The Geography of Success in Poverty Reduction in Developing Countries:
A Comparative Analysis

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Abstract

Developing countries have achieved steady poverty reduction in recent years. This achievement involves robust economic growth in a number of these economies. Translating fast economic growth into poverty reduction, however, requires putting into place policies and institutions that promote sustainable and shared economic growth process. The degree of success in poverty reduction depends largely in balancing the process of economic growth and judicious pattern of income distribution so that an increasing share of the population benefit from the growth process and engage in more productive endeavors. Building the necessary policy and institutional framework to promote sustainable and shared economic growth are central in generating a process of economic growth that could steadily reduce the scope and depth of chronic poverty in developing countries. The study argues that a large number of developing countries have failed to achieve both growth and equitable distribution of income that hampered their effort for sustainable poverty reduction.

Key Words: Poverty Reduction, Economic Growth, Inequality, Developing Countries, Political Economy

Ⅰ. Introduction

The developing countries have exhibited important improvement in economic growth performance and steady rise in standard of living in recent years. This achievement manifests itself, among other aspects, in steady reduction in the scope and depth of poverty. This is observed in diverse settings and situations across the developing world and the stage is set for further reduction or even elimination of chronic poverty within a foreseeable future. For the first time in their history, even the continents of Africa and Asia now have more non-poor than poor population. This has tremendous implications for the prospects of these regions in the coming decades as well as for their role in the global economic and political landscape.

The achievement in steady poverty reduction has been the result of both robust and inclusive economic growth that provided more opportunities for the poor to contribute to and benefit from the process of growth. Poverty reduction is the outcome of both growth and income distribution processes in developing countries and these elements are closely linked with the pattern of economic growth. It is therefore critically important to understand the process and forces that gave rise to persistent decline in poverty across countries and draw policy lessons that would help to promote the capacity of national economies to further address the remaining poverty and inequality challenges.

While developing countries in general have exhibited similar trends in terms of achieving poverty reduction, the experience is not uniform and some of the developing countries, particularly in Africa, followed a unique pattern where both the share and the number of poor people first increased and only recently have both started to follow a downward trend. A closer examination of the poverty indicators across developing countries strongly suggests that the performance of countries in terms of addressing chronic poverty is not amenable to generalization and there are both success as well as failure stories. Whereas the number of countries that have managed to reduce the poverty rate has been increasing, there are pockets of cases with high concentration of poverty and population that exerts significant influence on the overall poverty situation.

These features suggest that the process of poverty reduction exhibits unique characteristics and subsequent efforts to eliminate poverty should take into account these forces so as to enable the majority of the population escape the poverty trap and achieve sustainable improvement in standard of living. The inspiration of this article is how to capitalize on the steady progress to reduce chronic poverty in developing countries within the framework of sustainable global development goals.

The purpose of this article is to analyze the recent trends in the extent of poverty reduction across developing countries, highlight the pattern and features of the poverty reduction process, and draw policy lessons for further poverty reduction efforts. To accomplish this purpose, we make use of a unique set of new and revised poverty and inequality data across 84 developing countries[1] for which consistent and reliable data could be found. The study focuses on the period since the year 2000 during which poverty reduction policies took center stage in a new political-economy and global policy environment. We set the effort and achievement of developing countries in terms of promoting economic growth, breaking away from economic stagnation, the response in terms of the pattern of income distribution, and the interaction of both growth and distributional forces in shaping the outcome in the incidence of poverty across countries. Success in poverty reduction is contextually defined in terms of sustained reduction in the share of the population of the countries under consideration that live on less than US$ 1.90 per day chronic poverty line. An economy is considered successful in dealing with chronic poverty if it has managed to reduce poverty index consistentlywith poverty index below 5 percent mark and has set the stage for sustained poverty alleviation.

The paper contributes both to the theory of poverty analysis and the practical issues of development policy in the context of developing countries and addresses the nexus between economic growth, income

1 See appendix 1 for the list of developing countries in the analysis of this study and their corresponding country code.

distribution issues, and poverty. A systemic analysis of the challenges and achievement in terms of poverty reduction across developing countries provides a new insight into effective approaches, policy choices, and prospects in promoting sustainable and equitable economic growth that has significant effect on the standard of living of the population and in terms of reducing the scope and depth of chronic poverty. Accordingly, the next section develops conceptual arguments and deals with issues in poverty and poverty reduction policy framework. Section three undertakes analysis of poverty reduction in a sample of developing countries. The paper concludes by drawing relevant policy lessons for countries where chronic poverty is still a formidable challenge.

II. Poverty: Conceptual and Measurement Issues

Poverty is a multi-dimensional concept and as such requires a comprehensive policy approach to deal with it. It generally refers to the inability of households to provide sufficient subsistence and to lead a decent economic and social life. Poverty is a pronounced and extensive deprivation in well-being of individuals, families, and communities.

The concept and policy of poverty reduction would have practical solution only if we have a relatively clear and consistent conceptual and measurement approach. The concepts of poverty and by implication the policy of poverty alleviation, as currently used, have ambiguous features and imprecise meaning (World Bank 2004; Chen and Ravallion 2010; Ravallion, et al. 2009; Deaton 2005; Kanbur 2001; Moges 2013b). Whereas researchers have widened the conceptual framework and context of poverty from consumption expenditure, capability, and freedom perspectives, the difficulty and inaccessibility of precise measurement of such concepts has led to the alternative focus on a narrow but more pragmatic identification of poverty indicators for public policy response purpose.

