicate the necessity of concentrating on improving education strategies to alleviate poverty in Egypt during the following years. What about the contribution of the three critical dimensions to MPI within the different regions in Egypt? The answer to our question can be found in the following table' data which shows the different dimensions' contribution to a region's MPI. The analysis of this data helps understand the primary source(s) of deprivation at a sub-national level, which can help policymakers plan to redistribute the fruit of poverty alleviation in a more justice manner between all areas and governances Egypt.

Region (Governorate)	Percentage contribution of deprivations of each dimension to MPI (% Contribution)		
	Education	Health	Living standards
Alexandria	51.4	48.6	0.0
Assuit	52.4	37.8	9.8
Aswan	39.0	52.4	8.5
Behera	55.0	37.2	7.8
Beni Suef	58.9	34.4	6.7
Cairo	63.0	37.0	0.0
Dakahlia	56.3	40.7	3.0
Damietta	35.2	54.1	10.7
Fayoum	59.1	33.5	7.4
Gharbia	52.4	44.4	3.2
Giza	57.1	37.5	5.4
Ismailia	53.3	42.5	4.2
Kafr El-Sheikh	64.8	30.9	4.3
Kalyubia	53.3	40.8	6.0
Luxor	40.2	45.4	14.3
Matroh	51.5	38.9	9.5
Menoufia	59.2	36.0	4.8
Menya	56.1	36.7	7.2
New Vally	51.3	43.6	5.1
Port Said	42.2	53.7	4.1
Quena	41.3	52.3	6.4
Red Sea	46.0	34.7	19.3
Sharkia	51.6	33.6	14.8
Souhag	42.8	47.8	9.4
Suez	40.6	58.0	1.4

Table 6: Contribution of deprivations to the MPI by sub-national regions. (Source): OPHI, 2017.

The contribution of education to multidimensional poverty is relatively high in most of Egypt's governances such as Kafr El-Sheikh, Cairo, Menoufia, Fayoum and Beni Suef, with contribution percent equal to 64.8%, 63.0% and 59.2%, 59.1% and 58.9%, respectively. On the other hand, the contribution of education to multidimensional poverty is relatively high in some other governance such as Suez, Damietta, Port Said, Quena and Aswan, with contribution percent equal to 58.0%, 54.1%, 53.7%, 52.3% and 52.4% respectively. Yet, concerning the third dimension-standards of living-its negligible contribution to multidimensional poverty can be noted in most of Egypt's governances as it does not exceed 19.3% as in Red Sea governance which reflects the importance of concentrating on education and health care to alleviate poverty in Egypt considering the disparities between the different regions.

5. Results and Conclusion

This paper assessed multidimensional poverty in Egypt using the Demographic and Health Survey (DHS) of 2014 to measure poverty incidence in the leading selected indicators of education, health and living standards dimensions at both national and sub-national levels. Our findings showed vast regional and sub-national differences in people's unidimensional and multidimensional poverty status in Egypt. The data analysis at the national level indicated that poverty in Rural Upper Egypt is generally more severe than in Urban Lower Egypt, and when compared across regions, the dimensional profiles showed that all dimensions of poverty are higher in the rural areas, with the most significant gap being in education. The difference in the prevalence of poverty significantly widened between Metropolitan regions and other regions and between Lower Egypt and Upper Egypt. Sub-national data indicated a high disparity of deprivation between poor people across all Egypt's governances.

