

THE CROSS-COUNTRY COMPARISON OF POVERTY REDUCTION

H. Saduman OKUMUS¹, Betül GUR² and Elif Guneren GENC³

ABSTRACT

This study aims to compare the pace of poverty reduction across the countries. For a cross-country analysis, The WB data is used for the period of 1990-2005 for 88 countries. Applying the ordinary least squares methodology, we attempted to prevail the common characteristics existing across the countries with excess poverty. It appears that the characteristics of countries living in extreme poverty do not differ much from those not. Results indicate that population is the major determinant of poverty reduction as well as unemployment, export of goods and services, age dependency ratio, arable land and domestic credit. We shouldn't ignore that poverty has also regional dimension.

Keywords: poverty, economic growth, globalisation, cross-country analysis, Millennium Development Goals, human development.

YOKSULLUĞUN AZALTILMASI ÜZERİNE ÜLKELERARASI KARŞILAŞTIRMALI ANALİZ

ÖZET

Bu çalışmada, yoksulluğun azaltılmasının seyri üzerine ülkelerarası karşılaştırmalı bir analiz yapmak amaçlanmıştır. Bu karşılaştırmalı analiz için, 88 ülkenin 1990-2005 dönemine ait Dünya Bankası verileri kullanılmıştır. En küçük kareler yöntemi kullanılarak, aşırı yoksul ülkeler arasında varolan ortak özellikler ortaya çıkarılmaya çalışılmıştır. Çalışmada, aşırı yoksul olan ülkeler ile olmayan ülkelerin karakterlerinin ayrışmadığı görülmüştür. Araştırmanın sonuçlarına göre, nüfus yoksulluğu azaltan başlıca unsurlardan biri olup, buna ilaveten işsizlik, mal ve hizmet ihracatı, yaş bağımlılık oranı, ekilebilir arazi ve banka kredisi gibi değişkenler ile yoksulluğun azalması arasında pozitif bir ilişki söz konusudur. Ayrıca yoksulluğun bölgesel boyutunun da olduğu yönünde sonuçlar elde edilmiştir.

Anahtar Kelimeler: yoksulluk, ekonomik büyüme, küreselleşme, ülkelerarası analiz, Binyıl Kalkınma Hedefleri, insani gelişme.

¹ Prof. Dr., Department of Banking and Finance, Istanbul Commerce University, Istanbul-Turkey

² Asst. Prof. Dr., Vocational School, Istanbul Commerce University, Istanbul-Turkey

³ PhD., Vocational School, Istanbul Commerce University, Istanbul-Turkey

1. INTRODUCTION

After the United Nations (UN) World Summit on Social Development held in 1995, 117 countries adopted a declaration and programme of action which included commitments to eradicate absolute and reduce overall poverty across the globe. Absolute poverty was defined as "*a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services*" (United Nations [UN], 1995: 41). This statement, which is in line with Amartya Sen's Capability Approach emerged an alternative approach to standard economic frameworks for poverty, inequality and human development in the early 1990s, basically emphasises multidimensional aspect of poverty. Nobel Laureate economist Amartya Sen offers an alternative of poverty as capability deprivation, the inability to spread "economic opportunities through an adequately supportive social background including high levels of literacy, numeracy and basic education; good general health care; completed land reforms and so on." (Sen, 1999:91).

Poverty as minimal income is, of course, closely related to poverty as capability deprivation, because enhanced capabilities would tend, typically, to expand a person's ability to be more productive and earn a higher income. This definition of poverty as capability deprivation is of particular relevance for the situation in Sub-Saharan Africa. Despite being colonized for much of the 20th century and its economy being integrated into the global capitalist system, most Africans are still enmeshed in a largely subsistent, kinship-based economy, and their ability to operate effectively within the emerging free market economy is greatly circumscribed beyond trading activities (Mabogunje, 2007: 16782; Sen, 1999:37-38). As once explained and claimed by Nurkse (1961) with Theory of Vicious Cycle of Poverty, people themselves in developing countries are the victims of poverty as well as the reasons of it. In other words, the new perception of poverty pioneered by Amartya Sen draws attention to endogenous and exogenous reasons of poverty. Endogenous reasons of poverty can be defined as lack of individual ability, responsibility, ability to save and diligence. However, socio-economic conditions such as; lack of education, low earnings and unemployment that cannot be controlled by people themselves are the exogenous ones (Alcock, 2006: 35-44; Şenses, 2006: 149-156,164-170).

Globalisation has risen doubts about its benefits as well as its risks over the past decade. It is claimed that despite a general trend to globalisation in the post 1950 period, not all countries have benefited nor have all citizens of a given globalising country prospered. In fact globalisation is not new fact. Globalisation has progressed through travel, trade, migration, spread of cultural influences and dissemination of science and technology for thousands of years. It has enriched scientifically, culturally and economically. The predicament of the poor cannot be reversed by withholding them from the great advantages of contemporary technology, the efficiency of international trade and exchange, and the social and economic merits of living in open, rather than closed, societies. The vital issue is the

fairer distribution of the fruits of globalisation. The main concern is the level of inequality, not its marginal change: By claiming that the rich are getting richer and the poorer are getting poorer, the critics of globalisation have, often enough, chosen the wrong battle ground. It is almost obvious that many segments of the poor in the world economy have performed badly, it is still yet to be established over-all and clear-cut trend. The question is not just whether there exists some gain for all parties, but whether or not the distribution of gains is fair (Sen, 2001: 1-3).