Poverty reduction policy involves measuring accurately income or consumption relative to a reference yardstick, counting the number of poor people, putting this figure in relation to the entire population, and characterizing the nature, underlying causes, and dynamics of their poverty. Each step is a difficult task and require considerable resources. Moreover, the lack of precision makes the concept vulnerable to political yard sticking in which actual poverty problems are not directly addressed (Kanbur 2001; Deaton 2005). The headcount poverty index, for instance, could be reduced without necessarily reducing the absolute number of people struggling in chronic poverty. This is particularly relevant in countries where population growth is fast, life expectancy is short and more children are born into poverty than those born in non-poor families. Who is poor and who is not largely depends on the poverty threshold the country adopts. When this yardstick is not realistic enough, the resultant poverty indicator would only be misleading and unrealistic. Even when the benchmark yardstick is realistic enough, the poor are not homogenous. There is diversity within the ranks of the poor and a concept of poverty would be partial if it fails to capture these essential features.

It is important to note that the concept of poverty reduction might involve inter-temporal fallacy in that the poverty reduction strategy might become the victim of its own success. If one assumes that public policies reflect the will of the majority, at least in a democratic political setting, decline in the poverty index reduces the incentive for public policies to emphasize on further reduction measures especially when such measures are financed by contributions from the non-poor segments of the population or involve redistribution fiscal measures (Moges 2013a). It therefore becomes important to develop poverty elimination strategies that appeal both to the poor and the non-poor in society and emphasize the idea that eliminating chronic poverty is to the vested economic, social and political interest of the whole population in a nation.

The issues of poverty reduction could also be analyzed from the perspectives of the process of economic growth and distribution of economic opportunities across economic agents and households. The level as well as growth of mean income, relative to the poverty line, is an important factor in reducing poverty. An economy might find itself in a situation of generalized poverty where aggregate output is not big enough to provide decent living standard for all. In such a situation, average income falls short of the poverty line. This phenomenon emerges where economic agents and resources are underutilized, unemployed, underemployed or economic agents do not have sufficient capital or technology to work with for a number of institutional, policy, political, social and economic reasons. The first order of priority in such a situation is to unburden economic agents from such constraints and develop strategies to eliminate structural bottlenecks for the realization of the economic potential of the country. This in turn requires thoroughly examining the economic, social, political and behavioral factors and institutions that give rise to such under-capacity utilization of natural and human resources in the economy.

Even when an economy improves its productive capacity and where average income is higher than the absolute poverty line, output may not or could not be equally distributed across households. This is so partly because inequality and its root causes extend beyond economic forces. Observation of cross country patterns of income distribution suggests that even the most egalitarian societies have index of inequality in the range of 0.20 to 0.25 whereas the most unequal economies register about 0.60 to 0.66 (Milanovic 2005). However, not all inequality in a system reflects injustice. When the rewards that economic agents receive adjusted relative to their effort, dexterity, and creativity are fairly balanced it maintains the incentives for higher efficiency and robust growth in national income.

Economic growth is indeed the most powerful instrument to reduce poverty provided that it creates employment opportunities to the poor, increases the demand for factors that the poor owns, and creates the condition in which the poor develop the capability to accumulate productive assets that prepare them for productive and better life (Dollar and Kraay 2004; Moges 2013b). Economic growth has twin effects both of which have important effects on poverty indicators. From analytical perspective, economic growth could imply increase in the average income of all households without necessarily changing their relative income. There is also a distributional effect in which the growth process is accompanied by changes in the relative income with ambiguous effect on the poverty indicators (Bourguignon 2003; Dollar and Kraay 2004). Nonetheless, the growth process might exhibit anti-poor elements when economic agents are not positioned to equally participate and benefit from the growth process due to constraints of human capital, access to financial services, weak business and investment climate, weak institutions, and restrictive economic policies (Alesina and Rodrik 1994; Persson and Tabellini 1994).

Is economic growth distribution neutral? There are strong tendencies that cast doubt on the distributional neutrality of growth. The growth of income of a national economy does not benefit all economic agents equally for a host of reasons including differences in resource endowments; inputs market imperfections, government policies, institutions, and social relationships. Economic growth benefits first and for most those who have the capability to initiate growth and it eventually reaches those economic agents who get employment opportunities and those who produce factor inputs for the production processes. This process is gradual and its flow does not necessarily involve a significant portion of the population. It is possible that economic growth could be driven by a sector with very weak linkage with the rest of the economy and with inconsequential effect on employment generation. Such a growth process can give rise to deterioration in the distribution of income and worsens the inequality situation leaving the majority of the population behind.

Poverty reduction could be achieved by the growth in the income of the poor or improvement in the distribution of income. These two features of the growth process and its implication on poverty indicators is an important analytical approach to decompose the relative importance of the growth and distribution components in the process of poverty reduction (Bourguignon 2003). The relative importance of these forces influences the extent to which growth could be translated into poverty reduction on a sustainable basis. The dynamics of economic growth and its impact on the poverty situation in a country hence largely depends on the political economic forces that shape the economic and socio-political forces within the country.

Ⅲ. Analytical Framework for Poverty Analysis

The level and change in the indicators of poverty of a country are closely linked to the degree to which economic agents utilize all of their economic resources in the system for the production of goods and services at a given state of technology and how these outputs are distributed across the population. As such, the process of production and distribution of economic resources ultimately influence the prevalence and persistence of poverty in the system. From such a perspective, the stage of economic development as measured by per capita or per household income, the growth rate of the average income, pattern of income distribution, and population growth are the main forces that shape the level and changes in the indicators of poverty.

