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**Measuring the Impact of Globalization on the Well-being of the Poor: Methodology
and an Application to Africa**

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Measuring the Impact of Globalization on the Well-being of the Poor: Methodology and an Application to Africa

Abstract: Whereas a large number of empirical studies have been devoted to analyzing the relationship between measures of income and globalization (defined by openness to international trade), much less attention has been paid to the analysis of well-being for the various subgroups of population and their causal associations with globalization. To address this gap in the literature, this paper first analyzes the quality of life (QOL) of 'poor' and 'non-poor' population segments of 40 African countries over a period of 1980-2000, and then examines their causal association with openness to trade. In order to understand the impact of openness to trade on the well-being of poor, we assume the causal chain *Openness* → *Income* → *Poverty* → *Well-being of poor* and empirically examine link by link for Africa. The first link of the chain is from openness to growth. The second link in the causal chain from openness to well-being is the interrelationship between growth and poverty. The third link of the chain is from reduction in poverty to improvement of well-being. The major findings of this paper are: *First*, nearly every well-being indicator declines as the poor's population share increases; *second*, the tendency for QOL to decline with increasing poor's population share is common to the African and non-African countries; *third*, women suffer a double QOL disadvantage in areas of health and education as the poor's share of population increases; and *fourth*, globalization has improved incomes of African countries, however, there is a no significant decline in poverty and improvement in well-being of the poor over the period. We discuss the key challenges faces by African countries to beneficially engage in the world economy.

1. Introduction

A raging issue of academic and public debate concerns the impact of globalization on the well-being of the world's poor. While some empirical evidence show that globalization promotes income (Noguer and Siscart, 2003; Frankel and Romer, 1999; and Irwin and Tervio, 2002), there is some empirical studies pointing to an increasing inequality in the world income distribution and divergence in the trend of incomes, as globalization has proceeded (McCulloch and McKay, 2004). In both cases, the more rigorous analyses of the impact of globalization in both developed and developing countries have tended to focus on macroeconomic indicators such as income and its distribution, neglecting social and quality of life (QOL) phenomena. But it is the improvement in the QOL that is the ultimate goal of international development. The

precise nature of the various mechanisms through which the ongoing process of globalization has altered the pattern of income distribution and consequently the QOL facing the world's poor is yet to be carefully analyzed. This is mainly because of two reasons. *First*, the globalization-QOL relationship is complex and heterogeneous, involving multifaceted channels. *Second*, available data sources are often fairly uninformative regarding how well-being differs amongst people and is influenced by globalization and public policy choices. The high level of aggregation in widely-used well-being indicators (e.g., life expectancy, infant mortality rate) is a common limitation of these indices; and it is often population subgroup decompositions of well-being indicators that are desired, but that this is unavailable from the conventional data sources (Bedani and Ravallion, 1997; Prescott and Jamison, 1985; and Waldman, 1992). For instance, it is desirable to analyze the differences in the causes and standards of living of 'poor' and 'non-poor' or 'rural' and 'urban' or other population segmentations. Are the world's poor inherently less healthy? Does public spending and globalization matter more to them? How is the distribution of QOL across various segments of the population affected as globalization proceeds? These are questions that are of interest to economists as well as policy makers and must be addressed in order to fully assess the impact of globalization on the world's poor. The highly aggregated nature of available data make it difficult for these questions to be addressed adequately using existing tools of analysis extant in the international economics literature.

There are many reasons for the unavailability of subgroup decomposition of well-being indicators: lack of survey integration (some surveys have recorded health data,

some recorded income, but fewer recorded both), or simply the lack of access by users to the underlying micro data.

While there is a large literature on the cross-country relationships between the measures of income and globalization, less attention has been given to the relationship between the distribution of well-being and globalization. In particular, very few studies have been devoted to the analysis of well-being for the various subgroups of population and their causal associations with globalization.

The principal objectives of this paper are to: (a) analyze the QOL of the Poor in Africa, and (b) examine the impact of globalization on the well-being of the Poor in the Africa countries. In order to accomplish the stated objectives, we present a parsimonious statistical model that enables a QOL analysis of poor and non-poor population segments using national level data. Specifically, we analyze the QOL of ‘poor’ and ‘non-poor’ population segments of 45 African countries during the period of 1980-2000; and using the proposed statistical framework we empirically explore the impact of globalization on the well-being of poor in African countries.

The remainder of this paper is organized as follows. Section 2 provides a brief account of the debate on the globalization and its impact on the economic well-being. In Section 3, we summarize the existing evidence on the impact of globalization on the African countries, and highlight the fact that most of the studies have been limited to the macroeconomic indicators such as income and its distribution, neglecting social and quality of life (QOL) phenomena. Section 4 presents a parsimonious statistical model that enables a QOL analysis of poor and non-poor population segments. Section 5 includes the analysis of QOL of poor in African countries. Section 6 examines the impact of

globalization on the well-being of poor. Finally, section 7 concludes by summarizing the major findings.

2. The Debate on Globalization and Well-being

The impact of globalization is one of the most controversial development issues of the day. The skeptics of globalization attribute most of the ills of the world to globalization. The anti-globalization movement has focused attention to which decisions affecting the lives of millions of the world's poorest people are made in international fora at which they have no voice. They see globalization as marginalizing a large part of the world's population and contributing to increased international inequality¹. On the other hand, supporters of globalization see it as the key to eliminating world poverty. They point to the rapid economic growth of countries which have integrated with the global economy and the poverty reduction achieved in countries such as China, Vietnam, and India which have opened up their economies in recent years².

The theoretical case for globalization as a force for improving economic well-being has two elements. First it is argued that globalization leads to faster economic growth and secondly that the poor share in the benefits of growth. The link between globalization and growth is attributed to openness to trade and foreign investment leading to a faster innovation in developing countries and thus to faster growth (Dollar, 2001). Endogenous growth theory is often appealed to as a causal explanation of the link between greater openness and growth, although it is also admitted that it is possible to develop endogenous growth models in which protection of the domestic market promotes

¹ See for detailed discussion on Globalization and its Discontents; Stiglitz, Joseph (2002).

² For an excellent argument in favor of globalization; see Bhagwati, Jagdish (2004).

growth (Dollar, 2001). Therefore, the effects of openness on growth is seen by the advocates of globalization as an empirical question.

The causal relationship between globalization, growth and well-being is, if anything, even less clearly specified. Implicitly faster growth leads to increased incomes for the poor through some form of trickle down which ensures that the benefits of growth are widely distributed. One plausible mechanism is through a Lewis type model where increased trade and investment pulls the surplus labor into gainful employment.

However, it is possible to construct theoretical models in which the poor are by-passed by growth or even become increasingly marginalized (Bhagwati and Srinivasan, 2002). This suggests that as with the link from trade to growth, that from growth to improvement of well-being is also primarily an empirical question.

Empirical studies on the impact of globalization on growth and well-being has so far been dominated by studies an aggregate level and limited to only macroeconomic indicators (incomes, or distribution of income), often involving cross-country comparisons of large number of countries.³ This literature usually equates globalization with greater trade openness and focuses on income/consumption measures of growth and poverty. The pro-globalization case, as presented by the World Bank for example, argues that ‘globalizing’ countries have faster rates of GDP growth than ‘non-globalizing’ and that sincere there is no systematic relationship between growth or globalization and income distribution, faster growth leads to increased income for the poor (World Bank, 2002).

³ There is a vast literature dealing with the relationship between trade openness and growth of which the most notables have been Dollar (1992), Edwards (1992), Sachs and Warner (1995), Edwards (1998), Frenkel and Romer (1999). More recently this type of analysis has been extended to look at the relationship between globalization and poverty (see Dollar and Kraay, 2001; Dollar, 2001).

Empirical studies that support globalization are open to criticism on several counts. First there is the question of defining globalization and identifying ‘globalizers’ as against ‘non-globalizers’ (Jenkins, 2004). In cross-country regressions, various indicators have been used, some of which are measures of outcomes such as the ratio of trade to GDP, while others are measures of trade policy e.g. tariffs and non-tariff barriers (Rodriguez and Rodrik, 2000). There are similar problems when the average performance of different groups of countries is compared and often the classification of countries becomes somewhat arbitrary (Rodrik, 2000).

Cross-country regressions assume that there is a universal impact of globalization which is independent of local conditions. However, as Ravallion (2001) argues, the impact of growth on inequality (and hence on poverty) depends on initial conditions such as the level of income and its distribution. Thus the emphasis on average relationships between globalization and poverty such as the claim by Dollar and Kraay that ‘the poor and the rich gain one-for-one from openness’ serves only to obscure such considerations and is seriously misleading. It has also been pointed that in the case of the relationship between openness and growth, the direction of causation is by no means clear cut. It may well be the case that faster growing economies become more open, rather than economies that become more open growing faster (Rodrik, 1999). Few empirical studies have tackled the problem of endogeneity of some of the independent variables used in cross-country regressions (Srinivasan and Bhagwati, 1999).

A further criticism is the one cannot infer what would happen over time from cross-section analysis of observations at a particular point in time. There is a peculiar blindness in the literature which focuses on cross-country comparisons. This assumes

significance in the presence of evidence that the world economy and most countries performed far better during the 1960s and 1970s than over the last two decades (Milanovic, 2003). This is not true only in terms of economic growth but also of the rate of improvement of many of the social indicators which were much better in the earlier period (Weisbrot, et al., 2001).

Faced with major concerns over the methodology used to study the impacts of globalization, even some mainstream economists such as Srinivasan and Bhagwati (1999), who are convinced with the benefits of globalization, have rejected cross-country regressions, arguing that what is required are more in depth case studies. Ravallion (2001) has pointed to the importance of more micro, and country-specific, researches on the factors determining why some poor people are able to take up the opportunities afforded by an expanding economy-and so add to its expansion-while others are not.

This paper extends the analysis of the impact of globalization beyond macroeconomic indicators of development and examines the relationship between globalization and non-economic indicators of well-being.

3. Empirical Studies on the Impact of Globalization on African Countries

There are few studies that have focused on examining the impact of globalization on African countries. Sachs and Warner (1999) while explaining the sources of slow growth in African economies find that basic economic policies such as openness to international trade, government saving and market-supporting institutions have had larger quantitative impact on economic growth. They show that African economies have paid an enormous price as a result of highly distorted trade policies since independence. A small

number of African economies adopted open trade: Botswana and Mauritius by the early 1970s, Morocco and Tunisia in the mid-1980s. These economies have out-performed the rest of Africa by a wide margin. Their study suggests that even with its natural disadvantages, Africa could have grown at over 4 percent per year in per capita terms with appropriate policies. They argue that African countries that have engaged in serious pro-growth economic reforms (which often mean policies towards globalization) have achieved impressive growth rates. They conclude that there is little compelling empirical evidence in favor of growth pessimism for Sub-Saharan Africa.

Baliamoune (2002) explores the effects of openness to international trade and foreign direct investment (FDI) on economic growth in Africa. She finds that FDI has a significant positive impact on economic growth in Africa. However, openness to trade does not seem to enhance in poor countries. Her findings fail to substantiate the proposition that greater openness facilitates convergence to higher income incomes. On the contrary, she finds evidence that shows that greater openness to international trade promotes economic growth primarily in higher-income African countries, implying that threshold effects may be crucial to the effectiveness of openness.

