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GLOBALIZATION AND ECONOMIC GROWTH: AN EMPIRICAL EVIDENCE FROM VIETNAM

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ABSTRACT

The study intended to determine the impact of globalization on economic growth (development) in Vietnam between 1995 and 2017 using three components of the globalization index (economic, political, and social globalization). By employing the technique of the Autoregressive Distributed Lag (ARDL) cointegration, this study found that there was a long-term relationship between globalization, economic growth, and others macro variables of interest. The empirical findings showed that economic globalization had negatively and significantly impacted the growth, while political globalization was found to have a positive influence on growth and no significant effect of social globalization on growth has been found in the long run. In the short run, there was no significant correlation among the three dimensions of globalization and growth. The empirical findings further showed that trade openness affects growth positively whereas the extent of foreign direct investment to GDP affects economic growth negatively in the long-term as well as in the short-term.

Keywords: Economic growth, Globalization, Openness, ARDL model.

INTRODUCTION

Economic growth is one of the topics that interested both economic researchers and policymakers (Rezapour *et al.*, 2020). Despite a lot of research, the list of economic growth determinants continues to widen, and new growth factors are being supplemented to empirical researches. Nowadays, in the set of key economic growth determinants, globalization occupies an important position.

As a multi-dimensional concept, globalization refers to “an ongoing process of greater interdependence among countries and their citizens” (Fischer, 2003). Four major stimulant motivations behind enhanced interdependence include investment as well as trade liberation, communication cost reduction along with technological innovation, entrepreneurship, and global social networks. During the past decades, scholars distinguish up to seven dimensions of globalization and the most discussed among them are economic, political, and social aspects of globalization. The effect that each of the three globalization dimensions has on economic growth differs both from study to study and country to country.

Following the trend of globalization, Vietnam has made great progress in the process of integrating into the world economy since the second half of the 1990s. Vietnam actively

participated in the ASEAN, APEC, and ASEM in 1995, 1998, and 2001, respectively. The country continues moving toward greater international economic integration, through more open trade with China, expanded bilateral links with the US, accessed the WTO in 2007, signed the CPTPP in 2018, and ratified EVFTA in 2020 intending to become a competitor in the global market. In more than two decades, Vietnam has achieved some remarkable achievements in economic development (Nguyen and Nguyen, 2020). The average economic growth rate reached 6.69 percent per year over the period 1995 – 2019. Along with economic growth in Vietnam, trade liberalization has led to an explosion in international trade volumes. Trade openness grew from 74.72 percent in 1995 to 210.39 percent in 2019. In addition, foreign direct investment into Vietnam increased rapidly from 1.78 billion USD in 1995 to 16.12 billion USD in 2019. Foreign direct investment and international trade are the two most important factors connecting Vietnam's economy to the world.

In the context of globalization, finding the effect of globalization on growth is essential. However, that effect in Vietnam has not been deeply evaluated by previous studies (such as Thoburn (2004), Jenkins (2006), Coxhead (2007), etc.), hence this research gap needs to be filled. Therefore, this research is conducted to highlight the effect of three dimensions of universalization on development in Vietnam for the past period.

The rest of the paper is arranged in this way: Part 2 surveys the experimental background concerning globalization-economic development. Part 3 explains the applied econometric methodology and data. Part 4 reports and assesses the experimental findings. Part 5 offers to deduce notes.

Literature review

What affects the growth of countries is one of the main questions in economics. Many theories have been created while searching for factors that influence growth. In growth literature, one of the most notable theories was put forward by Solow (1956) and Swan (1956). These two economists analyzed how three main factors including capital repletion, labor development, and technical advance impact the economic development of nations. Solow's model has been expanded by aggravating other factors of the growth determinants to the model, such as human capital (Mankiw *et al.*, 1992) investment rate (Bleaney *et al.*, 2000), foreign aid, and institutional quality (Easterly *et al.*, 2003), technology import, civic and rustic people (Anyanwu 2014; Wang *et al.*, 2018), etc. Now, innovations and technological progress are the most widely discussed in growth determinants. It is believed that the technological gap between countries highly affected growth. Technological advances promote productivity, which increases per capita income and welfare of the people.

Despite the existed theories and researches, the list of growth determinants is not yet finalized and the main drivers of economic growth continue being added. New ideas and hypotheses are being formed. Novel development factors are being proposed in experimental studies. In recent years, globalization acts as one important reason for rapid changes in living conditions and economic environments of countries. Therefore, globalization becomes a key considering factor of interest in growth researches.