The measurement of poverty and its dynamics over time depends on accounting the aggregate output of the nation and its growth rate, the distribution of income across households, the size and growth rate of the population, and a realistic poverty yardstick. These factors in isolation as well as in combination influence the level and dynamics of poverty of a nation over time and across households. It is also evident that the initial level of income and its relative short fall below the poverty threshold line exerts enertia by limiting the extent to which countries could mobilize investment resources to initiate and sustain economic growth.

1. Poverty indices

The measurement of poverty, as defined above, could take various approaches and practical twists. The most commonly used approaches involve establishing a distribution function of the aggregate output of an economy, arranging the distribution of income with respect to the distribution of the population, and with the help of a separately determined poverty line to divide the population into poor and non-poor classes. This process is conceptually simple but could be misleading unless it is used precisely and interpreted from the perspectives of distribution, dynamics, and responsiveness to policy initiatives.

Accurate measurement of poverty starts with a reliable measurement and ordering of income at household level as well as accounting accurately the size and growth of the population in a country.

Consider that the income or consumption expenditure level of a total of n-households in a nation is arranged in an ascending order and takes the following notation:

$$(y_1,\ y_2,\ \cdots, y_d, \cdots, y_m, \cdots, y_n) \tag{1}$$

The aggregate value of income of households approximates the size of the national output that is available for consumption which closely approximates the disposable income in the national income accounting plus public services and goods that household members receive from the government. Hence the aggregate size of output is critically important. It is only when the total output that the economy generates is large enough that sufficient resources could be available for addressing poverty objectives. Income per household hence measures what could be available, on average, for members of households and is measured by dividing national income by the total number of households, n. Income per capita, which depends on the average family size of households, is equivalent to aggregate output divided by the size of the national population.

Note that the aggregate output is produced by productively employed segment of the population whereas this total output should support the consumption expenditure of the entire population. The aggregate size of output and the total size of the population are two fundamental determinants of how much goods and services could be available on average for individuals to consume and invest for further production. If the average income of a nation falls short of the threshold poverty line, by necessity, the majority of its population would be suffering from chronic and endemic poverty. This is an exceptional situation of generalized poverty. It captures the central challenge of a failed system that could not generate enough goods and services to provide the necessities of economic life.

The average income is an important indicator in a sense that it shows the value of goods and services that a typical household and its members can command if income were fairly equally distributed. However, income is rarely distributed equally across households or economic agents. Households and its members have inherent inequality in age, productive capacity, incentive to work, dexterity, education, health, and the like that is reflected partly on their capacity to earn income. The dispersion of household income relative to the average income captures the distribution of income. However, the extent of inequality is a matter of public concern especially when differences in income do not reflect differences in productive attributes of households and their members. It is also possible that inequality might have functional influence on the growth rate of income of households and hence the inter-temporal dynamics of income and poverty indicators. Inequality is a fact of economic life and yet its deterioration could create complications in the effort to address the problems of poverty not only by condemning the poor to remain poor but also by pushing the vulnerable non-poor into the ranks of poverty.

The simplest and quite obvious indicator of inequality is the gap in income between the richest households and the poorest. In our ordered ranking of households by their income level, this is depicted by $(\boldsymbol{y_n} - \boldsymbol{y_1})$. The relative concentration of households towards the highest or the lowest in the income ladder generates the most obvious form of income and expenditure gap in a country. This gap and its behavior over time would have important bearings on the relative poverty index. The behavior of the rich as well as the poor would be quite distinct in these different settings. There is a stylized tendency of economic resource distribution which suggests that households tend to concentrate nearer to the lowest income somewhere below the average income level giving the overall distribution of income a skewed structure. The level of income that most of the households generate and consume - the modal income - is a typical barometer of interest in economic analysis for it reflects the most representative feature of a household and its members.

The next issue of interest is related to the distribution of income of households relative to the average income. If we consider ym in equation (1) above as the average income of households, the deviation of individual household income relative to the average indicates how income and expenditure capabilities are distributed across households.

On the basis of the level and distribution of aggregate output of a nation, indicators of consumption or income deprivation are computed by applying a poverty threshold line. A class of poverty measures were suggested and commonly used in poverty analysis (Foster et. al.; 1984). The poverty index summarizes the level of poverty and its extent for a given distribution of income and poverty line as follows:

$$\boldsymbol{P_{\alpha}(y\,;\,z) = \frac{1}{N}\sum_{i=1}^{d}\left(\frac{z - yi}{z}\right)^{\alpha}} \tag{2}$$

Where P$\alpha(\boldsymbol{i = 0, 1, 2})$ is the poverty index and is the function of income or consumption expenditure (y) and the poverty line, (z). As indicated earlier, there are n households arranged in increasing order from the lowest to the highest income per household and household d has income exactly equal or below the poverty line.

P0 is the indicator of the headcount poverty index (HPI) which measures the total number of people in households with income below the poverty line expressed as a share of the total population in all households, N. Households and their members whose income falls short of the poverty line would constitute the poor.