Nobel Laureate economist Joseph Stiglitz (1999: 1,2) points out that poverty and inequality have increased in many countries such as Venezuela, Bangladesh, and Sub-Saharan Africa; moreover, the figures reported by the World Bank (WB) indicate that per capita income in Sub-Saharan Africa fell to a great extent from 1965 to 1997, even as it soared by 440% in East Asia. Even before the crisis emerged in 1997 as poverty was undermining transition in Eastern Europe. In 1989 about 14 million people in the former Communist countries lived on less than US\$ 4 a day. By the mid-1990s that number had risen to about 147 million. Basically, poverty and inequality have increased elsewhere from Venezuela to Bangladesh and Sub-Saharan Africa.

According to Joseph Stiglitz, economic growth does not help the poor much in countries where distribution of wealth is highly unequal. The main concern is how that income and consumer expenditures ought to be distributed evenly among the people at both national and international level. In this respect, he supports his claim by giving the examples of China and India enjoying the highest economic growth rate in the late 1990s but at the same time struggling with the deterioration of income distribution in the country (Deaton, 2006). There are other studies supporting the similar claims (Amin and Paracha, 2008: 38,42; Fleurbaey, 2007: 142,143).

It is clear that there is no magic formula for successful development. But there are common ingredients that have helped produce the world's development success stories. Investing in people by providing primary and secondary education, basic health care and some forms of social protection for the poor is central. So are strong institutions of banking, law, government and public service, to reassure investors that a predictable, rules-based system is in place and that property is protected. Joseph Stiglitz (2002) also strongly claims that globalisation does not help alleviate global poverty, rather it facilitates to deepen it. He also condemns the International Money Fund (IMF), the WB and World Trade Organisation (WTO) of not doing enough to help the poor in underdeveloped and developing countries.

The UN Millennium Development Goals (MDGs) signed by the UN member countries in 2000, mainly aimed to alleviate extreme poverty and hunger on the globe, setting two targets for each country put signature on MDGs (UN, 2008: 1):

1. Halving the global poverty by 2015, i.e., cutting the percentage of the poor population from the level of 27.9% in 1990 to 14% by 2015)
2. Halving the numbers of the people who suffer from hunger on the globe.

Over the past decade, different claims have been made within the development community about how much progress has been made against poverty (Ravallion, 2003:740). According to the latest statistics, over 1 billion people across the globe live in extreme poverty. Another 2.8 billion live on US\$ 2 per day. On the top of this, inequality in income distribution among the citizens are also uneven. The wealth share estimates reveal that the richest 2% of adult individuals own more than half of all global wealth, with the richest 1% alone accounting for 40% of global assets. The corresponding figures for the top 5% and the top 10% are 71% and 85%, respectively. In contrast, the bottom half of wealth holders together hold barely 1% of global wealth. Members of the top decile are almost 400 times richer, on average, than the bottom 50%, and members of the top percentile are almost 2000 times richer (Davies et al., 2008: 7). Over the last decade, the fact of rising inequality within many countries has been linked with the issues of globalisation to a great extent (Vita, 2007).

At its 65th session held in 2010, the UN member countries reaffirm that they will pursue to achieve the MDGs by 2015. The UN member countries they recognized that progress including on poverty eradication has been made despite setbacks, including setbacks cost by the financial and economic crises. They also reiterate, however, that the number of living in extreme poverty and hunger surpasses 1 billion and that inequalities between and within countries remains a significant challenge (UN, 2010: 1-2).

The following is the main frame of this study: In the subsequent section, methodology and the data used are surveyed. This was followed by Section 3 in which cross-country status of excess poverty is examined to some extent, leading to possible determinants of poverty for extremely poverty-ridden countries. Then, an attempt was made to estimate capturing the pace of poverty reduction across the countries. The final section consists of the results of empirical analysis as well as the overall conclusions of the study.

2. DATA DESCRIPTION AND METHODOLOGY

It is expedient to draw attention to the fact that the researches attempting to devise estimates of the number of people below poverty line have to deal with conceptual and methodological problems as well as limited data publicly available. This issue even becomes a hurdle when making comparison across countries. Likewise, the need to increase efforts in support of statistical capacity-building in developing countries was stressed firmly in the UN Draft Resolution referred to the High-level Meeting of the Assembly held in 20-22 September, 2010.

To run the empirical analysis the data from different sources had to be obtained as well as knowing that measurement assumptions of poverty statistics differ to some extent. The significant of this issue emanates from the fact that it greatly affects the results of the empirical analysis, thus differentiating the policy outcomes of the study (Akoum, 2008: 231; Kalirajan and Singh, 2009: 693).

