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Globalization and Poverty Nexus: A Panel Data Analysis

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Abstract

This study analytically explores and empirically tests the impact of different dimensions of globalization on cross-country poverty using a panel data set for 113 developing countries over the period 1980-2014. The empirical results show that globalization generally helps to reduce poverty. However, this effect is not consistent for different forms of globalization. Economic and social globalizations significantly help to reduce global poverty while the political globalization does not significantly cause poverty reduction in all models. The overall results of this study indicate that globalization ameliorates not accentuates poverty. Moreover, findings of the study are shown to be robust to different specifications and alternative econometric techniques.

Keywords: Globalization, Poverty, Developing Countries, Panel Data

JEL Classification: F21, F41, C23

1. Introduction

Does globalization reduce poverty? This question is highly debated among researchers and policy makers. The available research provides conflicting answers to this question. On the one hand globalization is considered as solution of poverty while on the other hand globalization is considered a cause of poverty. The studies by Bhagwati and Srinivasan (2002) and Dollar and Kraay (2004) conclude that globalization in terms of trade openness increases growth that, in turn, reduces poverty. In contrast, Harrison and McMillan (2007) compile the results of 15 country specific studies and argue that orthodox standpoints on the favourable outcomes of globalization for the poor are misleading, if not outright erroneous because the gains from trade are largely asymmetrical and the poor do not generally gain from the trade.

Williamson (2005, p. 136) indicates that "the world has seen two globalization booms over the past two centuries and one bust. The first global century ended with World War I and the second started at the end of World War II, while the years in between were ones of anti-global backlash". The first wave of globalization observed a decline of poverty from 84% to 66% over the period 1820-

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1910. Similarly, the second wave of globalization witnessed a decline of poverty from 55% to 24% over the period 1950-1992. The falling trend of poverty was 11% during the inter-war period. In effect, the 11% decline in the 42 year interval is not dissimilar to the 18% decline in the first 90 year period. What is striking is the 31% decline in the later 42 year period.

Chen and Ravallion (2001) discuss that globalization and poverty are negatively related. Their estimates showed that number of extreme poor decreased by 120 million over the short span of time from 1993 to 1998 in globalizing economies. In contrast, in the rest of developing economies the number of poor increased by 20 million. Similarly, Sala-i-Martin (2002) emphasizes that poverty has substantially decreased over the period 1976-1998. He estimated that 250 million poor have escaped the poverty trap if poverty line is measured at $1/day and 450 million poor have come out of the poverty trap if poverty line is measured at $2/day. However, the falling trends of poverty are not uniform across regions. In particular, the region of Africa has witnessed increasing poverty rates during the same period as the number of poor for $1/day and $2/day increased by 175million and 227million, respectively.

Despite the downward trend in poverty rate the world is presently observing anti-globalization protests because the downward trend masks variation among countries and regions. The violent street protests surrounding the ministerial meetings of the WTO and similar protests at the IMF and the World Bank indicate that winds against globalization are getting strong.

Different theories on the relationship of globalization with poverty and inequality can be classified broadly into three categories (Wade, 2001). First, according to the neoclassical growth theory increasing capital flows cause income convergence across nations in the long run. Second, according to the endogenous growth theory increasing capital flows cause less convergence or may cause divergence because diminishing returns to capital are compensated with the increasing returns as a result of technological innovations. Third, according to the dependence theory, less developed countries have a narrow base of exports and therefore, have limited access to the markets of more developed countries. Consequently, economic integration is less beneficial for the developing world and absolute convergence is not achieved.

Since theory predicts diverse poverty outcomes as a result of increasing globalization, understanding the relationship between poverty and globalization largely remains an empirical issue. Moreover, the extant literature on globalization and poverty does not estimate the relative contributions of different forms of

globalization on poverty in a global sample. The existing literature usually focuses on economic globalization; however, it is argued that globalization has social as well as political dimensions (Berggren & Nilsson, 2015). Gaston and Nelson (2004) refer to these dimensions as indirect effects of globalization, while Dreher et al. (2008) refer to these dimensions as the social and political globalization. The present study uses aggregate, economic, social, and political globalization for the better understanding of the nexus between globalization and poverty. The major motivation of this study is to reduce the empirical fog related with poverty effects of globalization. Therefore, in this study we focus on global analysis to examine the impact of globalization and its different dimensions on global poverty.

The paper is structured as follows. Section 2 reviews the theoretical links of globalization with poverty, while Section 3 describes the methodology. The choice of variables and discussion of the data is given in Section 4. The empirical results are presented in Section 5 and the study is concluded in Section 6.

2. Globalization and Poverty: Theoretical Links

Globalization is conceptualized as "a process that erodes national boundaries, integrates national economies, cultures, technologies and governance and produces complex relations of mutual interdependence (Dreher, 2006)". There are various channels through which globalization influences poverty and therefore, produces winners and losers of globalization (Culpeper, 2005; Nissanke and Thorbecke, 2006; Harrison and McMillan, 2007; Goff and Singh, 2014). These channels are classified as follows:

2.1. Relative Prices of Factors and Products

The first channel through which globalization affects poverty is the relative prices of inputs and outputs (Nissanke and Thorbecke, 2008). In the literature, the effects of globalization on the poor are generally described through the implications of the Heckscher-Ohlin (HO) model. According to the model, in an open economy, a country with abundant unskilled labour will specialize in the production of goods which require unskilled or low skilled labour. The developing countries have abundant unskilled workers. Consequently, the developing economies will produce the goods which require an intensive use of unskilled or low skilled labour. The increasing demand for unskilled labour will increase wages for the poor, thereby reducing inequality and poverty (Autor, et al. 1998).

The implications of the HO model are based on the assumption of identical technologies across countries. However, trade openness also causes transfer of technology in the developing world. Since technology is inherently skill biased,

technological diffusion in the developing world increases the demand for highly skilled workers. The increasing demand for highly skilled workers increases their wages and worsens the distribution of income and the poor are marginalized.

Davis and Mishra (2007) argue that the implication of the HO model that trade liberalization increases the wages of unskilled labour is "worse than wrong". They argue that this implication is built on an inadequate understanding of the Stolper–Samuelson theorem (SS).[2] The SS theorem holds under following conditions: 1) All trading countries produce all goods; 2) Goods produced at home are close substitutes to goods produced abroad; 3) Comparative advantage can be fixed for all trading partners.

In effect, trade openness may lead to higher unemployment and greater poverty. The labour market distortions (i.e. imperfect labour mobility or minimum wage legislation) restrict the favourable outcomes of trade openness for the poor. Moreover, the empirical evidence from developing economies such as Poland and India also suggest that labour is not as mobile as the HO model considers (Harrison & McMillan, 2007). In real life, there are different barriers to labour mobility. Additionally, the poor of developing economies may not gain from trade because they usually work in those sectors which are historically protected such as textile and apparels. Therefore, trade reforms may result in less protection for unskilled workers.