Manda and Sen (2004), using both industry-level and firm-level data, examine the effects of globalization on employment and earning in the Kenyan manufacturing sector. Their industry level analysis suggests that the overall effect of globalization on manufacturing sector employment has been negative in the 1990s. The firm-level analysis suggests that less skilled workers experienced losses in earnings, and that the inequality in earnings between skilled and unskilled workers increased during this period. This

suggests that globalization has been associated with adverse labor market outcomes in Kenya.

The paper by Edwards (2004) uses two firm level surveys, the National Enterprise (NE) and the Greater Johannesburg Metropolitan Area (GJMA) survey, to explore the implications of globalization for employment in South Africa. He explores these relationships using cross-tabulations and estimating labor demand functions. He finds that rising import penetration negatively affected employment in large firms, but not small firms. He documents relatively large decline in employment with export firms, despite improvements in export competitiveness and export growth through trade liberalization. Finally, he finds that skill-biased and trade-induced technological changes, as reflected in increased use of computers, foreign investment and the importation of raw material inputs, have raised the skill intensity of production.

Thus, there is mixed evidence on impact of globalization on African countries. However, we note even these preceding studies have tended to focus on explaining the “average” effects of globalization on economic growth and employment, and hence they are also limited to macroeconomic indicators of development. In the next section, we provide a straightforward statistical framework that allows us to study the QOL of the Poor in African countries and their association with globalization.

4. The Model for Analyzing the QOL of Poor and Non-poor Population

Using national level data to analyze the QOL of ‘poor’ and ‘non-poor’ population segments is possible on the basis of two key information components: first, an analysis of national well-being indicators in a cross-country framework, together with the data on the

share of the population that is poor is required; second, imposition of additional structure on the data must be imposed (discussed ahead). The starting point for the method is the conceptualization of a national indicator in terms of a weighted average of corresponding ‘poor’ and ‘non-poor’ indicators, with poor and non-poor population shares serving as the appropriate weights. Additional structure on the data is the assumption that the underlying (unobserved or latent) poor and non-poor QOL indicators are each comprised of two components: one that is common for all countries in the sample for poor people, and another for non-poor people, and one that is purely country-specific for poor and non-poor people, respectively. We do *not* assume that the QOL of the poor, and for the non-poor population segments is the same in every country under study, but only that there is some portion of the poor’s QOL and some portion of the non-poor’s QOL that is shared in every country and which can be estimated.

Specifically, assume that y_{it}^N is the value of the well-being indicator at the national level in country i for time t ; y_{it}^P and y_{it}^{NP} are the values of indicators for poor and non-poor population segments in country i for time t respectively; and s_{it}^P is the share of population who are poor in country i for time t . Then,

$$y_{it}^N = s_{it}^P y_{it}^P + (1 - s_{it}^P) y_{it}^{NP} \quad (1)$$

$$y_{it}^P = y_t^P + \mathcal{E}_{it}^P \quad (2)$$

$$y_{it}^{NP} = y_t^{NP} + \mathcal{E}_{it}^{NP} \quad (3)$$

where y_t^P represents that part of the indicator for poor segments of the population that is common across countries and \mathcal{E}_{it}^P represents that part of the indicator for the poor segment of the population that differs across countries. Similarly, y_t^{NP} represents that part of the indicator for the non-poor segment of population that is common across countries while \mathcal{E}_{it}^{NP} represents that part of the indicator for the non-poor segment of the population that differs across countries. \mathcal{E}_{it}^P and \mathcal{E}_{it}^{NP} are assumed to be randomly distributed.

Using (2) and (3), equation (1) can be represented as

$$y_{it}^N = y_t^{NP} + (y_t^P - y_t^{NP})s_{it}^P + (\mathcal{E}_{it}^P - \mathcal{E}_{it}^{NP})s_{it}^P + \mathcal{E}_{it}^{NP} \quad (4)$$

Letting

$$v_{it} = (\mathcal{E}_{it}^P - \mathcal{E}_{it}^{NP})s_{it}^P + \mathcal{E}_{it}^{NP} \quad (5)$$

then

$$y_{it}^N = y_t^{NP} + (y_t^P - y_t^{NP})s_{it}^P + v_{it} = \alpha_t + \beta_t s_{it}^P + v_{it} \quad (6)$$

The intercept of regression equation (6) is an estimate of the indicator for the non-poor segment of the population, while the slope represents the difference between the poor and non-poor values of the indicator. The error term, v_{it} , captures the variation across countries.

This model framework suggests using cross-country data to fit a simple linear regression of the values of the national well-being indicators (y_{it}^N) on a constant (y_t^{NP})

and population share of poor (s_{it}^P). Given the model structure (2)-(6), the fitted intercept will be an estimate of the common component to each country's non-poor-specific indicator. The fitted slope will be an estimate of the difference between the common components of each country's non-poor- and poor-specific indicators. At the least, we could interpret the specific regression equation (6) as describing QOL differences between countries that differ in poor's population shares.

In order to examine the impact of globalization on the well-being of poor, we estimate a version of equation (6) where independent variables besides population share of poor, include a measure of globalization, corruption, temporal trend, terms for the interactions between poor's population share and globalization, between poor's population share and time trend, and among many others. Specifying the model with a temporal trend, terms for the interactions between poor's population share and the time trend (or the year dummy), between globalization and poor's population share, and between globalization, poor's populations hare, and time trend allows an examination of changes in the intercept and slope over time. We interpret these changes as estimates of overall increases or decreases in the particular well-being indicator and as changes over time in the inequality between poor and non-poor QOL and their association with globalization. The method provides a straightforward tool for analyzing trends in QOL in African countries and their causal relationship with globalization.

5. Analysis of the QOL of the 'Poor' in Africa

“It is in the deprivation of the lives that people can lead that poverty manifests itself. Poverty can involve not only the lack of the necessities of material well-being, but the denial of opportunities for living a tolerable life. Life can be prematurely shortened. It can be made difficult, painful or

hazardous. It can be deprived of knowledge and communication. And it can be robbed of dignity, confidence and self-respect—as well as the respect of others. All are aspects of poverty that limit and blight the lives of many millions in the world today.”

(Human Development Report, 1997)

It is clear that poverty is highly associated with deprivation in various aspects of QOL. Thus, dealing with the poverty is the main instrument that can effectively eliminate deprivation and inequalities in human well-being.

Poverty has degraded human lives for centuries. Human deprivation is still persistent in the developing countries of the world. Today, nearly a third of the people (1.3 billion) live on less than \$ 1 a day (1985 PPP \$). Approximately 800 million people do not get enough to eat and more than half billion are chronically malnourished. More than 840 million adults are still illiterate. About 800 million people lack access to health services, and more than 1.2 billion lack access to safe drinking water. Moreover, children and women suffer the most. Nearly 160 million children under age five are malnourished, and more than 110 million children are out of school. The maternal mortality rate is nearly 500 women per 100,000 live births. However, deprivation is not limited to only developing countries of the world. The developed countries also suffer. Today, more than 100 million of their people still live below the income poverty line- at 50% of the individual median adjusted disposable income. More than a third of adults do not complete upper-secondary education.

At the same time, uneven progress has given rise to disparities among regions, not only across countries, but also within countries- between women and men and rural and urban, between ethnic groups, and between poor and non-poor. For instance, in 1994

the ratio of the income of the richest 20% of the world to that of the poorest 20% was 78 to 1, up from 30 to 1 in 1960. Finally, the face of poverty is changing. Even though most poor still live in Africa and Asia, the profile of poverty is rapidly shifting. In the next century a poor person is less likely to be a smallholder in Asia, and more likely to be an unskilled, low-wage worker in urban Africa and Latin America.

5.1 Nature of the Data

Quantitative indicators were selected using country-level data. No single database contained all the relevant data, but aggregate data were available for most of the African countries. The data was also available for different points of time as far as the 1960 although not for every variable one might ideally wish to study. Most of the data examined have been assembled from African Development Bank Reports, the Human Development Report office of UNDP, and the World Bank for the period 1980-2000.

Among the main weaknesses of the aggregate data is that none of the QOL indicators analyzed are measured separately for the poor and non-poor segments of the population. In section 4, a direct econometric technique was developed that allows inferences to be drawn about the QOL of the poor segments of the population from national-level data. Despite the formidable proportion of poor in the population across countries, there is a paucity of data available for measuring directly the level and trend of QOL of the poor across countries.

5.2 QOL Indicators

QOL is a multidimensional concept with many influences that vary in importance over time and across different countries. In present analysis, QOL is viewed broadly as

having multiple domains, each of which has at least several indicators. These domains are: nutrition, health, education, income, gender equality, fertility, political and civil freedom, environmental quality, access to information, and access to infrastructure. Several indices of the general state of social and human development are also examined.

In order to analyze the QOL of ‘poor’ and ‘nonpoor’ population segments of African countries, we have used 45 well-being indicators which are grouped into 11 QOL components. Table 1 lists QOL indicators, and their measurements.

5.3 Comparisons of QOL

Both historical and comparative yardsticks were adopted for assessing the QOL of poor segments of the population of the world. Specifically, several QOL indicators were selected and three types of comparisons were made:

- between poor Africa and non-poor Africa;
- between poor Africa and poor populations in other regions;
- between poor segments of the population at different points in time.

A main feature of the available data is that many variables were measured at only one, usually quite recent, point in time. For these QOL indicators only between-country analyses were possible. By contrast, for those indicators that were measured at two or more points in time, QOL patterns at each point in time as well as temporal trends (a within-country analysis) could be examined.

5.4 Defining ‘Poor’

A fundamental difficulty in examining the QOL of the poor relates to the absence of a commonly accepted definition or measure of the term ‘poor’. It is a statistical

concept defined by every country's national government, commonly based on its poverty line deemed appropriate by its authorities. Developing countries that have set national poverty lines have generally used the food poverty method. These lines indicate the insufficiency of economic resources to meet basic minimum needs in food. There are three approaches to measuring food poverty: cost-of-basic-needs method, food energy method, and food share method. All three approaches are sensitive to the price level used to determine the cost of the bundle. And all three concentrate mainly on calories or dietary energy, because protein deficiency due to inadequate economic resources is perceived to be rare in most societies. In industrial societies national poverty lines are also used to measure relative poverty. However, we emphasize that the measure of 'poor' based on national poverty lines are not comparable across countries because each country sets its own poverty line based on what they consider appropriate.

As a result of the difficulty in defining the concept of "poor", we use poverty lines for international comparison. To overcome the problem of non-comparability of measures of poor based on national poverty lines, the World Bank measures poverty based on an international poverty line and the commonly used standard is \$ 1 a day, measured in 1985 international prices and adjusted to local currency using purchasing power parities (PPPs), which is typical of poverty lines in low-income countries.

Table 1 reports estimates of the headcount indices for \$ 1 per day at 1993 PPP. From the Table 2 we notice that the aggregate poverty rate has fallen slightly over the period, from 28.3% of the 1987 population living in households with consumption per capita below \$1 per day to 23.4% in 1998. Throughout the period, the region with the highest poverty relative to the \$1 per day line is Sub-Saharan Africa, followed closely by

South Asia. Eastern Europe and Central Asia began the period as the region with the lowest poverty incidence, but by the end of the period it had overtaken Middle-East and North Africa. In other words, the incidence of poverty fell in Asia and the Middle East-North Africa. It changed little in Latin America and Sub-Saharan Africa, and it rose sharply in Eastern Europe-Central Asia. The main causes of the disappointing rate of poverty reduction are too little economic growth in many of the poorest countries and persistent inequalities that inhibited the poor from participating in the growth that did occur (Chen and Ravallion, 2000).

