

Does Institutional Quality Strengthen the Globalization-growth Nexus? A Cross Country Analysis

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ABSTRACT

In this study, we examine the role of institutional development in the globalization growth nexus. We have used the System GMM technique for a sample of 124 countries from 1996 to 2019. We found that countries with improved quality of institutions get more benefited from economic globalization. Hence, policy complementarities are the pre-requisites for the relationship between economic globalization and growth. Through analysis of the marginal effect, we found a minimum threshold level of institutional quality. This study also performs sensitivity analysis by comparing the results of the different econometric techniques. Consequently, we have run hundreds of regressions with various growth models to get the most stable and robust model.

Key Words: Economics Globalization, Institutional Development, Dynamic Panel

1. INTRODUCTION

Institutions are the "rules of the game" in a society (North, 1990) and are the key to economic growth (Acemoglu and Robinson, 2012). The role of Institutional quality in affecting growth performance has been extensively investigated in the literature (Acemoglu, 2001 and 2002, de Groot et al. 2004, Easterly & Levine, 2003, Frankel & Romer, 1999, Fedderke, 2001, Cheng Mittelhammer, 2008 and Góes, 2016). Well-functioning institutions have positive effects on growth. Pluralistic political institutions are also the sources of technological innovation and the critical engines of steady economic progress as the citizens have incentives to invest or innovate (Acemoglu and Robinson, 2012).

Institutions provide a way for technologically lagging countries to catch up with their leaders (Olofsdotter 1998). Countries with high-quality institutions provide fundamental rights to their citizens to invest and innovate in an environment where they can protect their property rights and make their decisions and choices (Doan, 2019).

Contrarily, specific institutions may threaten the citizens as most of their output will be expropriated by the governing elite (Acemoglu and Robinson, 2012). Therefore, weak institutions have adverse effects on growth because it misallocates resources. In those environments, the qualified labor force immigrates into other countries (Fan and Stark 2007). Low-quality institutions possibly create an environment harmful to investments and discourage international trade (Moe 2005). Hence, economic agents actively participate in an environment provided by strong institutions. High-quality institutions play a significant role in reducing uncertainty and encourages economic activities to take place that ultimately enhances efficiency (Cheng and Mittelhammer, 2008).

The last decade of the 20th century showed a remarkable change in defining macroeconomic variables around the world. It also investigated the growth literature extensively. Nevertheless, the previous work has failed to use consistent estimation procedures and endogeneity in the empirical estimation of growth models. Similarly, previous literature omitted the pivotal role

of institutions. (Chang & Lee, 2009, 2010). The institutional economists further extended the work on growth determinants. The major concern of institutional economists was that previous studies ignored institutional variables in growth models and only considered a homogenous institutional variable in regression models. The authors also argued that institutions with good governance and management backgrounds promote growth (Acemoglu et al. 2001, 2002; Easterly & Levine, 2002; Frankel & Romer, 1999; North and Weingast, 1989).

Both theoretical and empirical studies generally concluded that strong institutions promote growth. North and Weingast (1998), Greif (2008), Gwartney (2009) and Góes (2016) pointed out that economic institutions promote economic growth. However, contrary to the existing finding of the economic growth and institutional development connection, Glaeser et al. (2004) found that the accumulation of physical and human capital rather than political institutions were the major factors promoting growth in economies. They also explained that improved political institutions due to sound economic policies could increase the level of income. Consequently, political institutions can have enduring effects on income through indirect channels.

There is a vast debate in the literature that why some countries benefit more from globalization than the others. The complementary policies and initial conditions in the host country have also created diversion among countries regarding benefits received from globalization. In terms of advantages from the process of globalization, the gap between rich and poor countries has increased over the last few decades. In spite of the huge opportunities provided by globalization, its contemporary patterns are highly complex and uneven and the critics are continually arguing that as a result of globalization led growth, the rich countries have gained at the expense of poor countries. To sum up, globalization has been regarded as an engine of economic growth, but the question arises as, ‘Why some countries (and not all) are benefited more from globalization?’. The observed cross-country income differences over the past two decades could be largely attributable to the complementary policies. In other words, it is not globalization that enhances economic growth but its complementarity with institutional quality stimulates economic growth. This is the main query, which we explore in this study. This study investigates the role of institutional quality in the globalization-growth nexus for a sample of 124 countries. Further, the study finds out the minimum threshold stock of institutional quality above which globalization positively affects economic growth.

