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**Poverty-Growth-Inequality Triangle under Globalization:
Time Dimensions and the Control Factors
of the Impacts of Integration**

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Time Dimensions and the Control Factors of the Impacts of Integration**

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Abstract

Numerous existing empirical studies agreed that economic integration contributes to poverty reduction on the basis that it accelerates growth ‘on average,’ while being neutral to the distribution of benefits, again ‘on average.’ However, in reality, there exists a number of ‘dispersion’ in these ‘average’ relationships, both from the transnational and chronological aspects. Hence, this research intends to empirically elaborate a ‘cross-national study’ on the ‘interstate dispersion’ of the impact (growth, inequality, and poverty) that international economic integration provides to the developing economies, along with the specific factors that determine the outcome in each nation such as socio-economic institutions and policy stances. Regression analyses are conducted for the major segments of the P-G-I triangle, paying special attention to the time dimensions of the impacts by using S-T, M-T and L-T growth spells. Having confirmed average relationships, the factors of dispersions—both common factors (variations in explanatory variables) and country-specific factors (fixed effects)—are explored. This paper confirms: 1) the absolute income convergence in each income group (with divergence between income groups); 2) the conditional income convergence among countries across income groups; and 3) the absolute (and, of course, conditional) convergence in inequality (GINI) and poverty headcount ratios (HCR) across countries. Unlike the earlier studies that found higher inequality elasticity of poverty reduction, this study, with many growth spells taken from the countries in transition including the FSU states, finds higher elasticity of poverty reduction for economic growth. In terms of the time dimensions of the emergence of impacts, the paper finds relatively higher significance of ‘institutions’ with lower significance of ‘policy stances’ in the longer growth spells. Among the three dimensions of integration tested in this study (international trade, FDI, and remittances), higher significance exists in: 1) FDI (positive) in economic growth; 2) FDI (negative) and trade (positive) in the income of bottom quintile relative to national average; and 3) remittances (negative) in poverty (i.e., reduce poverty headcount ratio), but not with sufficient statistical significance (at least not yet). Trade is mostly neutral to income distribution (GINI) while FDI and remittances tend to exert negative and positive impacts, respectively. Institutional quality as measured in the investor-oriented ICRG indicators, while promoting overall economic growth, affects equality (GINI and bottom quintile income relative to the country average) negatively. As the combined result of the P-G-I triangle, however, higher institutional quality (ICRG indicators) reduces poverty (HCR).

Keywords: Poverty, Income Distribution, Inequality, Growth, Globalization, Institutions, Fixed Effects

JEL Classification: I32, O11, O43

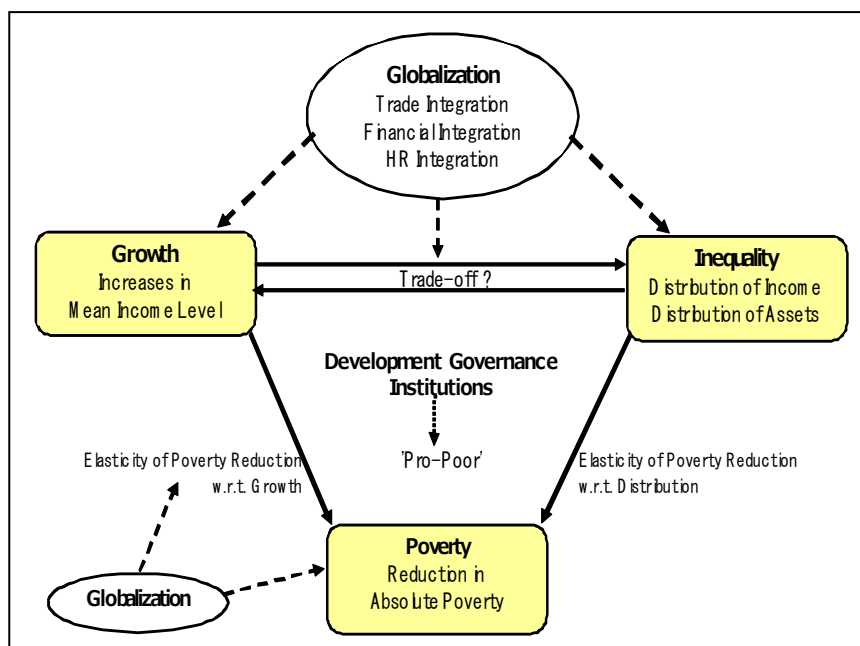
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1. Introduction: Questions to be addressed.

As Dollar and Kraay (2002) and many others have shown, growth is good for the poor. Also, as Ravallion (2005) and many others have pointed out, inequality is bad for the poor. In the recent empirical studies on the poverty-growth-inequality triangle (the triangle with three shaded nodes in Figure 1) within the field of development economics, it is considered that the socio-economic structure, institutions, culture, policies, and other country specific factors are the determining factors of the relationships among growth, inequality, and poverty reduction. Bourguignon (2003), Ravallion (2005) and others have empirically shown that the elasticity of poverty reduction with respect to economic growth (growth effect) is only less than half of the elasticity of poverty reduction with respect to changes in income distribution (distribution effect). This indicates that even if economic growth accelerates, it is not likely that this will contribute to poverty reduction in case income distribution worsens (or becomes more unequal) as the by-product of this growth. **Here, a question arises whether growth strategy under globalization (trade, finance and investment, and labor migration), which is considered to expand domestic disparity, indeed achieves poverty reduction or not.**

What this research aims is to sort out the country-specific factors that hinder the expected poverty reduction through economic integration as predicted by international trade and finance theories, analyze them, and to find out whether there exist common countermeasures to solve the issue. The following are the set of questions to be addressed in this study.

Figure 1: Poverty-Growth-Inequality Triangle under Globalization



Source: Otsubo, Shigeru (2009), Leading Issues in Development with Globalization, Fig. 1-2, p.58.

1.1 Is integration good for growth?

In a standard panel (or cross-country) analysis, when we regress period-average rates of growth in per capita real GDP on the initial levels of per capita real GDP like the way shown in Equation [1], a negative estimate of coefficient β signifies the existence of (absolute) β -convergence.

$$(\ln y_{ct} - \ln y_{c0})/T = \alpha + \beta \ln y_{c0} + \lambda_t' + \varepsilon_{ct}' \quad [1]$$

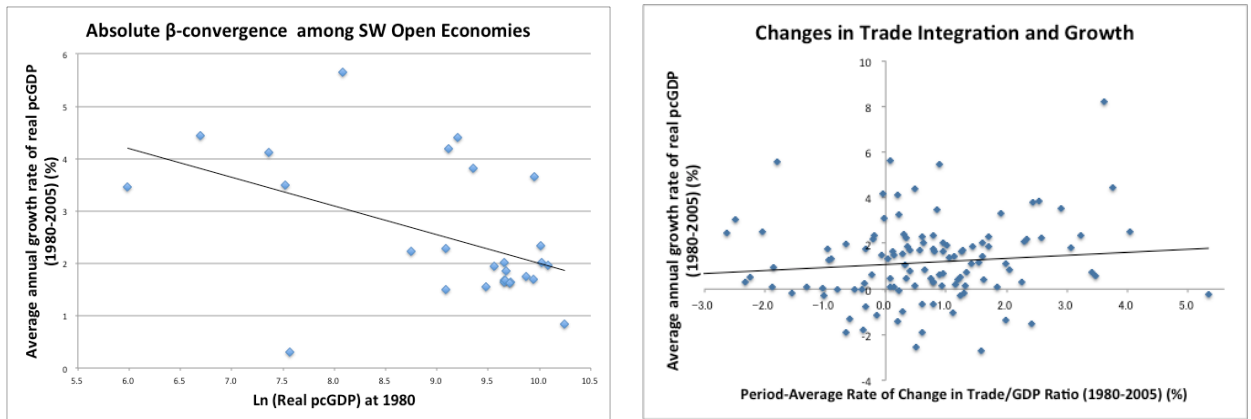
where, y_{c0} the initial level of per capita income for country c , y_{ct} is the level of income at year t for the same country c , and T is the length of period.² Absolute β -convergence, however, did not materialize (significant and negative β coefficient was not found).

Barro and Sala-i-Martin (1995) and Barro (1997) then estimated ad-hoc growth equations for conditional β -convergence in the Equation [2] format, where Z contains conditions/factors for income convergence, and γ is a coefficient vector.

$$(\ln y_{ct} - \ln y_{c0})/T = \alpha + \beta \ln y_{c0} + \gamma \ln Z_{ct} + \lambda_t' + \varepsilon_{ct}' \quad [2]$$

Here, we are concerned with the state of globalization (economic integration) as a crucial factor, together with policy stances and institutional qualities, for the conditional β -convergence. Figure 2 shows income convergence among the countries designated as ‘most open’ by Sacks and Warner (1995) (see left figure). The right figure shows a simple positive relationship between changes in trade/GDP ratios and in per capita income (1980-2005). Integration seems to be good for growth, on average, but with wide dispersions. What are the possible causes for this wide dispersion in the relationship between trade integration and growth?

Figure 2: Income Convergence among Integrators



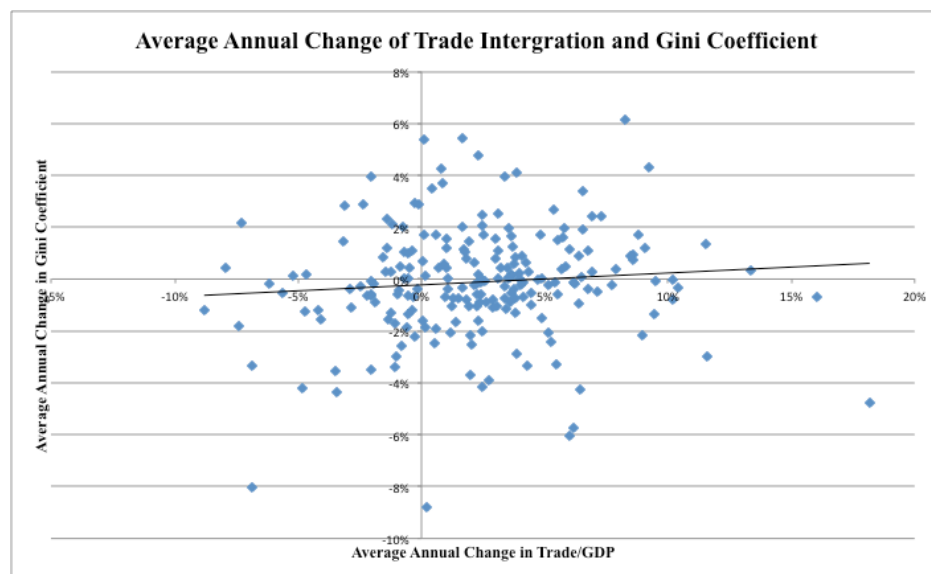
Source: Authors' own compilation.

² λ_t' is time-specific fixed effects. ε_{ct}' is a random error term. Note that country-specific fixed effects are dropped here as this equation deals with log differences. The left side of this equation is the period average annual growth rates (growth spells).

1.2 Is integration neutral to income distribution?

Dollar and Kraay (2004), a study conducted at the World Bank, analyzed the trends and relations of the global trade integration, poverty reduction, inequality and disparity. The results indicated that no significant correlation can be observed between the changes in the trade/GDP (ppp) ratios (or changes in tariff rate and capital regulations) and the changes in the Gini coefficients (see Figure 3), and that not only the economic growth but also trade integration is “on average” neutral to income distribution. Nevertheless, Milanovic (2005) regressed the ten decile-average incomes of the world population to the trade/GDP and overseas investment/GDP ratios using the world income distribution data (1988, 1993, 1998) that covers 95% of the world’s GDP and 90% of the whole population. As a result, two things became clear. First, trade integration gives a negative impact especially among the middle and lowest class households in poor nations (although positive effect was observed in high income families of high-income countries). Second, investment integration is likely to benefit only the top income class, although it is not yet statistically significant.

Figure 3: Is Trade Integration Distribution Neutral?



Source: Authors’ own compilation using growth spells of 5-9 years.

In short, from the cross-country perspective, economic integration increases each country’s average per capita income “on average,” and pulls up the per capita income of the poor class with the almost equal proportion, again “on average.” Yet, the dispersion among countries is big, and in considering the entire world as a single country, international economic integration principally produces benefit to the rich class, and comparatively, the benefit cannot be confirmed among the poor. Countries that belong to the 1st quadrant (the upper right quadrant) in Figure 3 are those confronting the distributional problems associated with integration.

1.3 What are the appropriate time dimensions in analyzing the role of institutions?

The salient nature of the current study is its focus on the impact of institution building (institutional quality) in different time dimensions. Unlike the focal points of previous studies that focused on the quality of economic policies (trade, fiscal and monetary policies, etc.), this paper pays more attention to institutional quality/capacity as the control factors of the impacts of integration. Quality of institutions should be one of the key determinants for economic growth and poverty reduction in the longer run. In most developing countries, government has limited policy-making capacity, resulting in a poor management of macroeconomic policies. Their policy stances can be changed or improved, in a relatively short time period, by external pressure such as the conditionality imposed by international finance organizations. However, it does not necessarily mean that the country becomes capable of making good policies by itself. In reality, constraints caused by the low levels of institutional quality remain. Building and improving institutions takes a long time (Williamson, 2000), while policy stance can be changed in a rather short time. Therefore, the impact of institutional quality should be differentiated in time lines from that of policy stance. Accordingly, the control factors of the impact of economic integration should also be scrutinized with time dimensions in mind. Thus, the current study intends to analyze different time frameworks of impact for policy stance and institutional quality by mobilizing growth econometrics over short-term (1 to 4 years), mid-term (5 to 9 years) and long-term (over ten years) growth spells.

The next section of this article presents a literature review on the relevant/related research questions. Section three describes the empirical models (or a set of growth, inequality, and poverty reduction equations) that we mobilize in this study. Section four introduces the data set of short-term, mid-term, and long-term growth spells constructed for this study, and describes the basic characteristics of them with the results from a set of basic descriptive regression analyses. The fifth and the main analytical section of the paper will introduce the results of regression analyses conducted on the models presented in section three. The concluding section of the paper will summarize the main findings and discuss their policy implications.

2. Literature Survey

Stanly Fischer, who once acted as the managing director of the IMF, stated in his Ely Lecture at the 2003 Annual Conference of the American Economic Association that “from NGOs demonstrating for further debt relief and campaigning for greater access of developing country exports to industrialized country markets, to academic critics questioning current policy views, many are seeking a better and fairer globalization.”³ The World Bank (2001) noted that “globalization reduces poverty, but not everywhere (p.3),” and that (since 1980) “it (the number

³ This lecture was later published in the following journal paper: Fischer, Stanley (2003), “Globalization and Its Challenges,” *American Economic Review*, 93(2), pp.1-30.

of poor people) is falling rapidly in the new globalizers (incl. China, India, Uganda, Vietnam) and rising in the rest of the developing world (p.7).” After reviewing all the World Bank projects related to trade liberalization during 1987-2004, the Independent Evaluation Group (IEG) of the World Bank reported as follows (World Bank, 2006: p. ix):

Trade-related projects have been helpful in reducing distortions and relaxing the import constraint. However, cross-country analyses and case studies found that outcomes varied across countries, depending on initial conditions, the degree of macroeconomic stabilization, the existence of prior analyses, and the quality of trade-related institutions. The Independent Evaluation Group (IEG) also found that the Bank underestimated the complexity of complementary reforms in the investment climate, paid inadequate attention to external factors, and gave insufficient attention to analyzing the poverty-distributional outcomes.