Table 2: Population living on less than \$ 1 per day and Head Count Index in Developing Countries, 1987, 1990, and 1998

<u>Regions</u>	<u>Population covered by at least one survey</u>	<u>Head Count Index (Percent)</u>			
		<i>1987</i>	<i>1990</i>	<i>1998 new</i>	<i>1998 (GEP)</i>
East Asia and the Pacific	90.8	26.6	27.6	14.7	15.3
(excluding China)	71.1	23.9	18.5	9.4	11.3
Eastern Europe and Central Asia	81.7	0.2	1.6	3.7	5.1
Latin America and the Caribbean	88	15.3	16.8	12.1	15.6
Middle East and North Africa	52.5	4.3	2.4	2.1	1.9
South Asia	97.9	44.9	44	40	40
Sub-Saharan Africa	72.9	46.6	47.7	48.1	46.3
Total	88.1	28.3	29	23.4	24
(excluding China)	84.2	28.5	28.1	25.6	26.2

Note: The \$1 a day is in 1993 purchasing power parity terms. The numbers are estimated from those countries in each region for which at least one survey was available during the period 1985–98. The proportion of the population covered by such surveys is given in column 1. Survey dates often do not coincide with the dates in the above table. To line up with the above dates, the survey estimates were adjusted using the closest available survey for each country and applying the consumption growth rate from national accounts. Using the assumption that the sample of countries covered by surveys is representative of the region as a whole, the numbers of poor are then estimated by region. This assumption is obviously less robust in the regions with the lowest survey coverage. The head count index is the percentage of the population below the poverty line. Further details on data and methodology can be found in Chen and Ravallion (2000) How Have the World's Poorest Fared in the 1990s?

5.5 Quantitative Analysis of QOL of Poor

Figure 1, which plots country values of the HDI against the poor population share for 1997. As noted earlier, the HDI was used because it is reasonably broad and well-

established development indicator. Regression estimates reported and discussed later will be used to assess the statistical significance of the patterns and trends portrayed graphically here.

The regression lines between the HDI and poor share of the population slope downward, which indicate that the HDI is lower in more heavily poor countries and within countries the HDI tends to be lower among poor populations than among non-poor populations.

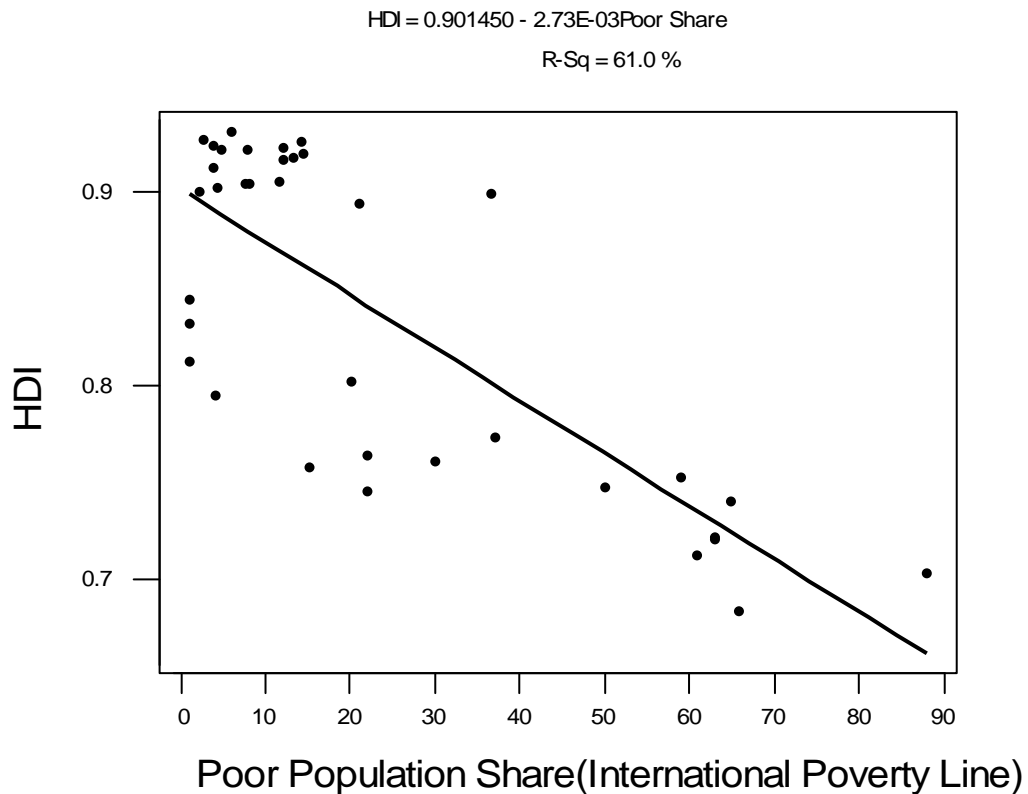


Figure 1. Human Development Index versus Poor Population Share Based on International Poverty Line

Figure 2 shows that the life expectancy of populations of various regions has improved from 1970 through 1998. The plot also reveals that the improvements were not uniform across regions. For instance, the highest improvement has been made by the Middle East and the North African countries (an improvement of 15 years) over the period 1970-1998, followed closely by South Asia. The significant gain in longevity by Middle East-North African countries is an indication that these countries have been able to translate rapid growth in their GDP, owing to oil revenues, into better health outcomes and significant reductions in the incidence of poverty. On the other hand, significant gain in life expectancy by South Asian countries can be explained partly by some reduction in the incidence of poverty, and partly because they began at a relatively low level of life expectancy of 49 years in 1970. The least improvement has been made by Eastern Europe and Central Asia (an improvement of 1 year throughout the period). This observation is not at all surprising given the fact that Eastern Europe and Central Asian countries experienced significant increases in the incidence of poverty over the period 1987-1998 (Table 2). The Sub-Saharan countries achieved a gain of 6 years in their life expectancy, from 44 years in 1970 to 50 years in 1998. However, it is a disappointing performance given the fact they began with very low level of longevity and the length of the period was quite long.

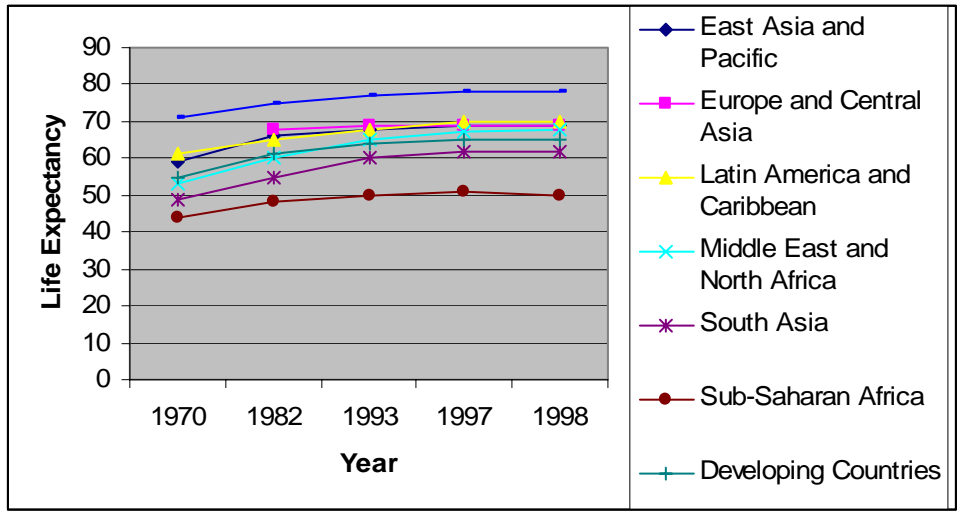


Figure 2: Trends in Life Expectancy

In any case, the small gain might be expected given that over a period of two decades (1987-1998), Sub-Saharan Africa had almost a zero reduction in the incidence of poverty.

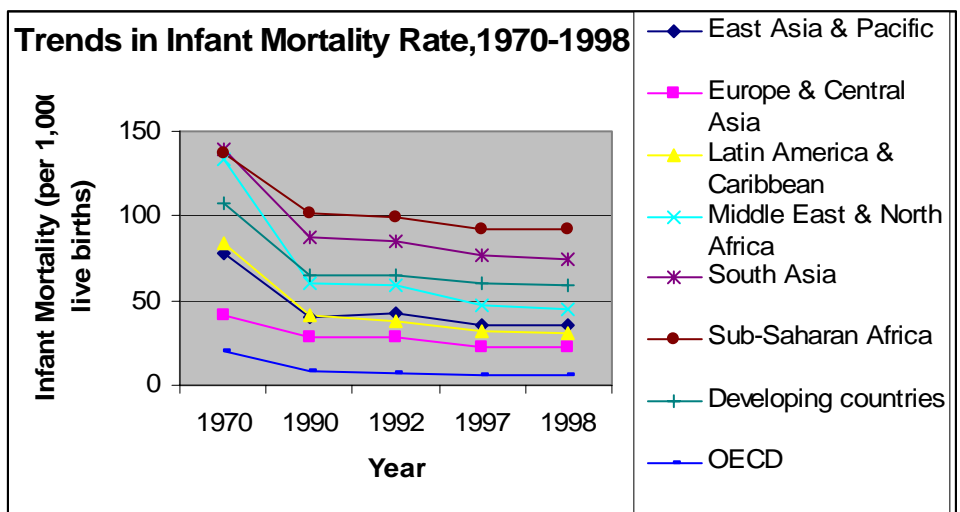


Figure 3: Trends in Infant Mortality Rate, 1970-1998

Figure 3 displays the trends in infant mortality rates across various regions. While all regions succeeded in reducing the incidence of infant mortality rates, once again the disappointing performance of Sub-Saharan Africa is notable. Sub-Saharan Africa had infant mortality rate of 137 per 1,000 live births in 1970, which was reduced to a still high 92 per 1,000 live births by 1998. Given the length of the period under consideration, the reduction is arguably disappointing. However, Sub-Saharan Africa's poor performance in reducing the incidence of infant mortality rate is consistent with its performance in alleviating the incidence of poverty. As noted earlier, Sub-Saharan Africa made almost no progress in terms of reducing the incidence of poverty over the period of two decades spanning 1987-1998.

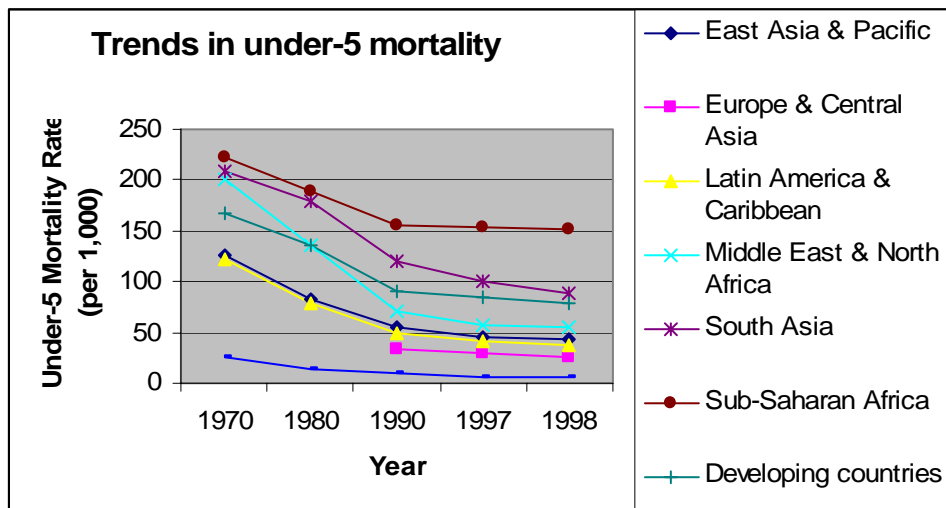


Figure 4: Trends in under-5 mortality rates

Figure 4 presents the trends in mortality rates for under-5 years' age. With the exception of Sub-Saharan, all other regions succeeded in reducing under-5 mortality rates by a

substantial rate. The total reduction in under-5 mortality rate achieved by Sub-Saharan African was a mere 3% during the period of 1990-1998.