2. LITERATURE REVIEW

2.1. Institutional Development and Growth

The literature on growth has extensively investigated the determinants of economic growth during the 1990s. The subsequent literature highlighted the significant role of institutions (Chang & Lee, 2010, 2011). Consequently, the institutional economists have extended the existing literature on the determinants of growth. These economists included institutional variables in their growth regression and argued that strong institutions promote economic growth. (Acemoglu, 2001, 2002, Easterly & Levine, 2001, Frankel & Romer, 1999, de Groot et al. 2004, Easterly & Levine, 2003, Fedderke, 2001, Rodrik et al., 2004 and Doan, 2019). However, contrary to the findings of existing literature, Glaeser et al. (2004) find that political institutions do not directly affect economic growth. Countries enhance their economic growth through sound macroeconomic policies, which ultimately leads to improvement in political institutions. There is a debate

regarding the possible relationship between institutional development and economic growth. The findings are still inconclusive, however. Productivity depends on institutional quality, and institutional quality depends on corruption that undermines growth. It also increases the cost of doing business. Finally, institutional quality and growth are positively related. (Gwartney et al. (2004), Blackburn and Forguesuccio (2010), Rodrik (2000). Glaeser et al. (2004) find no robust relationship between institutions and growth. Glaeser et al. (2004) and Bonnal & Yaya (2015) find that political institutions do not affect economic growth.

2.2. Globalization Led Growth

The literature on the direct link between globalization and economic growth is quite rich (Easterly & Levine, 2001; Dollar & Kraay 2002; Fischer 2003; Dollar 1992; Dreher 2006; Chang and Lee 2010; Barro & Sala-i-Martin 2004; Levine and Renelt 1992; Grossman and Helpman, 2015; Akpan and Atan, 2016;). These analyses have assumed that different countries are identical in terms of institutions. But the economic structure and characteristics of countries may not be homogenous over time. Therefore, a more relevant cross-country study is needed to examine the relationship between globalization and economic growth after controlling institutional quality.

The importance of country characteristics in the relationship between globalization and economic growth has motivated researchers to study conditional globalization. Many studies have investigated the globalization-growth nexus under different conditions. The findings of those studies such as Chang et al. (2009), Zahonogo (2018), Bonnal & Yaya (2015), César Calderón (2010), Calderón & Fuentes (2006), Bolaky and Freund (200) have been subject to criticism in terms of proxy used for trade openness. The majority of the existing studies have focused on the ex-post measurable definition of globalization. Hence, these studies are narrow as they have used incomprehensive trade openness index only.

2.3. The Interplay among Economic Globalization, Institutions and Economic Growth

Concerning the role of institutional quality in the host country on the globalization and growth nexus, the literature is not very rich. Few authors investigated the conditional aspect of institutional quality in the host country in the globalization-growth nexus (Sindzingre (2015; Dollar and Kraay, 2002; Rodrik, 1999a; Stensnes, 2006; Lee et al., 2015; Hartman et al; 2017). Rodrik (1999a) has also emphasized the relationship between globalization and institutional development. The focal point of his research was that there exists a strong interaction between trade and institutional development. The author argues that open economies with weak institutions may not be able to absorb external shocks. Working on Rodrik's framework, Stensnes (2006) argued that openness exposes economies to external shock. It negatively affects growth if the quality of institutions is low. Sindzingre (2015) examined the nonlinear relationship between globalization and poverty. The author found that the institutional quality determines whether the benefits of openness are equally distributed. The study presented by Dollar and Kraay (2002) highlighted the interaction effect of globalization and institutional quality. The authors argued that countries with inclusive institutions get more benefits from the process of globalization. Quality institutions help a country attain sustained growth. Klein (2003) provided empirical evidence on institutional quality in the linkages between openness and economic activity. The author found that institutional quality enhances economic growth.

