Effects of Globalization on Economic Growth: Panel Data Analysis for Developing Countries

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Abstract

This study tests the effects of economic, social and political globalization on the growth levels of developing countries and causality relationship between the variables by using fixed effects least squares method and Granger causality test developed by Dumitrescu-Hurlin (2012) for 74 developing countries between 1981-2011 period. The results of the analysis imply that economic growth levels of selected developing countries were positively affected by the economic and political globalization whereas social globalization affected economic growth negatively. Moreover, test results of causality puts forward two way causality relationship between political and social globalization an the economic growth and one way causality relationship between social globalization and economic growth.

Introduction

Globalization is a multi-dimensional concept because of the fact that it covers a lot of areas; such as economic, political and social areas. Its multi-dimensional structure makes it really challenging for different definitions to come to an agreement on what the concept exactly means. Because of this, Globalization is defined by many people and institutes in different ways. Although these definitions share a lot in meaning, they show many differences in what they cover, so it can't be defined in an exact definition.

According to WTO (2008), although there isn't a complete agreement on the definition of globalization, when all alternative definitions are taken into account, globalization is the integration of capital, investment and labour markets or its integration with world markets.

Because of its multi-dimensional structure, different opinions on globalization's definition come into question when the effects of globalization on economic growth is taken into account. While the globalization is a component of creating opportunities for countries' economies and effecting their economic growth in a positive way thanks to these opportunities for some, it causes poverty and injustice income dispersal and it also effects the economic growth in negative ways for others.

These different opinions about the effects of globalization uncovered the need to calculate the globalization index to detect the concrete effects of the concept. After this need arouse, firstly, by Dreher (2006) a globalization index is calculated and upgraded by Dreher (2008) himself again to make it to its final status. General globalization index, which is prepared by Dreher (2006) and Dreher (2008) includes three sub globalization index. These are:

o   Economic Globalization Index: This index includes two sub-indexes which are actual flows and restrictions. Actual flows are calculated with GDP percentages of trade, foreign trade investments and stocks, portfolio investments, income payment to foreign nationals. Restrictions are calculated with hidden import barriers; mean tariff rate, current revenue percentages of taxes on international trade and capital account restrictions. Both actual flows' and restrictions' immensity in economic globalization index is %50.

o   Social Globalization Index: This index includes three sub-indexes which are personal contact, information flows and cultural proximity. Personal contact is calculated with telephone traffic, GDP percentages of transfers, international tourism, the foreign population according to the total population and international letters per capita. Information flows is calculated with internet usage per 1000 people, television per 1000 people and GDP percentages of trades in newspapers. Cultural proximity is calculated with number of McDonald's restaurants per capita, number of Ikea per capita and GDP percentages of trades in books. By order of, the percentages of personal contact, information flows and cultural proximity are %33, %35 and %32.

o   Political Globalization Index: This index is calculated with four sub-indexes which are number of embassies in country, membership in international organizations, participation in United Nations (UN) Security Council mission and international treaties.

With the latest update by Dreher (2008), it is assessed that, by order of the portions of economic, social and political globalizations in general index of globalization of 2014 are %36, %38 and %26 (KOF Index of Globalization, 2014).