2.2. Factor Mobility

Globalization also influences the poor through the channel of factor mobility. The Heckscher–Ohlin–Samuelson–Stolper (HOSS) model assumes that labour is perfectly mobile within the country and immobile across countries. However, this is not a realistic assumption and there are different barriers to labor mobility (Goff & Singh, 2014). Likewise, cross-border movement has been an important factor historically in the process of globalization, but difference in the ease of cross-border labour mobility is another important channel through which globalization produces winners and losers in today's world.

It is noteworthy that income convergence in globalizing countries (Atlantic countries) during the first wave of globalization is attributed to labour migration (1870-1914). Williamson (2005) notes that around six million people, including

[2] According to Stolper-Samuelson theorem when a country opens up to trade, the abundant factor experiences an increase in its real income. Therefore, unskilled labour is most likely to gain from trade in developing countries as it is the most abundant factor in these countries (Goff and Singh, 2014).

skilled as well as unskilled labour, moved from Europe to the new world during that period. Contrary to this, labour mobility in the current period of globalization differs substantially between unskilled and skilled labour (World Bank, 2002). Therefore, "wage equalization" theorem given by HOSS is perhaps, less likely to take place through labour migration in the current phase of globalization (Nissanke and Thorbecke, 2008).

Besides, theory predicts that capital seeking high returns should move towards developing economies where marginal productivity of capital (MPK) is high, which might be countries with higher rates of technical change, therefore, inflating the wage rate in developing countries. However, capital does not move to finance development projects in developing economies as predicted by theory (Lucas paradox).[3] Obstfeld and Taylor (2001, p.64) observe that today's foreign asset distribution is basically asset swapping by rich countries and it is much more about risk sharing and hedging than it is about long-term financing.

Culpeper (2005) concludes that the unique aspects of factors movement in the current wave of globalization are: 1) Labour and capital migrate more among developed countries than developing countries; 2) The skilled labour of developing countries has the tendency to migrate to developed countries; 3) Capital flows also have the tendency to move to developed countries, specifically during the period of uncertainty or crises. With such 'pervasive' movements Culpeper (2005) argued that developed countries will experience a fall in inequality while developing economies will suffer from increasing inequality, thus poverty will increase in developing countries as a result of increasing globalization.

2.3. Technological Progress and Technological Diffusion

Technological progress or diffusion of technology can be another channel through which globalization affects poverty. Culpeper (2005) argues that technological changes emanate from industrialized countries as a result of resource endowments in those countries. Moreover, technological changes are inherently skill biased and have a tendency to increase inequality in developed as well as developing countries. However, it is either semi-skilled or skilled labour who gains from technological changes whereas, unskilled labour is marginalized and worsened in response to technological changes (Goff and Singh, 2014).

Kanbur (1998) views technological changes as one of the potential sources of widening gaps between unskilled and skilled labour. Likewise, Agenor (2004)

[3] The Lucas paradox refers to the observation that capital does not flow from rich to poor countries despite the fact that marginal productivity of capital is higher in poor countries (Lucas, 1990).

also notes that more trade openness and economic integration lead to significant substitution between unskilled labour and capital, contrary to higher complementarity between skilled labour and capital.

Moreover, access to technology and differences of technology are not spontaneous. Therefore, productivity differential may increase over time and may widen income inequality across countries. In this regard, Easterly (2004) notes that cross-country productivity differential has been driving factor of trade and income inequality. In effect, technological dissimilarities between innovating and imitating countries are still important factors in explaining global income and wage inequality (Vernon (1979)'s product cycle model).

In addition, globalization has intensified the process of privatization of research. This trend has been stronger in the agriculture sector than elsewhere (Pray et al., 2003). Moreover, public sector led green revolution has been replaced with private sector driven biotechnological revolution. Now an important question is, whether poor farmers can adopt biotechnology or not and if not, then what are the possible distributional and poverty consequences. It is argued that poor farmers of the developing economies cannot afford genetically modified (GM) seeds as they are mainly engaged in subsistence agriculture (Nissanke and Thorbecke, 2008).

2.4. Volatility and Vulnerability

It is important to mention that globalization is also related with higher uncertainty. There is a possibility of extreme fluctuations in output, income, and employment which are caused by global shocks. For example, the high volatility of consumption in Central and East Europe during 1990s is linked with trade shocks as a consequence of trade liberalization (Nissanke and Thorbecke, 2008).

Culpeper (2005) argues that the poor families suffer disproportionally more during the period of contraction than they gain during the periods of expansion. In this regard, Birdsall (2002) provides evidence to validate the theoretical proposition that poorer households are less able to safeguard themselves against adverse shocks. It is also evident from the Asian financial crises that the poor households suffered disproportionally more during the downturn of the economies (Nissanke and Thorbecke, 2006). It indicates that more openness is linked with economic shocks and the poor may be more vulnerable to such shocks.

2.5. Flow of Information

Another channel through which globalization affects poverty and inequality is knowledge and flow of information.[4] The cost of transmitting information is practically negligible in the present phase of globalization and therefore, the flow of information has increased substantially. Moreover, internet technology can improve the efficiency and management of government (Majeed and Khan, 2019). Therefore, internet technology and mass media have great potential to enhance the technical as well as human capital of individuals in developing economies. Although the flow of information has enormous potential to accelerate the process of development, however, Graham (2004) argues that increased flow of information about the quality of life of others may affect reference norms. Such information can increase displeasure within certain income groups in poor countries and people with a given income group may tend to compare their living standards with similar income groups in the developed countries. Thus, greater openness can also increase insecurity as well as vulnerability of many cohorts, in particular, those people who do not have the capacity to take advantage of global integration (Nissanke and Thorbecke, 2006). Furthermore, because of uneven distribution of information, poor are mostly deprived and could not take the advantage of globalization.

2.6. Global Disinflation

Rogoff (2003) emphasises that improved fiscal policy, efficient role of central banks, deregulation, and increased globalization contribute to low levels of inflation globally. Nevertheless, global disinflation is a result of higher levels of competition in labour and goods markets. Although, lower levels of inflation benefit the poor, yet, this macroeconomic stability and lower levels of inflation should not be at the cost of economic growth, otherwise, it may hurt the poor.