This is useful and yet it is highly dependent on the choice of the poverty yardstick that is used to designate households as poor or non-poor. The poverty line is drawn using a set of commodities that are dominantly used and affordable by poor households. However, one has to be aware of the problems of picking arbitrary threshold for it may not realistically reflect the choices that are available for poor households to allocate their limited resources. Poverty involves lack of choice and vulnerability to different shocks that are outside the control of the members of the household. This is particularly the case in chronic poverty even if relative poverty also invokes considerable lack of freedom of choice. The way the poverty threshold is chosen and determined affects the classification of households in the two broad categories of the poor and the non-poor. This could take quite an arbitrary bend if those near or above the threshold are still deprived of the basic necessities of life and choices that would make their status of non-poor almost trivial (Deaton 2005).

There are two related measurement approaches of poverty that measure how poor households falls short of the poverty line - the poverty gap index (P1)- as percentage of the poverty threshold level. This approach is sensitive to the distribution of income among the poor households for it measures the average deviation of income of poor households from the poverty threshold. This suggests anything that helps the poorest households relative to the rest would improve overall extent of poverty. This might involve income transfers, welfare programs, or income boosting approaches that would benefit the poorest segments of the society. And yet it does not directly address the extent to which households with income level higher than the poverty threshold would be vulnerable. This is quite an important concern particularly when the non-poor are concentrated just above the poverty line but not far enough to be comfortable about their current and future economic status[2]. These two concepts of poverty index, headcount poverty index and the poverty gap, are the most commonly used, popular, and relatively simple approaches to describe the absolute poverty of a nation[3]. In this study, we focus on the two concepts and their implication in the analysis of poverty.

2 Consider a family of four whose current consumption expenditure is such that they are considered a non-poor household with high vulnerability to fall into the ranks of poverty. If a child is born, the family size expands by 25 percent while income most likely remains somewhat the same. Whereas the new member of the family may add to the economic power of the family in the long run, it increases the short-to-medium term burden of the family. In such a case, the family may soon be in poverty unless it compensates its purchasing power with a corresponding rise in their real income.

3 The third concept is the measure of the severity of poverty which is the square of the poverty gap that attaches more weight for those households that fall far below the poverty line than those near the threshold line: $P_2(y; z) = \frac{1}{N}\sum_{i=1}^{d}\left(\frac{z-yi}{z}\right)^2$. However, its appeal is limited and its practical application in poverty analysis and policy has been marginal.

Growth in the average income of the poor and the aggregate economy without a corresponding deterioration in the pattern of income distribution generate the most promising path out of poverty. However, there are complex set of issues that might hamper members of poor households from benefiting and contributing to the growth of income, productivity and employment in the economy. The capacity of an economy to address the challenges of poverty hence depends on how much it can mobilize and invest in the productive capacity of its population and generate employment opportunities to most of the economically active population and especially for those from the poorest segment of the population. The elimination of poverty apparently translates into pushing the average income of the poorest segments of households, y_1 to y_d, beyond the poverty line, z. The process of shared economic growth would have the best chances of eliminating poverty on a sustainable manner and yet in most cases some forms of social safety net would be necessary to ensure that all families enjoy the basic necessities of life.

Nonetheless, there are possibilities in which national economies find themselves where the poverty threshold line, defined within an acceptable level of bare necessities of life, might be higher than the average income of households, ($z > y_m$). This is a typical situation of generalized poverty where chronic poverty is widespread and almost every family is in a poverty trap. This situation calls for an entirely different approach in addressing the challenges of poverty and overall economic underdevelopment. Even in such a dire situation, there would be a minority of households that are rich and yet their relative prosperity would have limited impact on the overall poverty situation of the national economy. Apparently, income redistribution policies would have very limited influence on the dynamics of poverty in this situation since the overall population has an egalitarian distribution of deprivation and poverty for its citizens. The challenge for policy here is a radical and comprehensive reform that would change the very nature of how households and their family members engage in productive economic activities and benefit from their endeavors. It takes radical institutional, political, and social reforms that break away from the bottlenecks and bad institutions that deprived the population from earning a decent economic life and participate productively in the economic activities of their country.

2. Poverty exit time

The accurate conceptualization and measurement of poverty is the first step in dealing with poverty reduction efforts. The pace and extent of poverty reduction is dependent on the combination of factors that involve overall economic growth of the national economy, the growth rate of the average income of poor households, the distribution of income across households, the growth rate of family size across the income distribution pattern, and the extent to which vertical mobility is feasible for individuals from poor families to join the ranks of the non-poor.

The concept of poverty exit time is used to describe what it takes in terms of the growth rate of income for poor households to eliminate their income shortfall from the poverty line. Given the poverty gap, growth rate of income for the poor would translate into closing the income gap and joining the ranks of the non-poor. A concept of an average exit time that makes use of a modified version of Watts measure, both sensitive to distribution of income and decomposable across subgroups of the population, is used for our analysis (Murdoch 1998). The Watts index has a common notation of:

$$W = \frac{1}{N}\sum_{i=1}^{d}[\ln(z) - \ln(y_i)] \quad (3)$$

where there are i individuals in the population indexed from 1 to N in increasing order of income and d captures the number of people with income y_i below the poverty line z.