To sum up, unfortunately, limited studies have explored the interaction effect of globalization and institutional. This study fills the gap in the globalization led growth literature. The first gap is concerning the intermediary role of institutional factors. This study tries to answer two types of questions: the possible relationship between economic globalization and growth and the existence of complementarities. In this study, we go beyond the conventional globalization growth dynamics by challenging the assumption of homogenous institutions across countries. This study interacts the globalization measure with proxies of institutional development.

3. MODEL SPECIFICATION

The present study uses a dynamics model of economic growth equation, based on the augmented Cobb-Douglas production function framework, across countries over time. The base equation with economic globalization incorporated as one of the factor inputs is:

$$y_{it} = \beta_0 + \beta_1 KOF_{it} + \beta_2 X_{it} + v_{it} \quad (1a)$$

Where i and t refer to the country i at time t ; β_i are the parameters; y_{it} is the GDP per capita growth rate for country i at time t , KOF is the proxy used for economic globalization and X is the vector of growth determinants.

In the next step, we add the initial GDP per capita (Y_0) in equation (1a) to test the convergence hypothesis.

$$y_{it} = \beta_0 + \beta_1 KOF_{it} + \beta_2 X_{it} + \beta_3 Y_0 + v_{it} \quad (1b)$$

Following Sala-i-Martin (1997), the specification of the model includes the convergence variable such as initial per capita income along with measures of economic globalization and other control variables. v_{it} is the residual.

The absolute convergence theory argues that a less developed country tends to grow at a rate that is inversely proportional to its initial GDP per capita. The initial per capita is included in the empirical growth model, keeping in view the convergence condition. Notwithstanding, the literature supports this hypothesis for homogenous groups of countries.

To capture the impact of globalization on economic growth in the presence of institutional variable and other control variables, the equation is given as:

$$y_{it} = \beta_0 + \beta_1 KOF_{it} + \beta_2 X_{it} + \beta_3 Y_0 + \beta_4 INS_{it} + \beta_5 Z_{it} + v_{it} \quad (1c)$$

Where INS represents institutional quality and Z is the vector of variables comprised of economic indicators (e.g., financial deepening, technological innovation, economic opportunities, and economic freedom). X is the set of control variables such as investment and inflation. To examine the role of institutional quality in globalization-growth nexus, we add an interactive term in model 1c as follows:

$$y_{it} = \beta_0 + \beta_1 KOF_{it} + \beta_2 X_{it} + \beta_3 Y_0 + \beta_4 INS_{it} + \beta_5 Z_{it} + \beta_6 (KOF_{it} * INS_{it}) + v_{it} \quad (1d)$$

This study interacts the globalization measure with proxies of institutional indicators and economic indicators, respectively. In this model, the interaction term allows us to test whether there is complementarity between globalization and other institutional and socioeconomic factors that affect economic growth. The empirical model of this study departs from the previous studies.

4. DATA AND ANALYTICAL TECHNIQUES

This study uses panel data for 124 countries from 1996 to 2019. The definition of each variable and its sources are given in the appendix. The data on the KOF globalization index is taken from Gygli et al. (2019). The data on the composite index of institutional quality (INS) is taken from Worldwide Governance Indicators (WGI). The data for the rest of the variables such as GDP per capita growth rate (yg), Inflation (INF), Investment (INV), Hi-tech Exports % Manufacturing Exports (HTE), Economic Freedom Index (EFI), Financial Development (FD) and Innovation (INN) are taken from World Development Indicators.

To empirically test the relationship between globalization and economic growth in the presence of institutional quality and other control variables, this study uses the system GMM estimator. The GMM estimator provides more accurate estimates than difference GMM, fixed effect, and OLS. Dollar and Kraay 2003, 2004; Eicher and Leukert 2009 developed this technique to tackle the endogeneity problem in the cross-sectional growth equation. The dynamic panel data model estimates the growth equations by addressing the endogeneity problem. (Bonnal and Yaya, 2015).