2.7. Institutions

Institutions mediate different transmission mechanisms through which globalization affects poverty (Sindzingre, 2005). Institutions assist in understanding the diverse, heterogeneous and non-linear outcomes of global integration. Moreover, institutions serve as filters, which intensify or hinder the pass-through between globalization and poverty. These filters work at global level, country level and even at town level. It is important to mention that international organizations such as the WTO and the IMF often create their own rules of the

[4] The flow of information is a component of social globalization and it is included in the KOF index of globalization (Berggren & Nilsson, 2015).

game and these rules determine poverty outcomes. In the same way, institutions in developed countries protect their agriculture sectors from the exports of developing countries, thereby depriving the poor of developing countries from the benefits of openness. This is true largely in the case of Sub-Saharan African countries (Nissanke and Thorbecke, 2008).

Equally, globalization can also revolutionize the institutional environment. As globalization proceeds, new norms and conventions of interaction are likely to take place. Similarly, new standards of transparency, contracts, governance, law, and human rights are developed. Nevertheless, institutional changes are sluggish and work at the margin, because of informal constraints in societies (North, 1990, p. 6).

Institutions have important roles in harnessing the benefits of globalization. For example, the negative effects can be tackled with the provision of safety nets. In this regard, Sindzingre (2005) suggests that globalization may exclude many when it is mediated by social polarization, oligopoly structures, and predating regimes that may exclude a particular group of the poor from taking the benefits of globalization. While the favourable effects of globalization for the poor are materialized when institutional conditions are developed by elements such as social cohesion, broader political participation, and better management of social disputes resulting from globalization. Therefore, maximum gains from globalization can be realized with strong institutions (Goff and Singh, 2014).

2.8. Complementary Policy Reforms

One strand of the literature suggests that globalization helps to eradicate poverty when complementary policies are adopted to safeguard the interests of the poor. Such policies include investment in human capital, inclusive financial development and removal of labour markets distortions. The study also reveals that the deprived farmers in Zambia benefit from better access to export markets only when they have access to complementary inputs such as credit support and technical knowhow. It implies that social safety nets are also required as complementary inputs to make sure that the benefits of globalization are distributed across the population. However, it also indicates that only trade reforms are not enough for the eradication of poverty (see, for details, Harrison and McMillan, 2007).

2.9. Measures of Globalization

The influence of globalization on the poor also depends on how globalization is measured. Some studies show that globalization in the form of

foreign investment inflows and export growth helps to reduce poverty. For instance, Harrison and McMillan (2007) show the evidence that poverty has reduced in those regions where foreign investment or exports has increased. In contrast, financial integration can have diverse impacts on the poor. It is also argued in the literature that financial integration causes output volatility in low-income developing countries (Prasad et al., 2005). Moreover, financial integration enhances the risk of financial crises and the poor are more vulnerable to the financial crisis. In the case of Indonesia, poverty increased dramatically after the currency crises of 1977.

It is noteworthy that globalization creates both losers and winners among the poor and even within the same locality, two groups of farmers producing the same good may be influenced in different directions. For instance, in Mexico, income of small and medium-sized corn farmers fell by half in 1990, while the income of large corn farmers increased (Harrison and McMillan, 2007). Therefore, financial integration can help to ameliorate poverty if strong institutions and more stable policies hold in financially integrated economies. However, developing economies lack these strengths, therefore, unrestricted capital flows may increase poverty.

2.10. Other Theories

We can conclude that the diverse mechanisms linking globalization with poverty predict diverse outcomes. Therefore, understanding the poverty outcomes of globalization largely remains an empirical issue. The extant empirical literature on globalization and poverty is generally based on country-specific case studies which cannot be generalized globally. For instance, Gibson (2000) found out that poverty increased in Papua New Guinea during 1990s as a result of adjustment programs. Similarly, Majeed (2010) found out that trade openness has increased poverty incidence in Pakistan.

Since globalization is a multidimensional and complex phenomenon, a simple focus on a specific aspect of the globalization can give misleading results. It is also evident from the above discussion that different forms of globalization exert conflicting effects on the poor of developing economies. One possible solution to this problem is to analyse the marginalization of the poor in relation to a comprehensive measure of globalization. Therefore, the present study considers various forms of globalization and uses an overall index of globalization to determine its poverty effect for a larger panel of countries.

3. Methodology

Following Dollar and Kraay (2002, 2004) the poverty model has been specified as follows:

$$lnPov_i = \alpha_0 + \alpha_1 lnGINI_{\ i} + \alpha_2 Y_i + \alpha_3 lnX_i + \varepsilon_i \quad (1)$$

The Equation 1 represents cross-sectional analysis, where, for the i^{th} country, Pov_i is (poverty) is measured using a head-count ratio.[5] The term $GINI_{\ i}$ measures income inequality. The term Y_i measures growth rate of GDP per capita for the country. The notation X_i is a vector of other determinants of poverty which includes government expenditures, urban population, and education. While ε_i is an error term.

Global integration has an important role in reducing poverty through increasing economic opportunities, increasing wages of unskilled workers, improving information flows and creating investment opportunities. Studies by Bhagwati and Srinivasan (2002) and Dollar and Kraay (2004) conclude that economic openness is likely to reduce poverty as it increases growth. However, it is also argued in the literature that higher integration into the world economy is linked with output volatility and economic shocks. These are the poor households who are more vulnerable to such shocks (Culpeper, 2005). Therefore, globalization is added to Equation 1 as follows:

$$lnPov_i = \alpha_0 + \alpha_1 lnGINI_{\ i} + \alpha_2 Y_i + \alpha_3 lnX_i + \alpha_4 lnGlo_i + \varepsilon_i \quad (2)$$

Where, α_4 is the elasticity of poverty with respect to globalization in cross-sectional analysis.

Apart from the importance of overall globalization, it is also possible that the rate at which poverty decreases depends on the dimensions of globalization. Therefore, economic globalization in terms of trade, FDI and financial flows can have different poverty effects in comparison to social and political forms of globalization.[6] Note, in a recent study, Gygli et al. (2018) differentiate between 'de facto' and 'de jure' measures of globalization where "de facto measures of

[5] The cross-sectional data refers to the average over the time period (1980-2014) for each country for each variable.

[6] Specifically, the study employs the globalization indices constructed by Dreher et al. (2008). The study constructs an aggregate index of globalization and three sub-indices of globalization namely, economic, social, and political globalization. The study has included 23 different variables for the development of three sub-indices of globalization which are further aggregated into one aggregate index of globalization. The details of construction of these indices are given in Table A in the Appendix.

globalisation include variables that represent flows and activities, de jure measures include variables that represent policies that, in principle, enable flows and activities". This study, however, focuses on aggregate measures of globalization and tests different measures of globalization which includes economic, social and political globalization.