In short, although these review studies of globalization confirmed that globalization had helped reduce poverty in many developing countries, they also pointed out the needs of better management and institutions in order to help the world’s poorest, most marginalized countries and benefit the poor and marginalized people in the globalizing economies.

2.1 Is integration good for growth?

Dollar (1992) found a high correlation between the growth rates of per capita income of 95 developing countries and their degrees of openness (outward orientation) for the sample period of 1976-1985. Real exchange rate distortion (as measured by price differences between domestic and the US prices) and real exchange rate variability (as measured by coefficients of variation of price indicators adjusted for the levels of per capita income) were used as proxies of outward orientation in this regression analysis.

Sacks and Warner (1995) showed that economies with high degree of openness (in fact, the set of open economies in their dichotomy of open and closed economies) had experienced higher rates of economic growth. Black market exchange rate premium of 20% or more, state intervention in exports through export marketing board, socialists, and coverage of import quotas on intermediate and capital goods of over 40% are used to identify “closed” economies.⁴ As shown in Figure 2, there exists absolute β -convergence (income) convergence among economies labeled “open” in their study.

Harrison (1991, 1996), drawing on the trade analyses of Grossman and Helpman (1992), showed that (open) trade policies (or openness in general) increases long-term growth potential through their positive impact on technology transfer.⁵ Total factor productivity estimated by the production function approach (growth

⁴ Average import tariff rate on intermediate and capital goods was also used, but it was redundant. Black market exchange rate premium dominated their classification of openness.

⁵ Updates to these studies are available in Harrison (2006) and Harrison (2007).

accounting) was regressed on various measurements of openness such as the degrees of trade openness derived from exchange rate management and trade policies, those derived from tariff and non-tariff barriers, black market exchange rate premium, trade (exports plus imports) to GDP ratios, indicators built on differences between domestic and foreign prices, Dollar's price distortion indicators (Dollar, 1992), anti-agriculture bias indicators built for the protection of manufacturing sector, and exchange rate overvaluation. Using the data for the period of 1960-87, this study found no significant contributions of openness indicators in explaining variations in the rates of economic growth in a purely cross-country growth spells, but found significance (at 5% significance level) in a panel context (i.e., with within-country variations). This indicates that advancement in integration, not the level of integration, is important in explaining differences in growth performance. In fact, the positive relationship between the changes in trade/GDP ratios and growth performance in our dataset (as shown in Figure 2) was not observed between the initial levels of trade/GDP ratios and growth performance.

Edwards (1988) regressed the decadal average growth rates of TFP for 93 developed and developing countries for the period of 1960-1990 on 9 indicators of economic openness such as the Sacks and Warner openness indicators, average exchange rate premium, average tariff rates, quota restrictions, etc. He found robust positive relationship between openness and higher productivity growth.

Frankel and Romer (1999) dealt the issue of endogeneity between economic growth and trade integration by using trade to GDP ratio where trade flows were estimated by a geographical (non-economic elements of) gravity model. Regression analysis of the levels of per capita income on trade integration resulted in a large and robust (but moderately significant) positive coefficient attached to the trade integration variable.⁶

Rodriguez and Rodric (2000) asserted that the results from the series of cross-country analyses of the impact of openness on growth were not trustable due to the inappropriate selection of openness indicators and estimation methods.⁷ They stated that the real question is either countries with less policy distortions in international trade, after controlling other factors that could influence economic growth, could obtain a higher growth rate or not. The real question is not either trade promotes growth or not, regardless of the reasons for the increases in trade such as the technical reasons of reduced logistic costs due to technological progress. Although these criticisms are mostly valid, not only the portion of trade that increases due to policy factors but also changes in trade coming from other factors are important in the analyses of the impact of trade on poverty reduction.

In response to these criticisms, Dollar and Kraay (2003) added indicators of institutional quality and governance as control factors in their analyses of trade and growth. Countries with high quality of institutions and high degrees of trade integration tended to attain high growth. Countries with high quality of institutions and governance tended to have high degrees of trade integration. They then regressed decadal growth rates on the changes in the quality of institutions and trade integration (with instruments) and found that the impact of trade

⁶ The study concluded that the OLS estimates did not overestimate the impact of trade integration on the levels of per capita income.

⁷ They specifically criticized inappropriate handling of multicollinearity among explanatory variables.

integration is by far more significant as compared to that of changes in the quality of institutions. In the short run, the impact of trade integration is significant. In the longer run, improvements in the quality of institutions and deepening trade integration will jointly promote economic growth.⁸

However, as the World Bank (2001) noted, what these studies established was simply the correlation between trade integration and higher growth, not causality.

2.2 Is integration neutral to income distribution?

Lundberg and Squire (2003) postulated that economic growth and inequality are the joint outcomes of other variables. By extending Deininger and Squire (1996) dataset of inequality measures to 757 observations for 125 countries, they showed, through estimating a joint structural model of growth and inequality (Gini), that economic openness (S&W indicator) was a trade-off variable. That is, openness contributed positively to economic growth and negatively to equality.

Barro (2000) and Ravallion (2001, 2004) asserted that the relationship between economic openness and inequality was non-linear. They showed that economic openness led to inequality in poorer countries. Barro (2000), among other variables of concern, added openness and the cross term between openness and per capita income level in the standard Kuznetz curve regression (with inequality as the independent variable), and obtained positive coefficients for openness and negative coefficients for the cross term of openness and income level. That is, although openness tends to create higher inequality, that tendency diminishes as the level of income increases.

Dollar and Kraay (2002), while proving that incomes of the poor (bottom quintile) rise equiproportionately with countries' average incomes, tested the impact of institutions, openness and social policies on this relationship of unit elasticity. They found that none of these variables altered this equiproportional relationship between average incomes of the bottom quintile and national average incomes on average but with wide variations. The openness indicators used in their study were trade to GDP ratios, Sacks and Warner openness indices, average tariff rates, a dummy for the WTO membership, and a dummy for restrictions on international capital movements (IMF).

By looking at the relationships among trade integration, poverty reduction, and inequality after 1980, Dollar and Kraay (2004) went on to say that trade integration was a distribution neutral, again on average. They found no significant correlations among changes in trade to PPP-adjusted GDP ratios (or tariff rates, capital restrictions) and changes in Gini coefficients.

As introduced in Section 1.2 of this paper, Milanovic (2005), by regressing the ten decile-average incomes of the world population to the trade/GDP and overseas investment/GDP ratios using the world income distribution data, obtained the following two results. First, trade integration gives a negative impact especially among the

⁸ As Dollar and Kraay (2003) also emphasized, however, this approach failed to distinguish the partial effects of institutions and trade integration. The high correlation between institutions and trade integration makes it difficult to disentangle their individual contribution, especially in a cross-section framework.

middle and lowest class households in poor nations (although positive effect was observed in high income families of high-income countries). Second, investment integration is likely to benefit only the top income class, although it is not yet statistically significant.

Stolper and Samuelson (1941) proved that any import restrictions that raise domestic price of imported goods must unambiguously increase the rewards for the productive factor intensively used in the production of import-competing goods (Stolper-Samuelson Theorem). The factor-price equalization theorem derived from the Heckscher-Ohlin trade model points to equalization of wages and rents between two countries trading each other freely (that equalize goods prices), under the assumptions of sharing the same technology and no complete specialization. A study by Milanovic (2005) showed that this prediction by Heckscher-Ohlin-Samuelson theorem might not be materializing on the part of the developing countries, as the poor households (with unskilled labor) in those countries may not benefit from international trade, at least in an automatic manner.⁹

2.3 What is the role of institutions in controlling the impact of integration?¹⁰

From a theoretical standpoint, Romer (1993) explained the wide differences in the positive implications of economic integration (e.g. trade, FDI, and the exchanging of ideas) across growth models. Some imply that greater economic integration could slow growth (Young, 1991); on the other hand, there are arguments that integration could accelerate growth (Romer, 1990). These different predictions, therefore, highlight the need to distinguish and test growth models empirically.

From an empirical standpoint, the impact of institutions has increasingly gained attention in discussions about the growth-enhancing effects of trade and financial integration. However, the meaning, measurement and implications of “institutions” or “institutional quality” can differ considerably among authors. Abramovitz (1986) argued that the growth impacts of economic integration depend on the “social capability” of developing countries to absorb more advanced technologies. Abramovitz pointed out that institutions and human capital are the underlying components of social capability. Barro (1991) measured the impact of political instability on growth, using proxies such as the number of revolutions, coups and assassinations. He found these factors of political instability have a negative impact on growth. Knack and Keefer (1995) and Mauro (1995) used different measurements of political instability, constructed based on survey information collected by private organizations such as Business International and the PRS Group. Originally, these indices were created for international investors in order to analyze country risk and investment environments. As Alesina, Ozler, Roubini, and Swagel (1996) argued, they

⁹ Feenstra (2004) proved empirically the widening wage gaps between skilled and unskilled labor in the United States. In Japan, the labor share in national income has been declining as the Federation of Economic Organizations (the largest and most powerful consortium of the big businesses in Japan) uses the rising competitive pressure under the ongoing process of globalization as the primary reason for curtailing wage hikes or for executing wage cuts.

¹⁰ For literature surveys in sections 2.3 and 2.4, the current authors wish to acknowledge research assistance provided by Carlos A. Mendez-Guerra.

also reported that political instability tends to be an impediment to investment and growth. In addition, they point out that subjective indicators of corruption tend to have a negative effect on growth, while the quality of bureaucracy tends to have a positive effect on growth.

Among many studies to examine the major determinants of growth and their robustness, Levine and Renelt (1992) presented one of the most influential critiques on the robustness of these growth regressions. They examined the robustness of all the variables used in the related literature, including trade and institutional variables. They were particularly concerned with the sensitivity of the estimated coefficient of each focused variable in addition to the set of other explanatory variables. Using Learner's extreme-bounds tests, they argued that only two variables of investment shares and the initial levels of income held robustness in the results. Most of the findings were not robust to small alterations in the conditioning set of variables,

As a natural response to the robustness critique, Sala-i-Martin (1997), in his innovative paper running two million regressions (a Bayesian averaging of classical estimates method), and Sala-i-Martin, Doppelhofer, and Miller (2004) argued that the extreme-bounds test utilized by Levine and Renelt (1992) was too strong to be meaningful. Instead of examining the extreme bounds of the estimated coefficient of a particular variable, Sala-i-Martin et al. (2004) argued that it would be more informative to evaluate the entire distribution of the estimates of the parameter of interest. They found that 18 out of 67 explanatory variables were significantly and robustly partially correlated with long-term growth. The strongest evidence was found for primary school enrollment, the relative price of investment goods and the initial level of income. Other important variables included regional dummies (such as East Asia, Sub-Saharan Africa, or Latin America), measurements of human capital and health (such as life expectancy and malaria prevalence), religious dummies, one integration measure (number of years an economy has been open between 1950 and 1994), one institutional proxy (colonial legacy), and some sectoral variables such as a mining sector prevalence.

Bleaney and Nishiyama (2002) conducted non-nested tests between the regression models of Barro (1991), Easterly and Levine (1997) and Sachs and Warner (1997). They concluded that the data strongly preferred an encompassing model, but failed to reject any of them, implying that each model contains partial truth. Bleaney and Nishiyama identified important determinants of growth such as human capital, institutions, specialization in primary products, and changed terms of trade (p. 12).

As another influential critique to growth regressions, in particular to studies emphasizing the relationship between trade integration and growth, Rodriguez and Rodrik (2000) claimed that trade might simply act as a proxy for a wide range of other important policy and institutional differences. Rodrik, Subramanian, and Trebbi (2004) evaluated the primacy of institutions over trade variables in order to explain the income differences across countries. They found that trade is almost always insignificant on income once institutions are controlled for.

2.4 In what time dimensions should these questions be addressed?

In what time dimensions should the impact of macroeconomic policies, governance, and institutions be examined? In a broader sense, institutions can be defined as the set of social rules of the game. As Williamson (2000) pointed out regarding the need for four levels of social analysis of institution building, one should deal with (i) continuous resource allocation and employment policies, (ii) 1 to 10 year time frequency of governance as play of the game, (iii) 10 to 102 year time frequency of institutions as formal rules of the game, and (iv) 102 to 103 year time frequency of embedded informal institutions (Williamson, 2000, pp. 596-597).

Kraay (2006), in his study of a panel of countries for the elements of pro-poor growth, suggested that policies and institutions that promote economic growth should be central, as growth is the major source of poverty reduction in the medium- to long-run. He also asserted that cross-country studies provide relatively little guidance as to the policies and institutions that promote poverty reduction through other two channels, i.e., higher elasticity of poverty reduction with respect to growth, and better, more equitable income distribution.

Although Dollar and Kraay (2003) could not disentangle the individual effects of institutions and integration on the level of income, they did find a significant individual effect of trade integration when their framework of analysis becomes more dynamic, utilizing instrumented dynamic regressions for decade-to-decade changes. To rationalize the time dimensions of these results, Dollar and Kraay (2003) argue the important joint role of both trade and institutions in the very long run, but a relatively larger role for trade in the shorter run.

Pritchett's (2003) comments on Dollar and Kraay (2003) highlighted, however, some important limitations of their dynamic approach. Pritchett criticized the instrument set the authors used in their dynamic regressions (the lags of the right-hand side variables) as having no power for identifying the effects of institutional quality. Therefore, the results did not provide much evidence for the relationship between institutions and growth in the short run.

Growth regressions are based on very strong assumptions about a single linear model being appropriate for all countries in all states (Hausmann, Pritchett, & Rodrik, 2005, p. 305). Nevertheless, there are variations among countries and a country could be in different "states." The typical pattern is that countries experience phases of steady growth (hills and steep hills), stagnation (plateaus), and decline or even catastrophic falls (cliffs) (Pritchett, 2000). Even if a panel estimation is conducted instead of a cross-section estimation, there is no guarantee that differences in growth performances are captured precisely. Most panel studies use rather arbitrary periods as a unit of observation; therefore, they are unlikely to identify variations in average growth rates over time (Pritchett, 2000).

When modeling the time dimensions, a single exponential trend does not appropriately characterize the evolution of GDP per capita in many countries. Failure to adequately model and evaluate the time dimensions may drastically affect the conclusions of many empirical studies concerning the determinants of growth. For instance, if there is a country experiencing high growth rates in the first two years and a low growth rate in the

following three years during the five-year period, the five-year period average will be rather uninformative. Much of the empirical study on economic growth has underestimated the important facts of instability, volatility and shocks in growth rates, especially in developing countries. Therefore, it is essential to test growth spells of various durations when drawing policy implications.