As seen from a policy perspective, two inferences are evident from the preceding graphical results: *QOL is lower in more heavily poor countries and that within countries the QOL tends to be lower among poor populations than among non-poor populations. Every QOL indicator we considered in the graphical analyses is highly associated with the incidence of poverty. Dealing with poverty is the main instrument that can effectively eliminate deprivation in human well-being.*

5.6 Cross-country Regression Results

Here we present a preliminary analysis of QOL of Poor in African countries in the year 1997. We the run the following regression:

$$y_{it}^N = \alpha_t + \beta_t S_{it}^P + \delta_t D_i + \lambda(S_{it}^P * D_i) + v_{it}$$

Where, y_{it}^N a national well-being indicator, S_{it}^P is population share of the poor, D_i is dummy variable for African countries, and $S_{it}^P * D_i$ is the interaction between the population share of the poor and dummy variable for the African countries, and v_{it} is error term that captures the variation across countries, respectively for country i and year 1997.

Tables 3 contain estimates of the parameters of least squares regressions fit to cross-country data on a wide range of QOL indicators for the year 1997 (or most recent years available). Forty-five indicators were grouped into 10 QOL components listed above plus several summary development indexes.

Following the earlier discussion, regressions for each QOL indicator on poor population share were fitted to data for as many countries as possible. The specification included an indicator variable for African countries and an interaction term between the African indicator variable and poor population share. Including these variables allowed us to test whether the intercept and slope of the underlying regression of QOL on poor population share differed between the African and non-African countries, that is, we were able to compare average non-poor and poor QOL between African and non-African countries.

The results in Table 3 provide a useful descriptive summary of the QOL of poor population in African countries and suggest three major findings:

First, nearly every QOL indicator declines as poor population share increases. The finding that poor's QOL is worse than non-poor's QOL applies to indicators ranging from human development indexes, literacy gap (Male-Female), and population without access to public health services.

Second, evidence of a significant difference in the QOL-poor population share relationship between African and non-African countries are present for only few QOL indicators. For nearly all indicators, the tendency for QOL to decline with increasing poor population share is common to the African and non-African samples. None of the exceptions to this finding is particularly notable.

Third, poor women suffer a double QOL disadvantage in the areas of health and education. The first disadvantage is due to their poor subgroup, which is associated with lower rates of literacy, secondary school enrollment, health, nutrition, and longevity. The second disadvantage is due to existence of relatively wider gender gaps in indicators of

the QOL among poor segments of population in Africa and elsewhere. For example, Table 3 indicates that the male-female gap in education widens significantly as poor population share increases. Women's normal advantage in life expectancy is substantially lower among poor than non-poor populations. The QOL disadvantage of poor women is presumably magnified further by the effects of poor health and education on other QOL indicators not measured here, such as security and access to credit.

6. Impact of Globalization on the Well-being of Poor in Africa

In order to analyze and understand the impact of openness to trade on the well-being of poor in Africa, we assume the causal chain

Openness \Rightarrow *Income* \Rightarrow *Poverty* \Rightarrow *Well-being of Poor* and empirically examine link by link for Africa. The first link of the chain is from openness to growth. The main manifestation of openness is through trade and capital movement liberalization which in turn is presumed to affect growth directly through three sub-channels: exports, imports and capital flows. Trade liberalization policies encourage exports which benefit export industries and contribute to GDP growth (Nissanke and Thorbecke 2005). The second link in the causal chain from openness to well-being is the interrelationship between growth and poverty. The third link of the chain is from reduction in poverty to improvement of well-being.

6.1 Openness to trade and Income

There is growing consensus in empirical studies that greater openness to international trade (globalization) has a positive effect on country per capita income.

Figure 5 shows the relationship between per capita income and openness to trade. It clearly shows that there is a positive relationship between per capita income and openness to trade in African countries. That is open economies in Africa have a higher level of per capita income than countries that are not open.

Figure 5. Trade raises income

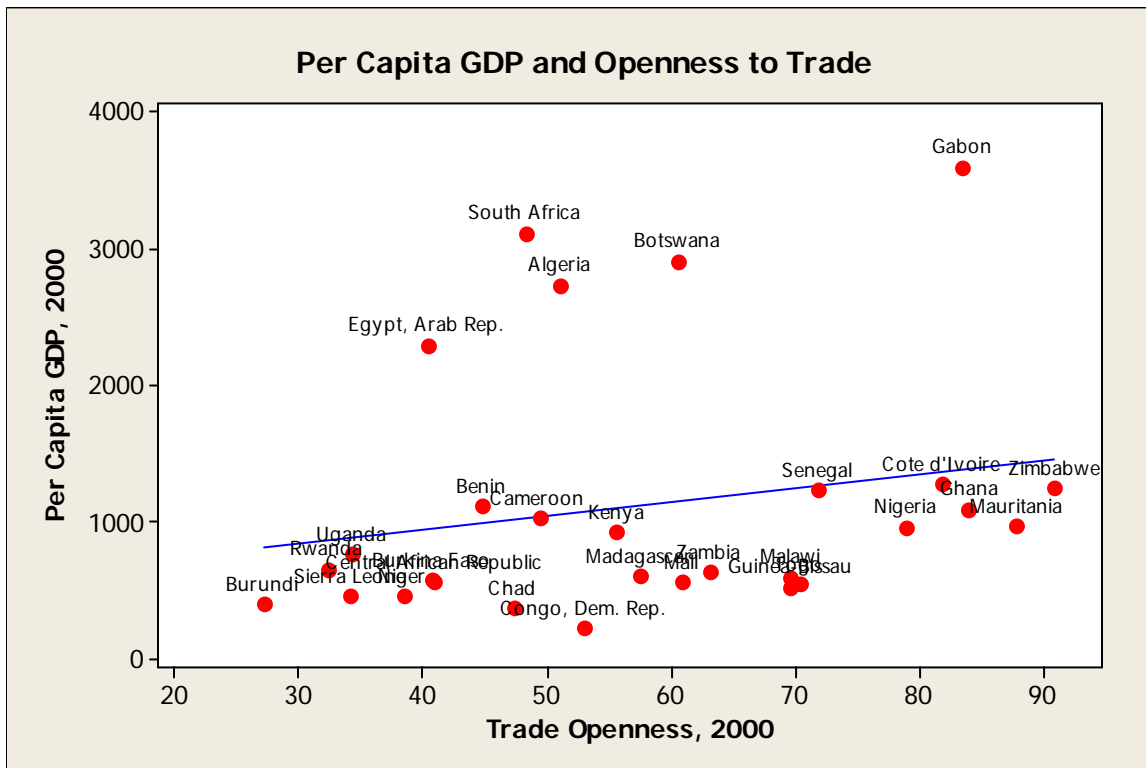


Figure 6 shows the relationship between GDP per capita growth and openness to trade. Thus trade influences growth in Africa and this result is consistent with earlier findings (Dollar, 1992; Sachs and Warner, 1995; and Dollar and Kraay, 2001 a & b). However, it is worth noting here, that the positive openness-growth link is neither automatically guaranteed nor universally observable, as we observe from figure 6 that with similar degrees of openness, different countries have varying levels of GDP growth.

Figure 6. Growth and Openness to trade

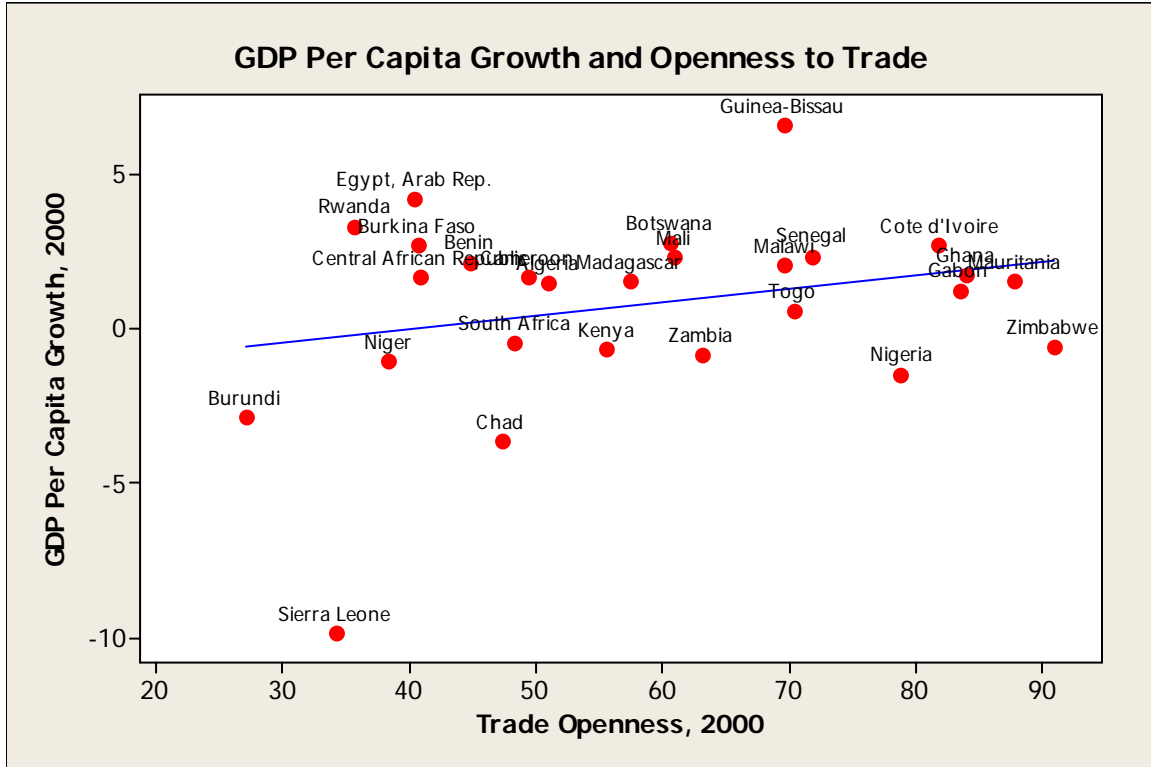
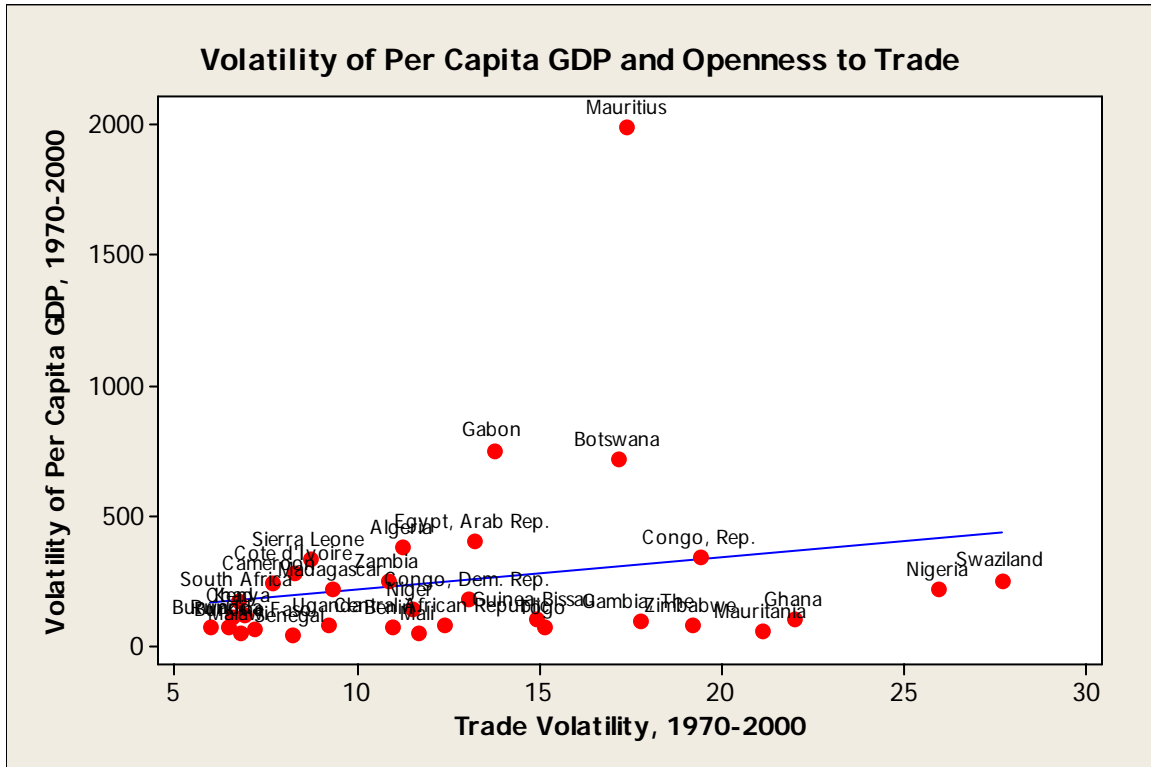