After globalization index came out, effects of globalization on the economic growth of a country was started to be displayed more concretely. Studies show that globalization affects the economic growth of a country through many different channels. It is possible to examine this relation between globalization and economic growth on Figure 1.
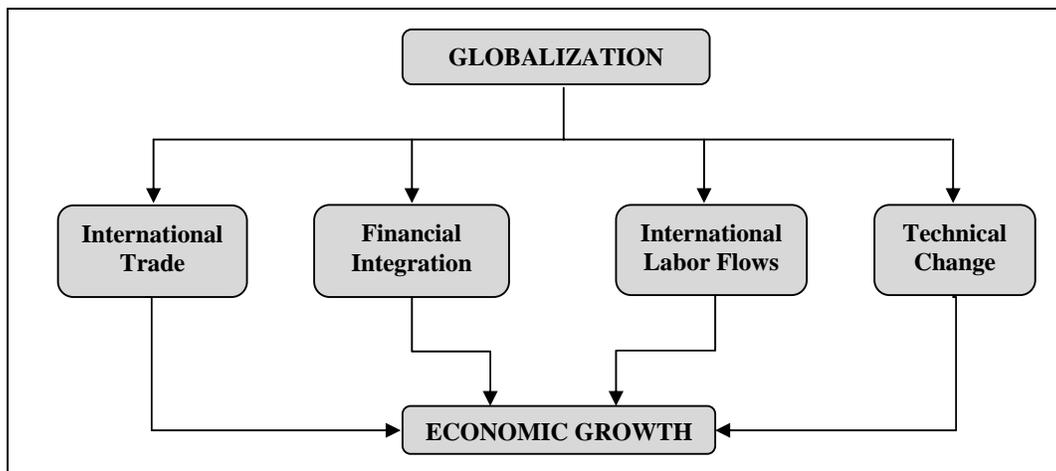

Fig. 1. Relation between globalization and economic growth.

Source: Husain (2000, pp.2)

As it is seen in Figure 1, four different channels come out along with the globalization. These are international trade, financial integration, international labour flows and technical change. The positive development in these channels, which comes out with globalization, increases the economic growth of a country.

This study aims to analyze the effects of economic, social and political globalization on economic growth levels of countries. The introduction part of the study investigates the relationship between globalization and economic growth and stresses its importance. The second part reviews the existing empirical studies in the literature about globalization and economic growth. The third part of the study gives information about the data and methods used in the study. Fourth part of the study states the empirical method and obtained findings in the research. Final part of the study gives concluding remarks and summary of findings.

Literature Review

Most of the empirical studies that examine the effects of globalization on economic growth are done after 2006. The main reason for that, most of the studies used the globalization index which is prepared by Dreher (2006) (Some of them used financial integration, liberalizing, trade and financial receptivity variants, representing globalization). When surveying the literature that analyses the globalization's effects on economic growth, studies that are done after 2006 are taken into account.

Dreher (2006) analyzed the relation between globalization and economic growth with panel data analysis technique by using the data of 123 countries from years 1970 to 2000. He found out that globalization affects the economic growth in a positive way.

Afzal (2007) analyzed the globalization's effects on economic growth with an error-correction model by using the Pakistan's data from years 1960 to 2006. He used trade receptivity and financial integration variants, representing globalization. He arrived at a conclusion of the powerful connection between economic growth and trade gap and financial integration and he also found out that this connection leads to a development on economic growth in long terms.

Shaikh and Shah (2008) analyzed the globalization's effects on Pakistan's economy with the help of Computable General Equilibrium Model. Results of the analysis show that globalization affects Pakistan's macro economy performance in a positive way and leads to a fast economic growth.

Chang and Lee (2010) analyzed the connection between general globalization index and its components, which are economic, social and political globalization indexes, and the economic growth of 23 OECD countries, whose data is collected between years 1970 and 2006, with the help of cointegration analysis. The result of the analysis show that there is a weak connection between variants and causality in short terms but in long terms there is a one way connection from general, economic and social globalization to economic growth.

Polasek and Sellner (2011) analyzed globalization's effects on the regional growth of 27 European Union (EU-27) countries, data of which is collected between the years 2001 and 2006, by using the Spatial Chow-Lin Procedure, which is formed by writers. Polasek and Sellner (2011) found out that globalization, thanks to the trade gap and direct foreign investment, affects many region's economic growth in a positive way.

Rao (2011) analyzed the connection between globalization and economic growth for Singapore, Malaysia, Thailand, India and Philippines in the extent of Slow (1956) growth model. According to the results of the research; as the globalization grows in these countries, the growth percentages of stabilized status goes higher too.

Mutascu and Fleischer (2011) analyzed the connection between globalization and economic growth in Romania between the years 1972 and 2006 by using the Unrestricted Vector Auto-Regressive Model (UVAR). Mutascu and Fleischer found out that in middle and long terms globalization would maximize the economic growth.