To explore the relationship between globalization and growth of countries, a variety of indices were introduced to capture all dimensions of globalization such as KFP, KOF, CSRG, MGI, NGI,



and G-Index, etc. Among them, the most commonly used index to measure globalization is the KOF Globalization index. KOF Index is admitted as the best globalization measure for the four following reasons: (i) it measures economic sphere with trade level, foreign capital as well as related restrictions, (ii) it more fully measures the political and social aspects of globalization than other indicators, (iii) it is calculated for more countries and over a longer time, and (iv) it is continuously revised on annual basis. The indexes of economic, political, social globalization range from 0 to 100, where bigger numbers demonstrate higher globalization levels. Many studies about the effect of globalization on growth have used the KOF Globalization Index which was introduced in 2006 by Dreher (2006).

Since the 1980s, the rise in globalization trend has led to mixed discussions in the relevant literature about the relations between globalization and growth. Theoretical growth researches provided contradictory opinions about the association between globalization and economic development. Some scholars referred to the positive effect of globalization on economic development, some other scholars believe that globalization is detrimental to economic growth. Stiglitz (2002) advocated that globalization does not support economic growth when it is not well managed and it affects job creation negatively. The author argued that the increasingly deepening globalization is more beneficial for developed countries than for underdeveloped ones. Huh and Park (2020), Ali *et al.* (2020) stated that the increase in globalization levels would affect growth positively. Despite conflicting theoretical views, various experimental researches have examined the impacts of globalization on development of countries at different development levels.

Regarding empirical studies, it is agreed that nowadays, the globalization process deeply affects both the developing countries and the developed ones. However, the exact impact of globalization on development is not unanimously found and the impact that each of the three globalization dimensions has on economic growth disagrees between studies. The followings are some case studies.

Examining the impact of globalization on the growth rate of GDP per capita, Dreher (2006) found that globalization promoted the economic growth of 123 countries in the period 1970 - 2000. Economic and social globalization had a positive impact on development whereas political globalization did not affect growth.

Evaluating the effect of universalization on the economic development of 56 countries between 1991 and 2004 using the generalized least squares technique, Zhuang and Koo (2007) concluded that the economic dimension of globalization has a remarkably affirmative impact on development for all countries in the sample.

Scrutinizing the impact of globalization on growth of developing countries in the period of 2003-2013, Siddiqa *et al.* (2018) confirmed that the variables of economic, social and political globalization have a significantly positive influence on economic growth.

Considering the effect of universalization on the development rate of 21 African states in 35 years from 1970 to 2005, Rao (2009) concluded that globalization positively affects growth and the positive effect of universalization on development is greater than the impact of investment on growth.

Ascertaining the relationship between economic globalization and economic growth in Central African Economic and Monetary Community (CEMAC) countries, Nguea (2019) indicated that



the impact of economic globalization on growth in CEMAC is positive and significant based on the data in the period 1970-2015.

Implementing the goal of clarifying the two questions whether globalization affects economic growth and if confluence in globalization leads to confluence in per capita earning or not, research findings of Villaverde and Maza (2011) indicated that globalization is of the key motives of developments, hence promoting confluence in per capita earning.

In studying the relations between growth, globalization, and trade, Leitao (2013) confirmed that foreign direct investment and globalization accelerate growth. Besides, growth correlated positively with economic, political, and cultural globalization.

Researching the role of globalization for growth in ten CEE countries in the first two decades of transition 1990-2009, Gurgul and Lach (2014) found evidence of the growth-stimulating impact of globalization processes, especially in social and economic dimensions. Political universalization has a statistically insignificant effect on development.

Employing the Fully Modified Ordinary Least Squares technique to analyze the relationship between globalization and growth in ASEAN members 1970 – 2008, Ying (2014) found a remarkably affirmative effect of that economic globalization on development, a nugatory effect of social universalization on development and an insignificant negative influence of political globalization on growth.

Using the database of 74 developing countries during 1981-2011 to test how three dimensions of globalization affect growth, Kilic (2015) found a positive effect of political universalization and economic development and a nugatory effect of social universalization on development.

Analyzing the globalization level development and growth in 6 developing countries between 2006 and 2012, Suci (2015) indicated that the total indicator of universalization (KOF) had positive and significant influence on growth in the countries. Economic development is positively impacted by economic and political globalization but it is not affected by social globalization. Moreover, economic development is also positively influenced by other agents such as government expenditures, infrastructure, inflation, quality of education, and technological preparedness.