To develop a measure that captures the expected time for a poor household to exit poverty if its income grows at an average rate of g per annum is depicted as the relationship between current income of the household, y_i , and the target of the poverty threshold level, z. This could be depicted as follows:

$$\boldsymbol{z = y_i e^{(t_g^i g)}} \quad (4)$$

Taking the logarithm on both sides of the equation and solving for t^i_g results in:

$$\boldsymbol{t_g^i = \frac{\ln(z) - \ln(y_i)}{g}} \quad (5)$$

Given that there are d households with income at or below the poverty line and (n-d) households with income at least equal to the poverty line, the average exit time for households, T_g, is hence the average time for the entire population to eliminate poverty. It is given by:

$$\boldsymbol{T_g = \frac{1}{N}\sum_{i=1}^{N} t_g^i} \quad (6)$$

Note the fact that out of these households, (n-d) households have zero exit time because they have already achieved the target level of the threshold income. Some households may be barely above the threshold and yet they and their family members would be included in the class of the non-poor. This would suggest that the effective average exit time is:

$$\boldsymbol{T_g = \frac{1}{N}\sum_{i=1}^{d}\frac{[\ln(z) - \ln(y_i)]}{g}} \quad (7)$$

This is closely related to a class of Watts index above in that:

$$\boldsymbol{T_g = \frac{W}{g}} \quad (8)$$

The essential feature of this formulation is that provided that the income of the poor is assumed to grow at an average rate of g per annum, the short fall of income of the poor from the poverty line could be eliminated within a span of time that is equal to the total amount of the gap divided by the growth rate of income of the poor. So if there are policies that promote the growth of income of the poor, then the poverty in a nation could be reduced or eliminated within a specific period of time. This perspective, of course, assumes that income among the poor could grow equally or that the poor have equal opportunities to improve their income. With this qualification, the exit time provides an important point of focus for poverty policy.

A closely related issue particularly in terms of mobilizing the necessary resources to address the problems of chronic poverty, it is important to estimate what would be the cost of such an objective relative to national income. Since we can estimate the average income shortfall of households below the poverty line, then by aggregating the shortfall the relative burden to the size of the national economy we get;

$$P_{burden} = \frac{\sum_{i=1}^{d}[ln(z) - ln(y_i)]}{GDP} \tag{9}$$

This estimate provides the cost burden to the national economy to eliminate poverty from the system and it also serves as a yardstick by which households whose average income falls below the poverty line could be directly supported. The cost of such support could be unaffordable in economies where the majority of the households are poor and the economy is rather weak. However, countries with HPI within a range of 5-10 percent of their population should be able to mobilize the necessary funds domestically to absorb the financial burden of poverty alleviation measures.

Ⅳ. Analysis of Poverty Reduction in Developing Countries

The measurement of poverty and its dynamics over time depends on accounting the aggregate output of the nation and its growth rate, the distribution of income across households, the size and growth rate of the population, and a realistic poverty yardstick. These factors in isolation as well as in combination influence the level and dynamics of poverty of a nation over time and across households.

Poverty has been deep and widespread across the developing countries. This is the manifestation of both the low level of income and productivity of national economies as well as the inequitable access to productive opportunities and hence income. Low productivity and lack of access to educational and employment opportunities in more productive sectors has deprived the opportunities to realize the potentials of millions of poor people from earning decent living standards and escaping from the poverty trap. This also deprived economies to benefit from the potential productive contribution of poor people in improving the overall welfare of the total population.

Table 1: Headcount Poverty Index (HPI) and Number of Poor People in Developing Countries

	1990		2002		2012	
	HPI (%)	Poor (mil.)	HPI (%)	Poor (mil.)	HPI (%)	Poor (mil.)
Developing Countries	**44.12**	**1948.4**	**30.96**	**1645.1**	**14.88**	**896.7**
East Asia & Pacific	60.56	995.5	29.19	552.7	7.21	147.2
South Asia	50.65	574.9	40.78	583	18.75	309.2
Europe and Central Asia	1.89	8.8	6.21	29.2	2.11	10.1
Middle East & North Africa	5.98	13.5	4.17	11.3	…	…
Sub Saharan Africa	56.75	287.6	57.05	399	42.65	388.8
Latin America & Caribbean	15.47	68	13.17	70.49	5.58	33.7

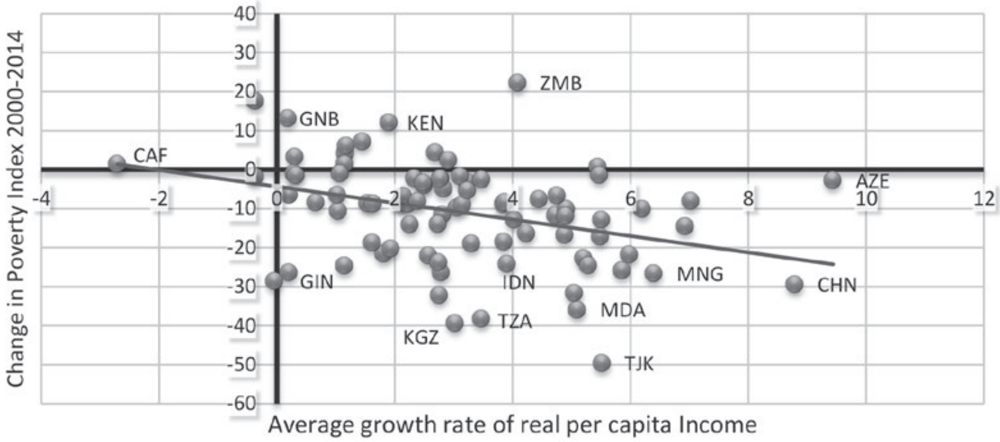
Source: World Bank, 2016. Poverty Database. **Note:** HPI measures the share of the population with less than 2011 PPP $1.90 per day poverty line. Data for Middle East and North Africa for 2002 refers to 1999 and for 2012 the survey coverage in the region was too small to give a representative figure.