5. RESULTS AND DISCUSSION

In this study, we estimate the complementarity between economic globalization and institutional quality. We calculate different models via the GMM method. The institutional quality index significantly affects growth rates in all specifications and supports Easterly & Levine's (2000) findings. Hence, it concludes that institutions with good governance and management backgrounds promote growth. Countries with high-quality institutions provide basic-rights to their citizens to invest and innovate in an environment where they can protect their property rights and make their decisions and choice. Therefore, institutional development is a vital factor through which citizens can improve their economic well-being. In the model without the interaction term (regression 72), KOF carries a significantly positive coefficient. However, once we consider the interaction term, the sign of KOF becomes negative. The interaction term (KOF*INST) enters the model positively and statistically significant, which implies that countries with developed institutions benefit from globalization. These results support Zahonogo's (2018) findings, who argues that globalization alone is not enough to ensure that a country will experience sustainable development. Additional policies are required to enhance their impact on growth. This empirical inference supports our theoretical insight that is the progress made in institutional development strengthens the economic globalization-growth nexus.

To put it differently, countries with inclusive institutions get more benefits from the process of globalization. For sustained economic growth through globalization, there should be quality institutions. The results confirm the findings of Dollar and Kraay (2002), Freund and Bolaky (2008), Calderón and Fuentes (2006), and Klein (2003).

Table 1 Economic growth and the interaction between Economic Globalization and Institutional Quality

	Full Sample		High Income Group		Upper Middle Income group		Lower Middle- & Lower-Income Group	
	Without Interaction	With Interaction	Without Interaction	With Interaction	Without Interaction	With Interaction	Without Interaction	With Interaction
Yo (Initial GDP per capita)	-0.241* (0.002)	-0.084* (0.003)	-0.188* (0.025)	-0.142* (0.030)	-0.091*** (0.048)	-0.120** (0.055)	-0.118** (0.034)	-0.108** (0.028)
KOF								
<i>Economic Globalization Index</i>	0.019* (0.004)	-0.044* (0.009)	0.085** (0.030)	-0.049 (0.033)	0.039 (0.045)	-0.100** (0.048)	-0.1149* (0.039)	-0.016*** (0.084)
<i>INF Inflation rate</i>	-0.026* (0.001)	-0.038* (0.001)	0.003 (0.006)	0.005 (0.006)	-0.030 (0.034)	-0.020** (0.009)	0.0001 (0.013)	0.007 (0.019)
<i>INV Investment</i>	0.071* (0.000)	0.096* (0.002)	0.127* (0.013)	0.129* (0.014)	0.064* (0.006)	0.062* (0.008)	0.020* (0.004)	0.015*** (0.009)
INST								
<i>Institutional Development</i>	2.341* (0.125)	2.652* (0.047)	0.316* (0.028)	0.112* (0.039)	2.768** (1.235)	1.256 (7.083)	1.788 (2.069)	1.713 (2.909)
FD <i>Financial Development</i>	-0.053* (0.000)	-0.059* (0.002)	-0.037* (0.005)	-0.033* (0.004)	-0.060* (0.018)	-0.117* (0.017)	-0.112* (0.031)	-0.136* (0.048)
EF <i>Economic Freedom Index</i>	1.526* (0.152)	2.435* (0.154)	-2.154* (0.377)	-2.082* (0.396)	2.281* (0.720)	2.837* (0.363)	3.361* (0.839)	3.306* (0.874)
HTE <i>Hi-tech exports</i>	0.138* (0.007)	0.202* (0.012)	0.087* (0.027)	0.064* (0.019)	0.129* (0.014)	0.090* (0.027)	-0.066 (0.046)	-0.074*** (0.040)
INN <i>Innovation</i>	0.001* (0.000)	0.0002* (0.000)	0.284** (0.143)	0.295** (0.142)	0.152** (0.068)	0.025** (0.008)	-0.066 (0.204)	0.089 (0.200)
KOF*INST	---	0.136* (0.007)	--	0.184* (0.035)	--	0.00*** (0.0019)	--	0.169*** (0.098)
N	124	124	48	48	35	35	41	41
Sargan test	92.43	90.63	23.22	48.11	21.28	19.84	20.40	18.58
Instrumental Rank	99	99	200	199	27	27	31	31
AR(1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AR (1)	0.40	0.43	0.22	0.31	0.38	0.22	0.55	0.61

Dependent Variable: Growth Rate of per capita GDP. Values in the parenthesis are standard errors. * and ** indicate p-value less than 1 and 5 percent respectively.