Notwithstanding data and methodological problems, this study also makes an effort to estimate the determinations of poverty reduction as well as the pace of the global poverty. However, this study contributes to the relevant literature in a sense that it uses the cross-country statistics of WB, based on 2005 international prices at purchasing power parity (WB, 2010a). This also allowed us to work with a longer data period of 1990 and 2005 which is not the case in the earlier studies. It is worth noting that this helped us to increase the accountability of the empirical results. In addition, unlike the earlier studies mentioned above, we devoted a dummy variable to Africa region at least where 51% of the poorest in the world live in, so that the regional dimension of the excessive poverty would become clearer.

In our empirical analysis, we greatly benefited from the WB data base, however unemployment statistics of countries were obtained from the UNDP (2009: 151-154). The US\$ 1.25 benchmark used by the WB is assumed to represent extreme poverty all over the world. For the period of 1990 to 2005, the World Bank's (2010a: 380-397) US\$ 1.25 poverty survey data are available for 88 countries. The population living below US\$ 1.25 a day at 2005 international prices used to define the poverty line for the countries studied. Of the 88 countries considered, 61 countries have more than 4% of their population living in extreme poverty. Therefore, we define these countries as "the poorest of the poor" or "poverty-ridden countries". Appendix 1 lists all the countries that are considered in this study while Appendix 2 and 3 list the variable descriptions for the specific analyses of this study.

3. GLOBAL SITUATION OF EXCESS POVERTY ACROSS THE COUNTRIES

To identify the most common features that surpass the across the countries with excess poverty, an effort has been made. In order to achieve this, we developed a consistent model from a pooled potential variables selected from earlier cross-country poverty studies. Distinction among the countries has been made using the data on the population living below US\$ 1.25 a day for 88 countries over the period 1990-2005 (Akoum, 2008: 231-234; Dao, 2008: 294,295; Kalirajan and Singh, 2009: 693,694; Odhiambo, 2010: 43; Sabir et al., 2006: 10-12; Rodriguez, 2000: 29-52). Of these 27 countries have less than 4% of the population living on US\$ 1.25 per day. Thereby, it is appropriate to analyse these countries in two blocks, one with all 88 countries another with 61 countries. The model involving the former is identified as G-1 while that of the later is defined as G-2. In both causes the explained and explanatory variables are average values during the period of 1990-2005.

The ordinary least squares (OLS) procedure was used to estimate the parameters of these two models, in which extreme poverty is defined as PVR1, constituting the dependent variable of the models studies. The regression results are significant for almost all the variables coefficient the level of 1%, 5% and 10%. However we can not draw the same conclusions for the variables of CLYLD and

EXPGS, which denote to 1/cereal yield and export of goods and service, respectively. It seems that the coefficients are those variables statistically insignificant.

It stems from Table 1 that features of the countries with less than 4% of the population under US\$ 1.25 a day do not differ much from those countries with more than 4% of the total population living under the excess poverty criteria.

Table 1. Ordinary Least Squares Results to Define The Features of Countries Suffering From Excessive Poverty

	G-1	G-2
Dependent Variable	PVR1	PVR1
Regressor	88-countries	61-countries
GDP	- 0.00001(0.000006)***	- 0.00002(0.00001)***
AIDPER	0.00138(0.0004)*	0.00115(0.0004)**
AGEDEP	0.00837(0.0015)*	0.00762(0.0018)*
MOBILE	- 0.00230(0.0011)***	- 0.00230(0.0013)***
ALAND	0.00285(0.0011)**	0.00304(0.0018)***
LPOPTTL	0.02242(0.0118)***	0.02242(0.0118)***
AGRIC	- 0.01316(0.0064)**	- 0.01606(0.0079)**
CLYLD	- 34.2723(51.9906)	- 29.8358(58.8004)
EXPGS	0.00022(0.0010)	0.00028(0.0014)
R-squared	0.7183	0.6605
Adjusted R-squared	0.6858	0.6006
F-stat, F-prob.	22.1029(0.0000)	11.0288(0.0000)
DW-statistic	1.74	1.79
Standart error of regression	0.1417	0.1509
(*), (**) and (***) denote to statistical significance levels of 1%, 5%, and 10 %, respectively. Number of observations equals those of the countries in the model; standart errors are given in round parentheses and p-values are given in parentheses.		

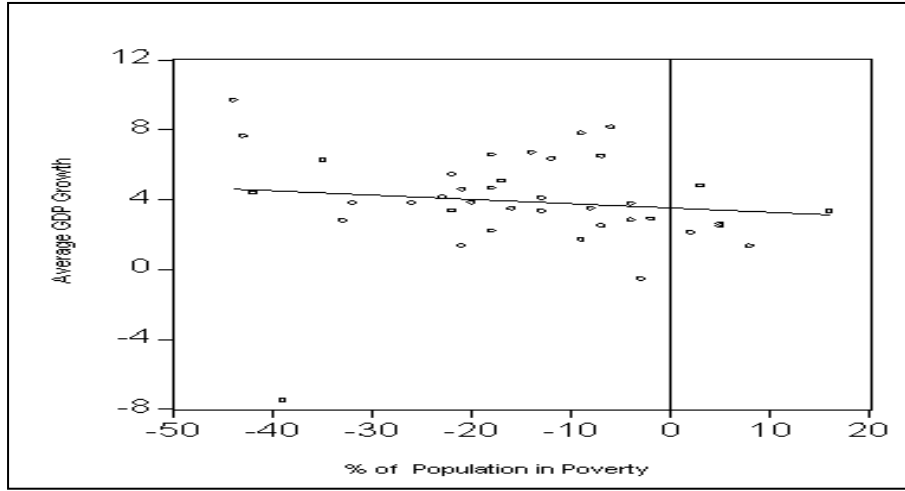


Figure 1. The Relationship Between GDP Growth And Population In Poverty (%)