Pritchett (2000) presented large shifts in growth rates over time for different countries. Many countries show structural breaks in their growth paths, and the data shows how these shifts lead to distinct growth patterns. Systematically, the data shows some countries experiencing steady growth while others have rapid growth followed by stagnation, rapid growth followed by decline, continuous stagnation, or steady decline. Based on these patterns, Pritchett suggested the following typology: (i) steep hills -the countries that had growth rates higher than 3% in each period both before and after the structural break; (ii) hills -the countries with growth rates higher than 1.5% in each period; (iii) plateaus -the countries that grew more than 1.5% before their structural break, but afterward growth fell to less than 1.5%, although it remained positive; (iv) mountains -the countries that had growth rates higher than 1.5% before their structural break, but negative rates afterward; (v) plains -the countries with growth rates less than 1.5% for each period; and (vi) accelerators -the countries that did not have growth rates above 1.5% before their structural break, but did afterward (Pritchett, 2000, pp. 228-234). This time-intensive approach based on country-specific patterns as units of observation in panel growth models seems to be a promising alternative to typical analyses using decadal averages. For instance, Hausmann et al. (2005), following on Pritchett's classification and focus on turning points in growth performance, examined the events of accelerated growth. They looked for instances of rapid growth acceleration and identified more than 80 episodes since the 1950s. To qualify as acceleration, the increase in growth has to be sustained for at least eight years, and the post-acceleration growth rate has to be at least 3.5% per year. They found that the largest number of growth accelerations occurred in Africa. They also found that political-regime changes are statistically significant predictors of growth accelerations. They also argued that majority of growth acceleration are unrelated to standard determinants. Given this new time-intensive approach to growth regressions, it may be worthwhile to examine how robust the growth effects of economic integration and institutions are, based on the methodologies proposed by Levine and Renelt (1992) or Sala-i-Martin et al. (2004).

The current study utilizes growth spells of three time dimensions: short-term (1-4 years), medium-term (5-9 years) and long-term (10+ years) for growth regressions with policies, institutions, and/or integration. As the long spells contain kinks and shifts in growth performance (many kinks are detected in early 1990s and late 1990s) and short spells are highly volatile, medium-term growth spells are mainly used in the analysis of changes in Gini and poverty headcount ratios, using the results obtained from short and long spells only for reference.

3. Methods and Empirical Models

With these research questions and methodological challenges in mind, the current study conducts a series of panel regression analyses in growth spells for major segments of the P-G-I triangle under globalization using world-wide income, integration (trade, FDI, remittances, etc.), poverty and distribution data. The set of regression models adopted in this study are as follows.¹³

1) Globalization and Growth: Does integration promote growth and income convergence?

Barro-type ad hoc growth equation (Eq.[2]) is estimated with elements of globalization as G factors, separated from other factors of importance (Z) including human capital, policies, institutions, etc. Initial level of inequality is added in order to account for the possible trade-off between growth and inequality.¹⁴

$$(\ln y_{ct} - \ln y_{c0})/T = \alpha + \beta \ln y_{c0} + \gamma \ln \text{Gini}_{c0} + \delta \ln Z_{ct} + \theta \ln G_{ct} + \lambda_t' + \varepsilon_{ct}' \quad [3]$$

2) Globalization and Inequality: Is integration neutral to income distribution?

a) Estimate Eq.[3] for the growth rates of average income of the poorest quintile.¹⁵

$$(\ln y_{ct}^p - \ln y_{c0}^p)/T = \alpha + \beta \ln y_{c0}^p + \gamma (\ln y_{ct} - \ln y_{c0})/T + \delta \ln \text{Gini}_{c0} + \eta \ln Z_{ct} + \theta \ln G_{ct} + \lambda_t' + \varepsilon_{ct}' \quad [4]$$

b) Estimate the level relationship a la Dollar and Kraay (2004, Eq. 3).

$$\ln y_{ct}^p = \alpha + \beta \ln y_{ct} + \delta \ln Z_{ct} + \theta \ln G_{ct} + \mu_c + \lambda_t + \varepsilon_{ct} \quad [5]$$

Country fixed-effects estimations are conducted (i.e. estimating μ_c) in order to show the existence of wide dispersions that cannot be explained by the chosen set of explanatory variables. Countries with large positive (pro-poor) fixed effects are identified together with those with large negative country specific factors.

c) Estimate the possible convergence in inequality (Gini and bottom quintile income share).

$$(\ln \text{Gini}_{ct} - \ln \text{Gini}_{c0})/T = \alpha + \beta \ln \text{Gini}_{c0} + \gamma [(\ln y_{ct} - \ln y_{c0})/T] + \delta \ln Z_{ct} + \theta \ln G_{ct} + \lambda_t' + \varepsilon_{ct}' \quad [6]$$

Changes in Gini indices (and bottom quintile income shares) are regressed on the initial levels of Gini (or bottom quintile income share) and on the changes in income, levels and changes of Z and G variables.¹⁶

¹³ In conducting regressions in blocks 1) and 2), trade-off between growth and inequality are also tested. However, this can be assumed away, particularly under a fixed-effect model. For further details, refer to Otsubo (2008). In block 2), an Inverted-U hypothesis can also be tested by adding $[(\ln 1/y_t - \ln 1/y_0)/T]$ term. Although, the fitted values of blocks 1) and 2) can be used as instruments in the estimation of block 3), treating the models as a simultaneous system of equations, current study used initial values and previous growth performance as standard set of instruments. This is due to low explanatory power of the basic models of blocks 1) and 2). As the poverty reduction equation in block 3) includes Z and G variables as explanatory variables, the problem associated with Pritchett (2003) criticism on Dollar and Kraay (2003) does not directly apply here. The study will also utilize fitted values of blocks 1) and 2) estimated with Z variables in block 3) for the impact of policies and institutions, those estimated with G variables for the impact of integration, in further studies.

¹⁴ Cross terms between Z (policies, institutions, in particular) and G variables are also tested for joint effects and nonlinearity.

¹⁵ In the current study, these poorest quintile income growth-spells regressions are conducted only to check the robustness of the results obtained from Eq. [5]. Separately, quintile regressions in growth spells (for the first to the fifth quintiles, respectively) will be conducted to identify differences in δ and θ estimates across income groups.

¹⁶ Cross terms between income changes and G variables are also tested.

3) Poverty and Growth/Inequality: How are the changes in poverty brought about?

Changes in poverty headcount ratios are regressed on the initial levels of poverty, average income growth and (levels of/changes in) inequality measurements with two sets of control variables Z and G.

$$(\ln \text{Pov}_{ct} - \ln \text{Pov}_{c0})/T = \alpha + \beta \ln \text{Pov}_{c0} + \gamma[(\ln y_{ct} - \ln y_{c0})/T] + \delta \ln \text{Gini}_{c0} \\ + \varepsilon[(\ln \text{Gini}_{ct} - \ln \text{Gini}_{c0})/T] + \eta \ln Z_{ct} + \theta \ln G_{ct} + \lambda_t' + \varepsilon_{ct}' \quad [7]$$

In this manner, the (non)existence of poverty convergence and the sensitivities of poverty reduction with respect to growth and income distribution can be identified. For poverty indicators (Pov), simple headcount ratios are used in this study.¹⁷ Cross terms between the elements of globalization (G) and growth and the change in inequality can also be tested in order to draw the implications of globalization on the sensitivity (elasticity) of poverty reduction with respect to growth and changes in inequality.

If the postulated model starts from a level equation like Eq. [5] where a compound error term is decomposed into country-specific fixed effects, time-specific fixed effects, and a random error term, then in the growth-spell equations, cross-section fixed effects are supposed to drop out. However, if the model starts from a growth spell equation with an assumption of country-specific effects in growths/changes, how would the estimated coefficients (sensitivities) behave? The current study also estimated models with this unorthodox assumption for some regressions as reference points.

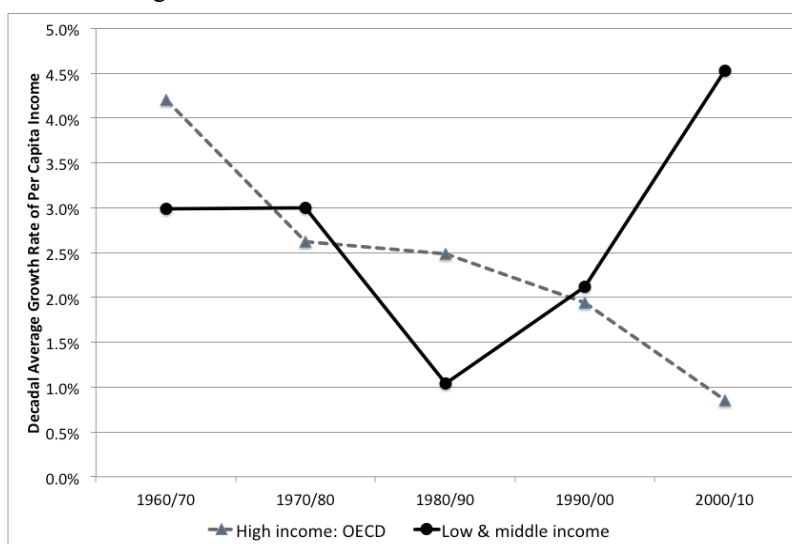
Usages and selections of instruments are highly controversial as introduced in Section 2. The current study uses simple and standardized instruments of lagged values for the levels (including lagged period averages for period averages), and initial value and lagged rate of changes for growth spells. Explanatory variables are instrumented only when it seems logical to mobilize instruments. In growth regressions (Eq. [3]), most variables, except for initial values, are instrumented. In level regressions for the poorest quintile income (Eq. [5]), only national average per capita income is instrumented. Similarly, only income growth spells are instrumented in the Gini convergence regressions (Eq. [6]). In the poverty change (P-G-I) regressions (Eq.[7]), only Gini changes are instrumented. Both fitted values from estimations of Eq. [3] and Eq. [6] and the standard set (initial value and the lagged rate of change) are used as instruments here.

As discussed in Section 1, the control factors of the impact of economic integration should also be scrutinized with time dimensions in mind. The current study intends to analyze different time frameworks of impact for policy stance and institutional quality by mobilizing growth econometrics (i.e. regressions in block 1) over short-term (1 to 4 years), mid-term (5 to 9 years) and long-term (over ten years) growth spells. In order to avoid mixing up kinks and shifts in growth changes in each spell, as the problems pointed out by Pritchett (2000) and Hausmann et al. (2005), estimations for the blocks 2) and 3) are conducted with the medium-term (5-9 years)

¹⁷ For the robustness check and the depth of impact, other poverty indicators such as (squared) poverty gap measures should also be tested in the future research.

growth spells. The standard set of instruments such as the lagged rates of changes also perform better in regressions with medium-term growth spells. This reflects historical turnaround of the growth performance among developing countries, in the midst of a secular growth slowdown among high-income OECD economies (Figure 4).

Figure 4: Kinks in Decadal Growth Performance



Source: Authors' own compilation based on WDI.

4. Data: What does it show?

The growth spells of the aforementioned three different time durations are compiled from the available data points of bottom-quintile income shares during the period from 1978 to 2010. The short-term growth spells dataset uses data from 79 countries including OECD and the Former Soviet Union (FSU) countries for the period from 1981 to 2010. This database contains 561 growth spells of 1-4 year period each with an average duration of 1.75 years. The medium-term growth spells data set uses data from 99 countries for the period from 1978 to 2010. This second database contains 245 growth spells of 5-9-year period each with an average duration of 5.72 years. The long-term growth spells data set utilizes data from 86 countries for the period from 1979 to 2010. This database contains 116 growth spells of more than 10-year period each with an average duration of 11.17 years.

Most of the raw data are taken from the World Development Indicators (WDI) of the World Bank, unless otherwise indicated. Other datasets used in the current analysis include the Human Development Indicators (HDI) from UNDP and indices for the quality of institutions extracted from the International Country Risk Guide (ICRG) of the PRS Group. Out of the various composites and individual indices contained in the ICRG, the current study uses overall composite index (ICRG-C), composite for political situation/institutions (ICRG-P) and the components in this ICRG-P bracket. From the 12 sub-indicators contained in the ICRG-P bracket, the 5 indicators ('government stability,' 'investment profile,' 'corruption,' 'law and order,' and 'bureaucracy quality')

are used to form the ‘capacity’ sub-composite (ICRG-Capacity). Another 5 indicators (‘internal conflict,’ ‘external conflict,’ ‘military in politics,’ ‘religious tensions,’ and ‘ethnic tensions’) are used to form the ‘security’ composite (ICRG-Security). ‘Democratic accountability’ is used as a separate and independent indicator. The ICRG-P component indicator, ‘socioeconomic conditions,’ is not used in this study as this category shows the outcome such as unemployment, consumer confidence, and poverty.

Tables 1, 2 and 3 summarize the characteristics of these datasets of three different durations by showing the results of simple regressions. The main findings from these descriptive regressions are as follows:

- (1) Higher growth performance is detected in the decadal dummy for the 2000s. (Eq.[2]). This reflects historical turnaround as shown in Figure 4.
- (2) Income convergence, both among each region and among each income group, is detected across growth spells of different time durations, with higher significance found in the longer-term database. (Eqs.[3] & [4])
- (3) Moderately significant negative coefficients attached to OPEC dummies imply the existence of resource curse among these datasets. However, the less significance attached in longer growth spells may also imply a better management of resource curse in the longer run. (Eq.[5])
- (4) Crises dummies found a negative and significant coefficient in the short spells, but found positive and significant coefficients in the longer spells. Countries experiencing crises (Debt Crisis:1982-83, Asian Financial Crisis:1997-98, and the World Financial Crisis:2008-09) tend to overcome the short-term negative impact with reforms and counter policies and enjoy even higher rate of growths as end results. (Eq.[6])
- (5) Surprisingly, landlocked-country dummies found positive (and significant in short spells) coefficients. At least among the current set of countries and time periods, the widely known disadvantage did not lead to poor growth performance. (Eq.[7])
- (6) Positive and significant coefficients were found for transitional economies and the Former Soviet Union (FSU) dummies, across growth spells of the three time durations. (Eqs.[8] & [9]). This signifies active growth among this segment of countries during the sample period.
- (7) It was shown with rather strong statistical significance, in growth spells of all the three different time durations, that initial inequality tends to undermine subsequent growth performance (as total effects). (Eq.[10]-[11])

Table 1: Characteristics of the Short-Term Dataset, 1-4 years (average duration: 1.75 years)

Dependent Variable: Period Average Growth Rate of Per Capita Income											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Constant	0.0435 (3.11)***	0.0348 (2.33)**	0.0201 (1.38)	0.0985 (5.33)***	0.0448 (3.16)***	0.0439 (3.14)***	0.0313 (2.15)**	0.0312 (2.36)**	0.0177 (1.33)	0.1508 (4.40)***	-0.0047 (0.31)
Initial Ln(Per Capita Income)	-0.0018 (0.98)	-0.0027 (1.53)	-0.0019 (0.81)	-0.0125 (3.95)***	-0.0018 (0.97)	-0.0015 (0.84)	-0.0004 (0.23)	-0.0011 (0.64)	0.0009 (0.52)	-0.0003 (0.16)	0.0005 (0.28)
Time Dummy 1990		0.0009 (0.12)									
Time Dummy 2000		0.0244 (3.53)***									
Regional Dummy EAP			0.0361 (5.25)***								
Regional Dummy ECA			0.0385 (5.72)***								
Regional Dummy LAC			0.0152 (2.44)**								
Regional Dummy MENA			0.0235 (2.74)**								
Regional Dummy SA			0.0172 (2.46)**								
Income Dummy LMI				0.0123 (1.66)*							
Income Dummy UMI				0.0330 (3.53)***							
Income Dummy HINO				0.0354 (2.16)**							
Income Dummy HIOECD				0.0496 (4.20)***							
OPEC Dummy					-0.0183 (1.82)**						
Crises Dummy						-0.0105 (2.29)**					
Land-locked Dummy							0.0136 (2.39)**				
Transitional Dummy								0.0215 (5.17)***			
FSU Dummy									0.0272 (4.68)***		
Initial Ln(Gini)										-0.0317 (3.58)***	
Initial Ln(Quintile Share)											0.0193 (5.24)***
No. of observations	556	556	556	556	556	556	556	556	556	553	556

Source: Authors' own compilation

Notes: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) Absolute value of *t*-statistics calculated with White-corrected standard errors is in parentheses.

iii) Time dummies, regional dummies, and income dummies are calculated with respect to the last year of each growth spell, Sub-Saharan Africa, and low-income countries as bases, respectively. Crises dummies includes Debt Crisis (1982-83), Asian Financial Crisis (1997-98), and Global Financial Crisis (2008-09). To be selected as crises dummy, it has to, at least, contain one of these three crises with full two-year period.