Figure 7 shows the link between trade volatility and volatility of GDP per capita. Trade volatility is defined as the standard deviation of openness to trade over 30-year period (1970 to 2000) as in Kormendi and Meguire (1985) and Ramsey and Ramsey (1995). The use of a long-run measure for trade volatility is consistent with our idea that it is risk rather than shocks that matter. Similarly, volatility of GDP per capita income is defined. There is a positive link between trade volatility and volatility of GDP per capita.

Figure 7. Volatility and Growth



To summarize, there is a clear evidence for the positive impact of openness to trade on income among African countries.

6.2 Income and Poverty

Next we examine the second link in the causal chain from openness to well-being of poor. Figure 8 shows the link between the level of per capita GDP and poverty among African countries. It shows that the relationship between the level of GDP per capita and poverty is negative, though not very strong, suggesting that if higher GDP growth is accompanied with an increase in income inequality, it may not result in decline in poverty.

Figure 8. Income and Poverty

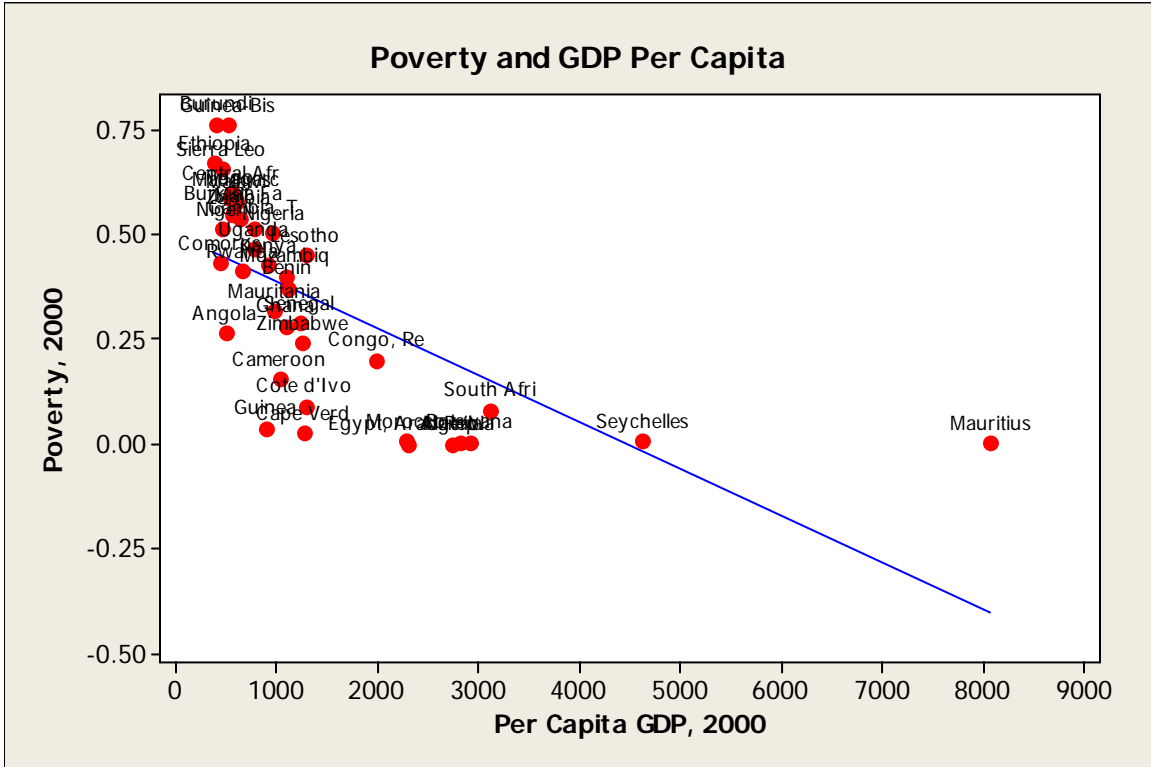


Figure 9. Poverty and Volatility of Growth

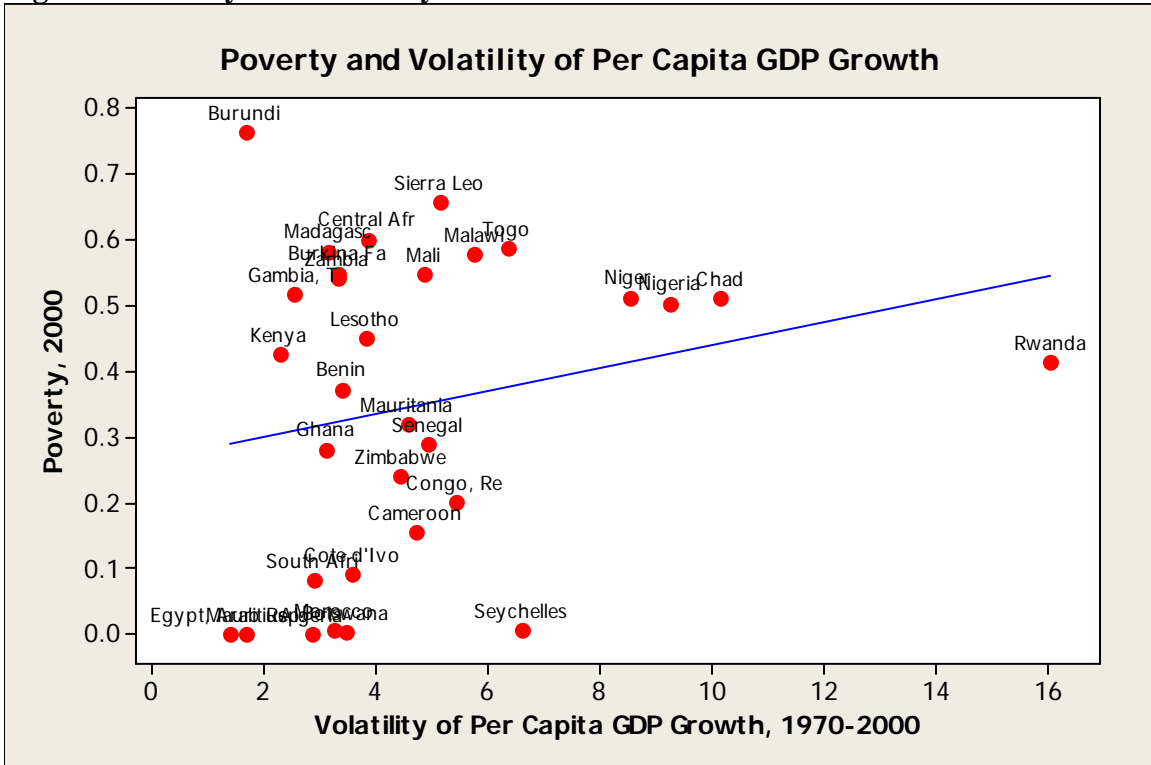
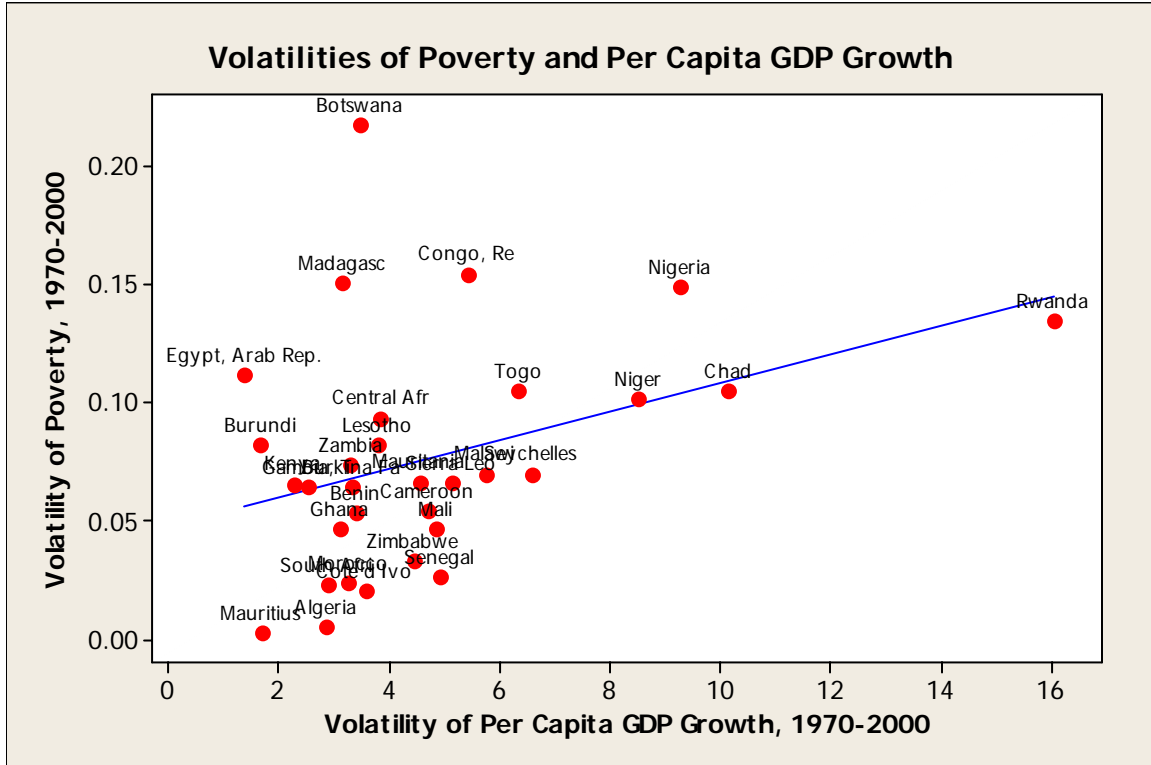


Figure 10. Volatility of Poverty and Volatility of Growth



6.3 Globalization and Poverty

Figure 11-12 shows the link between openness to trade and poverty.