Note: Produced by the authors based on the data from WB. (2010a), *World Development Indicators*, http://databank.worldbank.org/dd/p/home.do?Step=2&id=4&DisplayAggregation=N&SdmxSupported=Y&CNO=2&SET_BRANDING=YES, (5 March 2010).

In Figure 1 above, we plotted each countries' average annual GDP growth rates against the percentage point changes of population in poverty. As shown in Appendix 4, Mali, Lao PDR, India, Uganda, Burkino Faso have relatively higher average GDP growth rates ranging between 6,27 (Mali) and 6,70 (Burkino Faso). However, the share of the poorest population in these countries was high with a range between 45,5% (India) and 68,5% (Mali). As also can be seen in Figure 1, the countries like Vietnam, Cambodia, Mozambique and China achieved an average GDP growth rate as high as 9,68 (China) however, the share of the population living under the national poverty line were 42,5%, 44,5%, 78% and 38%, respectively. Given the outcomes deriving from Figure 1 and Appendix 4, there is no indication of countries with higher GDP growth rates have lower percentages of the population living in poverty.

With regard to the puzzle of whether or not countries that register GDP growth rates have a tendency of reduction in the share of the population in poverty over time, Figure 2 below indicates that there is no indication of that this is the case.

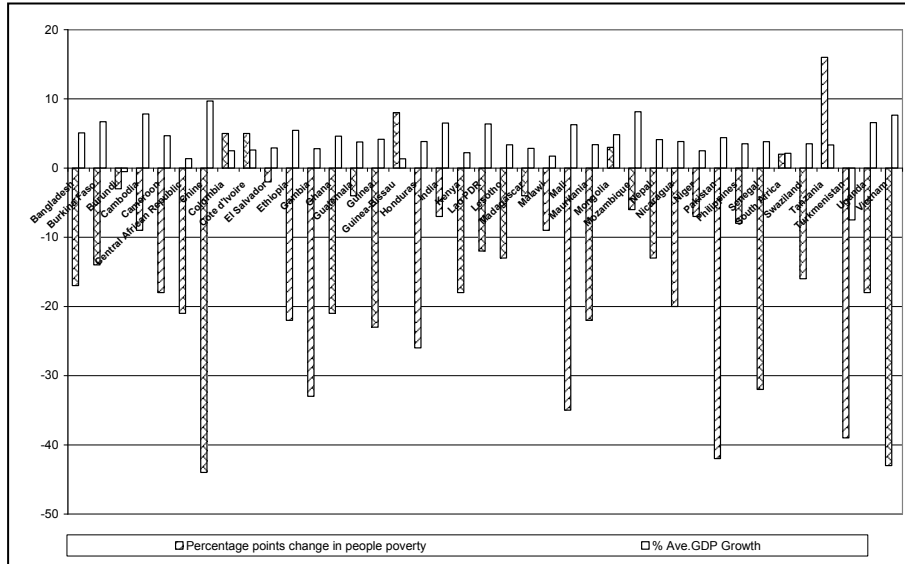


Figure 2. Cross-Country Comparison According to GDP Growth and Poverty Reduction(%)

Note: Produced by the authors based on the data from WB. (2010a), *World Development Indicators*, http://databank.worldbank.org/dd_p/home.do?Step=2&id=4&DisplayAggregation=N&SdmxSupported=Y&CNO=2&SET_BRANDING=YES, (5 March 2010).

4. PREDICTING THE POVERTY-DECREASE PACE

In the second stage of the empirical work carried out, we consider the path of poverty reduction across the countries. The results of the empirical analysis are depicted in Table 2 below. As can be seen in Table 2, there are three sets of regression results for the changes in poverty. In the three models, M1, M2, and M3, the dependent variable is the annual average rate of change in poverty (percentage points). The models differ only in terms of regional dimension of poverty. Otherwise, the explanatory variables used in the models are the same.

All the sample countries with population living in extreme poverty as measured by the US\$ 1.25 basis of the WB. As a result, we reached a sample size of 39 countries. The explained and explanatory variables included in regression models are listed in Appendix 5, and explains in the following:

TRGDP: Some claims that trade liberalisation can have both positive and negative effects on poverty (Winters, 2000: 61). The debate over globalisation revolves around the three aspects of integration: These are goods, labour and capital (Krueger, 2002: 1).