Acikgoz and Mert (2011) analyzed the causality connection between economic, social and political globalization and economic growth in Turkey between the years 1970 and 2008 by using the Auto-Regressive Distributes Lag (ARDL), which is defined by Pesaran (2011). They found out that in Turkey; there isn't a causality connection from economic globalization to economic growth but there is a causality connection from social and political globalization to the growth.

Leitão (2012) analyzed the connection between economic growth, globalization and trade in the U.S.A between the years 1995 and 2008 by using the panel data technique. He found out that globalization increases or provokes the economic growth.

Ray (2012) analyzed if there is a causality connection between globalization and economic growth in India by using the Granger causality test. He found out that there is a mutual causality connection between globalization and economic growth.

Umaru (2013) analyzed globalization's effects on Nigeria's economic performance between the years 1962 and 2009 by using the Annual Average Growth Rate (AAGR) technique. Umaru (2013) found out that globalization effects petrol, manufacturing industry and solid mineral sectors in negative ways, but it effects the agriculture, transportation and communication sectors in positive ways.

Meraj (2013) analyzed the connection between the trade gap and economic growth in Bangladesh between the years 1871 and 2005 by using Auto-Regressive Distributed Lag (ARDL) and Granger causality test. Meraj (2013) found out that globalization has positive effects on developing countries' (like Bangladesh's) trade and economic growth.

Ying (2014) analyzed the connection between social and political globalization and economic growth in ASEAN countries between the years 1970 and 2008 by using Fully Modified Ordinary Least Squares (FMOLS) technique. Ying (2014) found out that economic globalization effects economic growth in a positive way but social and political globalization effects it in negative ways.

Data, Model and Econometric Methodology

Data and Model

The study analyzes the effects of economic, social and political globalization on economic growth by using data of 74 developing countries between 1981-2011 period. It is possible to examine the variables and their symbols used in the analysis in table 1.

Table 1. Variables used in the econometric analysis and their symbols

Symbol	Variable
GDP	Real GDP Growth (annual %)
ECO	Economic Globalization
SOC	Social Globalization
POL	Political Globalization

Source: made by the author

The data of globalization and its sub-components namely, economic, social and political globalization, were obtained from globalization index database in http://globalization.kof.ethz

.ch/created by Dreher (2006) and Dreher et al. (2008). The data of economic growth were obtained from World Bank (WB) database.

The variables, their symbols and their sources were presented in Table 1. Eviews 8.0 and Gauss 6.0 statistical packages were used in the econometric analysis.

Table 2 presents the descriptive statistics and correlation matrix of the variables used in the study. According to correlation matrix, economic, political and social globalization indices that are explanatory variables of our study are positively correlated with economic growth.

Table 2. Descriptive Statistics and Correlation Matrix of the Variables

	GDP	ECO	POL	SOC
Mean	3.455167	43.54112	58.03914	31.28489
Median	3.968437	43.55112	58.58955	29.10718
Maximum	35.22408	84.94973	94.72374	76.18763
Minimum	-50.24807	9.944693	6.534042	4.638136
Std. Dev.	5.185516	14.82499	19.06570	13.63509
Correlation Matrix	GDP	ECO	POL	SOC
GDP	**1.000000**	0.080681	0.105411	0.053377
ECO	0.080681	**1.000000**	0.227313	0.744393
POL	0.105411	0.227313	**1.000000**	0.320454
SOC	0.053377	0.744393	0.320454	**1.000000**

Source: made by the author through EViews 8.0

We estimate specification (1) below (with subscript I denoting a country and t denoting a year):

$$GDP_{it} = \alpha_i + \beta_1.ECO_{it} + \beta_2.POL_{tt} + \beta_3.SOC_{it} + \varepsilon_{it}$$

(1)

Econometric Methodology

An important issue is to control for a possible cross-sectional dependence across the members of panel. A growing body of the panel data literature comes to the conclusion that panel data sets are likely to exhibit substantial cross-sectional dependence, which may arise due to the presence of common shocks and unobserved components. The fundamental reason of this development is that during the last few decades we have experienced an ever-increasing economic and financial integration of countries and financial entities, which implies strong interdependencies between cross-sectional units (Hoyos and Sarafidis 2006).