Table 2: Characteristics of the Medium-Term Dataset, 5-9 years (average duration: 5.72 years)

Dependent Variable: Period Average Growth Rate of Per Capita Income											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Constant	0.0289 (2.37)**	0.0140 0.81	0.0260 (1.78)*	0.1001 (5.77)***	0.0288 (2.36)**	0.0265 (2.21)**	0.0230 (1.66)*	0.0306 (2.59)***	0.0220 (1.96)**	0.1010 (2.77)**	-0.0022 (0.15)
Initial Ln(Per Capita Income)	-0.0004 (0.249)	0.0001 (0.05)	-0.0021 (0.88)	-0.0147 (4.89)***	-0.0003 (0.18)	-0.0004 (0.24)	0.0003 (0.18)	-0.0012 (0.75)	0.0001 (0.09)	0.0004 (0.25)	0.0010 (0.59)
Time Dummy 1990		-0.0007 (0.06)									
Time Dummy 2000		0.0170 (1.51)									
Regional Dummy EAP			0.0288 (4.41)***								
Regional Dummy ECA			0.0270 (3.37)***								
Regional Dummy LAC			0.0090 (1.64)*								
Regional Dummy MENA			0.0060 (0.91)								
Regional Dummy SA			0.0160 (3.15)**								
Income Dummy LMI				0.0170 (2.63)*							
Income Dummy UMI				0.0450 (5.00)***							
Income Dummy HINO				0.0680 (6.21)***							
Income Dummy HIOECD				0.0597 (4.84)***							
OPEC Dummy					-0.0099 (1.75)*						
Crises Dummy						0.0080 (1.74)*					
Land-locked Dummy							0.0061 (0.86)				
Transitional Dummy								0.0178 (2.80)***			
FSU Dummy									0.0213 (2.21)**		
Initial Ln(Gini)										-0.021 (2.12)**	
Initial Ln(Quintile Share)											0.012 (2.88)***
No. of observations	242	242	242	242	242	242	242	242	242	242	242

Source: Authors' own compilation

Notes: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) Absolute value of *t*-statistics calculated with White-corrected standard errors is in parentheses.

iii) Time dummies, regional dummies, and income dummies are calculated with respect to the last year of each growth spell, Sub-Saharan Africa, and low-income countries as bases, respectively. Crises dummies includes Debt Crisis (1982-83), Asian Financial Crisis (1997-98), and Global Financial Crisis (2008-09). To be selected as crises dummy, it has to, at least, contain one of these three crises with full two-year period.

Table 3: Characteristics of the Long-Term Dataset, 10+ years (average duration: 11.17 years)

Dependent Variable: Period Average Growth Rate of Per Capita Income											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Constant	0.0343 (2.27)**	-0.0054 (0.32)	0.0503 (3.29)***	0.1168 (5.55)***	0.0343 (2.29)**	0.0352 (2.42)**	0.0275 (1.56)	0.0393 (2.90)**	0.0241 (1.81)*	0.1136 (2.99)***	0.0019 (0.10)
Initial Ln(Per Capita Income)	-0.0012 (0.60)	-0.0011 (0.55)	-0.0070 (2.83)***	-0.0186 (5.05)***	-0.0011 (0.56)	-0.0022 (1.13)	-0.0004 (0.17)	-0.0028 (1.51)**	-0.0005 (0.28)	-0.0008 (0.40)	0.0002 (0.10)
Time Dummy 1990		0.0305 (5.93)***									
Time Dummy 2000		0.0426 (13.60)***									
Regional Dummy EAP			0.0431 (6.38)***								
Regional Dummy ECA			0.0499 (6.32)***								
Regional Dummy LAC			0.0222 (3.37)***								
Regional Dummy MENA			0.0211 (2.45)**								
Regional Dummy SA			0.0192 (3.60)***								
Income Dummy LMI			0.0292 (3.93)***								
Income Dummy UMI			0.0563 (5.12)***								
Income Dummy HINO			0.0785 (6.53)***								
Income Dummy HIOECD			0.0764 (4.89)***								
OPEC Dummy				-0.0099 (1.27)							
Crises Dummy					0.0153 (3.19)***						
Land-locked Dummy						0.0063 (0.72)					
Transitional Dummy							0.0309 (4.58)**				
FSU Dummy								0.0469 (8.09)***			
Initial Ln(Gini)										-0.022 (2.17)**	
Initial Ln(Quintile Share)											0.0133 (2.94)***
No. of observations	116	116	116	116	116	116	116	116	116	114	116

Source: Authors' own compilation

Notes: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) Absolute value of *t*-statistics calculated with White-corrected standard errors is in parentheses.

iii) Time dummies, regional dummies, and income dummies are calculated with respect to the last year of each growth spell, Sub-Saharan Africa, and low-income countries as bases, respectively. Crises dummies includes Debt Crisis (1982-83), Asian Financial Crisis (1997-98), and Global Financial Crisis (2008-09). To be selected as crises dummy, it has to, at least, contain one of these three crises with full two-year period.

Table 4 shows cross-correlations among dependent variables (in the top-left shaded rectangle), among independent/explanatory variables (bottom-right shaded rectangle), and between dependent and explanatory variables (bottom-left non-shaded rectangle), in two separate panels for medium-term and long-term growth spells.

Comparing the correlations among dependent variables (per capita income growth, bottom quintile per capita income growth, rate of changes in GINI and poverty headcount ratio) across two time durations, it can be said that the correlation between rate of changes in inequality (GINI) and that in poverty headcount ratio (HCR) is twice as high in the longer spells (0.46) as compared to that in the medium-term spells (0.23). While the growth in the average income of the bottom quintile is highly correlated with overall GINI, the rate of changes in the national average income is largely neutral to income distribution in these growth spells.

As introduced in Section 2.3, Rodriguez and Rodrik (2001) claims that trade might simply act as a proxy for a variety of other important policy and institutional variables. As what Rodrik, Subramanian and Trebbi (2004) show that once institutions are controlled for, the integration has no direct effects on income. The bottom-right shaded rectangle in Table 4 (in two panels of M-T and L-T time durations) show cross correlations among explanatory variables of our concern, i.e., policies, institutions, and integration. Both initial levels of trade to GDP ratios and period average FDI to GDP ratios are significantly correlated with institutional quality as represented by the ICRG composite and political composite indicators, both in medium-term and long-term growth spells. Correlations among three faces of integration (trade, FDI, and remittances) are also significantly correlated to each other. Selected indicators of policy stance—general government expenditure to GDP ratio and period average rate of inflation—are highly correlated with ICRG overall composite (ICRG-P) by construction of this composite indicator of institutional quality. High correlations among explanatory variables should be borne in mind when multivariate regressions with various Z and G factors are conducted.

Table 4: Cross Correlations among Dependent and Explanatory Variables

a) Medium-Term Dataset, 5-9 years

	(1) pcY	(2) pcYp	(3) Gini	(4) HCR	(5) G/GDP	(6) Inflation	(7) ICRG_C	(8) ICRG_P	(9) INI_T/GDP	(10) AVG_T/GDP	(11) FDI	(12) Remittance
(1) Period Average Growth Rate of Per Capita Income	1											
(2) Period Average Growth Rate of Per Capita Income of the Poorest Quintile	0.6089***	1										
(3) Period Average Rate of Change of Gini Index	-0.0611	-0.7001***	1									
(4) Period Average Rate of Change of the Poverty Head Count Ratio	-0.4275***	-0.4705***	0.2317***	1								
(5) Initial Government Consumption/GDP (nominal terms)	-0.0199	0.0746	0.0074	-0.0298	1							
(6) Ln(1 + Period Average Inflation/CPI)	-0.3332***	-0.2555***	0.0603	0.2642***	-0.0688	1						
(7) Initial Ln(ICRG Composite)	0.1824**	0.0797	0.0952	-0.089	0.3293***	-0.2712***	1					
(8) Initial Ln(ICRG Political)	0.1248*	0.1034	0.0184	-0.0554	0.3201***	-0.0855	0.8746***	1				
(9) Initial Trade/GDP (real terms)	0.1481**	0.1530**	0.0096	-0.1085	0.2919***	-0.3461***	0.3617***	0.2953***	1			
(10) Period Average Growth Rate of Trade/GDP (real terms)	0.0797	0.0272	0.0184	-0.0133	-0.0564	0.1358*	-0.1393*	-0.0269	-0.3423***	1		
(11) Period Average FDI/GDP	0.3480***	0.2271***	-0.0246	-0.2048***	0.2335***	-0.2155***	0.3507***	0.3929***	0.3552***	0.1193*	1	
(12) Period Average Remittance/GDP	0.0673	0.0887	-0.0105	-0.1145*	0.2167***	-0.1397**	-0.0062	-0.0281	0.2547***	-0.1011	0.2147***	1

b) Long-Term Dataset, 10+ years

	(1) pcY	(2) pcYp	(3) Gini	(4) HCR	(5) G/GDP	(6) Inflation	(7) ICRG_C	(8) ICRG_P	(9) INI_T/GDP	(10) AVG_T/GDP	(11) FDI	(12) Remittance
(1) Period Average Growth Rate of Per Capita Income	1											
(2) Period Average Growth Rate of Per Capita Income of the Poorest Quintile	0.6229***	1										
(3) Period Average Rate of Change of Gini Index	-0.0394	-0.6186***	1									
(4) Period Average Rate of Change of the Poverty Head Count Ratio	-0.4553***	-0.5517***	0.4610***	1								
(5) Initial Government Consumption/GDP (nominal terms)	0.0376	0.1463	-0.1036	-0.0538	1							
(6) Ln(1 + Period Average Inflation/CPI)	-0.2476***	-0.1691*	0.0092	0.0978	-0.1656*	1						
(7) Initial Ln(ICRG Composite)	0.2786***	0.0456	0.0864	-0.1306	0.3143***	-0.2770***	1					
(8) Initial Ln(ICRG Political)	0.2360**	0.0735	0.0492	-0.1709	0.2295**	-0.0860	0.9017***	1				
(9) Initial Trade/GDP (real terms)	0.2038**	0.2107**	-0.0311	-0.1674*	0.3616***	-0.3243***	0.3158***	0.2565**	1			
(10) Period Average Growth Rate of Trade/GDP (real terms)	0.1877*	0.0827	-0.0012	-0.1532	-0.0169	-0.1313	-0.0393	0.0057	-0.1228	1		
(11) Period Average FDI/GDP	0.4793***	0.2412***	0.0435	-0.2888***	0.2611***	-0.1452	0.3797***	0.4384***	0.3534***	0.2169**	1	
(12) Period Average Remittance/GDP	0.1108	0.1146	-0.1067	-0.2261**	0.1899**	-0.1688*	0.0146	0.0191	0.2899***	0.0634	0.4437***	1

Source: Authors' own compilation

Note: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

5. Regression Results

5.1 Growth Regressions (Block 1)

In order to check the robustness—as pointed out by the critique of Levine and Renelt (1992)—the growth equation (Eq.[3]) is estimated in a step-by-step manner. This process and estimation results are presented in the Appendix 2-5. The results related to the impact of integration are summarized in Table 5 for the medium-term growth spells. (Results with long-term growth spells can be seen in columns (9) to (13) in the Appendix 4-5. A significant positive impact on growth of FDIs (the period average ratios of FDI to GDP) is detected. As the sign of the estimated coefficients across sets of explanatory variables, methods to take time-wise fixed effects, and time durations is stably positive and the significance stays, it seems safe to say that FDI exerts positive and significant impact on growth performance. When tested in a set of three integration variables, remittances (that represents migrant workers) have negative relations with (partial effects on) growth performance with less to moderate significance. However, the possible causal relations should probably be interpreted in the other way round. That is, a country with less dynamic economic performance and with insufficient employment generation necessitates more workers to seek employment abroad. The results for the trade integration are somewhat mixed. As a single explanatory variable, the initial value of trade to GDP ratio has a less to moderately significant positive coefficient. In a set of policy, institution variables and the FDI, the average rate of change in trade to GDP ratio has a moderately significant positive coefficient. Other results are largely insignificant and sometimes counterintuitive.

In order to evaluate the time profile of the impact of policies (policy stance) and institutional quality on growth performance, a set of policy variables (initial levels of general government expenditures relative to GDP and period average rate of inflation) and a composite indicator of institutional quality (ICRG composite or ICRG political situation/institutions) are tested with various mix of other determinants of growth in three time durations of short term (1-4 years), medium term (5-9 years) and long term (10+ years), and under two methods of taking time-wise fixed effects (decadal dummies and period fixed-effects estimations). The results are presented in Table 6 (with ICRG composite) and Table 7 (with ICRG political situation/institutions). Although the results obtained from the volatile short-term growth spells are somewhat unstable, it is generally true that the impact of macro economic policy management is more significantly visible in shorter spells as compared to those in the longer spells. While the size of the government is generally negatively associated with growth performance in the short term, that effect becomes negligible in the longer term. The importance of inflation control, i.e., the preservation of the value of currency, persists throughout the time durations. The significance of the impact of institutional quality tends to increase in the longer time spans. It also increases relative to those of macroeconomic policy management/stance variables. It takes longer time to observe the positive impact of higher institutional quality, just like it takes longer time to build it.