3.1. Panel Data Estimation

The cross-sectional analysis is extended for dynamic panel data estimations to account the factors related to time affecting the model and to confirm the results obtained using cross-sectional analysis. The advantage of panel data analysis is that it takes care of both cross-sectional and dynamic dimensions of the data. For panel data analysis, Equation 2 is re-specified as follows:

$$lnPov_{it} = \alpha_0 + \alpha_1 lnGINI_{it} + \alpha_2 Y_{it} + \alpha_3 lnX_{it} + In\, \alpha_4 Glo_{it} + \mu_{it} \qquad (3)$$

where t represents time period of the study which spans over 35 years, from 1980 to 2014.

3.2. Econometric Methodology

The econometric analysis is conducted in following steps. First, the baseline empirical estimates are drawn in cross-sectional analysis using Ordinary Least Squares (OLS). In the second step, Two Stages Least Squares (2SLS) is used to address the possible problem of endogeneity. The same steps have been followed in panel data estimations. In panel data, additional estimators such as fixed effects and random effects have been used to address country-specific fixed and random effects. Finally, System Generalized Method of Moments (SGMM) is used to address the problem of second-order serial correlation and the issue of endogeneity. Moreover, the SGMM estimator also addresses the problem of heteroscedasticity.

The pooled OLS model assumes constant intercept and slopes. It can be specified as follows:

$$lnPov_{it} = \alpha_0 + \alpha_1 lnGINI_{it} + \alpha_2 Y_{it} + \alpha_3 lnX_{it} + \alpha_4 lnGlo_{it} + \mu_{it} \qquad (4)$$

Since pooled OLS is a very restrictive model because of common intercept for all cross-sectional units. The alternative available option is a fixed effects model which addresses country specific effects by allowing the intercept to change for each cross-sectional unit. To show the variability of intercept a subscript 'i' is attached with constant term. Equation 5 represents fixed effects model.

$$lnPov_{it} = \alpha_i + \alpha_1 lnGINI_{it} + \alpha_2 Y_{it} + \alpha_3 lnX_{it} + \alpha_4 lnGlo_{it} + \mu_{it} \qquad (5)$$

The subscript 'i' for the intercept in Equation 5 indicates that fixed effect of each country is different due to country specific unobserved characteristics. Though fixed effects model allows intercept to change across cross-sectional units, but it is time invariant. To make it time variant, the subscript 't' is also attached with intercept. The country specific dummy variables can also be used to allow intercept to change across cross-sectional units or over time. Thus, the Equation 4 can be written as follows:

$$lnPov_{it} = \beta_0 + \beta_1 D_{1i} + \beta_2 D_{2i} + \cdots . \beta_n D_{ni} + \alpha_1\, lnGINI_{\,it} + \alpha_2 Y_{it} + \alpha_3 lnX_{it} + \alpha_4\, lnGlo_{it} + \mu_{it} \quad (6)$$

For N cross sections, we introduce N-1 dummy variables to escape the problem of dummy variables trap. The Least Squares Dummy Variables (LSDV) model is also referred as fixed effects model. The LSDV model captures those factors which remain same with in a cross-sectional unit but varies across cross-sectional units. These factors include natural, geographical and other factors which change across countries but remain same over time. However, the disadvantage of using LSDV model is that it consumes a lot of degrees of freedom because of so many dummy variables.

Then another model Random Effects (RE) is suggested which expresses ignorance through the error term. The RE model is based on the assumption that intercept of a cross-sectional unit is randomly drawn. The intercept represents constant mean value while country specific intercepts show deviation from the mean value. The notation for intercept is written as follows:

$$\alpha_{0i} = \alpha_{0} + \varepsilon_i \qquad i = 1, 2 \ldots \text{n} \quad (7)$$

The term ε_i shows individual differences in the intercept of each cross-sectional unit. The term ε_i is normally distributed with zero mean and constant variance. After substituting Equation 7 into Equation 6 we obtain:

$$lnPov_{it} = \alpha_0 + \alpha_1 lnGINI_{\,it} + \alpha_2 Y_{it} + + \alpha_3 lnX_{it} + \alpha_4\, lnGlo_{it} + \omega_{it} \quad (8)$$

Where $\omega_{it} = \varepsilon_i + \mu_{it}$ represents a composite term incorporating cross sectional error component (ε_i) and a component of cross-sectional and time series error (μ_{it}). The errors assume that individual error components are not correlated across cross-sectional units and over time. The expressions are given as follows:

$$\varepsilon_i \sim NI(0, \sigma_\varepsilon^2)\ \mu_{it} \sim NI(0, \sigma_\mu^2)$$

$$E(\varepsilon_i, \mu_{it}) = 0\ E(\varepsilon_i, \varepsilon_j) = 0\ (i \neq j)$$

$$E(\mu_{it}, \mu_{is}) = E(\mu_{it}, \mu_{jt}) = E(\mu_{it}, \mu_{js}) = 0\ (i \neq j, t \neq s)$$

The Hausman test is used to make a choice between fixed effects and random effects models. The null hypothesis of the Hausman test is that random effects are consistent and efficient while the alternative hypothesis is that fixed effects are consistent while the random effects estimators are not.

3.2. Endogeneity

To rely on the parameter estimates using OLS, the assumption of zero conditional mean needs to be validated. In the case of the following three instances this assumption is invalidated: the simultaneous linkage between independent and dependent variable, measurement error in the independent variables and bias due to omitted variables. There are different reasons of these problems, however, the solution of these problems is common that is utilization of instrumental variables techniques.

In the case of present study, there is possibility of endogeneity that may arise because of simultaneous linkages between globalization and poverty. On the one hand, globalization has power to explain poverty outcomes. On the other hand, high incidence of poverty can provide the ground for protective polices. To address the problem of endogeneity, we will use instrumental variables techniques such 2SLS and SGMM.

4. Data

The analysis is based on a panel data set for 113 countries for the period 1980-2014.[7] The description of data and sources is given in Table 1.

4.1. Descriptive and Statistical Analysis

Table 2 presents a summary of the descriptive statistics of all selected countries using cross-sectional data. The lowest average value of head count ratio is just 0.024 which belongs to Slovenia. The highest average value of head count ratio is 84.19 which is associated with Congo, Dem. Rep. Namibia represents the highest level of inequality as its Gini coefficient is 62.15 while Azerbaijan reflects the lowest level of inequality as its Gini coefficient is 23.36.

The maximum value of average overall globalization is 79.34 for the Czech Republic. Likewise, Estonia has the maximum value of average economic globalization 83.09 while minimum economic globalization of 17.93 belongs to Bangladesh. Czech Republic has the maximum social globalization 79.38 and minimum social globalization of 9.52 belongs to Congo, Dem. Rep. Russian

[7] The list of countries is given in Table B in Appendix.