Table 1 summarizes the regional poverty indicators across developing countries and over time. It exhibits features that provide both the challenges and prospects of addressing poverty in the context of developing countries. First, there is a clear global trend which indicates that both the absolute number of the poor and their share in the total population is declining over the years since 1990s. The global headcount index of poverty declined from 44 percent in 1990 to less than 15 percent in 2012. Second, chronic poverty is concentrated in some regions and countries in the developing world.

Third, despite the overall tendency, there are significant regional variations in terms of the scope and rate of poverty reduction across developing countries. The most successful countries in poverty alleviation registered the impressive reduction by bringing their poor population out of poverty and enabling them to lead more productive and decent standard of living. Fourth, the poverty reduction performance of countries and regions has been highly influenced by demographic forces. Whereas the overall tendency of the demographic transition is manifest in several countries in Asia and Africa, there are countries that face considerable demographic pressure. Fifth, whereas the number of poor people has declined steadily across developing countries, there are still nearly 900 million people, mainly in South Asia and Sub-Saharan Africa, living in chronic poverty. Sixth, over the past two decades, while developing countries in general have achieved steady decline in both the relative and absolute number of their population in poverty, the situation in Sub-Saharan Africa indicates worsening poverty situation during the 1990s followed by moderate reduction in poverty during the 2000s.

Understanding the variation in poverty reduction and drawing policy lessons for those countries and regions that still face considerable challenges in addressing the problems of chronic poverty requires examining the forces behind such variation in performance. Figure 1 depicts graphically the relative performance of 84 developing countries for which comparable data could be secured both on poverty and various aspects of forces that have impact on poverty. Robust economic growth rate is a necessary condition for countries to register tangible reduction in the extent of poverty.

Figure 1: Economic Growth-Poverty Reduction Nexus



It is evident that countries with robust economic growth have registered significant reduction in poverty. Countries in Asia, including China, India, Indonesia and VeitNam, managed to pull millions of people out of poverty through shared economic growth. It is also clear that countries in our sample are concentrated in the low-growth-low-poverty reduction loop. This has been the predominant characteristics of countries in the African region even if recent improvement shows steady growth and declining poverty indicators. This suggests that without robust economic growth, economies find it very difficult to make a dent on chronic poverty.

It is also important to note that a number of countries registered positive growth in average income and yet failed to translate that into tangible poverty reduction. This phenomenon tends to prevail in countries where growth is not shared broadly and income distribution deteriorates. These features suggest that economic growth is necessary and critical for poverty reduction but without enabling pattern of income distribution growth does not necessarily translate into steady poverty reduction.

Table 2 below summarizes the descriptive statistics of the data on variables under consideration in our sample of developing countries.

Table 2: Descriptive Statistics on Poverty and Related Variables

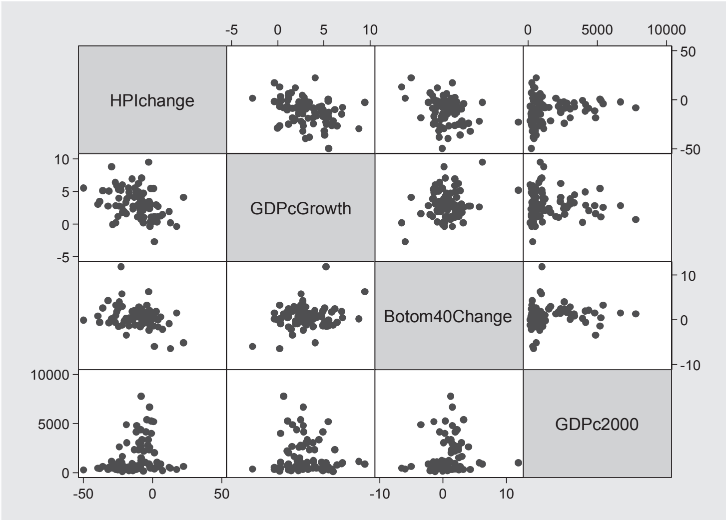
Variables	Obs.	Mean	Std. Dev.	Minimum	Maximum
HPI2000	84	35.8	24.18	0.3	91.21
HPI_Change	84	−10.871	12.99	−49.58	22.29
GDP per capita2000	84	1555.6	1677.5	137	7769
GDPcGrowth	84	3.0899	2.136	−2.71	9.44
Bot40Share2000	84	26.29	3.439	16.27	31.5
Bot40ShareChange	84	0.649	2.44	−6.49	11.92
Population2000	84	52.299	178.9	0.137	1262.65
Population Growth	84	1.7433	1.048	−1.263	3.8022

Source: Computed on the basis of data from *World Development Indicators Database* (World Bank, 2016).

Incorporating the different attributing factors in shaping the outcome in poverty indicators in the sample countries, figure 2 portrays concisely the various channels by which progress in poverty reduction, as measured by change in the HPI, is influenced or related to the variables that are discussed in the conceptual framework section. Whereas economic growth is an important force that countries can use to address the problems of chronic poverty, the nature and inclusiveness of the growth process is found to be an important element in translating economic growth into robust poverty reduction.