Table 5: Medium-Term Impact of Intergration on Growth

a) With decadal time dummies										b) With period fixed effects									
Dependent Variable: Period Average Growth Rate of Per Capita Income																			
	(1) PLS	(2) P2SLS	(3) P2SLS	(4) PLS	(5) P2SLS	(6) P2SLS	(7) P2SLS	(8) P2SLS	(9) P2SLS	(1) PLS	(2) P2SLS	(3) P2SLS	(4) PLS	(5) P2SLS	(6) P2SLS	(7) P2SLS	(8) P2SLS	(9) P2SLS	
Constant	0.0872 (2.33)**	0.1080 (3.22)***	0.0991 (2.78)***	0.1173 (3.14)***	0.1161 (3.15)***	0.1522 (4.31)***	0.1387 (2.39)**	0.1427 (3.85)***	0.1358 (3.22)***	0.0849 (2.36)**	0.1297 (4.36)***	0.1063 (3.09)***	0.1058 (3.08)***	0.1186 (3.29)***	0.1635 (5.17)***	0.0921 (1.67)*	0.1094 (3.35)***	0.0991 (2.59)***	
Initial Ln(Per Capita Income)	0.0006 (0.35)	-0.0009 (0.53)	0.0008 (0.46)	0.0010 (0.63)	-0.0007 (0.33)	-0.0034 (0.82)	-0.0111 (3.36)***	-0.0063 (1.91)*	-0.0083 (2.48)**	0.0022 (1.15)	-0.0013 (0.68)	0.0018 (1.07)	0.0013 (0.76)	-0.0001 (0.02)	-0.0017 (0.33)	-0.0099 (2.50)**	-0.0060 (1.82)*	-0.0071 (1.89)*	
Initial Ln(Gini)	-0.0233 (2.50)**	-0.0241 (2.61)***	-0.0269 (2.73)***	-0.0282 (3.14)***	-0.0261 (2.58)***	-0.0313 (2.93)***	0.0006 (0.06)	-0.0092 (0.87)	-0.0028 (0.26)	-0.0220 (2.32)**	-0.0248 (2.87)***	-0.0296 (3.07)***	-0.0237 (2.52)**	-0.0273 (2.70)***	-0.0329 (3.33)***	0.0055 (0.57)	-0.0019 (0.18)	0.0032 (0.29)	
Initial Ln(Fertility)							-0.0423 (5.67)***	-0.0289 (3.03)***	-0.0321 (3.63)***							-0.0394 (4.27)***	-0.0276 (2.89)***	-0.0290 (2.93)***	
Average Rate of Change of TOT							0.1043 (1.44)	0.0476 (1.12)	0.0523 (1.10)							0.0640 (0.84)	0.0126 (0.28)	0.0104 (0.20)	
Initial Government Consumption/GDP							-0.0005 (1.04)	-0.0009 (1.87)*	-0.0008 (1.60)							-0.0006 (1.25)	-0.0008 (1.80)*	-0.0008 (1.56)	
Ln(1 + Period Average Inflation/CPI)							-0.0373 (3.80)***	-0.0278 (2.67)***	-0.0363 (2.73)***							-0.0527 (4.54)***	-0.0464 (4.38)***	-0.0599 (3.58)***	
Intial Ln(ICRG_Political)							0.0095 (0.81)	0.1005 (1.82)*	0.0717 (1.24)							0.0111 (0.79)	0.0917 (1.24)*	0.0737 (0.92)	
Trade/GDP (real terms) #1	(INI) 0.0037 (1.19)	(AVG) -0.0138 (0.11)			(INI) -0.0027 (0.72)	(AVG) 0.0038 (0.01)	(AVG) 0.0294 (0.55)		(AVG) 0.1483 (1.29)	(INI) 0.0020 (0.62)	(AVG) 0.0302 (0.30)			(INI) -0.0012 (0.36)	(AVG) -0.0777 (0.33)	(AVG) 0.0392 (0.71)		(AVG) 0.1779 (1.33)	
Period Average FDI /GDP#2			0.0057 (4.16)***		0.0065 (3.50)***	0.0060 (1.04)		0.0057 (2.78)***	0.0049 (2.46)**			0.0056 (4.17)***		0.0054 (3.45)***	0.0012 (0.15)		0.0050 (2.67)***	0.0045 (2.41)**	
Period Average Remittance/GDP				0.0001 (0.61)	-0.0005 (0.97)	-0.0008 (0.94)							0.0001 (0.22)	-0.0005 (0.94)	-0.0003 (0.30)				
Time Dummy 1990	-0.0060 (0.51)	0.0078 (1.14)	-0.0002 (0.03)	-0.0047 (0.39)	0.0006 (0.07)	0.0027 (0.32)	-0.0103 (0.81)	-0.0010 (0.12)	-0.0011 (0.12)										
Time Dummy 2000	0.0123 (1.07)	0.0221 (3.75)***	0.0062 (0.79)	0.0123 (1.11)	0.0073 (0.93)	0.0039 (0.27)	-0.0145 (1.16)	-0.0078 (0.99)	-0.0058 (0.62)										
No. of Observations	220	191	236	226	205	181	142	152	142	220	191	236	226	205	181	142	152	142	
R-squared	0.12	0.12	0.14	0.11	0.11	0.21	0.44	0.43	0.42	0.24	0.29	0.26	0.25	0.28	0.32	0.56	0.57	0.55	
Adjusted R-squared	0.10	0.09	0.12	0.09	0.08	0.18	0.41	0.39	0.37	0.14	0.18	0.17	0.15	0.17	0.20	0.45	0.47	0.43	

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively.

iii) # denotes variables are instrumented with; #1-the initial level and period average growth rate of the previous spell; #2 -the period average rate of the previous spell.

iv) (INI) and (AVG) denote the initial levelsl or the period average growth rates of the variables are used, respectively.

Table 6: Growth Impact of Policies and Institutional Quality (ICRG Composite) by Different Time Dimensions

Dependent Variable: Period Average Growth Rate of Per Capita Income

	1-4 years (ave 1.75 years)		5-9 years (ave 5.72 years)		10+ years (ave 11.17 years)	
	(1)	(2)	(3)	(4)	(5)	(6)
	PLS TD	PLS PFE	PLS TD	PLS PFE	PLS TD	PLS PFE
Constant	0.2968 (2.41)**	0.1674 (2.05)***	0.1664 (2.43)**	0.1203 (1.76)*	0.1420 (1.85)*	0.0442 (0.31)
Initial Ln(Per Capita Income)	-0.0092 (2.60)***	-0.0099 (3.16)***	-0.0095 (3.17)***	-0.0087 (2.56)**	-0.0111 (3.91)***	-0.0124 (2.84)***
Initial Ln(Gini)	-0.0139 (1.33)	-0.0047 (0.51)	-0.0018 (0.20)	0.0046 (0.50)	-0.0029 (0.33)	0.0046 (0.25)
Initial Ln(HDI_Education)	0.0119 (1.28)	0.0109 (1.30)				
Initial Ln(Life Expectancy)	0.0005 (0.02)					
Initial Ln(Fertility)	-0.0397 (4.75)***	-0.0387 (5.03)***	-0.0426 (5.71)***	-0.0401 (4.61)***	-0.0401 (4.35)***	-0.0397 (3.34)***
Average Rate of Change of TOT	0.1020 (3.46)***	0.0610 (2.38)**	0.1062 (1.70)*	0.0565 (0.88)	-0.0507 (0.78)	-0.0360 (0.43)
Initial Government Consumption/GDP (nominal terms)	-0.0013 (3.12)***	-0.0011 (3.07)***	-0.0004 (0.95)	-0.0005 (1.10)	-0.0001 (0.22)	-0.0001 (0.20)
Ln(1 + Period Average Inflation/CPI)	-0.0314 (2.79)***	-0.0448 (4.07)***	-0.0373 (4.25)***	-0.0515 (5.58)***	-0.0254 (3.05)***	-0.0245 (2.66)***
Initial Ln(ICRG Composite)	-0.0173 (0.96)	0.0041 (0.21)	0.0022 (0.15)	0.0026 (0.16)	0.0077 (0.49)	0.0260 (1.04)
Time Dummy 1990	-0.0081 (1.10)		-0.0122 (1.07)			
Time Dummy 2000	-0.0093 (1.09)		-0.0162 (1.47)		-0.0053 (0.86)	
No. of Observations	413	413	152	152	63	63
R-squared	0.23	0.45	0.45	0.57	0.52	0.59
Adjusted R-squared	0.21	0.41	0.42	0.47	0.45	0.39

Source: Authors' own compilation

Notes: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses.

iii) PLS denotes a panel least squares method. TD and PFE denote that decadal time dummies and period fixed effects are used, respectively.

Table 7: Growth Impact of Policies and Institutional Quality (ICRG Political Situation) by Different Time Dimensions

Dependent Variable: Average Rate of Change of Per Capita Income						
	1-4 years (ave 1.75 years)		5-9 years (ave 5.72 years)		10+ years (ave 11.17 years)	
	(1)	(2)	(3)	(4)	(5)	(6)
	PLS	PLS	PLS	PLS	PLS	PLS
	TD	PFE	TD	PFE	TD	PFE
Constant	0.3124 (4.87)***	0.2111 (3.14)***	0.1474 (2.64)***	0.0984 (1.83)*	0.1543 (2.39)**	0.0793 (0.68)
Initial Ln(Per Capita Income)	-0.0084 (2.40)**	-0.0092 (2.71)***	-0.0097 (3.27)***	-0.0089 (2.73)***	-0.0122 (4.30)***	-0.0136 (2.84)***
Initial Ln(Gini)	-0.0149 (1.44)	-0.0048 (0.51)	-0.0027 (0.32)	0.0038 (0.42)	-0.0038 (0.44)	0.0007 (0.04)
Initial Ln(HDI_Education)	0.0132 (1.48)	0.0124 (1.50)				
Initial Ln(Life Expectancy)						
Initial Ln(Fertility)	-0.0392 (5.13)***	-0.0393 (5.04)***	-0.0422 (5.69)***	-0.0397 (4.55)***	-0.0434 (4.75)***	-0.0431 (3.76)***
Average Rate of Change of TOT	0.1002 (3.51)***	0.0604 (2.38)**	0.1108 (1.76)*	0.0600 (0.94)	0.0175 (0.21)	0.0178 (0.18)
Initial Government Consumption/GDP (nominal terms)	-0.0013 (3.40)***	-0.0011 (3.07)***	-0.0005 (1.07)	-0.0006 (1.24)	-0.0001 (0.29)	-0.0002 (0.04)
Ln(1 + Period Average Inflation/CPI)	-0.0286 (2.66)***	-0.0431 (3.88)***	-0.0381 (4.23)***	-0.0519 (5.46)***	-0.0244 (2.64)***	-0.0291 (2.76)***
Initial Ln(ICRG Political)	-0.0214 (1.44)	-0.0072 (0.45)	0.0081 (0.75)	0.0093 (0.76)	0.0086 (0.63)	0.0242 (1.02)
Time Dummy 1990	-0.0081 (1.13)		-0.0112 (0.98)			
Time Dummy 2000	-0.0093 (1.14)		-0.0164 (1.49)		-0.0045 (0.71)	
No. of Observations	414	414	152	152	64	64
R-squared	0.23	0.45	0.46	0.57	0.52	0.61
Adjusted R-squared	0.22	0.41	0.43	0.47	0.45	0.43

Source: Authors' own compilation

Notes: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses.

iii) PLS denotes a panel least squares method. TD and PFE denote that decadal time dummies and period fixed effects are used, respectively.

5.2 Inequality Regressions (Block 2)

In order to evaluate the impact of policies, institutional quality, and integration on inequality, the levels of average bottom quintile income are regressed on the levels of national average income and Z and G variables in the Eq. [5] form. The results are summarized in Table 8.¹⁸ Trade tends to be pro-poor with less significance (Column 5), while FDI tends to be anti-poor with less to moderate significance. Institutional quality as measured by ICRG composite and political situation indicators tuned out to be significantly anti-poor in a relative sense. Those indicators of institutional quality (or governance) are developed with institutional investors in mind, and thus largely pro-investment, pro-growth, and supply-side oriented. The equation in column (12) is estimated with a package of variables including policies, institutions, and integration. Here, ICRG political situation composite are decomposed into democracy, capacity, and security indicators by the authors in line with the discussion presented in Section 4. While democracy and security have positive estimated coefficients with less significance, negative and significant coefficient is attached to a capacity indicator that measures a country's overall management capacity. This capacity indicator, too, is pro-growth, supply-side oriented measurement. Institutional quality (as measured in ICRG indicators), while promoting growth, expands relative poverty (i.e., inequality) as measured by the ratio of the average income of the bottom quintile relative to the national average income. The impact of institutional quality on poverty (poverty headcount ratios) will be tested in the Block 3. This result also indicates the need of developing pro-equality (thus, pro-poor) institutional quality indicators for the analyses aimed at identifying factors for more equitable, pro-poor growth.

¹⁸ In interpreting the results, one should note that estimated β coefficient of 1 (unit elasticity) signifies 'growth is good for the poor.' The first three columns of Table 8 basic regressions, with or without decadal dummies and with or without instruments (lagged y for the current y), returned unit elasticity estimates. When decadal dummies and instruments are used at the same time, estimated β deviates from 1 as shown in column (4). This should be treated as the benchmark when interpreting results presented in columns (5) through (12).

Table 8: Impact of Policies, Institutional Quality, and Globalization on the Poor (Inequality)

Dependent Variable: Ln(Per Capita Income of the Poorest Quintile) (real terms)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	PLS	PLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS
	CFE	CFE	CFE	CFE	CFE	CFE	CFE	CFE	CFE	CFE	CFE	CFE
Constant	-2.9415 (6.71)***	-2.9415 (6.36)***	-3.3956 (6.77)***	-3.6617 (4.84)***	-3.7211 (4.67)***	-3.7624 (5.15)***	-3.6165 (5.33)***	-3.7594 (4.79)***	-3.1236 (3.97)***	-3.2827 (4.21)***	-4.1954 (5.87)***	-3.1859 (4.22)***
Ln(Per Capita Income) (real terms) #	1.0060 (16.56)***	1.0172 (15.42)***	1.0600 (15.41)***	1.1257 (10.28)***	1.1252 (9.52)***	1.1409 (10.79)***	1.1202 (11.19)***	1.1332 (10.24)***	1.2059 (11.61)***	1.2541 (12.20)***	1.1935 (11.94)***	1.1578 (9.94)***
Trade/GDP (real terms)					0.0007 (0.61)							0.0005 (0.35)
FDI/GDP (nominal terms)						-0.0029 (1.17)						-0.0036 (1.06)
Government Consumption/GDP (nominal terms)							-0.0015 (0.30)					-0.0136 (2.00)**
Ln(1 + Period Average Inflation/CPI)								-0.0013 (0.01)				-0.0610 (0.50)
Ln(ICRG Composite)									-0.2756 (1.96)**			
Ln(ICRG Political)										-0.3172 (2.83)***		
Ln(ICRG Democracy)											0.0307 (0.53)	0.0480 (0.73)
Ln(ICRG Capacity)												-0.2865 (3.16)***
Ln(ICRG Security)												0.0525 (0.40)
Time Dummy 1990		-0.1202 (2.01)**		-0.1389 (2.23)**	-0.1434 (1.68)*	-0.1374 (1.60)	-0.1353 (1.60)	-0.1037 (1.20)	-0.1102 (1.21)	-0.1290 (1.39)	-0.1417 (1.61)	-0.0525 (0.61)
Time Dummy 2000		-0.1075 (1.66)*		-0.1532 (2.04)**	-0.1733 (1.79)*	-0.1523 (1.56)	-0.1456 (1.54)	-0.1250 (1.33)	-0.1514 (1.49)	-0.1908 (1.86)*	-0.1916 (1.97)*	-0.0860 (0.97)
No. of observations	245	245	245	245	223	224	237	224	217	217	216	187
Adjusted R-squared	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98

Source: Authors' own compilation

Notes: i) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively. Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses.

ii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively. CFE denotes that cross-section fixed effects are accounted for.

iii) # denotes the variable is instrumented with the value of the previous year, except for the regressions of (1) and (2).