The Monte Carlo experiment performed by Pesaran (2006) emphasizes the importance of testing for the cross-sectional dependence in a panel study and Pesaran (2006) showed that there exists the substantial bias and size distortions when cross-section dependency is ignored leads to in estimations. In this study, we applied the cross-section independence using the LM_{BP} test and the CD test developed by Breusch and Pagan (1980) and Pesaran (2004) respectively.

Bresuch and Pagan (1980) proposed a Lagrange Multiplier (LM) statistic, which is valid for fixed N as T goes to infinity. Under the null hypothesis e_{it} is assumed to be independent and identically distributed (i.i.d.) over time-periods and across cross-sectional units. Under the alternative, e_{it} may be correlated across cross-sections but the assumption of no serial-correlation remains. Pesaran (2004) proposed the CD statistic. Unlike the LM statistic, the CD statistic has exactly mean at zero for fixed values of T and N, under a wide range of panel data models, including heterogeneous models, non-stationary models and dynamic panels. According to Pesaran (2004)'s approach, under the null hypothesis of no cross-sectional dependence when N is large and T is small CD_{LM2} test is useful and under the null hypothesis of no cross-sectional dependence when T and N go to infinity CD_{LM} test is useful. The LM and the CD test statistic are as following:

$$LM = T\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}^2$$

where $\hat{\rho}_{ij}$ is the sample estimate of the pair-wise correlation of residuals. LM is asymptotically distributed as chi-squared with N (N-1)/2 degrees of freedom under the null hypothesis of no-cross sectional dependence.

$$CD = \sqrt{\frac{2T}{N(N-1)}}\left(\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}\right)$$

.CD $\xrightarrow{d}$ N(0,1) for N goes to infinity and T sufficiently large under the null hypothesis of no-cross sectional dependence

After analyzing cross-section dependency, we test the existence unit root in the series in order to get unbiased estimations. Several different panel unit root tests in accordance with the assumption of the cross-section dependence in the literature. In this study we take into account the averaged individual Cross-Sectionally Augmented Dickey Fuller (CADF) statistics or Cross-Sectionally Augmented IPS (CIPS) statistic value allowing cross section dependence. Pesaran (2003) proposes a test based on standard unit root statistics in a CADF regression. In general, the regression takes the form:

$$\Delta Y_{it} = \alpha_i + \beta_i.Y_{i,t-1} + \sum_{j=1}^{pi}\delta_{ij}\Delta Y_{i,t-j} + d_i.\tau + c_i.\overline{Y}_{t-1} + \sum_{j=0}^{pi}\varphi_{ij}\Delta\overline{Y}_{i,t-j} + \varepsilon_{it}$$
(2)

where $\overline{Y}_t = N^{-1}.\sum_{j=1}^{N}Y_{jt}$, $\Delta\overline{Y}_{i,t} = N^{-1}\sum_{j=1}^{N}\Delta Y_{jt}$ and ε_{it} is the serially uncorrelated regression error. Let CADF$_i$ be the ADF statistics for the i-th cross-sectional unit given by the t-ratio of the OLS estimate $\hat{\beta}_i$ of β_i in the CADF regression. Individual CADF statistics are used to develop a modified version of IPS t-bar test (denoted CIPS for Cross-Sectionally Augmented IPS) that simultaneously take account of cross-section dependence and residual serial correlation: $$CIPS(N,T) = t-bar = N^{-1}\sum_{i=1}^{n}t_i(N,T)$$. where $t_i(N,T)$ is the cross-sectionally augmented Dickey-Fuller statistic for the ith cross section unit given by t-ratio of the coefficient of $Y_{i,t-1}$ in the CADF regression defined by (2). Due to the presence of lagged level of the cross sectional average, the limiting distribution of the CADF statistic and the CIPS statistic don't follow a standard Dickey-Fuller distribution. However, Pesaran (2007) provides critical values based on simulations for the CADF and CIPS-distributions for three cases: no intercept and no trend, no trend only intercept and intercept and trend. The null hypothesis of CIPS is that all the time series are non-stationary and the alternative hypothesis of CIPS is that all the time series are stationary process.