Federation has the maximum political globalization 88.19 whereas minimum political globalization of 6.72 belongs to Gaza.

Table 1: The Data Description

Variables	Definitions	Sources
Poverty (Head Count Index)	The percentage of population living below $1.90 a day at 2011 international prices.	World Bank (2016)
Gini Coefficient	Gini coefficient for income.	World Bank (2016)
Eco. Growth	GDP per capita growth, (constant 2010 international $).	World Bank (2016)
Government exp.	General government final consumption expenditure as a % of GDP.	World Bank (2016)
Education	Total enrolment at secondary level as a % of the population of official secondary education age.	World Bank (2016)
Urbanization	Percent of population living in urban areas of the country.	World Bank (2016)
Over all Glob.	Weighted index of the following sub-indexes.[8]	Dreher (2008)
Economic Globalization.	Includes cross border investments, capital and labor flows, and low trade restrictions. It is an index which ranges from 0 to 100.	Dreher (2008)
Social Globalization	Includes personal contacts, information streams and cultural convergence in general. It is an index which ranges from 0 to 100.	Dreher (2008)
Political Globalization	Political globalization includes political exchange, international membership in foreign organizations, membership in international undertakings and acceptance of international treaties. It is an index, ranges from 0 to 100.	Dreher (2008)

Table 2: Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max
Poverty Head Count Ratio	113	24.7577	24.4684	0.02428	84.1950
Eco. Growth	113	3668.25	3857.06	234.216	20632.99
Inequality	113	41.3506	8.82015	23.3566	62.145
Government exp.	113	15.0708	5.18058	2.80376	32.5881
Urbanization	113	45.3902	19.9932	7.64238	90.7213
Education	113	55.9126	28.1541	8.32504	100.0306
Globalization	113	44.2564	11.8645	22.1599	79.3376
Eco. globalization	113	47.6496	13.5354	17.9342	83.0914
Social globalization	113	35.3505	15.6058	9.51767	79.3838
Political globalization	113	53.3286	17.3283	6.71787	88.1785

[8] The details of aggregate index of globalization and sub-indices of globalization are given in Table A in the Appendix.

4.2. Correlation Analysis

Table 3 demonstrates correlation matrix of selected variables. The correlation between poverty and inequality is positive, indicating that increasing inequality marginalized the poor. The correlation between economic growth and poverty is negative showing that growth helps the poor. Economic growth is one of the most important predictors of poverty and it is considered pro-poor (Dollar and Kraay, 2002).

Table 3: Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10
HCR	1.00									
Eco. Growth	-0.62	1.00								
Inequality	0.25	-0.19	1.00							
Globalization	-0.71	0.80	-0.16	1.00						
Eco. Glob.	-0.57	0.62	-0.01	0.79	1.00					
Soc. Glob.	-0.75	0.81	-0.21	0.91	0.73	1.00				
Pol Glob.	-0.21	0.33	-0.14	0.51	-.001	0.25	1.00			
Urbanization	0.69	-0.60	0.37	-0.68	-0.56	-0.74	-0.18	1.00		
Education	-0.81	0.64	-0.34	0.74	0.62	0.79	0.18	-0.83	1.00	
Gov. Exp.	-0.06	0.11	-0.06	0.13	0.36	0.16	-0.26	-0.06	0.15	1.00

All the categories of globalization are negatively correlated with poverty implying that increasing globalization aids the poor. Economic and social forms of globalization are highly correlated with poverty while political globalization has relatively low correlation with poverty.

5. Results and Discussion

This section presents the estimation results with different model specifications and with alternative estimation techniques for cross-sectional data as well as for panel data to show the effects of globalization on poverty through different channels.

5.1. Cross-Sectional Results

Table 4 reports cross-section OLS results for poverty and globalization. Column 1 of Table 4 shows the result of overall globalization on poverty. Overall globalization exerts a negative and statistically significant influence on poverty. The coefficient of overall globalization indicates that if globalization increases by 1 percent holding all other factors constant poverty will decrease by 0.0617 percent. To check the impact of dimensions of globalization, we run the same model for all sub-dimensions of globalization. The results are reported in columns 2-4 of Table

4. We find that economic and social globalization have negative and statistically significant impact on poverty implying that one percent increase in economic and social globalization decreases poverty by 0.04 and 0.07 percent, respectively.

Table 4: Cross-sectional OLS Results of Poverty and Globalization

Variables	(1)	(2)	(3)	(4)
	Dependent Variable: Poverty			
Eco. Growth	-0.105*	-0.0907	-0.0481	-0.180***
	(0.0608)	(0.0668)	(0.0521)	(0.0661)
Inequality	0.0869***	0.101***	0.0777***	0.0920***
	(0.0121)	(0.0128)	(0.0103)	(0.0135)
Government Exp.	0.0543*	0.0657**	0.0175	0.0943***
	(0.0280)	(0.0301)	(0.0244)	(0.0300)
Urbanization	-0.0244***	-0.0359***	-0.0142**	-0.0448***
	(0.00674)	(0.00657)	(0.00577)	(0.00648)
Education	-0.0133**	-0.0110	-0.00833	-0.0174***
	(0.00597)	(0.00674)	(0.00511)	(0.00662)
Globalization	-0.0617***			
	(0.0120)			
Economic Glob.		-0.0398***		
		(0.00967)		
Social Glob.			-0.0732***	
			(0.00826)	
Political Glob.				0.000697
				(0.00693)
Constant	2.689***	1.483*	2.040***	1.002
	(0.755)	(0.748)	(0.590)	(0.855)
Observations	113	113	113	113
R-squared	0.709	0.698	0.791	0.637
Functional form Test (Linktest)	0.398	0.546	0.424	0.023
Multicollinearity Test (Mean VIF)	1.46	1.35	1.54	1.20
Heteroscedasticity Test (Breusch-Pagan / Cook-Weisberg test)	0.3635	0.0092	0.0355	0.1791
Normality (Jarque-Bera test)	5.5e-04	0.2944	0.1526	0.0125

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Globalization provides opportunities to low-income countries for integration into international markets for their manufactures and services. The

expansion of manufactures and services leads to structural relocation and provides opportunities of a better job to the poor in the cities as they can move from the vulnerability of grinding rural poverty. Moreover, international integration also spurs job productivity. Consequently, workers' performance grows faster, and their living standards improve, and poverty tends to ameliorate (Dollar and Kraay, 2004).