Eq. [5] is the only model with postulated cross-country fixed effects. That is, the compound error term can be decomposed into three components of cross-country fixed effects, time-wise fixed effects, and a random error term. Using decadal time dummies for the period fixed effects, estimates of the cross-country fixed effects (that should add up to zero) are obtained using the fitted equation in the column (12) in Table 8. The results are shown in Table 9. Ethiopia, Moldova, Zambia, Ukraine, Pakistan, Belarus, Vietnam, Kyrgyz Republic, Burkina Faso, and India are identified as the top ten countries of pro-poor country fixed effects.¹⁹ Brazil, Columbia, Bolivia, Panama, Argentine, South Africa, Venezuela, Guatemala, Honduras, and Paraguay are identified as the countries with least pro-poor fixed effects. Those countries should be the good candidates for comparative case studies in search of country specific factors to make growth more pro-poor. This identification of pro-poor fixed effects, however, depends heavily on the selection of periods in the set of observations. This, in turn, depends on the availability of data for variables selected for each regression equations. This being said, the fact that Latin America listed 9 out of 10 worst countries should be seriously taken.

Equations for the changes in inequality as measured in Gini (Eq.[6]) are estimated and the results are summarized in Table 10. There is a significant absolute convergence in Gini across countries (Column 1). As Otusbo's survey on the P-G-I literature summarizes, the Kuznets curve relationship disappears once country-specific fixed effects are accounted for (Otsubo, 2008). As such, no particular relationship between income and inequality is necessitated. Given the country specific effects postulated in Eq. [5], these fixed effects drop out in the regressions with growth spells (Eq.[6]). An insignificant coefficient found in Column (2) and mixed (sign) and insignificant coefficients attached to income growth term in the columns of Table 9 signify this fact. Although Eq. [6] is also estimated with an assumption of country fixed effects in growths/changes, for reference purposes, the income growth term stays insignificant. The only exception is found in the income growth terms in the regressions for the impact of integration. Moderately significant and negative coefficients attached to income growth imply that, when the segment of income growth caused by faces of integration is separately accounted for, growth propelled by domestic reasons tend to reduce inequality. In other words, this in turn implies that growth propelled by integration tends to widen inequality. Regression results shown in columns (7) and (8) point to inequality-widening tendency of integration through international trade and FDI. However,

¹⁹ It may not be imaginable to name Moldova as the country with large positive pro-poor fixed effects. After worsening in Gini and poverty headcount ratio with secular reduction in GDP throughout 1980s and 1990s, the situation turned around at the end of the 1990s. Both Gini and headcount ratio started to decline with positive growth in the 2000s. In the medium-term growth spells, spells of 1992-1999, 1999-2005, and 2005-2010 are taken. In the level regressions of Eq. [5], only observations of 2005 and 2010 are adopted in the column (12) version of estimated equation, and this made Moldova a country with large positive pro-poor fixed effects.

judging from their low significance, trade can be said to be rather neutral to income distribution as Dollar and Kraay (2004) asserts. Among the three modalities of integration, remittances—that signify the existence of international migrant workers—are slightly significant and have very stable negative impact (pro-equality impact) on Gini. Migrant workers are often unskilled laborers and coming from countries' poorer (if not poorest) households. Remittances thus improve income of the poorer segments of the society in general. However, the macro impact of labor market integration is still small. Higher institutional quality as measured in ICRG composite and political situation indicators expands inequality, though it promotes growth as seen in Block 1. This result is rather robust and statistically significant, and also consistent with the results obtained in the regressions with Eq. [5]. Macroeconomic policy variables are found insignificant to alter inequality as measured in Gini coefficients.

Table 9: Country Fixed Effects of Impact of Globalization on the Poor (bottom quintile income)

Rank	Country ID	Fixed Effect	Rank	Country ID	Fixed Effect
1	Ethiopia	1.0668	37	Kenya	0.2775
2	Moldova	1.0324	38	Ghana	0.2741
3	Zambia	0.8934	39	Cote d'Ivoire	0.2703
4	Ukraine	0.7682	40	Estonia	0.2508
5	Pakistan	0.7547	41	Lithuania	0.2137
6	Belarus	0.7183	42	Croatia	0.1919
7	Vietnam	0.7092	43	Slovenia	0.1780
8	Kyrgyz Republic	0.6872	44	Russian Federation	0.1628
9	Burkina Faso	0.6811	45	Latvia	0.1489
10	India	0.6653	46	Philippines	0.1236
11	Bangladesh	0.6230	47	Tunisia	0.1171
12	Mongolia	0.5965	48	Thailand	0.0937
13	Tanzania	0.5753	49	Poland	0.0789
14	Egypt, Arab Rep.	0.5732	50	Iran, Islamic Rep.	-0.0501
15	Armenia	0.5717	51	Malaysia	-0.0705
16	Indonesia	0.5661	52	Macedonia, FYR	-0.0734
17	Albania	0.5615	53	Turkey	-0.3034
18	Lao PDR	0.5588	54	Dominican Republic	-0.4706
19	Jordan	0.5336	55	Ecuador	-0.4894
20	Yemen, Rep.	0.5321	56	Botswana	-0.4897
21	Hungary	0.4944	57	Peru	-0.5478
22	Azerbaijan	0.4815	58	Mexico	-0.5773
23	Mali	0.4777	59	El Salvador	-0.5793
24	Uganda	0.4733	60	Uruguay	-0.5814
25	Sri Lanka	0.4606	61	Costa Rica	-0.5922
26	Senegal	0.4538	62	Paraguay	-0.6112
27	Slovak Republic	0.4417	63	Honduras	-0.6362
28	Bulgaria	0.4382	64	Guatemala	-0.6582
29	Madagascar	0.3499	65	Venezuela, RB	-0.6928
30	Gambia, The	0.3361	66	South Africa	-0.8163
31	Mozambique	0.3252	67	Argentina	-0.9236
32	Kazakhstan	0.3169	68	Panama	-0.9471
33	Morocco	0.2923	69	Bolivia	-1.0156
34	Romania	0.2860	70	Colombia	-1.0327
35	Cameroon	0.2853	71	Brazil	-1.1489
36	China	0.2835			

Source: Authors' own compilation

Table 10: Impact of Policies, Institutional Quality, and Globalization on Gini Index (Inequality) [Medium-Term (5-9 years)]**a) With decadal time dummies**

Dependent Variable: Period Average Rate of Change of Gini Index

	(1) PLS	(2) P2SLS	(3) P2SLS, CFE	(4) P2SLS	(5) P2SLS	(6) P2SLS	(7) P2SLS	(8) P2SLS
Constant	0.1419 (7.36)***	0.1343 (5.23)***	0.6362 (12.09)***	0.1448 (6.22)***	-0.0364 (0.73)	0.0616 (1.67)*	0.1795 (5.41)***	0.1788 (5.51)***
Initial Ln(Gini)	-0.0395 (7.92)***	-0.0377 (5.98)***	-0.1733 (12.71)***	-0.0409 (6.33)***	-0.0408 (6.63)***	-0.0397 (6.29)***	-0.0499 (6.03)***	-0.0486 (6.02)***
Average Growth Rate of Per Capita Income#		0.0459 (0.28)	0.0511 (0.37)	-0.0518 (0.22)	-0.1647 (1.23)	-0.0570 (0.41)	-0.1763 (1.22)	-0.1637 (1.21)
Period Average Government Consumption/GDP				0.0001 (0.37)				
Ln(1 + Period Average Inflation/CPI)				0.0073 (0.47)				
Period Average ICRG_Composite					0.0476 (3.68)***			
Period Average ICRG_Political						0.0223 (2.54)**		
Trade/GDP (real terms)							(INI) 0.00146 (0.57)	(AVG) 0.0220 (0.63)
Period Average FDI /GDP (nominal terms)							0.0010 (1.35)	0.0010 (1.49)
Period Average Remittance/GDP (nominal terms)							-0.0003 (1.21)	-0.0003 (1.22)
Transitional Dummy				-0.0076 (0.90)	-0.0078 (1.71)*	-0.0098 (2.01)**	-0.0106 (2.26)**	-0.0109 (2.41)**
Time Dummy 1990	0.0072 (1.26)	0.0082 (1.45)	0.0066 (0.92)	0.0098 (1.58)			0.0057 (0.68)	0.0064 (0.79)
Time Dummy 2000	0.0027 (0.49)	0.0021 (0.36)	0.0073 (1.00)	0.0069 (1.11)	-0.0060 (1.95)*	-0.0045 (1.44)	0.0038 (0.46)	0.0054 (0.69)
No. of Observations	242	233	233	215	184	184	199	195
R-squared	0.21	0.17	0.81	0.19	0.24	0.19	0.18	0.19
Adjusted R-squared	0.20	0.15	0.66	0.16	0.21	0.17	0.15	0.16

b) With period fixed effects

Dependent Variable: Period Average Rate of Change of Gini Index

	(1) PLS	(2) P2SLS	(3) P2SLS, WFE	(4) P2SLS	(5) P2SLS	(6) P2SLS	(7) P2SLS	(8) P2SLS
Constant	0.1426 (6.74)***	0.1271 (4.04)***	0.6740 (12.96)***	0.1465 (5.55)***	-0.0972 (1.63)*	0.0319 (0.73)	0.1792 (4.86)***	0.1843 (5.24)***
Initial Ln(Gini)	-0.0386 (6.71)***	-0.0354 (4.67)***	-0.1812 (12.68)***	-0.0421 (5.03)***	-0.0392 (6.02)***	-0.0382 (5.61)***	-0.0487 (5.29)***	-0.0480 (5.33)***
Average Growth Rate of Per Capita Income#		0.1385 (0.65)	-0.0141 (0.11)	0.2270 (0.60)	-0.1751 (1.01)	-0.1011 (0.55)	-0.3134 (1.53)	-0.3134 (1.74)*
Period Average Government Consumption/GDP				0.0004 (0.72)				
Ln(1 + Period Average Inflation/CPI)				0.0205 (0.86)				
Period Average ICRG_Composite					0.0597 (3.74)***			
Period Average ICRG_Political						0.0276 (2.45)*		
Trade/GDP (real terms)							(INI) 0.0020 (0.69)	(AVG) 0.0388 (0.93)
Period Average FDI /GDP (nominal terms)							0.0014 (1.56)	0.0015 (1.70)**
Period Average Remittance/GDP (nominal terms)							-0.0002 (0.91)	-0.0002 (0.90)
Transitional Dummy				-0.0178 (1.28)	-0.0066 (1.19)	-0.0076 (1.29)	-0.0091 (1.56)	-0.0103 (1.83)*
No. of Observations	242	233	233	215	184	184	199	195
R-squared	0.24	0.15	0.86	0.14	0.29	0.24	0.18	0.19
Adjusted R-squared	0.15	0.04	0.70	0.01	0.18	0.12	0.03	0.05

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses.

ii) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

iii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively.

iv) CFE denote cross-section fixed effect are accounted for. WFE denotes both period and cross-section fixed effects are accounted for.

v) (INI) and (AVG) denote the initial levels or the period average growth rates of the variables are used, respectively.

5.3 Poverty Regressions (Block 3)

Equations for the changes in poverty as measured in the poverty headcount ratios (Eq.[7]) are estimated and the results are summarized in Table 11. There is moderately significant absolute convergence in poverty headcount ratios (HCR) across countries (Column 1). Earlier studies reported higher elasticity of poverty reduction with respect to inequality (Gini) mitigation as compared to that of income growth. Bourguignon (2003), for instance, found inequality (Gini) elasticity of 4.72 as compared to growth elasticity of -2.01. This study, with many growth spells taken from countries in transition including the FSU states, finds higher elasticity of poverty reduction for economic growth (Columns 2, 3 and 4). The results of regressions with policy variables (Column 5) indicate that a larger government tends to be pro-poor, and that inflation is anti-poor. Institutional quality as measured in the investor-oriented ICRG indicators, while promoting overall economic growth, affects equality (GINI and bottom quintile income relative to the country average) negatively. As the combined result of the P-G-I triangle, however, higher institutional quality (ICRG indicators) reduces poverty (HCR) (Columns 6 and 7). None of the variables of integration turns out to be (strongly) significant in the equations presented in Columns (8) and (9). The results, with each face of integration separately (not reported), confirmed this. As a tendency, a higher initial level of trade integration (trade to GDP ratio) tends to reduce poverty in a subsequent period, with less to moderate significance. A higher average rate of change in integration through trade, however, tends to increase poverty. Although FDIs promote growth rather significantly, the same FDIs tend to expand inequality (Gini), as reported earlier. The combined impact on poverty reduction is thus mixed and statistically insignificant during this exercise. Although the impact of remittances is stably conducive to poverty reduction, it is largely insignificant statistically among the sample collected for this study.