Table 2. Ordinary Least Square Estimates for the Changes in International Poverty Levels

	M1	M2	M3
Dependent Variable	CPVR1	CPVR1	CPVR1
Regressor	39-countries	39-countries	39-countries
c	5.7891(3.502)	- 2.935(3.777)	- 6.340(3.339)**
GDP	0.0001(0.00003)*	- 0.001(0.00003)*	- 0.001(0.000)*
AIDPER	0.019(0.0004)*	- 0.02(0.004)*	- 0.021(0.004)*
AGEDEP	0.075(0.02)*	0.008(0.02)*	0.086(0.026)*
TELLN	0.544(0.013)*	0.617(0.136)*	0.669(0.139)*
ALAND	0.053(0.01)*	0.049(0.018)*	0.056(0.018)*
LPOPTTL	0.549(0.26)**	- 0.847(0.310)*	- 0.823(0.282)*
TRGDP	0.021(0.01)	- 0.031(0.020)***	- 0.028(0.019)
DCPBS	0.03(0.009)*	0.034(0.009)*	0.034(0.009)*
EXPGS	0.101(0.036)*	0.093(0.03)**	0.092(0.035)*
UNEMP	0.165(0.04)*	0.132(0.047)*	0.136(0.045)*
D1		- 0.747(0.437)**	
D2			1.695(0.789)*
D3			1.382(0.681)**
R-squared	0.74	0.765	0.781
Adjusted R-squared	0.647	0.669	0.68
F-stat, F-prob.	7.970(0.0000)	8.008(0.0000)	7.758(0.0000)
DW-statistic	2.169	2.163	2.233
Standart error of regression	1.1696	1.1315	1.1122
Notes. Significant at: *1, **5 and ***10% levels; number of observations equals number of countries; standart errors are given in round parentheses and p-values are given in parentheses.			

GDP: According to the claims made by the researches of the WB, by raising the incomes and consumption of people across the distribution of income, economic growth is the main driver of poverty reduction in the developing world. Higher economic growth rates are not necessarily translated into lower poverty rates, thereby, holding that a wide-ranging policy approach could be more effective in poverty reduction than the broad-based growth policy approach (Akoum, 2008: 226). However, some claims the opposite. According to them, substantial progress towards pro-poor growth requires, among other things, significant and steady increases in GDP growth rates. First, it is virtually impossible to achieve significant reductions in poverty over the long term without economic growth. Second, if the growth is to improve living standards widely and reduce poverty, it requires the active participation of poor households as labourers, producers and service providers (Lyakurwa, 2009:74,75).

Some studies argue that developing countries must first undertake profound economic and institutional reforms that protect private property, thereby providing the economic incentive for individuals to fully participate in economic activities. Inequality and economic growth have strong impact on poverty reduction. Policies aiming at reducing inequality and growth-oriented policies are very effective in eradicating poverty in aid-recipient countries (Oskooee and Oyolola, 2009:264-265,273).

Not to ignore the scale issue in population, we took an average growth of GDP per capita for each single country as proxy of economic growth.

One significant result to reduce the poverty has been realised in the form of increase in exports of labour intensive goods and services. This reveals the importance of trade liberalisation both in developing and developed countries. However, it is usually the case that extreme poverty in poverty-ridden countries increases while trade of the country also increases. This might stem from the fact that these countries have problems of trade deficits to a great extent (Kalirajan and Singh, 2009: 695, 696).

In order to include the factor of trade liberalisation into the regression models, we take the percentage of trade in GDP as a proxy, defined as TRGDP.

CLYLD: Improvements in agricultural, particularly cereals yields, tend to reduce poverty. As the majority of the population in these extreme poverty-ridden countries live in rural areas, increasing agricultural productivity is crucial towards reducing poverty (Kalirajan and Singh, 2009: 696).

EXPGS: Globalisation is nothing new. What is new is the way of it in which developing countries are integrated with rich countries. As a result of this new wave of globalisation, the majority of developing world has shifted from an inward-focused strategy to a more outward-oriented one-over the past two decades (Dollar, 2004: 4-7). To capture the reflection of globalisation in the reduction of poverty, EXPGS is defined as exports of goods and services as a percentage of countries. Increases in the exports of labour intensive goods and services significantly reduce

poverty, which highlights the importance of trade liberalization not only in developing countries, but also in developed countries (Kalirajan and Singh, 2009: 696).

DCPBS: DCPBS is the ratio of domestic credit provided by banking sector to GDP. This ratio indicates the role played by the financial sector in the given country. Some studies assume that credit provided by banks generates increases in investment, productivity and consumption to a great extent. Higher levels of DCPBS are also interpreted as higher levels of financial services and therefore greater financial deepening. In these studies investigate the causal relationship between financial deepening and poverty reduction in Zambia using modern econometrics techniques. It appears from this study that financial development proxied by domestic credit to the private sector as a ratio GDP seems to cause poverty reduction, and not the other way around (Odhiambo, 2010: 50).

ALAND: As it is presented by the relevant statistics that most of the poor population in the world live in rural engaging in agriculture. This is particularly vital for regions that experience regular environmental economic shocks (Gehlich-Shillabeer, 2008: 396).

In order to reach the goal of halving the share of people living in extreme poverty and suffering hunger by the year 2015, World Development Report calls for the use of agriculture as a vital development tool (Dao, 2009: 168; WB, 2010b: 40-43). Statistics reported show that three quarters of the poor in developing countries live in rural areas and that the livelihoods of the majority of them are either directly or indirectly dependent upon agriculture. China's recent rapid growth in agriculture, for instance, has resulted in the large decline in poverty from 53% in 1981 to 8% 20 years later. However, agriculture successes have not been uniform. While cereal yields had increased by more than 50% and poverty had declined by 30% in South Asia, yields and poverty rates had remained unchanged in Sub-Saharan Africa.