This aspect of the growth process is closely linked with the pattern of income distribution and the extent to which the share of income that goes to the relatively poor segment of the population. Even if there are various indicators of inequality and pattern of income distribution, for the purpose of this research, we make use of the share of national income that goes to the bottom 40 percent of the income quintile. This is one limitation of the quality of income distribution data to identify the role of inequality in the effort to reduce poverty in developing countries. And yet, economies that manage to improve the share of the bottom segment of the income distribution and hence enabling more and more of the population to benefit from the growth process have made significant stride in poverty alleviation efforts. Runnng a cross section regression of the 84 countries in the sample, we find that a one percent rise in growth rate and a one percent increase in the share of income of the bottom 40 percent of the households results in 1.71 percent and 1.329 percent reduction in the headcount poverty index, respectively. While the estimated results have important implications for poverty reduction efforts, it is important to note that countries face considerable challenges to achieve rapid growth rate of income with declining inequality. Shared economic growth is still a daunting task across developing countries and it ramins to be the critical hurdle to address chronic poverty. The observed compromise between growth and income distribution objectives leads to very diverse outcome in terms of poverty reduction across developing countries.

Figure 2: Spectrum of Influences in Poverty Reduction Process



Source: World Bank 2016 *World Development Indicators Database*.
Note: Computed for a sample of 84 developing countries for which sufficient data was available.

It is clear from the cross country observation that a number of countries failed to translate economic growth into poverty reduction because of deteriorating pattern of income distribution that effectively excluded the poor from improved income. The situation of income inequality, measured here as the income share of the bottom 40 percent of the households, remains stable and does not show improvement irrespective of initial level of income or the growth rate of income during the period under consideration. A growing economy without a corresponding decline in the poverty rate suggests the deterioration in the pattern of income distribution or the maginalization of the poor in the growth process. Failure to reduce the poverty index on a consistent manner despite income growth shows lost opportunity to address the problems of poverty through their improved economic growth performance. Countries seem to find changing the pattern of income distribution very difficult to accomplish without undertaking fundamentalpolicy changes in their political economy and institutional environment. This constraint, in turn, has influenced the extent to which countries can translate economic growth into a corresponding poverty alleviation outcome.

The situation and change in poverty indicators are highly influenced by the growth rate of national income and the pattern of income distribution which effectively determine who benefits from the growth process. Whereas economic growth is a necessary condition for sustainable reduction in poverty and improvement in standard of living, it is not sufficient condition for such an outcome. It takes more than economic growth to bring about sustainable growth of job opportunities, employment of the labor force into more productive and growing sectors, and making sure the next generation of the labor force is getting the necessary training and preparation to move to a higher career ladder in the production process. This would make economic growth to be shared, comprehensive, and sustainable in that an increasing share of the labor force and the population would become both the source and beneficiaries of the improved economic growth process.

It should be noted, however, that the process of economic growth does not follow sector neutral, economic agent neutral, or policy neutral pathways. The process of economic growth involves creative innovation of entrepreneurs and the policy and institutional environment in which economic decisions are made. This usually leads to sequential changes in economic activities first in a limited industries or sectors and then eventually reaching the entire economy. Entrepreneurs allocate their limited investment resources in areas that promise the most in terms of risk-adjusted real return which involves selective approach towards areas of investment to be provided with priorities. Those sectors and activities get the initial investment allocation and employ the factors of production in the flow of sequential economic activities. In this framework, growth in employment and income accrues to those ready and able to benefit from the initial investment process and translate their employment into higher output and income. Economic growth hence is characterized by such discontinuous processes that reshape the scope and intensity of utilization of economic resources in the system.

If national economic growth is driven by industrial sector growth, it is natural that investment resources and employment opportunities expand in the industrial sector attracting more resources from the rest of the economy and reallocating these factors eventually towards the sector. Those who are actively employed and engaged in the industrial sector would be the first beneficiaries of the process with subsequent effects on the rest of the economic sectors. In the meantime, income and employment opportunities grow relatively faster in the industrial sector leading perhaps to changes in the pattern of income distribution in favor of industrial sector and workers, followed by those economic sectors that have direct and strong link with the industrial activities. In this way, the growth process disrupts the prevailing pattern of economic activities as well as distribution of employment and income across economic sectors. The challenges and efficiency in economic policy making in the context of developing countries revolves around identifying the potentials of the economy and redirecting collective effort towards such endeavors and in the process benefiting those involved in the growth of the new opportunities. Countries that have managed to generate sustained, steady, and inclusive economic growth were able to register drastic reduction in chronic poverty and set the stage for further development of their national economy. The experiences of such successful developing countries clearly indicate that addressing the challenges of poverty requires combining both the growth and income distribution approaches and continuous effort to balance between the two forces.

Observed from the perspective of real income per capita and the poverty threshold, as of the year 2000, out of the sample of 84 developing countries in our study, 34 countries or about 45 percent of the sample had a generalized poverty situation. This figure declined to 23 countries or about 27 percent of the sample by the year 2014. In other words, whatever egalitarian the pattern of income distribution might be most households in such countries live in chronic poverty. The data illustrates both the challenges and the progress that has been achieved in the new millennium. The improvement generally is closely related to improved growth performance among the sample countries which managed to register persistently better rate of growth in income per capita. As a result, the number of people in poverty in our sample declined from 1.63 billion to 1.04 billion mainly due to the significant reduction in the number of poor people in China 512 million to 153 and in India from 405 to 275 million people between the year 2000 and 2014. At the same time, there were situation where the number of poor people actually increased in Nigeria from 78 to 95 million and in Kenya from 6.5 to 15.1 million people. It is clear that the growth performance reflects itself in the poverty indicators and the first order of priority in such countries is to promote economic growth even more than the income distribution issues. Once countries find their economy strong enough to generate income per capita higher than the poverty threshold, then distributional issues become important.