Figure 11. Openness to trade and Poverty

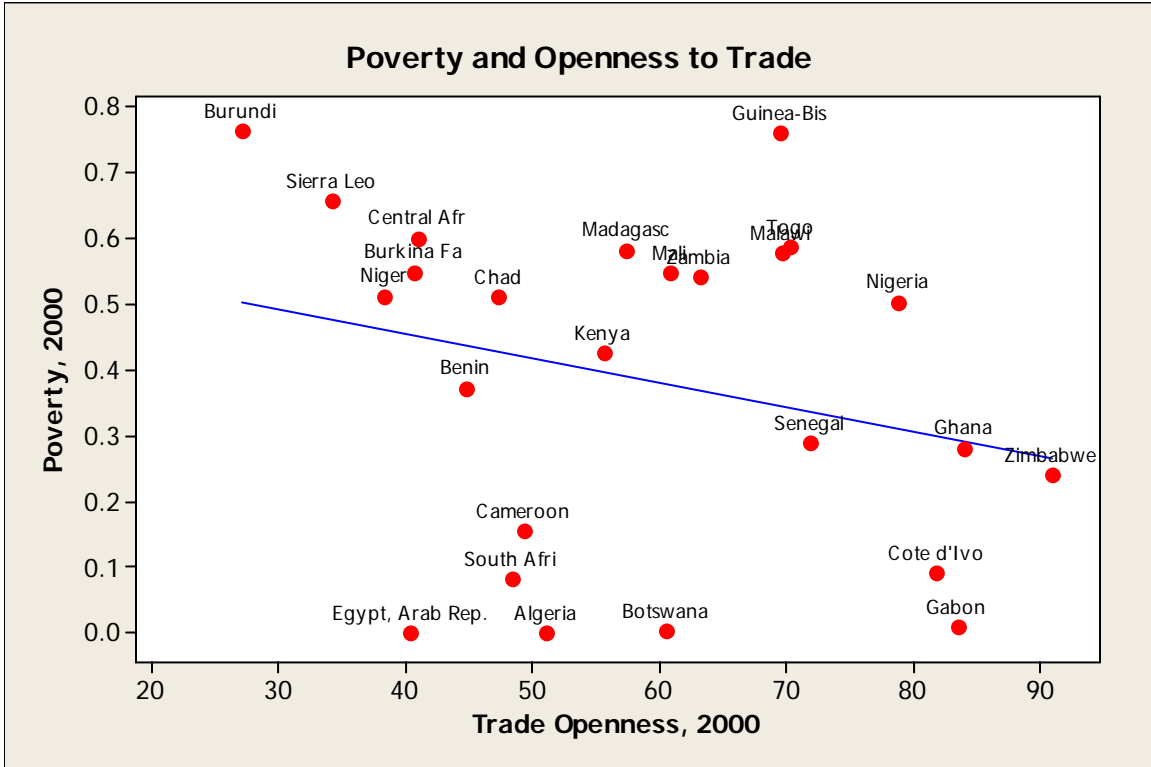
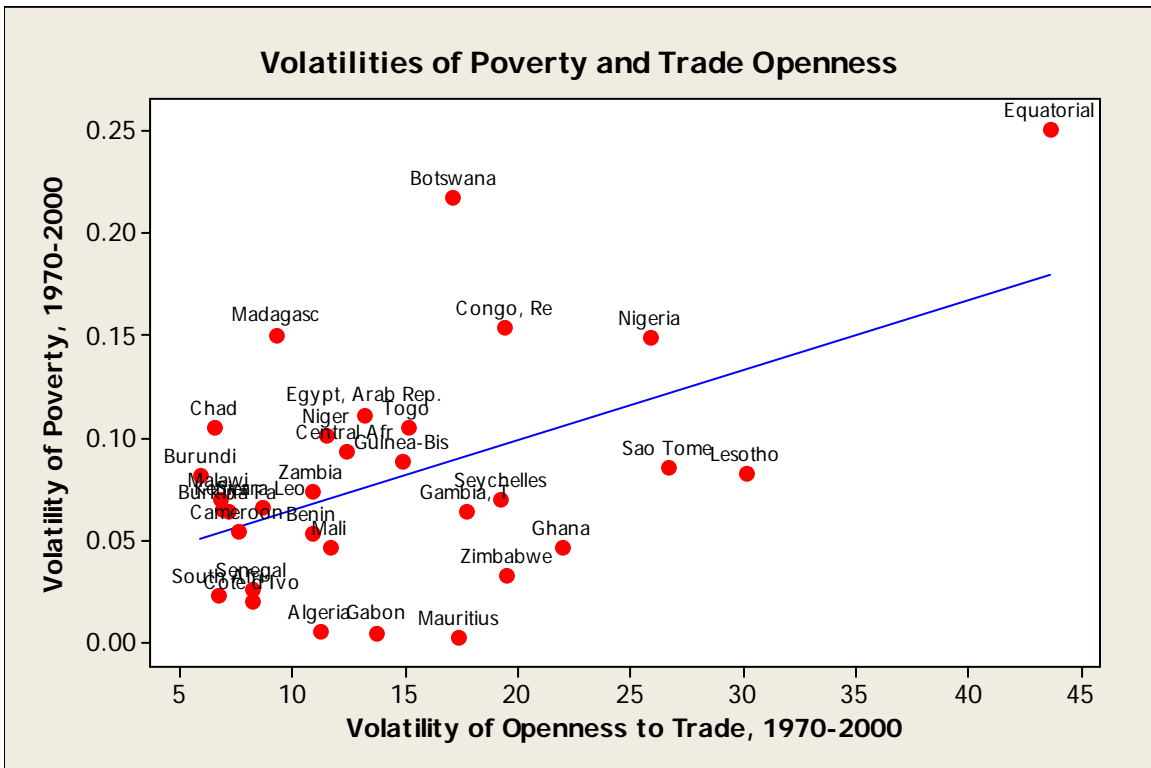


Figure 12. Trade Volatility and Poverty



6.4 Poverty and Well-being of Poor

The final link in the causal chain from openness to well-being of poor is the interrelationship between poverty and well-being indicators. Figure 13 shows the relationship between infant mortality rate and poverty. From this figure it is apparent that high mortality rate is positively and strongly associated with high level of poverty.

Figure 13. Poverty and Infant Mortality Rate

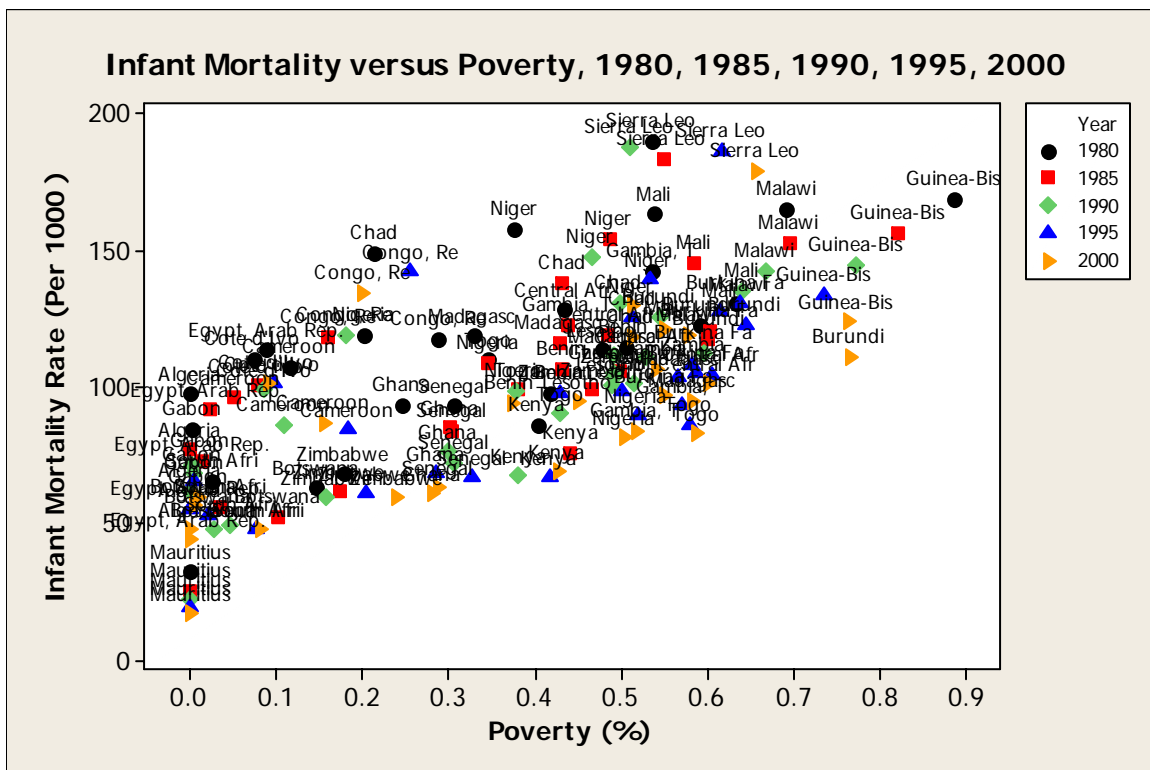
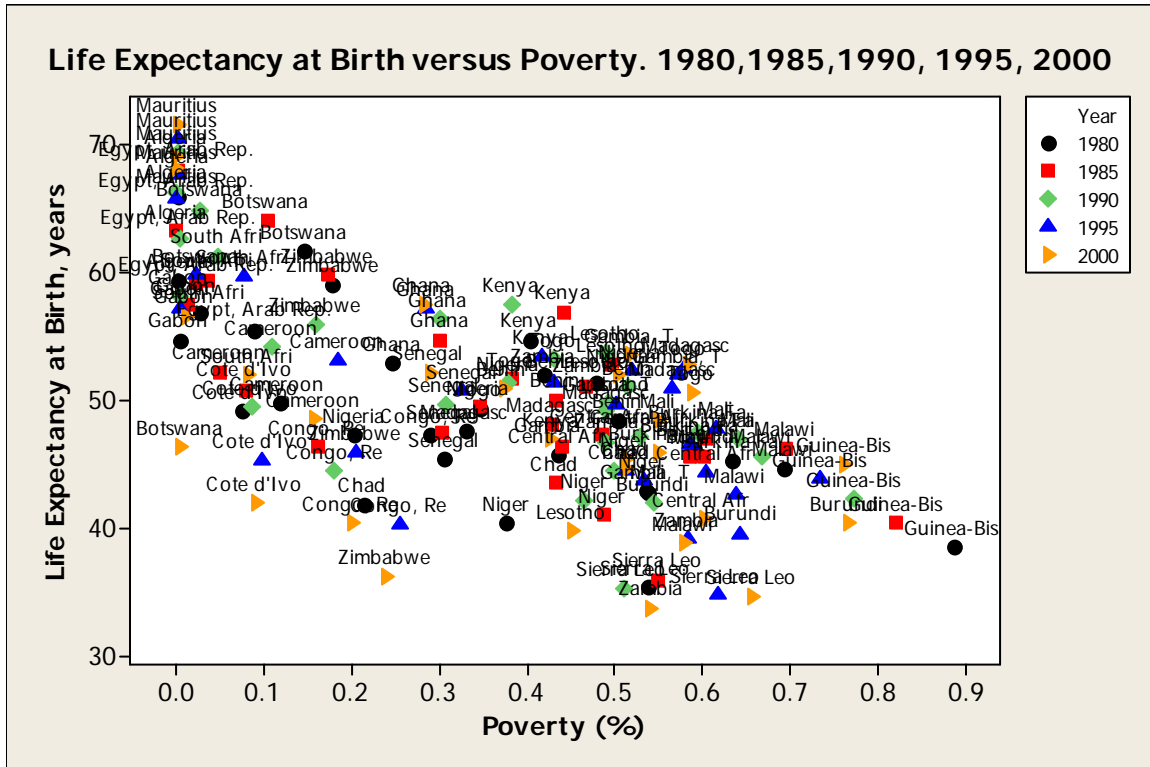


Figure 14 shows the relationship between life expectancy at birth and poverty. It shows a negative relationship between longevity and poverty.