In order to capture both environmental risks and therefore income dimension of agriculture for the poor, we use the proxy of arable land as a percentage of total land in the given country.

AGEDEP: It is commonly claimed that the major poverty causing factors are bigger household size and dependents to working age population (Sabir et al., 2006: 10-12). Some studies also found a direct relationship between the probability of being in poverty and the burden of dependency (Rodriguez, 2000: 46).

Given the justifications mentioned above, age dependency ratio, defined as the ratio of number of dependents to working-age population, is included in the three regression models constructed in our study.

LPOPTTL: We cannot deny that poverty causes higher population growth or vice versa. As such, it is vital to include a proxy for population in the models, aiming at clarifying the determinants of poverty reduction.

UNEMP: It is almost certain that the higher the unemployment rate in a country, the higher the share of the population in poverty. Due to the lack of income, unemployed people are not able to feed and to educate themselves as well as to reach basic health services, being dragged into deeper poverty. As such, the rate of unemployed people to total population is included as one of the variables in the models (Rodriguez, 2000: 8).

AIDPER: It is widely argued that foreign aid to a country can be useful in reducing poverty only if it is used in a productive manner. If not, it may not contribute to a reduction in poverty over the time. Foreign aid in this empirical work is represented as percentage of gross capital formation defined as AIDPER. Capital formation facilitates infrastructure development is considered a vital tool for development. Since it helps for production or manufacturing which leads to self sufficiency. Hence, low capital accumulation is the main obstacle faced in achieving the goal of sustained economic growth (Naseer, 2010: 1). Although many of the researchers studying in the area have primarily focused on aid effectiveness in stimulating growth, in fact, one of the main goals of aid donors has been to reduce poverty. However, despite the great deal of attention received by the impact of aid on growth, growth alone is not sufficient to reduce poverty. The focus on poverty is particularly relevant, given that poverty reduction is one the UN MDGs.

Advocates of foreign aid believe that targeted aid can help eradicate poverty in developing countries. But others have questioned its effectiveness in reducing poverty.

TELLN: In a cross-country empirical analysis many studies have used different kinds of proxies for infrastructure because of lack of the consistent and uniform data. In this study, we both consider financial and physical infrastructures. Since the data in telephone lines is more available, telephone lines per thousand population, TELLN, proxies development in physical infrastructure and communications. As it is well known that efficient and cost-competitive physical infrastructure allows businesses to compete in the global market without constraint. Countries with a better infrastructure are likely to reduce poverty faster than those with insufficient infrastructure (Kalirajan and Singh, 2009: 701; Sabir et al., 2006: 10-12).

DUMMY (Regional Effect): Some of the studies in the area of poverty and development claim that global poverty has been in decline, even strongly emphasizing that there have been very different performance across regions. While East and South Asia grew well and reduced poverty, Sub-Saharan Africa had negative growth over the period of 1981-2000, and a rise in poverty. It appears from the statistics that the number of extreme poor in Africa increased from the 164 million to 316 million. The poor population in East and South Asia consists of 41.6% of the population while that in Sub-Saharan Africa has risen to the level of 46,9% although analysts differ as to cause and emphasis. As such, it is not wrong to pronounce that two-thirds of the extreme poor over the world live in Sub-Saharan Africa and Asia. Thus, we can not ignore the fact that poverty has got a regional

dimension. To grab the regional dimension of poverty, we included a dummy variable into our model, denoted as D1, D2 and D3. In the model, D2 represents Asia region whereas D[^]refers to Africa region. Likewise, D1 is defined as the region of Asia, Africa and Latin America altogether.

5. RESULTS AND CONCLUSIONS

To estimate the determinants of the poverty reduction across the globe, we constructed the regression models of M1, M2 and M3. In M1 model, there is a statistically significant relationship between the percentage change of poverty and the variables of GDP, AIDPER ve LPOPTTL. The negative association between these variables indicates that the higher the economic growth, aid and population are, the slower the reduction in poverty. Among the explanatory variables used in M1, the variable of POPTTL has the highest coefficient with a negative 0.549. This basically indicates that population is the major determinants of poverty reduction, among the other factors considered in this study.

With regard to the model of M1, the variable of TELLN also constitutes one of the major determinants of poverty reduction. Unlike population, it has a positive effect on reducing poverty. In the same way, the variables of UNEMP, EXPGS, AGEDEP, ALAND, DCPDS have a positive relationship with poverty reduction.

In the model of M2, the sign of the coefficients explaining the nature of the relationship between variables are the same as in the model of M1. The negative association between the average annual rate of change in poverty and regional dimension of poverty defined as D1 in M2 model suggests that poverty reduction has a regional dimension.