We estimate the relationship among economic, political and social globalization indices and economic growth using fixed effects model. The general formulation of fixed effects linear panel data model is as follows (Wooldridge 2002):

$$y_{it} = x_{it}'.\beta + c_i + e_{it}$$
(3)

where subscript i denotes the cross-section dimension, t denotes the time series dimension. The y_{it} term denotes the dependent variable, x_{it} is the Kx1 column vector of explanatory variables. β is a K-dimensional column vector of the regression parameters and the intercept terms, c_i, are the unobservable time-invariant individual fixed effects and are allowed to vary by subject and are known as individual, or subject-specific parameters. Finally, e_{it} denote the disturbance terms which are assumed to be uncorrelated with the explanatory variables of all past, current and

future time periods of the same individual (Verardi and Wagner 2010). To obtain fixed effects (FE) estimator, it is used from the fixed effects transformation equation is obtained by first averaging equation (3) over t=1,…T:

$$\bar{y}_i = c_i + \beta \bar{x}_i + \bar{e}_i \tag{4}$$

where $\bar{y}_i = T^{-1}\sum_{t=1}^{T} y_{it}$, $\bar{x}_i = T^{-1}\sum_{t=1}^{T} x_{it}$, and $\bar{e}_i = T^{-1}\sum_{t=1}^{T} e_{it}$. Substracting equation (4) from equation (3) for each t gives fixed effects transformed equation:

$\ddot{y}_{it} = \ddot{x}_{it}\beta + \ddot{e}_{it}$, t=1,…,T. Note that the time demeaning of the original equation has removed the individual specific effect c_i. The FE estimator or within estimator of the slope coefficient β estimates the within model by OLS: $\hat{\beta}_{FE} = (\ddot{X}.\ddot{X})^{-1}\ddot{X}.\ddot{y}$

Finally, in this study, a panel causality test developed by Dumitrescu-Hurlin (2012) was used. The test is a simple version of the Granger (1969) non-causality test for heterogeneous panel data models with fixed coefficients. There are two different distributions in this test: asymptotic and semi-asymptotic. Asymptotic distribution is used when T>N, while semi-asymptotic distribution is used when N>T. When there is cross-sectional dependency, simulated and approximated critical values, obtained from 50.000 replications, are used.

Empirical Findings

Table 3 shows the results for cross-sectional dependence tests. Given the limited span of our data and a large number of cross-section involved, CD_{LM2} statistic would be the most relevant in testing the cross-section correlations in this paper. According to the results of CD_{LM2}, the test statistic is smaller than 0.01 significance level, we follow second generation panel unit root tests assuming cross-sectional dependence across panel members.

Table 3. Results for Cross-Sectional Dependence Tests

	GDP	ECO	POL	SOC
CD_{LM1}	3601.69***	3853.90***	4389.27***	4179.34***
	(0.00)	(0.00)	(0.00)	(0.00)
CD_{LM2}	12.25***	15.68***	22.97***	20.11***
	(0.00)	(0.00)	(0.00)	(0.00)
CD_{LM}	-1.78**	-2.91***	-2.30**	-0.68
	(0.03)	(0.00)	(0.01)	(0.24)

***,** indicate rejection of the null hypothesis at 1 and 5 percent levels of significance

Source: made by the author through Gauss 6.0

The results of CIPS test statistic, taking into account to cross-section dependence are given in Table 4. As shown in Table 4, we reject the null hypothesis of unit root for the variables of GDP and SOC in both constant and constant-trend models at the 1 percent significance level. But ECO and POL, non-stationary variables, seemed to be stationary variable taking their first differences. Thus, in order to avoid spurious regression problems we included non-stationary variables ECO and POL with their first differences to regression model.