Figure 1 shows the moderating effect of institutional development on economic growth. We divide a sample of 124 countries into nine (3*3*3) groups according to the level of economic globalization and institutional development (measured by a composite index for institutional quality). Figure 1 shows that the effect of economic globalization on economic growth is profound with high institutional development¹.

¹ We construct the 3D graph by using MATLAB 2015a.

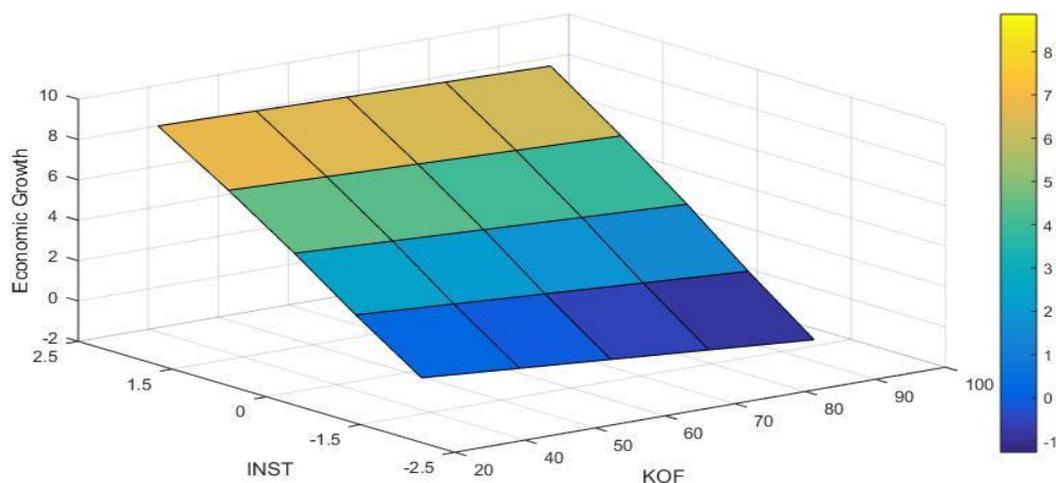


Figure 1. Interaction between Economic Globalization and Institutional Development

Sensitivity Analysis:

This study performs sensitivity analysis by comparing the results of the different econometric techniques. Moreover, we ran hundreds of regressions with various specifications to get the most stable and robust model that is not sensitive to various estimation techniques. Table 8 suggests that one step GMM estimator is superior to the pooled OLS, Fixed effect, Difference GMM estimator in terms of consistency and efficiency.

It is evident from table 2 that the OLS method overestimates the coefficients, but the difference GMM is systematically biased downwards. The System GMM estimator is the best performing and less biased. Further, in line with the Monte Carlo experiment and OLS, the estimated coefficient of the KOF is less than the estimated coefficients of system GMM and difference GMM; however, the OLS estimators systematically tend to give larger standard errors than System GMM estimators. Moreover, the System GMM estimators tend to give larger coefficients with smaller variance than the OLS, Fixed Effect and Difference GMM estimators ($0.971^{**} > -0.736^{**} > 0.311^{**} > 0.116^{**}$). The estimated coefficient of transitional convergence variable (Y0) applying OLS is larger than the estimated coefficients of system GMM and difference GMM; however, the difference GMM estimators systematically tend to give larger coefficient and larger standard errors than System GMM estimators ($-0.662^{**} > -0.082^{*}$). Difference GMM overestimates the coefficient for transitional convergence variable (Y0). The result confirms the findings of Nickell (1981) and Bond et al. (2001). The J statistic (and its p-value) confirms that the instruments used for the estimation are valid. Hence, it concludes that the instrumental variables are truly exogenous. From table 2, we cannot reject AR (1) but reject the AR (2), which implies that the models are free of serial correlation.