The regression model of M3 differs from M1 and M2 models in the sense that it includes dummy variables for Asia, Africa and Latin America regions. In this model D2 represents Asia whereas D3 denotes to Africa. In this case, the constant variable of M3 model proxies Latin America. The coefficients of dummy variables are statistically significant at the levels of 1% and 5%, leading to conclusions that regional dimension of poverty has a positive effect on poverty reduction in the given regions, except for Latin America region.

It is important to note that the explanatory variables in all three models produce the same results in terms of explaining the determinants of poverty reduction.

Further Research

More interdisciplinary and longitudinal research is needed to unearth the nature of correlation between economic growth poverty reduction across the countries. However, researchers in this field face to data and methodological limitations to a great extent hindering them to improve the reliability of the empirical studies. In this regard, poverty statistics and estimates by the WB are needed to be improved as well as the variety of econometric methods used in such studies.

Appendix 1. List of Countries Included in The Global Analysis of Poverty

<i>88 countries set</i>			
Africa	Europe	Asia	Latin America
Burkina Faso Central African Rpb. Cote d'Ivoire Djibouti Ecuador Egypt, Arab Rep. Ethiopia Gambia, The Ghana Guinea Guinea-Bissau Kenya Lesotho Madagascar Malawi Mali Morocco Mozambique Niger South Africa Tanzania Tunisia Uganda Zambia	Albania Belarus Bulgaria Croatia Czech Republic Estonia Hungary Latvia Lithuania Macedonia, FYR Moldova Poland Romania Slovak Republic Slovenia Turkey Ukraine	Armenia Azerbaijan Bangladesh Burundi Cambodia Cameroon China Georgia India Iran, Islamic Rep. Jordan Kazakhstan Kyrgyz Republic Malaysia Mongolia Mauritania Nepal Pakistan Philippines Russian Federation Senegal South Asia Sri Lanka Swaziland Thailand Turkmenistan Vietnam Yemen, Rep.	Argentina Bolivia Brazil Chile Colombia Costa Rica Dominican Rpb. El Salvador Guatemala Guyana Honduras Lao PDR Mexico Nicaragua Paraguay Panama Peru Uruguay Venezuela, RB
<i>61 countries set</i>			
Burkina Faso Central African Rpb. Cote d'Ivoire Djibouti Ecuador Ethiopia Gambia, The Ghana Guinea Guinea-Bissau Kenya Lesotho Madagascar Malawi Mali Morocco Mozambique Mauritania Niger South Africa Tanzania Tunisia Uganda Zambia	Moldova	Armenia Azerbaijan Bangladesh Burundi Cambodia Cameroon China Georgia India Kyrgyz Republic Mongolia Nepal Pakistan Philippines Senegal South Asia Sri Lanka Swaziland Turkmenistan Vietnam Yemen, Rep.	Bolivia Brazil Colombia Costa Rica Dominican Republic El Salvador Guatemala Guyana Honduras Lao PDR Nicaragua Panama Paraguay Peru Venezuela, RB

Source: WB. (2010a), World Development Indicators, http://databank.worldbank.org/ddp/home.do?Step=2&id=4&DisplayAggregation=N&SdmxSupported=Y&CNO=2&SET_BRANDING=YES, (5 March 2010).

Note: Classification of the countries done by the authors by depending on the data obtained from online World

Development Index of the WB.

Appendix 2. List of Variables Used in Identifying the Characteristics of Extreme Poverty

<i>Variable</i>	<i>Measurement Description</i>
PVR	Living on less than US\$1.25 a day (PPP) (percentage of people) average 1990-2005
PVR1	Living on less than US\$1.25 a day (PPP) (percentage of people) average 1990-2005 (more than 4% of population)
GDP	GDP per capita, PPP (constant 2005 international \$)
AIDPER	Aid (percentage of gross capital formation)
AGEDEP	Age dependenc ratio (dependents to working-age population)
MOBILE	Mobile phones (per 100 people)
ALAND	Arable land (% of land area)
LPOPTTL	Log (population/1000000)
AGRIC	Agriculture, value added (annual percentage growth)
CLYLD	1/Cereal yield (kg. per hectare)
EXPGS	Exports of goods and services (percentage of GDP)

Appendix 3. List of Variables Used in Estimating the Determinants of Changes in Poverty

<i>Variable</i>	<i>Measurement Description</i>
CPVR1	Annual rate of change in national PVR (percentage points)(more than 4% of population)
GDP	GDP per capita, PPP (constant 2005 international \$)
AIDPER	Aid (percentage of gross capital formation)
AGEDEP	Age dependency ratio (dependents to working-age population)
EXPGS	Exports of goods and services (percentage of GDP)
LPOPTTL	Log (population/1000000)
ALAND	Arable land (% of land area)
TELLN	Telephone lines (per 100 people)
TRGDP	Trade (% of GDP)
DCPBS	Domestic credit provided by banking sector (percentage of GDP)
UNEMP	Unemployment, total (% of labor force)
D1	Asia – Africa – Latin America Dummy
D2	Asia Dummy
D3	Africa Dummy