Table 4. The Results of Pesaran Unit Root Test (CIPS-stat)

Variable	Constant				Constant and trend			
	Stat.	CV(0.01)	CV(0.05)	CV(0.10)	Stat.	CV(0.01)	CV(0.05)	CV(0.10)
GDP	-3.260	-2.20	-2.10	-2.03	-3.352	-2.20	-2.10	-2.03
ECO	1.920	-2.20	-2.10	-2.03	-2.202	-2.20	-2.10	-2.03
POL	-2.169	-2.20	-2.10	-2.03	-2.301	-2.20	-2.10	-2.03
SOC	-2.592	-2.20	-2.10	-2.03	-3.109	-2.20	-2.10	-2.03
D(ECO)	-3.408	-2.20	-2.10	-2.03	-3.510	-2.20	-2.10	-2.03
D(POL)	-3.787	-2.20	-2.10	-2.03	-3.879	-2.20	-2.10	-2.03

d specifies the first difference of the variable. Critical values are obtained from Pesaran (2006).

Source: made by the author through Gauss 6.0

The results obtained from the fixed effects are shown in Table 5. The coefficient of economic globalization index is significant and positive as expected. That is, there is an increase 0.15 unit in the value of GDP for every increase of one unit in the value of economic globalization index. Similarly, political globalization is positively and significantly associated with GDP. There is an increase approximately 0.02 unit in the value of GDP for every increase of one unit in the value of political globalization index. However, the results illustrate that social globalization is significantly and negatively associated with GDP. There is a decrease 0.05 unit in the value of GDP for every increase of one unit in the value of social globalization. Also, F statistic is statistically significant at far beyond the 1 percent level, attesting to the overall strength of the model.

Table 5. The Results for Fixed Effects Model Dependent Variable: GDP

	coefficient	t-ratio	std.error	prob.
D(ECO)	0.105047***	0.017070	6.153989	0.0000
D(POL)	0.019011***	0.006905	2.753303	0.0059
SOC	-0.056115***	0.017981	-3.120862	0.0018
C	-0.415239	0.820818	-0.505885	0.6130
R-Squared: 0.22		**F-statistic:** 7.989***		**Prob (F-stat):** 0.00

*d specifies the first difference of the variable.*** indicates the statistical significance at 1% level.*

Source: made by the author through EViews 8.0

Furthermore, we tested whether there is a causal relationship among the variables using the Granger non-causality test developed by Dumitrescu-Hurlin (2012). Table 6 gives the results of this test. According to Table 6, economic growth cause economic globalization at 0,01 significance level and economic globalization also cause economic growth at 0,10 significance level. Thus, a bidirectional causal relationship exists between economic growth and economic globalization. Moreover, political globalization exerts significant influence on economic growth, but economic growth has not significant influence on political globalization. Thus, a unidirectional causal relationship between political globalization and economic growth. When investigated the causal relationship between social globalization and economic growth, we can say that social globalization cause economic growth, while economic growth does not cause social globalization at 0,01 significance level. Thus, a unidirectional causal relationship between social globalization and economic growth.

Table 6. The Results for Dumitrescu-Hurlin (2012) Panel Granger Causality

Hypothesis	W-Statistic	$Z_{N,T}^{Hnc}$ Statistic	P-Value
GDP does not homogeneously cause DECO	3.10635	3.26907	0.0011
DECO does not homogeneously cause GDP	2.70336	1.83066	0.0672
GDP does not homogeneously cause DPOL	2.64658	1.62801	0.1035
DPOL does not homogeneously cause GDP	3.29293	3.93507	8.E-05
SOC does not homogeneously cause GDP	3.15382	3.49842	0.0005
GDP does not homogeneously cause SOC	2.48343	1.08556	0.2777