To sum up the sensitivity analysis, we conclude that system GMM is the best-performing because it provides more accurate estimates. Difference GMM overestimates the coefficient for transitional convergence variable (Y0). It also suffers from the measurement problem.

Table 2 Growth Panel Regressions: Robustness (Dependent Variable: Growth rate in GDP Per Capita)

	Pooled OLS	Fixed Effect (Within Group)	One Step System GMM	Two Step System GMM	1 st Difference GMM	2 nd Difference GMM
Core Variable						
KOF <i>Index of economic Globalization</i>	-0.116**	-0.311**	-0.971*	-0.819*	-0.736**	-0.654**
Control Variable						
Yo <i>Initial GDP per capita, log</i>	-0.291**	-0.301*	-0.082*	-0.091*	-0.662**	-0.602**
INF <i>Inflation rate, log</i>	-2.315**	-2.291**	-2.003	-2.441*	-1.901**	-1.654**
INV <i>Investment (in percentage of GDP), log</i>	0.312***	0.348***	0.612*	0.564**	0.621***	0.632***
Variable of Interest						
HTE <i>Hi-tech exports (percent of manufacturing exports), log</i>	0.231**	0.301*	0.912**	0.909*	0.989**	0.891*
EF <i>Economic Freedom Index, log</i>	0.543*	0.712*	0.743*	0.354**	-0.654**	0.401**
FD <i>Financial Development as percent of GDP, log</i>	0.567**	0.447**	0.712***	0.511*	0.439**	0.276***
INST <i>Institutional Quality Index, log</i>	0.691*	0.563***	0.996*	0.981**	0.865***	0.634*
INN <i>Innovation (Number of patents, log)</i>	0.576***	0.487*	0.822**	0.788*	0.921***	-0.991**
Interaction						
KOF*INST	0.002**	0.004**	0.016**	0.017**	0.039**	0.031**
Number of Countries	124	124	124	124	124	124
Sargan Test	68.54	64.76	71.11	68.16	58.43	61.01
AR(1)	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	0.321	0.356	0.176	0.217	0.173	0.197

*Regression includes constant. ** (*) indicates p-value less than 5 (10) percent.*

6. CONCLUSION

Using panel data, globalization and complementary factors provide some evidence regarding the dependency of growth effects of economic globalization on the institutional quality of the sample countries. The study contributes to a growing literature on the importance of the existence of complementarities. System GMM methods provide robust results. The effectiveness of globalization depends on the efficacy of the institutions. Countries with high-quality institutions will benefit from globalization. These results support the hypothesis that policy complementarities are pre-requisites for the relationship between economic globalization and growth. It is not globalization that enhances economic growth but its complementarity with institutional indicators that stimulates economic growth. Policymakers should design policies to improve the institutional quality for reaping the potential benefits from globalization.

From a policy perspective, the countries where policy complementarities are weak must have a strategy to improve their structural and institutional quality. In the absence of strong institutions, high quality of life, and policies favorable towards the business environment, returns to economic globalization in terms of growth are likely to be lower than optimal. Hence, it is not globalization that enhances economic growth but its complementarity with other institutional and economic indicators that stimulates economic growth. The findings of this study have important policy implications. The openness of the economy is only one part of the story. The other is how to get maximum advantages from the process of trade openness. Therefore, policymakers should improve the level of structural and institutional factors to get more opportunities from globalization. The policymakers should also propose policies to improve the economic opportunities in the host country.

Data Availability:

The data that support the findings of this study are available on reasonable request from the corresponding author.