Appendix 4. GDP Growth and Poverty

Countries	Percentage of Population Below National Poverty Line				Percentage of Avr. GDP Growth	
	Initial Year National Poverty	Final Year National Poverty	Percentage of Point Changes			
Bangladesh	1992	67	2005	50	-17	5.07
Burkina Faso	1994	71	2003	57	-14	6.7
Burundi	1992	84	2006	81	-3	-0.53
Cambodia	1994	49	2004	40	-9	7.81
Cameroon	1996	51	2001	33	-18	4.66
Central African Rpb.	1993	83	2003	62	-21	1.36
Chine	1990	60	2005	16	-44	9.68
Colombia	1995	11	2006	16	5	2.5
Cote d'Ivoire	1993	18	2002	23	5	2.6
El Salvador	1995	13	2005	11	-2	2.9
Ethiopia	1995	61	2005	39	-22	5.45
Gambia	1998	67	2002	34	-33	2.8
Ghana	1992	51	2006	30	-21	4.6
Guatemala	1998	16	2006	12	-4	3.77
Guinea	1991	93	2003	70	-23	4.15
Guinea-Bissau	1991	41	2002	49	8	1.33
Honduras	1990	44	2006	18	-26	3.82
India	1994	49	2005	42	-7	6.5
Kenya	1992	38	2005	20	-18	2.21
Lao PDR	1992	56	2002	44	-12	6.36
Lesotho	1993	56	2003	43	-13	3.36
Madagascar	1993	72	2005	68	-4	2.84
Malawi	1998	83	2004	74	-9	1.71
Mali	1994	86	2006	51	-35	6.27
Mauritania	1993	43	2000	21	-22	3.37
Mongolia	1995	19	2005	22	3	4.81
Mozambique	1997	81	2003	75	-6	8.14
Nepal	1996	68	2004	55	-13	4.11
Nicaragua	1993	32	2005	16	-16	3.84
Niger	1992	73	2005	66	-7	2.5
Pakistan	1991	65	2005	23	-42	4.4
Philippines	1991	31	2006	23	-8	3.5
Senegal	1991	66	2005	34	-32	3.8
South Africa	1993	24	2000	26	2	2.12
Swaziland	1995	79	2001	63	-16	3.5
Tanzania	1992	73	2000	89	16	3.33
Turkmenistan	1993	64	1998	25	-39	-7.5
Uganda	1992	70	2005	52	-18	6.57
Vietnam	1993	64	2006	21	-43	7.64

Source: WB. (2010a), World Development Indicators, http://databank.worldbank.org/ddp/home.do?Step=2&id=4&DisplayAggregation=N&SdmxSupported=Y&CNO=2&SET_BRANDING=YES, (5 March 2010).

Note: Calculated by authors based on GDP growth figures online WDI of the World Bank. GDP= Gross Domestic Product; WDI= World Development Indicators.

Appendix 5. National Poverty Data for the 39 Countries Selected

Country Name	Initial Year	Population Below the National Poverty Line (%) Initial Period	Final Year	National Poverty Line (%) Initial Period	Duration	Percentage of Point Changes
Burkina Faso	1994	71	2003	57	9	1.56
Burundi	1992	84	2006	81	14	0.21
Cambodia	1994	49	2004	40	10	0.9
Cameroon	1996	51	2001	33	5	3.6
C.African Rpb.	1993	83	2003	62	10	2.1
China	1990	60	2005	16	15	2.93
Colombia	1995	11	2006	16	11	-0.45
Cote d'Ivoire	1993	18	2002	23	9	-0.56
El Salvador	1995	13	2005	11	10	0.2
Ethiopia	1995	61	2005	39	10	2.2
Gambia, The	1998	67	2002	34	4	8.25
Ghana	1992	51	2006	30	14	1.5
Guatemala	1998	16	2006	12	8	0.5
Guinea	1991	93	2003	70	12	1.92
Guinea-Bissau	1991	41	2002	49	11	-0.73
Honduras	1990	44	2006	18	16	1.63
India	1994	49	2005	42	11	0.64
Kenya	1992	38	2005	20	13	1.38
Lao PDR	1992	56	2002	44	10	1.2
Lesotho	1993	56	2003	43	10	1.3
Madagascar	1993	72	2005	68	12	0.33
Malawi	1998	83	2004	74	6	1.5
Mali	1994	86	2006	51	10	3.5
Mauritania	1993	43	2000	21	7	3.14
Mongolia	1995	19	2005	22	10	-0.3
Mozambique	1997	81	2003	75	6	1
Nepal	1996	68	2004	55	8	1.63
Nicaragua	1993	32	2005	16	12	1.33
Niger	1992	73	2005	66	13	0.54
Pakistan	1991	65	2005	23	14	3
Philippines	1991	31	2006	23	15	0.53
Senegal	1991	66	2005	34	14	2.29
South Africa	1993	24	2000	26	7	-0.29
Swaziland	1995	79	2001	63	6	2.67
Tanzania	1992	73	2000	89	8	-2
Turkmenistan	1993	64	1998	25	5	7.8
Uganda	1992	70	2005	52	13	1.38
Vietnam	1993	64	2006	21	13	3.31

Source: WB. (2010a), World Development Indicators, http://databank.worldbank.org/ddp/home.do?Step=2&id=4&DisplayAggregation=N&SdmxSupported=Y&CNO=2&SET_BRANDING=YES, (5 March 2010).

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