Social globalization influences the functions of markets by increasing information flows and personal contacts. Generally, better flows of information tend to decrease transaction costs leading to competitive equilibrium in the markets. A decline in transaction costs bridges the gap between produces' reservation price and consumers' willingness to pay, thereby increasing production. Furthermore, social globalization also includes across border personal contacts that determine economic outcomes, flows of resources and terms of trade effects. Improved economic outcomes also tend to ameliorate poverty outcomes (Bergh and Nilsson, 2011). The results indicate that political globalization has no statistically significant impact on poverty.

In addition, Table 4 reports that all control variables have expected and statistically significant effect on poverty. Economic growth increases the per capita income of everyone in a society and plays a significant role in reducing poverty (Dollar and Kraay, 2002). Strong growth increases employment, reduces poverty, and increases access to education & health. While sustained economic growth creates human capital which in turn promotes economic growth. Therefore, growth generates a virtuous cycle of prosperity.

Urbanization and education have negative and significant influence on poverty indicating that an increase in these variables reduces poverty. The increasing urbanization in developing countries is considered as a positive force in economic development. In effect, earlier development theories given by Arthur Lewis and Simon Kuznets consider urbanization as a central part of economic performance and poverty reduction in developing countries. Nissanke and Thorbecke (2008) discuss that urbanization positively impacts incomes of the earners and supports poverty reduction. It is widely known that urban areas offer more opportunities as compared to rural areas and consequently education and occupational levels are high in urban areas. Therefore, there are more opportunities for 'bridging networks' (Perlman, 2007).

Education is considered to have an important role in reducing poverty. A well-educated person can have a good employment and ideas of investments and can reduce his poverty. It suggests that with proper learning skills, the poor are in

a better position to take advantage of the new opportunities offered by globalization (Goff & Singh, 2014).

Lastly, the study has performed some post-estimation tests namely the functional form test, multicollinearity test, heteroscedasticity and normality test. The results obtained from post-estimation tests are also given in Table 4. The model has correct functional form as p-value of hat square is greater than 0.05. Similarly, there is no problem of multicollinearity as mean VIF is less than 10. However, there exist problem of both hetero (as probability value is less than 0.05) and normality (chi square value is less than 0.05) with most proxies.

5.2. Cross-Sectional Two Stages Least Squares Results

To take into account potential endogeneity we have used cross-sectional two stages least squares (2SLS). The results estimated from 2SLS are reported in Table 5. We have used 2SLS by instrumenting globalization and its dimensions on **(1)** initial globalization (**2)** own lags and **(3)** neighbouring globalization.[9]

Column 1 of Table 5 shows the result of the baseline model. It shows that coefficient of aggregate globalization is negative and significant, indicating that one percent increase in globalization leads to 0.07 percent decline in poverty. The same results are obtained with other dimensions of globalization except political globalization that is insignificant. The study also finds that income inequality and government consumption expenditure increase poverty. While an increase in economic growth, urbanization and education lowers poverty.

Comparing 2SLS with OLS we find that OLS tends to underestimate the effect of overall globalization while it overestimates the effect of economic and social globalization. In addition, political globalization that is positive in OLS becomes negative in 2SLS but remains insignificant.

The study has also applied two post-estimation tests, namely, over identification test and endogeneity tests. The results of Sargan and Basmann tests indicate that instruments are valid with aggregate and social globalization, both with probability values greater than 0.05.

[9] We use the lag level of globalization in neighboring countries as instruments and it is also measured by the aggregate KOF index of globalization. The basic idea behind this instrument is "peer effects" of opening up country borders and integrating with the rest of the world in terms of socioeconomic interactions. These effects are likely to be closely related, with some lag, to a country's own globalization. However, the two countries are considered as neighbors if they have a common land or maritime boundary.

Table 5: Cross-sectional 2SLS Results of Poverty and Globalization

Variables	(1)	(2)	(3)	(4)
	Dependent Variable: Poverty			
Eco. Growth	-0.102*	-0.110*	-0.0855*	-0.198***
	(0.0559)	(0.0632)	(0.0494)	(0.0590)
Inequality	0.0903***	0.0995***	0.0823***	0.0919***
	(0.0105)	(0.0115)	(0.00934)	(0.0117)
Government	0.0461*	0.0748***	0.0267	0.0911***
Exp.	(0.0250)	(0.0272)	(0.0228)	(0.0261)
Urbanization	-0.0255***	-0.0381***	-0.0228***	-0.0464***
	(0.00655)	(0.00664)	(0.00582)	(0.00582)
Education	-0.00941*	-0.0120*	-0.00791	-0.0150**
	(0.00548)	(0.00632)	(0.00483)	(0.00595)
Globalization	-0.0704***			
	(0.0129)			
Economic Glob.		-0.0327***		
		(0.0103)		
Social Glob.			-0.0595***	
			(0.00886)	
Political Glob.				-0.00822
				(0.00709)
Constant	2.745***	1.457**	1.827***	1.478**
	(0.667)	(0.667)	(0.530)	(0.746)
Observations	101	97	101	101
R-squared	0.778	0.748	0.830	0.729
Over id tests				
Sargan Test	(p = 0.1314)	(p = 0.0139)	(p = 0.5506)	(p = 0.0001)
Basmann Test	(p = 0.1457)	(p = 0.0142)	(p = 0.5769)	(p = 0.0000)
Endogeneity test	(p = 0.0242)	(p = 0.1811)	(p = 0.8065)	(p = 0.4481)
Durbin Wu-Hausman				

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5.3. Pooled OLS Results

The results with pooled OLS estimation technique are reported in Table 6. It is evident that aggregate globalization has negative and statistically significant impact on poverty. Similar results are also reported for economic globalization.

Table 6: Pooled OLS Results of Poverty and Globalization

Variables	**(1)**	**(2)**	**(3)**	**(4)**
	Dependent Variable: Poverty			
Eco. Growth	0.00974	0.0147	0.0136	-0.00210
	(0.0119)	(0.0125)	(0.0113)	(0.0127)
Inequality	0.112***	0.121***	0.102***	0.126***
	(0.00577)	(0.00587)	(0.00561)	(0.00601)
Government	0.000696	0.00324	-0.00694	0.00382
Exp.	(0.00706)	(0.00743)	(0.00675)	(0.00756)
Urbanization	-0.0342***	-0.0468***	-0.0260***	-0.0517***
	(0.00338)	(0.00315)	(0.00333)	(0.00321)
Education	0.00133	0.00200	-0.000747	-0.00292
	(0.00396)	(0.00422)	(0.00375)	(0.00421)
Globalization	-0.0521***			
	(0.00488)			
Economic		-0.0291***		
Glob.		(0.00390)		
Social Glob.			-0.0556***	
			(0.00390)	
Political Glob.				-0.00804**
				(0.00322)
Constant	0.182	-0.777*	0.0710	-1.257***
	(0.445)	(0.452)	(0.409)	(0.463)
Observations	746	737	746	746
R-squared	0.576	0.547	0.617	0.515

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The coefficient of social globalization shows that a 1 percent increase in this variable causes 0.056 percent decline in poverty. Political globalization also has same sign, it implies that increased political globalization reduces poverty and this effect is also significant. In addition, the control variables inequality and urbanization have expected and statistically significant effects.