Table 11: Impact of Policies, Institutions, and Globalization on Poverty (HCR) [Medium-Term (5-9 years)]**a) With decadal time dummies**

Dependent Variable: Period Average Rate of Change of Poverty Headcount Ratio									
	(1) PLS	(2) PLS	(3) P2SLS	(4) P2SLS	(5) P2SLS	(6) P2SLS	(7) P2SLS	(8) P2SLS	(9) P2SLS
Constant	-0.0178 (0.47)	0.0714 (2.14)**	0.1011 (3.12)***	0.1275 (3.43)***	0.1344 (2.61)***	1.3838 (2.01)**	0.7645 (1.85)*	0.2235 (3.40)***	0.1654 (4.57)***
Initial Ln(Poverty Headcount Ratio)	-0.0112 (1.53)	-0.0119 (1.87)*	-0.0086 (1.24)	-0.0170 (1.87)*	-0.0146 (1.52)	-0.0316 (2.05)**	-0.0265 (1.99)**	-0.0260 (2.66)***	-0.0248 (2.54)**
Average Growth Rate of Per Capita Income		-2.2288 (5.04)***	-2.5940 (4.61)***	-2.4358 (4.42)***	-2.6400 (5.42)***	-1.9061 (3.56)***	-2.1955 (4.59)***	-2.6083 (4.59)***	-2.6059 (4.69)***
Period Average Rate of Change of Gini Index#		1.5247 (2.97)***	1.4315 (0.94)	1.9507 (1.32)	2.9283 (1.81)*	1.5655 (1.21)	1.7097 (1.30)	2.4790 (1.55)	2.3307 (1.45)
Period Average Government Consumption/GDP					-0.0022 (1.05)				
Ln(1 + Period Average Inflation/CPI)					0.1301 (1.64)*				
Period Average ICRG_Composite						-0.3153 (1.94)*			
Period Average ICRG_Political							-0.1690 (1.71)*		
Trade/GDP (real terms)								(INI) -0.02078 (1.12)	(AVG) 0.3228 (0.92)
Period Average FDI /GDP (nominal terms)								0.0006 (0.12)	-0.0012 (0.23)
Period Average Remittance/GDP (nominal terms)								-0.0005 (0.21)	-0.0006 (0.26)
Transitional Dummy				-0.0723 (1.50)	-0.0562 (1.11)	-0.1396 (2.00)**	-0.1138 (1.78)*	-0.1040 (2.12)**	-0.1065 (2.17)**
Time Dummy 1990	0.0228 (0.66)	-0.0326 (1.09)	-0.0837 (2.97)***	-0.0790 (3.05)***	-0.0828 (2.81)***			-0.0489 (1.38)	-0.0820 (3.11)***
Time Dummy 2000	-0.0300 (0.94)	-0.0440 (1.64)*	-0.0736 (3.77)***	-0.0686 (3.86)***	-0.0580 (3.15)***	0.0111 (0.40)	0.0037 (0.14)	-0.0488 (1.73)	-0.0802 (3.64)***
No. of Observations	225	222	166	166	158	142	142	151	148
R-squared	0.04	0.26	0.27	0.30	0.36	0.34	0.33	0.40	0.40
Adjusted R-squared	0.03	0.24	0.25	0.27	0.33	0.31	0.31	0.36	0.36

b) With period fixed effects

Dependent Variable: Period Average Rate of Change of Poverty Headcount Ratio									
	(1) PLS	(2) PLS	(3) P2SLS	(4) P2SLS	(5) P2SLS	(6) P2SLS	(6) P2SLS	(7) P2SLS	(8) P2SLS
Constant	-0.0263 (1.17)	0.0365 (1.56)	0.0326 (1.13)	0.0587 (1.84)*	0.1051 (2.16)**	1.2253 (1.61)	0.8400 (1.63)	0.1547 (1.82)*	0.0878 (2.86)***
Initial Ln(Poverty Headcount Ratio)	-0.0130 (1.79)*	-0.0150 (2.37)**	-0.0125 (1.77)*	-0.0191 (2.12)***	-0.0176 (1.82)*	-0.0312 (1.93)*	-0.0286 (2.03)**	-0.0269 (2.80)***	-0.0281 (2.97)***
Average Growth Rate of Per Capita Income		-2.1533 (4.27)***	-2.6120 (3.87)***	-2.4648 (3.76)***	-2.8386 (4.45)***	-1.8407 (2.53)**	-2.0409 (2.97)***	-2.6370 (3.90)***	-2.5332 (3.88)***
Period Average Rate of Change of Gini Index#		1.1737 (2.32)**	0.7045 (0.40)	1.0648 (0.62)	1.9618 (0.97)	0.5314 (0.31)	0.5120 (0.29)	1.8744 (1.03)	1.4608 (0.81)
Period Average Government Consumption/GDP					-0.0037 (1.67)*				
Ln(1 + Period Average Inflation/CPI)					0.0843 (0.82)				
Period Average ICRG_Composite						-0.2762 (1.58)			
Period Average ICRG_Political							-0.1866 (1.55)		
Trade/GDP (real terms)								(INI) -0.0163 (0.83)	(AVG) 0.2093 (0.62)
Period Average FDI /GDP (nominal terms)								0.0013 (0.27)	-0.0010 (0.18)
Period Average Remittance/GDP (nominal terms)								-0.0001 (0.05)	0.0003 (0.12)
Transitional Dummy				-0.0658 (1.29)	-0.0417 (0.74)	-0.1402 (1.81)*	-0.1195 (1.70)*	-0.1082 (2.17)***	-0.1147 (2.36)***
No. of Observations	225	222	166	166	158	142	142	151	148
R-squared	0.18	0.34	0.34	0.36	0.42	0.38	0.38	0.44	0.46
Adjusted R-squared	0.08	0.25	0.24	0.25	0.31	0.26	0.26	0.33	0.34

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses.

ii) *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

iii) PLS and CFE denote panel least squares method and cross-section fixed effect, respectively.

iv) # denote the variable is instrumented with the initial level and period average growth rate of the previous spell, except for the regressions of (1) and (2).

v) (INI) and (AVG) denote the initial levels or the period average growth rates of the variables are used, respectively.

6. Concluding Remarks

Numerous existing empirical studies agreed that economic integration contributes to poverty reduction on the basis that it accelerates growth ‘on average,’ while being neutral to the distribution of benefits, again ‘on average.’ However, in reality, there exists a number of ‘dispersion’ in these ‘average’ relationships, both from the transnational and chronological aspects. Hence, this research intends to empirically elaborate a ‘cross-national study’ on the ‘interstate dispersion’ of the impact (growth, inequality, and poverty) that international economic integration provides to the developing economies, along with the specific factors that determine the outcome in each nation such as socio-economic institutions and policy stances. Regression analyses are conducted for the major segments of the P-G-I triangle, paying special attention to the time dimensions of the impacts by using short-term (1-4 years), medium-term (5-9 years), and long-term (10+ years) growth spells.

Having confirmed average relationships, the factors of dispersions—both common factors (variations in explanatory variables) and country-specific factors (fixed effects)—are explored. This paper confirms: 1) the absolute income convergence in each income group (with divergence between income groups); 2) the conditional income convergence among countries across income groups; and 3) the absolute (and, of course, conditional) convergence in inequality (GINI) and poverty headcount ratios (HCR) across countries. However, unlike earlier studies that found higher inequality elasticity of poverty reduction, this study, with many growth spells taken from countries in transition including the FSU states, finds higher elasticity of poverty reduction for economic growth.

In terms of the time dimensions of the emergence of impacts, the paper finds relatively higher significance of ‘institutions’ with lower significance of ‘policy stances’ in the longer growth spells. Among the three dimensions of integration tested in this study (international trade, FDI, and remittances), higher significance exists in: 1) FDI (positive) in growth; 2) FDI (negative) and trade (positive) in the income of bottom quintile relative to national average; and 3) remittances (negative) in poverty (i.e., reduce poverty headcount ratio), but not with sufficient statistical significance (at least not yet). Trade is mostly neutral to income distribution (GINI), while FDI and remittances tend to exert negative and positive impacts, respectively. Institutional quality as measured in the investor-oriented ICRG indicators, while promoting overall economic growth, affects equality (GINI and bottom quintile income relative to the country average) negatively. As the combined result of the P-G-I triangle, however, higher institutional quality (ICRG indicators) reduces poverty (HCR).

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Appendix 1: Construction of Data Set

Variables	Data Source	Notes
Period Average Growth Rate(AVG) of Per Capita Income	WDI 2012	Compound average growth rate of per capita GDP during each period; constant 2000 USD.
AVG of Per Capita Income of the Poorest Quintile	WDI 2012	Per capita GDP of the bottom quintile; constant 2000 USD.
Period Average Rate of Change of Gini Index	WDI 2012	Compound average rate of change of Gini index during each period.
Period Average Rate of Change of Poverty Head Count Ratio	WDI 2012	Compound average rate of change of poverty headcount ratio at 1.25USD a day (PPP).
Initial Ln(Per Capita Income)	WDI 2012	Natural logarithm of per capita GDP for the first year of each period, constant 2000 USD.
Initial Ln(Quintile Share)	WDI 2012	Bottom quintile income share; constant 2000USD.
Initial Ln(Gini)	WDI 2012	Natural logarithm of Gini index for the first year of each period.
Initial Ln(Poverty Headcount Ratio)	WDI 2012	Natural logarithm of poverty headcount ratio at 1.25USD a day (PPP) (% of population) for the first year of each period.
Initial Ln(HDI_Education)	HDI 2012	Natural logarithm of Human Development Indicators Education index for the first year of each period. The annual index is calculated by author based on the available data using compound average growth rate.
Initial Ln(Life Expectancy)	WDI 2012	Natural logarithm of life expectancy at birth, total (years).
Initial Ln(Fertility)	WDI 2012	Natural logarithm of total fertility rate (births per woman).
Average Rate of Change of TOT	WDI 2012	Compound average rate of change of net barter terms of trade index.
Initial/ period average Government Consumption/GDP	WDI 2012	General government final consumption expenditure (% of GDP) for the first year of each period / for period average; nominal terms.
Ln(1 + Period Average Inflation/CPI)	WDI 2012	Natural logarithm of average inflation rate during the period; $\ln(1+\text{inflation rate})$; calculated based on consumer price index; 2005=100.
Initial/ Period Average Ln(ICRG Composite)	PRS Group's ICRG	Natural logarithm of ICRG Composite Risk (Economic, Financial, & Political Risk) indicators for the first year of each period/ for period average.
Initial/ Period Average Ln(ICRG Political)	PRS Group's ICRG	Natural logarithm of ICRG Political Risk indicators for the first year of each period/ period average.
Ln(ICRG Democracy)	PRS Group's ICRG	Natural logarithm of ICRG Democratic Accountability Indicator (one component of Political Risk indicator) for first year of period/ period average rate.
Ln(ICRG Capacity)	PRS Group's ICRG	Natural logarithm of ICRG capacity indicator; generated from 5 indicators- 'government stability,' 'investment profile,' 'corruption,' 'law and order' and 'bureaucracy quality' indicators for the first year of each period/ for period average.
Ln(ICRG Security)	PRS Group's ICRG	Natural logarithm of ICRG security indicator; generated by 5 indicators- 'internal conflict,' 'external conflict,' 'military in politics,' 'religious tensions' and 'ethnic tensions' indicators for the first year of each period/ for period average.
Initial/AVG of Trade/GDP	WDI 2012	Initial/period average growth rate of trade to GDP during the period; real terms; calculated based on exports + imports of goods and services (constant LCU).
Period Average FDI/GDP	WDI 2012	Period average foreign direct investment, net inflows (% of GDP).
Period Average Remittance/GDP	WDI 2012	Period average workers' remittances and compensation of employees, received (% of GDP)
Time Dummy 1990	Set by Author	A time dummy variable attached to the period in the 1990s.
Time Dummy 2000	Set by Author	A time dummy variable attached to the period in the 2000s.
Regional Dummy EAP	Set by Author	A regional dummy variable for East Asia & Pacific in accordance with World Bank (2012) Classification
Regional Dummy ECA	Set by Author	A regional dummy variable for Europe & Central Asia in accordance with World Bank (2012) Classification
Regional Dummy LAC	Set by Author	A regional dummy variable for Latin America & Caribbean in accordance with World Bank (2012) Classification
Regional Dummy MENA	Set by Author	A regional dummy variable for Middle East & North Africa in accordance with World Bank (2012) Classification
Regional Dummy SA	Set by Author	A regional dummy variable for South Asia in accordance with World Bank (2012) Classification
Income Dummy LMI	Set by Author	An income group dummy variable for low & middle income countries in accordance with World Bank (2012) Classification
Income Dummy UMI	Set by Author	An income group dummy variable for upper middle income countries in accordance with World Bank (2012) Classification
Income Dummy HINO	Set by Author	An income group dummy variable for high income non OECD countries in accordance with World Bank (2012) Classification
Income Dummy HIOECD	Set by Author	An income group dummy variable for high income OECD countries in accordance with World Bank (2012) Classification
OPEC Dummy	Set by Author	A dummy variable for OPEC member countries
Crises Dummy	Set by Author	A dummy variable attached to the period of Debt Crisis (1982-83), Asian Financial Crisis (1997-98), and Global Financial Crisis (2008-09). For the value of 1, both of the two years for any one of the designated crises should be in that growth spell.
Land-locked Dummy	Set by Author	A dummy variable attached to the land-locked countries
Transitional Dummy	Set by Author	A dummy variable attached to the transitional economies
FSU Dummy	Set by Author	A dummy variable attached to the Former Soviet Union countries

Appendix 2: Impact of Policies, Institutions, Globalization on Growth [Medium-Term (5-9 years); with decadal time dummies]

Dependent Variable: Period Average Growth Rate of Per Capita Income																	
	(1) PLS	(2) PLS	(3) PLS	(4) PLS	(5) PLS	(6) PLS	(7) PLS	(8) PLS	(9) PLS	(10) P2SLS	(11) P2SLS	(12) PLS	(13) P2SLS	(14) P2SLS	(15) P2SLS	(16) P2SLS	(17) P2SLS
Constant	0.0900 (2.39)**	0.0100 (0.10)	0.1051 (3.24)***	0.1174 (1.30)	0.0152 (0.21)	0.0695 (1.23)	0.1664 (2.43)**	0.1474 (2.64)***	0.0872 (2.33)**	0.1080 (3.22)***	0.0991 (2.78)***	0.1173 (3.14)***	0.1161 (3.15)***	0.1522 (4.31)***	0.1387 (2.39)**	0.1427 (3.85)***	0.1358 (3.22)***
Initial Ln(Per Capita Income)	0.0009 (0.53)	-0.0121 (4.64)***	0.0031 (1.90)*	-0.0097 (3.85)***	-0.0001 (0.05)	0.0011 (0.50)	-0.0095 (3.17)***	-0.0097 (3.27)***	0.0006 (0.35)	-0.0009 (0.53)	0.0008 (0.46)	0.0010 (0.63)	-0.0007 (0.33)	-0.0034 (0.82)	-0.0111 (3.36)***	-0.0063 (1.91)*	-0.0083 (2.48)**
Initial Ln(Gini)	-0.0215 (2.38)**	0.0031 (0.36)	-0.0272 (3.12)***	0.0009 (0.11)	-0.0260 (2.63)***	-0.0268 (2.75)***	-0.0018 (0.20)	-0.0027 (0.32)	-0.0233 (2.50)**	-0.0241 (2.61)***	-0.0269 (2.73)***	-0.0282 (3.14)***	-0.0261 (2.58)***	-0.0313 (2.93)***	0.0006 (0.06)	-0.0092 (0.87)	-0.0028 (0.26)
Initial Ln(HDI_Education)		-0.0054 (0.77)															
Initial Ln(Life Expectancy)		0.0318 (1.53)		0.0084 (0.41)													
Initial Ln(Fertility)		-0.0411 (4.87)***		-0.0422 (5.55)***			-0.0426 (5.71)***	-0.0422 (5.69)***							-0.0423 (5.67)***	-0.0289 (3.03)***	-0.0321 (3.63)***
Average Rate of Change of TOT		0.0379 (1.01)		0.1068 (2.10)**			0.1062 (1.70)*	0.1108 (1.76)*							0.1043 (1.44)	0.0476 (1.12)	0.0523 (1.10)
Initial Government Consumption/GDP			-0.0004 (1.10)	-0.0007 (1.89)*			-0.0004 (0.95)	-0.0005 (1.07)							-0.0005 (1.04)	-0.0009 (1.87)*	-0.0008 (1.60)
Ln(1 + Period Average Inflation/CPI)			-0.0488 (2.81)***	-0.0326 (3.74)***			-0.0373 (4.25)***	-0.0381 (4.23)***							-0.0373 (3.80)***	-0.0278 (2.67)***	-0.0363 (2.73)***
Initial Ln(ICRG_Composite)					0.0188 (1.08)		0.0022 (0.15)										
Initial Ln(ICRG_Political)						0.0038 (0.27)		0.0081 (0.75)							0.0095 (0.81)	0.1005 (1.82)*	0.0717 (1.24)
Trade/GDP (real terms) #1									(INI) 0.0037 (1.19)	(AVG) -0.0138 (0.11)			(INI) -0.0027 (0.72)	(AVG) 0.0038 (0.01)	(AVG) 0.0294 (0.55)		(AVG) 0.1483 (1.29)
Period Average FDI /GDP #2											0.0057 (4.16)***		0.0065 (3.50)***	0.0060 (1.04)		0.0057 (2.78)***	0.0049 (2.46)**
Period Average Remittance/GDP												0.0001 (0.61)	-0.0005 (0.97)	-0.0008 (0.94)			
Time Dummy 1990	-0.0022 (0.19)	0.0024 (0.30)	0.0049 (0.55)	0.0028 (0.42)	0.0268 (6.10)***	0.0274 (5.21)***	-0.0122 (1.07)	-0.0112 (0.98)	-0.0060 (0.51)	0.0078 (1.14)	-0.0002 (0.03)	-0.0047 (0.39)	0.0006 (0.07)	0.0027 (0.32)	-0.0103 (0.81)	-0.0010 (0.12)	-0.0011 (0.12)
Time Dummy 2000	0.0160 (1.51)	0.0029 (0.38)	0.0158 (1.89)**	0.0011 (0.17)	0.0357 (8.65)***	0.0387 (13.50)***	-0.0162 (1.47)	-0.0164 (1.49)	0.0123 (1.07)	0.0221 (3.75)***	0.0062 (0.79)	0.0123 (1.11)	0.0073 (0.93)	0.0039 (0.27)	-0.0145 (1.16)	-0.0078 (0.99)	-0.0058 (0.62)
No. of Observations	241	173	218	176	189	189	152	152	220	191	236	226	205	181	142	152	142
R-squared	0.10	0.37	0.19	0.45	0.11	0.10	0.45	0.46	0.12	0.12	0.14	0.11	0.11	0.21	0.44	0.43	0.42
Adjusted R-squared	0.08	0.34	0.17	0.42	0.08	0.08	0.42	0.42	0.10	0.09	0.12	0.09	0.08	0.18	0.41	0.39	0.37