Source: made by the author through EViews 8.0

Conclusions

This study tested the effects of economic, social and political globalization on the growth levels of developing countries and causality relationship between the variables by using fixed effects least squares method and Granger causality test developed by Dumitrescu-Hurlin (2012) for developing countries between 1981-2011 period. In this scope, existence of cross-sectional relationship in panel data set was investigated and the results of the test put forward a cross-sectional existence among countries that constituted the panel. This result demonstrated that any economic, social, political globalization change or economic growth shock that occurred in any of the panel countries also affected other countries as well. Following the cross sectional test, panel root tests were conducted to analyze dependency of cross sectional relationship. It was seen that economic and political globalization variables were stationary at level while political globalization variable was stationary at first difference. Following the unit root test; the effects of economic, social, political globalization on economic growth were analyzed by fixed effects model. The results of the analysis show that economic and political globalization affected economic growth positively while social globalization affected economic growth negatively. Finally the causality relationship among the variables was tested by Granger causality test developed by Dumitrescu-Hurlin (2012). According the panel Granger causality test, bidirectional relationship between economic globalization and economic growth existed and a one-way relationship between social globalization and economic growth existed.

According to the results of the analysis, economic and political globalization in 74 developing countries studied increased the economic growth levels; yet social globalization decreased economic growth. In this respect, the results of this study partially supported Ying et. al. (2014) that asserted general globalization had positive effects on economic growth. The results also indicated that economic and political globalization were more effective in the growth process of developing countries compared to social globalization. Therefore, to catch high levels of growth levels, developing countries need to increase their participation rates to international organizations, encourage international trade and foreign direct investment and increase the level of political globalization by higher participation in political decisions in the international arena. Moreover, it is very important to avoid negative effects of social globalization on the economic growth.

References

1. A c i k g o z , S., M e r t , M., *Küresellesme Iktisadi Buyumeyi Etkiliyor Mu? Türkiye Ornegi*, 12. Uluslararasi Ekonometri, Yoneylem Arastırması ve Istatistik Sempozyumu Pamukkale Üniversitesi-Denizli, 2011, pp.701-716.
2. A f z a l , M., *The impact of globalization on Economic Growth of Pakistan*, The Pakistan Development Review, 46(4), 2007, pp.723–734.
3. B r e u s c h , T. S., P a g a n , A. R., *The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics*, The Review of Economic Studies, Vol. 47, No. 1,1980, pp.239-253.
4. C h a n g , C.-P., L e e , C.-C., *Globalization and Economic Growth: A Political Economy Analysis for OECD Countries*, Global Economic Review, Vol.39 (2), 2010, pp.151-173.
5. D r e h e r , A., *Does Globalization Affect Growth? Empirical Evidence from a new Index Globalization*, Applied Economics, 38, 10, 2006, pp.1091-1110.
6. D r e h e r , A., G a s t o n , N., M a r t e n s , P., *Measuring Globalization-Gauging its Consequence*, New York: Springer, 2008.
7. D u m i t r e s c u , E.-I., H u r l i n , C., *Testing for Granger non-causality in heterogeneous panels*, Economic Modelling, 29(4), 2012, pp.1450-1460.
8. G r a n g e r , C. W. J., *Investigating causal relations by econometric models and cross-spectral methods*, Econometrica, 37, 1969, pp.424-438.
9. H o y o s , R. E. D., S a r a f i d i s , V., *Testing for cross-sectional dependence in panel data models*, Stata Journal, Stata Corp LP, 6(4), 2006, pp.482-496.