Endnotes:

1. See Gygli, *et al.*, (2019): Revised KOF globalization Index, <https://doi.org/10.1007/s11558-019-09344-2>
2. World Development Indicators (WDI, 2019), <https://databank.worldbank.org/source/world-development-indicators#advancedDownloadOptions>

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Appendix:

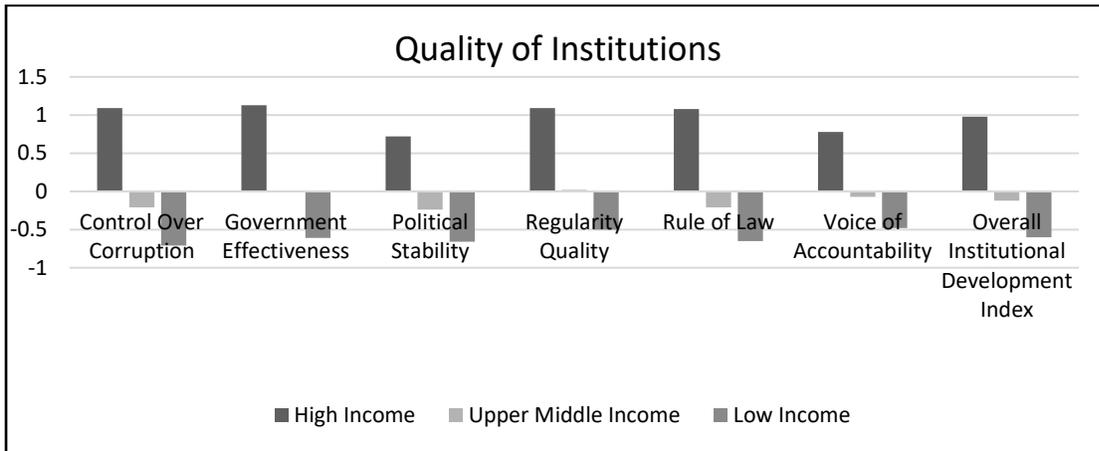