Figure 13. Longevity and Poverty



The following figures show the relationship between educational attainment and poverty. There is a negative relationship between educational attainment and poverty. That is African countries with high incidence of poverty have lower educational achievement. Alternatively, higher is the educational attainment in a country the lower is the incidence of poverty. Thus education may be best solution to poverty in Africa, as it is elsewhere.

Figure 15. Poverty and Primary School Enrollment

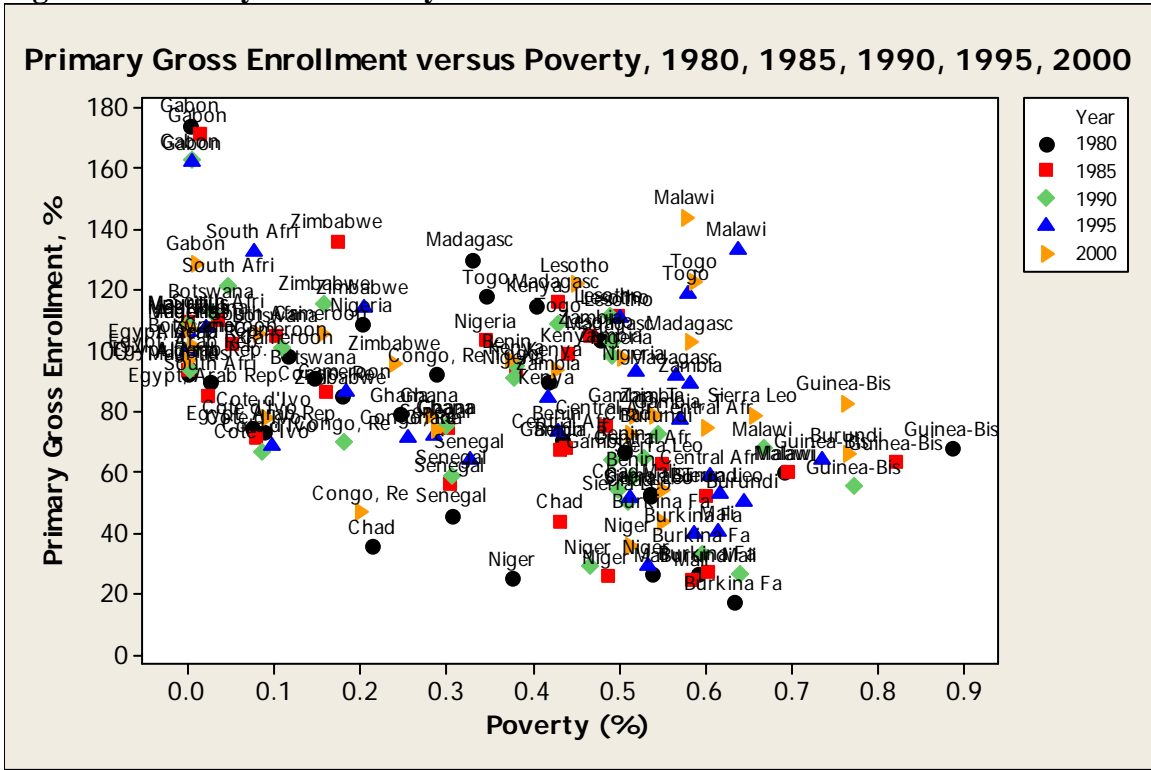


Figure 16. Poverty and Secondary School Enrollment

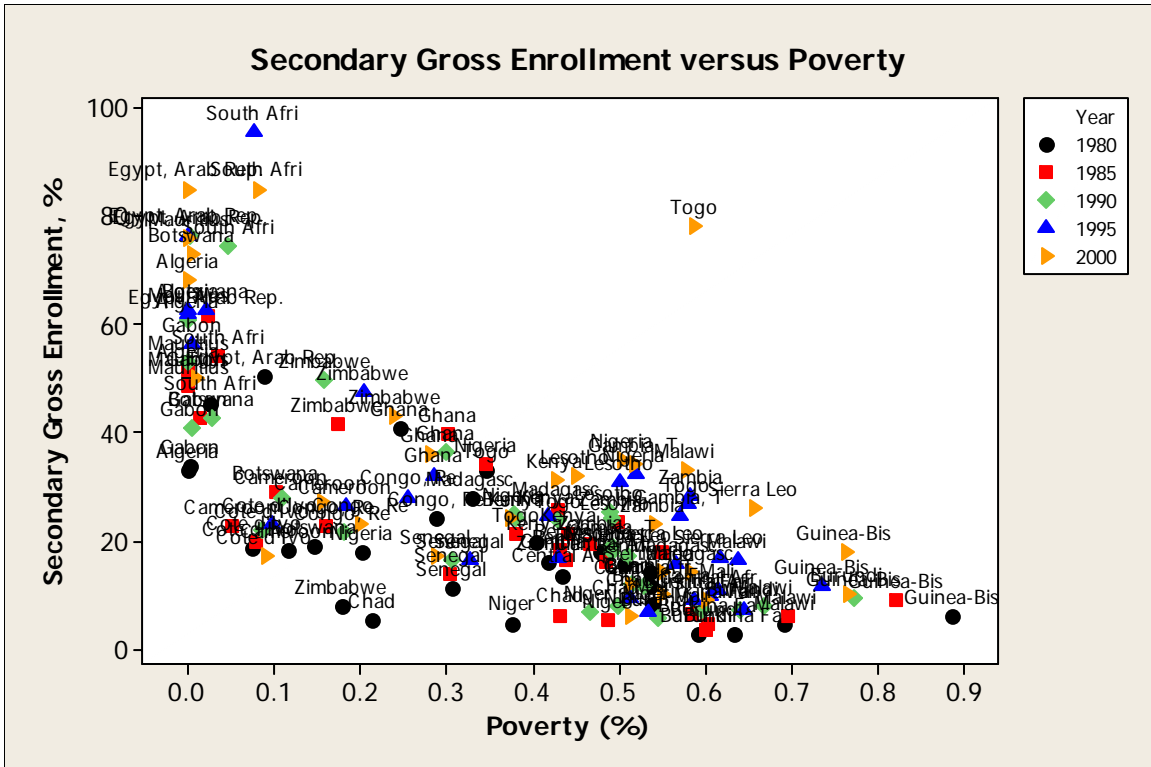
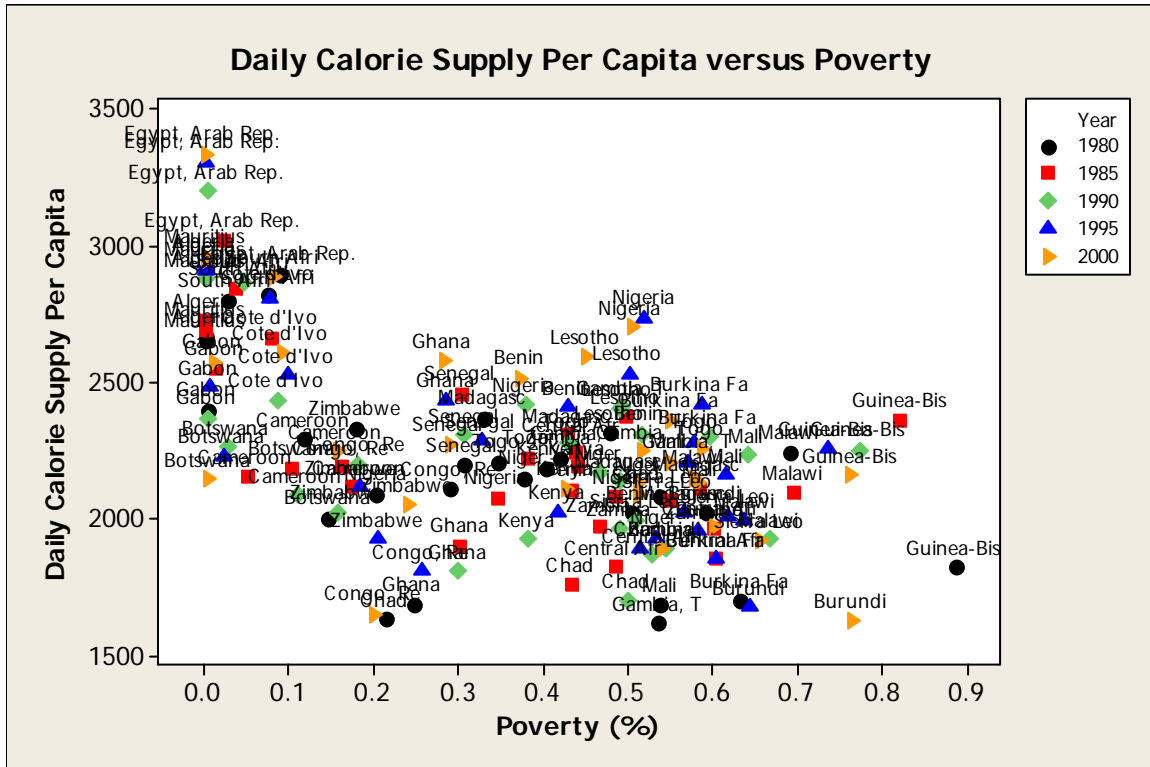


Figure 17 shows the link between poverty and daily calorie supply per capita.

Figure 17. Poverty and daily Calorie Supply



7. Preliminary Concluding Remarks

In this paper we made two principal contributions: *first*, we proposed a method for representing well-being aggregates and estimating population subgroup decompositions when data is available on population distributions across subgroups; *second*, we analyzed the QOL of ‘poor’ and ‘non-poor’ population segments of 45 countries for during 1980-2000. The three major findings of this paper are as follows: *First*, nearly every well-being indicator declines as the poor’s population share increases; *second*, evidence of a significant difference in the QOL-poor’s population share relationship between African

and non-African, countries is present for only few QOL indicators. In other words, the tendency for QOL to decline with increasing poor's population share is common to the African and non-African countries; *third*, women suffer a double QOL disadvantage in areas of health and education as the poor's share of population increases. This is due to the existence of relatively wider gender gaps in the well-being indicators among poor populations in Africa and elsewhere.