V. Concluding Remarks

The geography of success in poverty alleviation across developing countries is found to be highly related to economic growth rate performance, initial level of income, the level and changes in the distribution of income. The extent to which the political-economy of these countries facilitates the opportunities for sustainable and shared economic growth to initiate and sustain shared growth remain the dominant force in shaping the outcome of poverty reduction. While developing countries have registered progress in their fight against poverty, the challenge remains daunting in countries where generalized poverty prevails. It is also a policy concern that those who escape chronic poverty in recent years are still vulnerable to fall back into the poverty unless they are equipped with new skills and assets to sustain their income and productivity. Chronic poverty is prevalent in developing countries where political institutions and security are the weakest and economic growth is not sustained. The improvement in recent years both in growth rate and poverty indicators is mainly driven by better economic growth whereas further progress highly depends on addressing inequality concerns and improving the political-economy environment of the countries.

Success in poverty reduction in developing countries has been very uneven and the overall picture conceals critical challenges in a large number of countries that have limited capacity to initiate and sustain economic growth. The data on the sample of 84 developing countries clearly indicate that the fight against poverty should be approached both from the growth as well as income distribution perspectives. Both growth rate and income distribution in favor of the poorest segment of the population have robust and statistically significant relation with the poverty index. Shared economic growth measured here with average growth rate and the share of national income that accrues to the bottome 40 percent of the households is the most revealing indicator of the success or failure of countries in their effort to reduce poverty. Inequality remains a serious challenge in our sample of developing countries and reform measures to address the problem have been moderate or ineffective. With a few exceptions, there is an apparent deterioration in the pattern of income distribution and marginalization of households at the bottom of the income distribution. The evidence suggests that improving the pattern of income distribution in favor of the poor has significant impact on reducing the depth and scope of poverty and in sustaining economic growth.

The objective of eliminating chronic poverty within the framework of the global sustainable development goals in developing countries and the world requires addressing the remaining hurdles in developing countries to sustain and make growth inclusive of the poor. Our observation does not include countries for which sufficient data is not available. However, it is also important to note that such countries often have severe poverty situation or even reached a failed state situation. Inequality is highly resistant for change and policies that could improve the capacity of the poor to accumulate vital skills and human capital would be effective for shared growth process. Access to education and health services to the poor generates long lasting human capital capabilities among the poor that would enable them to earn decent and improving standards of living. Building the political economy environment and institutions necessary for mobilization of support for poverty alleviation is important to translate economic growth into sustainable poverty reduction. It is therefore vitally important for developing countries with significant problems of poverty to focus their effort to initiate and sustain shared economic growth so that an increasing share of their population escapes chronic poverty and contribute towards sustainable economic growth.

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Appendix 1. List of developing countries included in the study and their country code

Country/Code	Country/Code	Country/Code	Country/Code
Argentina (ARG)	Cote d'Ivoire (CIV)	Lao PDR (LAO)	Peru (PER)
Armenia (ARM)	Djibouti (DJI)	Lesotho (LSO)	Philippines (PHL)
Azerbaijan (AZE)	Dominican Republic (DOM)	Lithuania (LTU)	Romania (ROM)
Bangladesh (BGD)	Ecuador (ECU)	Madagascar (MAD)	Rwanda (RWA)
Benin (BEN)	El Salvador (ESL)	Malawi (MWI)	Sao Tome & Principe (STP)
Bhutan (BTN)	Ethiopia (ETH)	Maldives (MDV)	Senegal (SEN)
Bolivia (BOL)	Gambia (GMB)	Mali (MLI)	South Africa (ZAF)
Botswana (BWA)	Georgia (GEO)	Mauritania (MRT)	Sri Lanka (LKA)
Brazil (BRA)	Ghana (GHA)	Mexico (MEX)	Swaziland (SWZ)
Burkina Faso (BFA)	Guatemala (GTM)	Moldova (MDA)	Tajikistan (TJK)
Burundi (BDI)	Guinea (GIN)	Mongolia (MNG)	Tanzania (TZA)
Cambodia (KHM)	Guinea-Bissau (GNB)	Mozambique (MOZ)	Thailand (THA)
Cameroon (CAM)	Haiti (HTI)	Namibia (NAM)	Timor-Leste (TMR)
Central African Republic (CAF)	Honduras (HND)	Nepal (NPL)	Togo (TGO)
Chad (TCD)	India (IND)	Nicaragua (NIC)	Tunisia (TUN)
Chile (CHL)	Indonesia (IDN)	Niger (NER)	Uganda (UGA)
China (CHN)	Iran (IRN)	Nigeria (NRA)	Ukraine (UKR)
Colombia (COL)	Jamaica (JAM)	Pakistan (PAK)	Uzbekistan (UZE)
Congo, Dem.Rep. (ZAR)	Kazakhstan (KAZ)	Panama (PAN)	Venezuela (VEN)
Congo, Rep. (COG)	Kenya (KEN)	Papua New Guinea (PNG)	Vietnam (VNM)
Costa Rica (CRI)	Kyrgyz (KGZ)	Paraguay (PRY)	Zambia (ZMB)

Source: World Bank 2016 *World Development Indicators Database.*