Figure A1: Comparison of Institutional Development on the basis of Income Groups

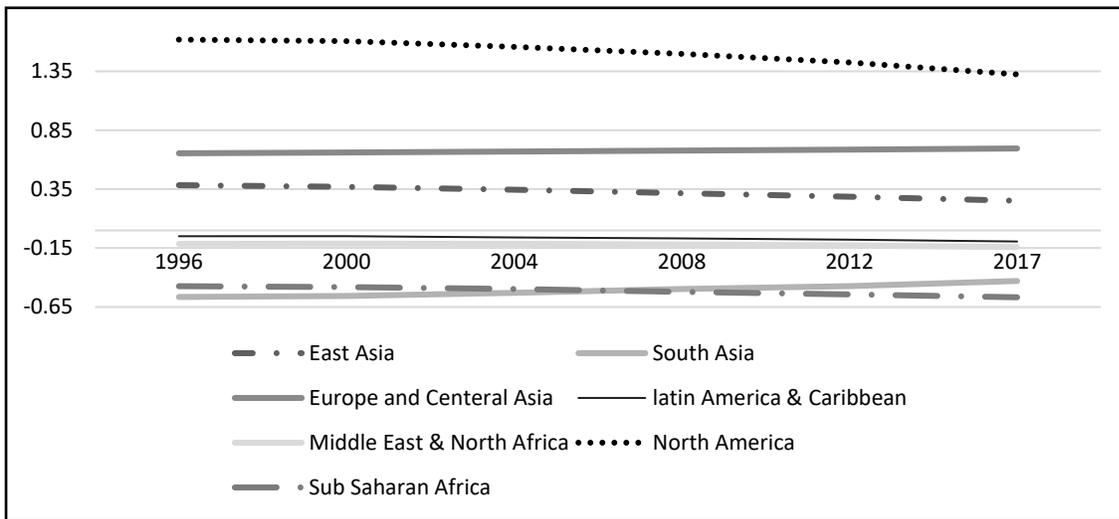


Figure A2. Degree of Institutional Quality Across Different Regions

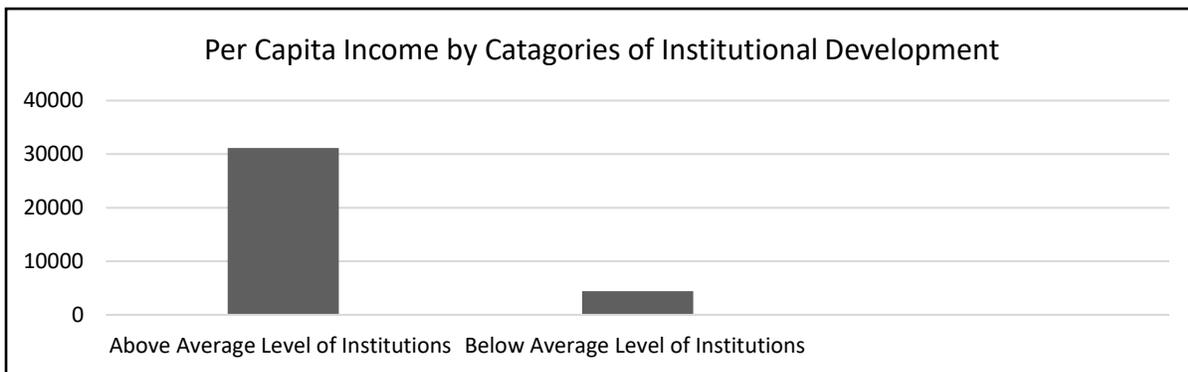


Figure A4. Per Capita Income by Categories of Institutional Quality

Figures

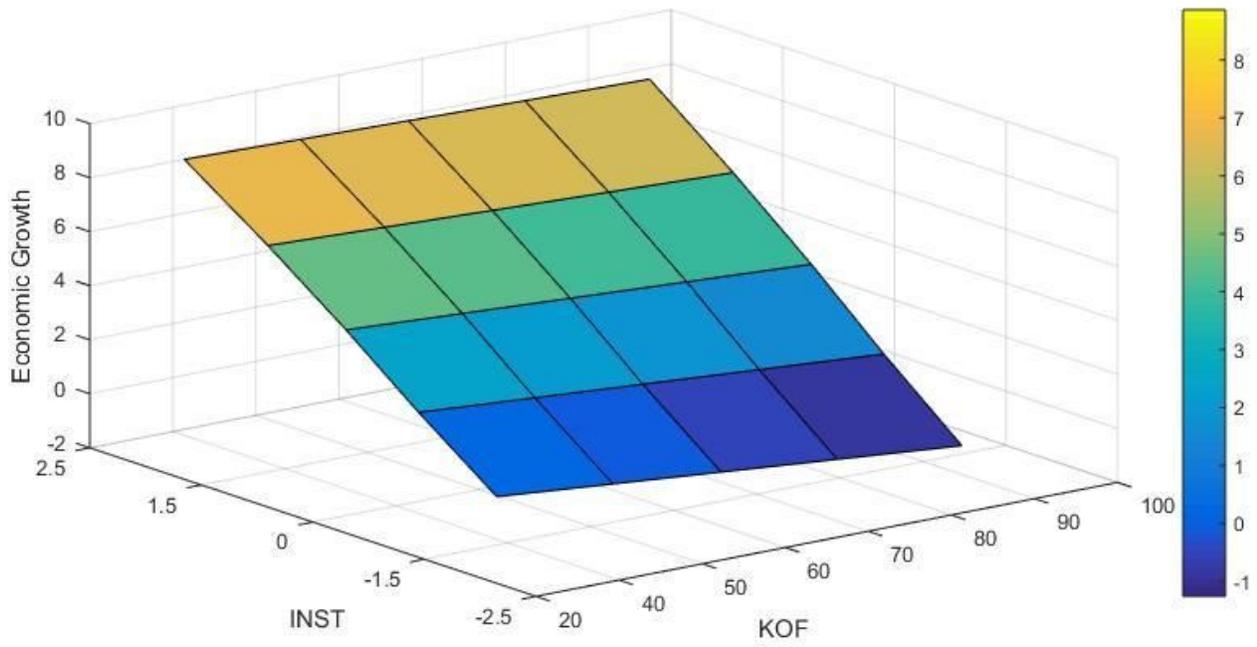


Figure 1

Interaction between Economic Globalization and Institutional Development