Table 1: Well-Being components and Indicators

Variable	Definition
Development Indexes	
Human Development Index	Human Development Index value-a composite index combining measures of measures of life expectancy, adult literacy, school enrollment and PPP GDP per capita.
Gender-related Development Index	Gender-related development index (GDI) value-the HDI but with its components adjusted for inequalities between men and women.
Gender empowerment Index	Gender empowerment measure (GEM) value- a composite index combining measures in gender inequality in parliamentary seats, legislative senior official and managerial positions, professional and technical employment and earned income.
Gender	
Female Share of Earning Labour Force Gap(Male-Female)	Percentage of total national earnings earned by women (%)
Literacy Gap	Percentage of male labour force minus percentage of female labour force.
Enrollment Gap	Male literacy rate minus female literacy rate (%).
Life Expectancy Gap	Male gross enrollment ratio minus female gross enrollment ratio (%).
Real GDP Per Capita Gap	Male life expectancy minus female life expectancy.
Female Economic Activity Rate	Real GDP per capita income of Male minus real GDP per capita income of Female, (PPP \$).
Female Primary Net enrollment Ratio	Female economic activity rate as percentage of male rate (%).
Female Secondary Net Enrollment Ratio	Female primary net enrollment ratio as percentage of male primary enrollment ratio (%). Net primary enrollment enrollment ratio is defined as the number of students enrolled in a level of education who are of official school age for that level, as percentage of the population of official school age for that level.
Female Tertiary Student	Female net secondary enrollment ratio as percentage of male secondary net enrollment ratio (%). Net secondary enrollment ratio is defined as the number of students enrolled in a level of education who are of official school age for that level, as percentage of the population of official school age for that level.
	Female Tertiary student as as percentage of male tertiary student (%). Tertiary education is defined as the education at the third level (levels 5, 6, 7) such as universities, teachers colleges and higher professional schools.
Income	
GDP per capita in PPP\$	Gross domestic product is total value of the goods and services produced by an economy. It is adjusted here for purchasing power parity (PPP), i.e. the number of units of that currency required to purchase the same representative basket of goods and services that US \$1 would buy in the United States.
Population below Poverty line US \$1/day	Percentage of population living at or below US \$1 a day of consumption or income at 1985 prices, adjusted for PPP.
Population below Poverty line US \$14.40/day	Percentage of population living at or below US \$14.40 a day of consumption or income at 1985 prices, adjusted for PPP.
Education	
Adult Literacy Rate	The percentage of people aged 15 and above who can, with understanding , both read and write a short, simple statement on their everyday life (%).
Combined first, second and	Combined first, second and third level gross enrollment ratio (% gross).

third level gross enrollment ratio

Children not Reaching Grade 5

Public Education Expenditure

The percentage of children starting primary school who eventually do attain grade 5 (%).

Public education expenditure as percentage of GDP (%). Public expenditure on public education plus subsidies to private education at the primary, secondary and tertiary levels.

Health

Life Expectancy at Birth

The number of years a newborn infant would live if prevailing patterns of mortality at the time of birth were to stay the same throughout the child's life.

Infant Mortality Rate

The annual number of deaths of infants under one year of age per 1,000 live births. More specifically, the probability of dying between birth and one year of age multiplied by 1,000.

Maternal Mortality Rate

The annual number of deaths of women from pregnancy-related causes per 100,000 live births.

Under Age 5 Mortality Rate

The annual number of deaths of children under age 5 per 1,000 live births. More specifically, the probability of dying between birth and exactly five years of age expressed per 1,000 live births.

Infants with low birth weights

Infants with low birth weights (%)-the percentage of infants with a birth weight of less than 2,500 grams.

Adults with HIV/AIDS

Number of people living with HIV/AIDS per 100,000 population.

Tuberculosis cases

Number of Tuberculosis cases per 100,000 population.

Population without Access to Health Services

Percentage people without access to health services (%).

Nutrition

Daily Per Capita Supplies of Calories

The calorie equivalent of the net food supply (local production plus imports minus exports) in a country, divided by the population, per day.

Underweight Children

Underweight children under age five (%)- includes moderate and severe underweight, which is defined as below two standard deviations from the weight for age of the reference population.

Under age 5

Fertility and Demography

Total Fertility Rate

The average number of children that would be born alive to a woman during her lifetime if she were to bear children at each age in accord with prevailing age-specific fertility rates.

Contraceptive Prevalance Rate

Contraceptive prevalence rate (%)- the percentage of married women aged 15-49 who are using, or whose partners are using, any form of contraception, whether modern or traditional.

Births to Mothers under age 20

Birth to mothers under age age (%).

Population Growth Rate

Growth rate of population (%)

Environment

Annual Deforestation

Annual permanent clearing of forestlands for shifting cultivation, permanent agriculture or settlements; it does not include alterations such as selective logging (%).

Carbon Dioxide Emmissions

Carbon dioxide emissions per capita (metric ton).

Population without Access to Safe Water

Population not using improved drinking water sources (%).

Population without Access to Sanitation

Population not using adequate sanitation facilities (%).

Variables	Definitions
Access to Information	
TV sets	TV sets per 1,000 people.
Crimes	
Drugs Crime	Number of Drugs crime per 100,000 people.
Intentional Homicides	Number of Intentional Homicides per 100,000 people.

TABLE 3. Quality of Life of Poor. Comparisons with Non-poor and Poor Non-Asian++

Indicator	Constant	Poor Share	Africa Dummy	Africa Dummy× Poor Share	R-Square	N
INDEXES						
1.Human Development Index	0.727** (12.20)	-0.00417* (-1.94)	-0.0145 (-0.21)	0.00018 (0.08)	0.34	49
2.Gender-related Development Index	0.347** (6.02)	-0.00009 (-0.04)	0.0879 (1.22)	-0.00093 (-0.34)	0.08	34
3.Gender Empowerment Index	0.719** (10.52)	-0.00437* (-1.85)	-0.0155 (-0.20)	0.00042 (0.16)	0.30	46
GENDER						
4. Literacy Gap (Male-Female)	7.38 (1.39)	0.398** (2.07)	1.45 (0.23)	-0.332 (-1.57)	0.13	49
5. Enrollment Gap (Male-Female)	1.53 (0.40)	0.259** (1.96)	2.51 (0.57)	-0.234* (-1.64)	0.10	48
6. Life Expectancy Gap (Male-Female)	-4.60** (-5.79)	0.0826** (2.88)	0.312 (0.33)	-0.0611* (-1.94)	0.29	49
7. Log GDP Per capita Gap (Male-Female)	1.19** (5.04)	0.0148* (1.73)	-0.019 (-0.07)	0.0073 (0.78)	0.13	48
8. Female Economic Activity Rate (% of Male rate)	59.1** (7.30)	0.156 (0.53)	-5.58 (-0.58)	0.139 (0.43)	0.01	49
9. Female Primary Net Enrollment (% of Male Rate)	105** (14.34)	-0.476** (-1.97)	-7.96 (-0.96)	0.378 (1.45)	0.11	45
10. Female Secondary Net Enrollment (% of Male Rate)	108** (9.58)	-0.862** (-2.32)	-9.30 (-0.72)	0.536 (1.32)	0.20	41
11. Female Tertiary Student (% of Male)	82.50** (3.69)	-0.223 (-0.28)	-19.7 (-0.74)	0.233 (0.26)	0.05	23
INCOME						
12. Log GDP Per capita (PPP)	3.64** (25.77)	-0.0101* (-1.97)	0.080 (0.50)	0.00076 (0.14)	0.32	48
EDUCATION						
13. Adult Literacy (%)	87.9** (9.40)	-0.760** (-2.25)	-9.6 (-0.87)	0.445 (1.20)	0.18	49
14. Combined first, second and third level gross enrollment (% gross)	62.0** (8.51)	-0.81 (-0.31)	6.88 (0.80)	-0.278 (-0.96)	0.02	49
15. Children not Reaching Grade 5 (%)	2.12 (0.29)	0.602** (2.08)	8.92 (1.02)	-0.13 (-0.41)	0.45	30
16. Public Education Expenditure (% of GDP)	4.22** (4.84)	-0.353 (-1.12)	1.54 (1.43)	-0.0022 (-0.06)	0.02	40
HEALTH						
17. Life Expectancy at Birth	70.4** (16.37)	-0.199 (-1.28)	-2.03 (-0.40)	-0.100 (-0.50)	0.04	49
18. Infant Mortality Rate (per 1,000 live birth)	28.4 (1.79)	0.885 (1.55)	3.90 (0.21)	0.152 (0.24)	0.03	49
	109.0	16.0**	15.00	-7.50	0.25	49

19. Maternal Mortality 1990 (per 100,000 live birth)	(0.60)	(2.42)	(0.70)	(-1.04)		
	36.10 (1.35)	1.34 (1.39)	1.20 (0.04)	0.58 (0.55)	0.04	49
20. Under Age Five Mortality Rate						
	10.4** (3.23)	0.430** (3.15)	-1.07 (-0.28)	-0.368** (-2.53)	0.31	48
21. Infants with Low Birth Weights (%)						
	26.4 (0.37)	-0.65 (0.20)	5.70 (0.07)	3.00 (0.90)	0.02	44
22. AIDS Cases (per 100,000)						
	37.10 (0.75)	2.20 (1.23)	2.0 (0.03)	0.25 (0.13)	0.02	46
23. Tuberculosis Cases (per 100,000)						
	18.1** (1.99)	0.715** (2.16)	-1.30 (-0.12)	-0.369 (-1.00)	0.22	36
24. Population without Access to Health Services (%)						
NUTRITION						
25. Daily Per capita Supplies of Calories	2580** (18.12)	-3.52 (-0.60)	253.00 (1.58)	-7.94 (-1.41)	0.04	49
26. Under Weight Children under age Five 1990-97 (%)	20.8** (4.38)	0.539** (3.13)	10.9* (1.94)	-0.278 (-1.47)	0.45	49
FERTILITY						
27. Total Fertility Rate
28. Contraceptive Prevalence Rate	57.7** (6.54)	-0.342 (-1.07)	-0.20 (-0.02)	-0.216 (-0.62)	0.03	48
29. Births to Mothers Under Age 20 (%)	9.05** (2.84)	-0.134 (-0.58)	0.59 (0.14)	0.347 (1.37)	0.04	17
30. Population Growth Rate (%)	2.38** (8.85)	-0.006 (-0.56)	-0.127 (-0.40)	0.0142 (1.34)	0.12	49
ENVIRONMENT						
31. Annual Deforestation (%)	1.90** (2.58)	-0.390 (-1.46)	-0.649 (-0.74)	0.0205 (0.70)	0.11	49
32. Carbon Dioxide Emissions per capita (metric ton)	2.65** (3.87)	-0.0436* (-1.76)	0.105 (0.13)	0.0065 (0.24)	0.25	46
33. Population without Access to Safe Water (%)	20.6** (2.91)	0.033 (0.13)	-4.20 (0.50)	0.479* (1.71)	0.36	48
34. Population without Access to Sanitation (%)	17.7* (1.84)	1.19** (3.43)	8.50 (0.74)	-0.774** (-2.03)	0.31	47
ACCESS TO INFORMATION						
35. TV Sets (per 1,000 people)	167** (3.97)	-2.15 (-1.48)	18.9 (0.38)	-0.04 (-0.03)	0.02	41
CRIMES AND OTHERS						
36. Drugs Crime (per 100, 000 people)	23.9 (0.81)	-0.489 (-0.51)	92.1** (2.00)	-0.66 (-0.60)	0.31	24
37. Intentional Homicides (per 100,000 people)	6.60 (0.60)	-0.014 (-0.03)	11.50 (0.77)	0.049 (0.09)	0.08	21
38. Dependency Ratio (%)	62.1** (10.97)	0.185 (0.90)	3.29 (0.49)	0.25 (1.12)	0.04	49

Source: See Appendix 1. ** Significant at the 5% level, *Significant at the 10% level, ++ Poor share is defined as population below income poverty line (%) \$1.00 a day, 1989-94.

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