5.4. Fixed Effects Results

Failure to reject the null in the Hausman test suggests that fixed effects are preferred over random effects for all models except overall globalization. Table C in the Appendix gives the results obtained from the Hausman test. The results obtained with fixed effects models (FEM) are reported in Table 7. Regarding globalization and its dimensions, we obtain the same results as in pooled OLS.

Table 7: Fixed Effects Results of Poverty and Globalization

Variables	(1)	(2)	(3)	(4)
	Dependent Variable: Poverty			
Eco. Growth	0.0149*	0.0135	0.0136	0.0118
	(0.00895)	(0.00921)	(0.00901)	(0.00883)
Inequality	0.113***	0.115***	0.116***	0.106***
	(0.0106)	(0.0107)	(0.0107)	(0.0106)
Government.	-0.000575	-0.00160	-0.00147	0.000202
Exp.	(0.00560)	(0.00573)	(0.00563)	(0.00556)
Urbanization	-0.0607***	-0.0880***	-0.0707***	-0.0679***
	(0.0131)	(0.0119)	(0.0132)	(0.0114)
Education	0.00928**	0.00803*	0.00719	0.00946**
	(0.00472)	(0.00480)	(0.00472)	(0.00468)
Globalization	-0.0346***			
	(0.00739)			
Economic Glob.		-0.0127**		
		(0.00607)		
Social Glob.			-0.0265***	
			(0.00748)	
Political Glob.				-0.0257***
				(0.00459)
Constant	-0.170	0.258	-0.213	0.286
	(0.787)	(0.795)	(0.805)	(0.769)
Observations	746	737	746	746
R-squared	0.281	0.262	0.271	0.291
Number of id	102	97	102	102

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 7 also shows that government consumption expenditures and urbanization negatively affect poverty while inequality positively impacts poverty (Nissanke & Thorbecke, 2008). Results from the random effects models are given in Table D in the Appendix.

5.5. System GMM Results

The study has employed System Generalized Method of Moment technique to deal with the issues of endogeneity and heteroschadesticity. The estimation results are given in Table 8.

The study has employed instrumental variables technique to deal with the issue of endogeneity. Although, a common solution may be use of 2SLS but it is considered unsuitable in the presence of heteroschadesticity. Therefore, the study

has employed System Generalized Method of Moment (SGMM) introduced by Arellano and Bond (1991) to handle the issues of endogeneity and heteroschadesticity. The study takes the first lag of the endogenous variable as independent variable and the instruments used for the endogenous variable are neighbourhood globalization and lag of growth.

Table 8: System GMM Results of Poverty and Globalization

Variables	(1)	(2)	(3)	(4)
	Dependent Variable: Poverty			
Eco. Growth	-0.0128***	-0.0263***	-0.00954***	-0.0126***
	(0.00197)	(0.00339)	(0.00203)	(0.00277)
Inequality	0.111***	0.130***	0.0678***	0.135***
	(0.00592)	(0.00629)	(0.00483)	(0.00412)
Government.	0.00821***	0.00840***	0.0362***	0.0447***
Exp.	(0.00265)	(0.00204)	(0.00162)	(0.00270)
Urbanization	-0.0105***	-0.0543***	-0.0113***	-0.0171***
	(0.00149)	(0.00295)	(0.00112)	(0.00505)
Education	-0.0105*	-0.0555***	0.0187***	-0.0578***
	(0.00548)	(0.00903)	(0.00356)	(0.00604)
Globalization	-0.0244***			
	(0.00309)			
Economic		-0.0124***		
Glob.		(0.00247)		
Social Glob.			-0.0213***	
			(0.00122)	
Political Glob.				-0.00795**
				(0.00311)
Constant	-1.963***	4.255***	-3.912***	1.316*
	(0.399)	(0.962)	(0.277)	(0.695)
Observations	402	399	402	402
Number of id	45	44	45	45
Instruments	51	51	51	51
AR1 (Pr> z)	0.025	0.03	0.016	0.014
AR2 (Pr> z)	0.091	0.108	0.069	0.084
Hansen test	0.952	0.664	0.925	0.712

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 8 shows that aggregate globalization and its dimensions (economic, social and political) have expected impact on poverty indicating that 1 percent increase in aggregate, economic, social and political globalization leads to 0.0244, 0.0124, 0.0213 and 0.00795 percent decrease in poverty, respectively. The Table 8

also shows that increased economic growth, urbanization and education decrease poverty while increased inequality and government consumption expenditures increase poverty.

In sum, regardless of the technique we apply and the model specification[10] we follow, the empirical results show that globalization generally helps to reduce poverty.

6. Conclusion

The purpose of this study has been to assess the poverty consequences of globalization for a large panel of countries from 1980 to 2014. The empirical results have been estimated using OLS, POLS, 2SLS, fixed effects, random effects and system GMM methods of estimation. This study disaggregates globalization into its three components that are economic, social and political globalization.

The empirical results confirm the favourable effects of globalization. The coefficient of overall globalization has a negative and significant sign in all regressions implying that global integration helps to ameliorate global poverty. However, this effect is not consistent to different forms of globalization. Economic and social globalizations significantly help to reduce global poverty but poverty reducing effect of political globalization is not consistently significant in all models.

This analysis proposes the following policy implications: First, developing countries need to embrace global integration to support the fight against poverty. Second, developing countries may increase government spending on education to help the poor. Third, developing countries need to focus more on economic globalization rather than on political globalization as evidence has shown robust and significant poverty reducing effect of economic globalization.

The analysis of this study has certain limitations and, therefore, policy implications need to be considered with certain cautions. First, findings of the study are based on common marginal effects for a large set of countries which cannot be generalized for each unit of a cross-sectional sample. Second, the results can be sensitive to different sub-components of globalization that have been used to

[10] To disentangle the true effect of globalization on poverty, its exclusive impact is also estimated adding one by one additional controls of the selected model. The results are provided in Table E in Appendix. These results also conform that poverty effects of globalization are pure effects and not driven by other variables.

construct the aggregate levels of globalization and its different forms. Third, this study does not consider the role of complementary policy reforms which mediate the links of globalization with poverty.