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively.

iii) # denotes variables are instrumented with; #1-the initial level and period average growth rate of the previous spell; #2 -the period average rate of the previous spell.

iv) (INI) and (AVG) denote the initial level or the period average growth rates of the variables are used, respectively.

Appendix 3: Impact of Policies, Institutions, Globalization on Growth [Mid-Term (5-9 years); with period fixed effects]

Dependent Variable: Period Average Growth Rate of Per Capita Income																	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	PLS	PLS	PLS	PLS	PLS	PLS	PLS	PLS	PLS	P2SLS	P2SLS	PLS	P2SLS	P2SLS	P2SLS	P2SLS	P2SLS
Constant	0.0811 (2.32)**	0.0054 (0.05)	0.1142 (3.45)***	0.0983 (1.18)	0.0669 (0.88)	0.0812 (1.36)	0.1203 (1.76)*	0.0984 (1.83)*	0.0849 (2.36)**	0.1297 (4.36)***	0.1063 (3.09)***	0.1058 (3.08)***	0.1186 (3.29)***	0.1635 (5.17)***	0.0921 (1.67)*	0.1094 (3.35)***	0.0991 (2.59)***
Initial Ln(Per Capita Income)	0.0019 (1.06)	-0.0097 (3.20)***	0.0040 (2.11)**	-0.0075 (2.62)***	0.0001 (0.04)	0.0004 (0.19)	-0.0087 (2.56)**	-0.0089 (2.73)***	0.0022 (1.15)	-0.0013 (0.68)	0.0018 (1.07)	0.0013 (0.76)	-0.0001 (0.02)	-0.0017 (0.33)	-0.0099 (2.50)**	-0.0060 (1.82)*	-0.0071 (1.89)*
Initial Ln(Gini)	-0.0184 (1.92)*	0.0043 (0.43)	-0.0283 (3.11)***	0.0042 (0.47)	-0.0258 (2.73)***	-0.0262 (2.81)***	0.0046 (0.50)	0.0038 (0.42)	-0.0220 (2.32)**	-0.0248 (2.87)***	-0.0296 (3.07)***	-0.0237 (2.52)**	-0.0273 (2.70)***	-0.0329 (3.33)***	0.0055 (0.57)	-0.0019 (0.18)	0.0032 (0.29)
Initial Ln(HDI_Education)		-0.0032 (0.42)		0.0022 (0.31)													
Initial Ln(Life Expectancy)		0.0273 (1.34)		0.0059 (0.31)													
Initial Ln(Fertility)		-0.0360 (3.60)***		-0.0353 (3.82)***			-0.0401 (4.61)***	-0.0397 (4.55)***							-0.0394 (4.27)***	-0.0276 (2.89)***	-0.0290 (2.93)***
Average Rate of Change of TOT		-0.0107 (0.25)		0.0273 (0.69)**			0.0565 (0.88)	0.0600 (0.94)							0.0640 (0.84)	0.0126 (0.28)	0.0104 (0.20)
Initial Ln(Government Consumption Ratio)			-0.0004 (0.93)	-0.0009 (2.25)**			-0.0005 (1.10)	-0.0006 (1.24)							-0.0006 (1.25)	-0.0008 (1.80)*	-0.0008 (1.56)
Ln(1 + Period Average Inflation/CPI)			-0.0464 (2.55)**	-0.0428 (4.23)***			-0.0515 (5.58)***	-0.0519 (5.46)***							-0.0527 (4.54)***	-0.0464 (4.38)***	-0.0599 (3.58)***
Initial Ln(ICRG_Composite)					0.0135 (0.73)		0.0026 (0.16)										
Initial Ln(ICRG_Political)						0.0099 (0.69)		0.0093 (0.76)							0.0111 (0.79)	0.0917 (1.24)*	0.0737 (0.92)
Trade/GDP (real terms) #1									(INI) 0.0020 (0.62)	(AVG) 0.0302 (0.30)			(INI) -0.0012 (0.36)	(AVG) -0.0777 (0.33)	(AVG) 0.0392 (0.71)		(AVG) 0.1779 (1.33)
Period Average FDI /GDP#2											0.0056 (4.17)***		0.0054 (3.45)***	0.0012 (0.15)		0.0050 (2.67)***	0.0045 (2.41)**
Period Average Remittance/GDP												0.0001 (0.22)	-0.0005 (0.94)	-0.0003 (0.30)			
No. of Observations	241	173	218	166	189	189	152	152	220	191	236	226	205	181	142	152	142
R-squared	0.22	0.48	0.31	0.52	0.26	0.26	0.57	0.57	0.24	0.29	0.26	0.25	0.28	0.32	0.56	0.57	0.55
Adjusted R-squared	0.13	0.37	0.21	0.42	0.16	0.16	0.47	0.47	0.14	0.18	0.17	0.15	0.17	0.20	0.45	0.47	0.43

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively.

iii) # denotes variables are instrumented with; #1-the initial level and period average growth rate of the previous spell; #2 -the period average rate of the previous spell.

iv) (INI) and (AVG) denote the initial levels or the period average growth rates of the variables are used, respectively.

Appendix 4: Impact of Policies, Institutions, Globalization on Growth [Long-Term (10 years); with decadal time dummies]

Dependent Variable: Period Average Growth Rate of Per Capita Income													
	(1) PLS	(2) PLS	(3) PLS	(4) PLS	(5) PLS	(6) PLS	(7) PLS	(8) PLS	(9) PLS	(10) P2SLS	(11) PLS	(12) P2SLS	(13) P2SLS
Constant	0.0772 (1.98)**	0.1364 (1.21)	0.1040 (2.84)***	0.1523 (3.52)***	-0.0698 (0.87)	-0.0255 (0.36)	0.1420 (1.85)*	0.1543 (2.39)**	0.0896 (2.27)**	0.1306 (3.93)***	0.1031 (2.72)***	0.1283 (3.54)***	0.1697 (2.38)**
Initial Ln(Per Capita Income)	-0.0009 (0.42)	-0.0140 (5.39)***	0.0016 (0.76)	-0.0109 (3.87)***	-0.0049 (2.11)**	-0.0040 (1.61)	-0.0111 (3.91)***	-0.0122 (4.30)***	-0.0008 (0.39)	-0.0004 (0.19)	-0.0005 (0.23)	-0.0015 (0.65)	-0.0124 (4.40)***
Initial Ln(Gini)	-0.0218 (2.17)**	0.0010 (0.12)	-0.0250 (2.63)***	0.0004 (0.05)	-0.0114 (1.08)	-0.0131 (1.24)	-0.0029 (0.33)	-0.0038 (0.44)	-0.0244 (2.45)**	-0.0330 (3.22)***	-0.0231 (2.26)**	-0.0333 (3.66)***	-0.0028 (0.34)
Initial Ln(HDI_Education)		0.0040 (0.57)		0.0044 (0.68)									
Initial Ln(Life Expectancy)		0.0078 (0.31)											
Initial Ln(Fertility)		-0.0478 (4.91)***		-0.0427 (4.68)***			-0.0401 (4.35)***	-0.0434 (4.75)***					-0.0436 (4.89)***
Average Rate of Change of TOT		-0.0041 (0.06)		0.0274 (0.44)			-0.0507 (0.78)	0.0175 (0.21)					-0.0008 (0.01)
Initial Government Consumption/GDP			-0.0003 (0.62)	-0.0006 (1.50)			-0.0001 (0.22)	-0.0001 (0.29)					-0.0002 (0.54)
Ln(1 + Period Average Inflation/CPI)			-0.0353 (1.84)*	-0.0315 (3.30)***			-0.0254 (3.05)***	-0.0244 (2.64)***					-0.0230 (2.54)***
Initial Ln(ICRG_Composite)					0.0421 (2.39)**		0.0077 (0.49)						
Initial Ln(ICRG_Political)						0.0306 (1.77)*		0.0086 (0.63)					0.0036 (0.23)
Initial Trade/GDP (real terms) #1									0.0062 (1.55)			0.0038 (0.88)	
Period Average FDI /GDP #2										0.0072 (4.54)***		0.0074 (2.34)**	0.0019 (0.56)
Period Average Remittance/GDP											0.0003 (0.91)	-0.0011 (1.41)	
Time Dummy 1990	0.0260 (4.74)***												
Time Dummy 2000	0.0397 (13.97)***	-0.0039 (0.87)	0.0149 (2.44)**	-0.0047 (1.01)	0.0004 (0.05)	0.0041 (0.52)	-0.0053 (0.86)	-0.0045 (0.71)	0.0122 (1.91)*	0.0012 (0.22)	0.0145 (2.43)**	0.0010 (0.16)	-0.0056 (0.91)
No. of Observations	114	75	101	69	88	89	63	64	102	106	111	93	62
R-squared	0.12	0.51	0.18	0.52	0.15	0.13	0.53	0.52	0.14	0.23	0.11	0.29	0.59
Adjusted R-squared	0.09	0.46	0.14	0.45	0.11	0.09	0.46	0.45	0.11	0.20	0.08	0.24	0.52

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively.

iii) # denotes variables are instrumented with; #1-the initial level and period average growth rate of the previous spell; #2 -the period average rate of the previous spell.

Appendix 5: Impact of Policies, Institutions, Globalization on Growth [Long-Term (10 years); with period fixed effects]

Dependent Variable: Period Average Growth Rate of Per Capita Income													
	(1) PLS	(2) PLS	(3) PLS	(4) PLS	(5) PLS	(6) PLS	(7) PLS	(8) PLS	(9) PLS	(10) P2SLS	(11) PLS	(12) P2SLS	(13) P2SLS
Constant	0.0802 (1.97)**	0.1301 (2.27)**	0.0699 (1.75)*	0.1054 (1.61)	-0.0782 (0.65)	-0.0339 (0.32)	0.0442 (0.31)	0.0793 (0.68)	0.0723 (1.43)	0.1036 (2.87)***	0.0740 (1.84)*	0.0949 (2.11)**	0.1051 (0.92)
Initial Ln(Per Capita Income)	-0.0003 (0.14)	-0.0128 (3.31)***	0.0019 (0.85)	-0.0105 (2.81)***	-0.0031 (1.16)	-0.0020 (0.76)	-0.0124 (2.84)***	-0.0136 (2.84)***	-0.0006 (0.29)	-0.0002 (0.13)	0.00003 (0.01)	-0.0007 (0.30)	-0.0129 (2.94)***
Initial Ln(Gini)	-0.0141 (1.31)	0.0093 (0.67)	-0.0136 (1.32)	0.0107 (0.71)	-0.0043 (0.35)	-0.0057 (0.47)	0.0046 (0.25)	0.0007 (0.04)	-0.0183 (1.49)	-0.0249 (2.58)***	-0.0132 (1.25)	-0.0279 (2.74)***	0.0006 (0.04)
Initial Ln(HDI_Education)		0.0024 (0.28)		0.0037 (0.44)									
Initial Ln(Life Expectancy)													
Initial Ln(Fertility)		-0.0467 (4.21)***		-0.0414 (3.44)***			-0.0397 (3.34)***	-0.0431 (3.76)***					-0.0411 (3.87)***
Average Rate of Change of TOT		-0.0452 (0.67)		-0.0258 (0.37)			-0.0360 (0.43)	0.0178 (0.18)					-0.0139 (0.14)
Initial Government Consumption/GDP			-0.0003 (0.57)	-0.0004 (0.89)			-0.0001 (0.21)	-0.00002 (0.04)					-0.00004 (0.09)
Ln(1 + Period Average Inflation/CPI)			-0.0275 (1.86)*	-0.0315 (2.62)***			-0.0245 (2.67)***	-0.0291 (2.77)***					-0.0272 (2.63)***
Initial Ln(ICRG_Composite)					0.0347 (1.32)		0.0260 (1.04)						
Initial Ln(ICRG_Political)						0.0231 (0.99)		0.0242 (1.02)					0.0147 (0.57)
Initial Trade/GDP (real terms) #1									0.0067 (1.76)*			0.0074 (1.74)*	
Period Average FDI /GDP #2										0.0060 (3.13)***		0.0046 (1.51)	0.0022 (0.77)
Period Average Remittance/GDP											0.0003 (0.94)	-0.0005 (0.87)	
No. of Observations	114	75	101	69	88	89	63	64	102	106	111	93	62
R-squared	0.32	0.63	0.38	0.61	0.31	0.32	0.59	0.61	0.32	0.45	0.33	0.52	0.68
Adjusted R-squared	0.16	0.46	0.21	0.41	0.13	0.14	0.40	0.44	0.14	0.30	0.16	0.35	0.51

Source: Authors' own compilation

Notes: i) Absolute value of t-statistics calculated with White-corrected standard errors is in parentheses. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

ii) PLS and P2SLS denote panel least squares and panel two-stage least squares methods, respectively.

iii) # denotes variables are instrumented with; #1-the initial level and period average growth rate of the previous spell; #2 -the period average rate of the previous spell.