A comparison of the dimensional poverty incidence rates by region shows a contrasting dimensional profile. Therefore, policy guidance aimed at reducing poverty would benefit from considering such poverty profile differences across geographical areas and dimensions of poverty. By dimensions, our analysis of poverty showed a contrasting dimensional profile across different regions. Egypt's dimensional profile showed the most significant incidence in education and the lowest living standards, especially in rural areas. Overall, it can be noted that rural poverty contributes most to extreme multidimensional poverty in Egypt. Assessing the relative contributions of the various dimensions of poverty showed that education has the highest contribution to multifaceted poverty in most of Egypt's governances which means that educational attainment makes a considerable difference. Therefore, it can be concluded that one of the main requirements of multidimensional poverty alleviation in Egypt is targeting rural areas in Egypt, especially Rural Upper Egypt, through improving educational strategies. The illiteracy rate was reduced by 2% during the period (2000- 2015) at the national level was down by 2%, but that percentage was less than 1% in urban Lower Egypt. Limited educational achievement is one of the main factors that determine poverty as about 80% of the poor had only primary education or lower, while only 3.4% had got a college degree). Poverty between persons with low education was less focused in 2015 than in 2000, with corresponding figures being 86% with primary education and 1.9% with a university degree. Still, there were high differences in the educational achievement between the poor and near needy. These differences were more noticeable in urban areas than in rural areas, but educational disparities in urban areas were the highest.

There is strong evidence that there is little effort to building human resource for poverty alleviation in Egypt. Although there is the high level of education between people, rural areas still face barriers that hinder their participation in poverty alleviation. If they receive a good education, the initially poor will have the chance to become the elites and improve social mobility and inclusiveness.

Human development strategies can contribute to poverty alleviation through at least three main channels: enabling people to increase their productivity and to participate fully in the process of income generation and remunerative employment, providing equal access for equal opportunities not only for the present ages but for future generations as well, and empowerment of people to participate fully in the decisions and processes that shape their lives.

6. Policy Implications

Depending on the data analyses results, this paper concludes that income does not reflect the poverty rate as income measurement is not conducive to multidimensional poverty. The results stated that if poverty alleviation policies targeted only people in income poverty, about 40% of rural families would still live in multidimensional poverty. Therefore, the poverty reduction policies should cover not only income poverty but also multidimensional poverty and deprivation. Governments are required to afford adequate public services and, specifically, education and health care. Furthermore, multifaceted poverty reduction must be one of the main concerns of public policy. Different programmes must be designed for the rapid eradication of poverty. With a large and rapidly growing population in Egypt, the government is likely to provide poverty alleviation appropriate investments to improve the quality and quantity of human resources, forming significant elements in the poverty reduction strategy. In this respect, interventions in several areas such as education, skill formation, health and nutrition, etc., can positively impact labour market characteristics with substantial potential payoffs.

Discrimination in public spending on education in favour of rural Egypt can contribute to eliminating differentials in poverty levels and deprivation through achieving more justice of income distribution in terms of comparative advantage for job opportunities for poor people. Education level is usually positively correlated with the poverty status as it determines individual access to income through employment. Many families in the lowest social class cannot afford to pay the cost of education as it has been concluded that the poverty reduction strategy must recommend priority actions to create an enabling environment for human resource development. Education and health are the key target sectors through which human development of the poor can be achieved. In practical terms for education, this means improving public education, more well-trained teachers, reformed curricula in schools, colleges and universities, emphasis on science, engineering and information technology. For health, it means more doctors, nurses, paramedical staff and more primary and secondary health care centres distributed all over the country to ensure affordable access to the poor.

7. Limitations & Direction for Future Studies

To successfully attack multidimensional poverty, official policy must operate at two levels: At the macro level, it will be essential to channel more resources to human development strategies while at the same time ensuring better utilization of existing capacity in the health and education sectors. The strategy, which facilitates multidimensional poverty alleviation, are required to be designed. Moreover, the policies regarding social insurance should be developed to bring an improvement in non-income dimensions of poverty. Equivalently, making investments in education and health care, peculiarly in rural areas, can be helpful to reduce poverty rates in the poorest regions. Future studies are needed to design an integrated strategy for multidimensional poverty alleviation. This strategy for MPI alleviation should ensure equitable distribution of human development opportunities and empowerments of communities, especially the most deprived, by increasing access to education and labour market with through greater involvement of the poor in the formulation of policies for economic and social development and in the management of their affairs to understand the nature of poverty and use that as a guide for all public actions.

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