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Appendix

Table A: The KOF Index of Globalization

	Variables	Weights
Overall Globalization	Economic Globalization	(36%)
	Social Globalization	(38%)
	Political Globalization	(26%)
Economic Globalization [36%]	**i) Actual Flows (**% of GDP)	(50%)
	Trade	(22%)
	Portfolio Investment	(24%)
	Foreign Direct Investment, stocks	(27%)
	Income Payments to Foreign Nationals	(27%)
	ii) Restrictions	(50%)
	Capital Account Restrictions	(23%)
	Hidden Import Barriers	(24%)
	Taxes on Trade as percentage of current revenue	(26%)
	Mean Tariff Rate	(28%)
Social Globalization [38%]	**i) Data on Personal Contact**	(33%)
	Transfers (% of GDP)	(3%)
	Foreign Population as a % of total population	(21%)
	Telephone Traffic	(25%)
	International letters (per capita)	(25%)
	International Tourism	(26%)
	ii) Data on Information Flows	(35%)
	Trade in Newspapers (percent of GDP)	(26%)
	Internet Users (per 1000 people)	(36%)
	Television (per 1000 people)	(38%)
	iii) Data on Cultural Proximity	(32%)
	Trade in books (percent of GDP)	(11%)
	Number of Ikea (per capita)	(44%)
	Number of McDonald's Restaurants (per capita)	(44%)
Political Globalization [26%]	Embassies in Country	(25%)
	Participation in U.N. Security Council Missions	(22%)
	International Treaties	(26%)
	Membership in International Organizations	(27%)

Source: Dreher et al. (2008).

Table B: List of Countries

1	Albania	39	Georgia	77	Nigeria
2	Angola	40	Ghana	78	Pakistan
3	Argentina	41	Guatemala	79	Panama
4	Armenia	42	Guinea	80	Papua New Guinea
5	Azerbaijan	43	Guinea-Bissau	81	Paraguay
6	Bangladesh	44	Guyana	82	Peru
7	Belarus	45	Haiti	83	Philippines
8	Belize	46	Honduras	84	Poland
9	Benin	47	Hungary	85	Romania
10	Bhutan	48	India	86	Russian Federation
11	Bolivia	49	Indonesia	87	Rwanda
12	Botswana	50	Iran, Islamic Rep.	88	Senegal
13	Brazil	51	Jamaica	89	Serbia
14	Bulgaria	52	Jordan	90	Seychelles
15	Burkina Faso	53	Kazakhstan	91	Sierra Leone
16	Burundi	54	Kenya	92	Slovak Republic
17	Cabo Verde	55	Kiribati	93	Slovenia
18	Cambodia	56	Kyrgyz Republic	94	South Africa
19	Cameroon	57	Latvia	95	Sri Lanka
20	Central African Republic	58	Lesotho	96	Sudan
21	Chad	59	Lithuania	97	Suriname
22	Chile	60	Macedonia, FYR	98	Swaziland
23	China	61	Madagascar	99	Tajikistan
24	Colombia	62	Malawi	100	Tanzania
25	Congo, Dem. Rep.	63	Malaysia	101	Thailand
26	Congo, Rep.	64	Mali	102	Timor-Leste
27	Costa Rica	65	Mauritania	103	Togo
28	Cote d'Ivoire	66	Mauritius	104	Trinidad and Tobago
29	Croatia	67	Mexico	105	Tunisia
30	Czech Republic	68	Moldova	106	Turkey
31	Dominican Republic	69	Mongolia	107	Uganda
32	Ecuador	70	Montenegro	108	Ukraine
33	El Salvador	71	Morocco	109	Uruguay
34	Estonia	72	Mozambique	110	Vanuatu
35	Ethiopia	73	Namibia	111	Venezuela, RB
36	Fiji	74	Nepal	112	Vietnam
37	Gambia, The	75	Nicaragua	113	Zambia
38	Gaza	76	Niger		

Table C: Hausman Test Result

Model	Outcome	Conclusion
Model with Globalization	chi2(6) = 9.77 Prob>chi2 = 0.1347	Random effects
Model with Economic Globalization	chi2(6) = 15.45 Prob>chi2 = 0.0170	Fixed effects
Model with Social Globalization	chi2(6) = 26.82 Prob>chi2 = 0.0002	Fixed effects
Model with Political Globalization	chi2(6) = 26.65 Prob>chi2 = 0.0002	Fixed effects

Table D: Random Effect Results of Poverty and Globalization

Variables	(1)	(2)	(3)	(4)
	Dependent Variable: Poverty			
Eco. Growth	0.0146*	0.0152*	0.0154*	0.00931
	(0.00882)	(0.00913)	(0.00894)	(0.00882)
Inequality	0.109***	0.115***	0.108***	0.108***
	(0.00850)	(0.00862)	(0.00798)	(0.00884)
Government Exp.	0.000323	-0.000701	-0.00174	0.000341
	(0.00543)	(0.00559)	(0.00546)	(0.00548)
Urbanization	-0.043***	-0.059***	-0.035***	-0.0584***
	(0.00643)	(0.00611)	(0.00584)	(0.00617)
Education	0.00437	0.00511	0.00102	0.00285
	(0.00412)	(0.00429)	(0.00396)	(0.00419)
Globalization	-0.043***			
	(0.00585)			
Economic Glob.		-0.024***		
		(0.00494)		
Social Glob.			-0.0467***	
			(0.00531)	
Political Glob.				-0.0205***
				(0.00383)
Constant	-0.0794	-0.485	-0.310	-0.0146
	(0.571)	(0.580)	(0.530)	(0.599)
Observations	746	737	746	746
Number of id	102	97	102	102

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table E: Cross-Sectional OLS Results of Poverty and Globalization

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Poverty					
Globalization	-0.110***	-0.0483***	-0.0315***	-0.0279**	-0.0275**	-0.0617***
	(0.00966)	(0.0139)	(0.0111)	(0.0120)	(0.0123)	(0.0120)
Eco. Growth		-0.867***	-0.988***	-0.988***	-0.978***	-0.105*
		(0.153)	(0.121)	(0.123)	(0.136)	(0.0608)
Inequality			0.0811***	0.0846***	0.0838***	0.0869***
			(0.00921)	(0.00904)	(0.0102)	(0.0121)
Govt Exp.				0.0502**	0.0489**	0.0543*
				(0.0216)	(0.0231)	(0.0280)
Urbanization					-0.0120	-0.0244***
					(0.0739)	(0.00674)
Education						-0.0133**
						(0.00597)
Constant	7.060***	11.03***	7.845***	7.334***	7.250***	2.689***
	(0.433)	(0.802)	(0.728)	(0.720)	(0.889)	(0.755)
Observations	113	113	113	113	113	113
R-squared	0.506	0.607	0.658	0.699	0.701	0.709

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1