10. H u s a i n , I., *Making Globalization Work For The Poor Case Study of Pakistan*, EMP-CIDA Globalisation Project, Lahore University of Management Sciences, Lahore, 2000, pp.1-28.
11. KOF, *Index of Globalization*, available at http://globalization.kof.ethz.ch/ [accesed on December 26th 2014].
12. KOF, *Index of Globalization*, available at http://globalization.kof.ethz.ch/media/filer_public/2014/04/15/variables_2014.pdf [accesed on November 12th 2014].
13. L e i t ã o , N. C., *Economic Growth, Globalization and Trade*, Management Research and Practice, Vol.4, Issue 3, 2012, pp.18-24.
14. M e r a j , M., *Impact of globalization and trade openness on economic growth in Bangladesh*, Ritsumeikan Journal of Asia Pacific Studies Volume 32, 2013, pp.40-50.
15. M u t a s c u , M., F l e i s c h e r , A.-M., *Economic Growth and Globalization in Romania*, World Applied Sciences Journal, 12 (10), 2011, pp.1691-1697.
16. P e s a r a n , M. H., *A Simple Panel Unit Root Test in the Presence of Cross Section Dependence*, Cambridge Working Papers in Economics 0346, 2003.
17. P e s a r a n , M. H., *General diagnostic tests for cross section dependence in panels*, CESifo Working Papers, No.1233, 2004.
18. P e s a r a n , M. H., *Estimation and Inference in Large Heterogeneous Panels with Multifactor Error Structure*, Econometrica, 74, 2006, pp.967-1012.
19. P e s a r a n , M. H., *A Simple Panel Unit Root Test In The Presence of Cross-Section Dependence*, Journal of Applied Econometrics, 22, 2007, pp.265–312.
20. P o l a s e k , W., S e l l n e r , R., *Does Globalization Affect Regional Growth? Evidence for NUTS-2 Regions in EU-27*, Institute for Advanced Studies, Economics Series 266, Vienna, 2011.
21. R a o , B. B., T a m a z i a n , A., K r i s h n a , V. C. *Growth effects of a comprehensive measure of globalization with country-specific time series data*, Applied Economics, vol.43 (5), 2011, pp.551–568.
22. R a y , S., *Globalization and Economic Growth in India: A Granger Causality Approach*, Journal of Law, Policy and Globalization, Vol.2, 2012, pp.18-30.
23. S h a i k h , F.M., S h a h , M. A., *Impact of Globalization on Pakistan's Economy by Using CGE Model*, International Conference on Applied Economics – ICOAE, 2008, pp.839-845.
24. U m a r u , A. H., A h m a d u , A., M u s a , S., *Globalization and Its Impact on the Performance of the Nigerian Economy*, Interdisciplinary Journal of Research in Business, Vol. 2, Issue. 8, 2013, pp.1- 16.
25. V e r a r d i , V., W a g n e r , J., *Robust Estimation of Linear Fixed Effects Panel Data Models with an Application to the Exporter Productivity Premium*, IZA Discussion Paper No. 4928, 2010.
26. W o o l d r i d g e , J. M., *Econometric Analysis of Cross Section and Panel Data*, The MIT Press Cambridge, Massachusetts London, England, 2002.
27. World Bank (WB) (2015), *Data*, available at http://databank.worldbank.org/data/views/variable selection/selectvariables.aspx?source=world-development-indicators [accesed on December 14th 2014].
28. World Trade Organization (WTO), *World Trade Report 2008 Trade in A Globalizing World*, World Trade Report, 2008.
29. Y i n g , Y.-H., C h a n g , K., L e e , C.-H., *The Impact of Globalization on Economic Growth*, Romanian Journal of Economic Forecasting – XVII (2), 2014, pp.25-34.

Appendix 1. List of Countries in Model (1) (Countries = 74)

Albania	Fiji	Nicaragua
Algeria	Gabon	Niger
Argentina	Gambia, The	Nigeria
Bangladesh	Ghana	Pakistan
Belize	Guatemala	Panama
Benin	Guinea-Bissau	Papua New Guinea
Bolivia	Guyana	Paraguay
Botswana	Honduras	Peru
Brazil	India	Philippines
Bulgaria	Indonesia	Romania
Burkina Faso	Iran, Islamic Rep.	Rwanda
Burundi	Jordan	Senegal
Cameroon	Kenya	Sierra Leone
Central African Republic	Lesotho	South Africa
Chad	Madagascar	Sudan
China	Malawi	Suriname
Colombia	Malaysia	Swaziland
Congo, Dem. Rep.	Mali	Thailand
Congo, Rep.	Mauritania	Togo
Costa Rica	Mauritius	Tunisia
Cote d'Ivoire	Mexico	Turkey
Dominican Republic	Moldova	Venezuela, RB
Ecuador	Morocco	Zambia
Egypt, Arab Rep.	Mozambique	Zimbabwe
El Salvador	Nepal	

Source: made by the author