To shed some light on the effect of globalization on development in Romania for 24 years from 1990 to 2013, Olimpia and Stela (2017) estimated an econometrical model and found a positive link between GDP per capita dynamics and total globalization indicator as well as between development and economic and political globalization. The authors also found a negative link between social universalization and development in Romania.

Examining the impact of universalization on development in Turkey in the period 1980 – 2015, Kılıçarslan and Dumrul (2018) found that political globalization negatively affected economic growth, and economic and social universalization had a positive impact on growth.

Verifying the impact of globalization on economic growth for the emerging economies during 1970-2014, Ulucak (2018) detected that overall the KOF globalization index, economic, and social dimensions of globalization have positive influence on growth while the effect of political dimension on growth is negative.

Assessing the effect of economic globalisation, social globalisation, and political globalisation on economic growth of Asia-Pacific countries in 2000-2014, Titalessy (2018) elicited that



economic globalisation and political globalisation have a significantly positive influence on growth. Meanwhile, social globalisation showed a negative and significant influence.

Appreciating the growth effect of globalization in 16 highly developed countries (Western Europe, USA, Canada, Japan, Australia and New Zealand) in 1980-2018, Swadzba (2020) pointed out that impact of globalization on growth was not observed in this group of the most globalized countries.

Attesting the impact of globalization (overall, economic, social, and political) on economic growth of South Asian countries over the period 1971-2014, Hasan (2019) specified that overall globalization, economic globalization, and political globalization accelerate growth in the long-run; however, the dimensions of globalization have no significant effect in the short-run. Concentrating on the particular country, he found the amalgam results, as the characteristics, elasticity, and strength of political, social, and economic institutions are distinct in the sorted countries.

Ascertaining the effect of globalization on economic growth in ASEAN in 2012-2017, the results of Sardiyo and Dhasman (2019) describe that globalization had a significant positive association with growth. All indicators of globalization manifest the positive association between globalization index, economic globalization, social globalization, and politic globalization to real GDP and GDP per capita.

Thus, there is no concurrence on the impact of globalization on growth. Economic theories do not provide a clear answer as far as the link between growth and globalization is concerned. The empirical studies commonly employ quantitative methods relied on new globalization index, such as the work of Dherer (2006), and other globalization channels such as foreign direct investment, foreign exchange rate, openness, external reserves, net foreign indebtedness, fiscal deficits, average world prices and balance of payment, etc. to test and quantify the impacts of globalization on growth. The findings of these empirical studies show that the impact of globalization on growth is also mixed and inconclusive.

In literature, there are some studies on the effects of globalization in Vietnam. For example, John Thoburn (2004) and Coxhead (2007) studied globalization and poverty; Nguyen (2004) studied the effects of globalization on health care and occupational; Jenkins (2006) considered globalization, FDI, and employment; Nguyen and Fraser (2007), Le (2016) analyzed the impact of globalization on higher education, etc. Despite the numerous studies, the number of studies on the globalization effect and its three dimensions on growth in Vietnam is still limited. By examining the impact of three dimensions of globalization on growth in Vietnam, this study fills this gap.

MATERIALS AND METHODS

In the present study, the augmented neoclassical development model following Solow's model will be taken as a base. Based on these ideas, the model using the KOF globalization index to measure globalization for the testing effect of three globalization dimensions on growth in Vietnam is specified as follow:

$$LGDP = f(LK, LL, EGI, PGI, SGI, FDI, OPEN) \quad (1)$$



Where the dependent variable for the description of economic growth is LGDP meaning that log (GDP).

The independent variables in the model are described as follows:

Capital (LK) and labor (LL) variables are present in the model due to Solow's approach.

Globalization variables are included in the model to carry out research objectives. The proxies for globalization are three different indices: 1) economic dimension of globalization, 2) political dimension of globalization, 3) social dimension of globalization.

EGI: The Economic Globalization Index measures the level of economic integration. EGI reflects the long-distance flows of goods, information, and services, capital, and perceptions associated with market exchanges. It has two components including actual economic flows, international trade, and investment restrictions. It is expected that the economic dimension should have a positive and significant impact on development.

PGI: The Political Globalization Index measures how a country is politically integrated. PGI describes the diffusion level of government policies. It is hoped that the political dimension should positively affect growth.

SGI: The Social Globalization Index measures how the country is socially integrated. Social globalization is characterized by the spread of information, ideas, people, and images (Fidelis and Emmanuel, 2012). Social globalization has three categories including personal contacts, information flows, and cultural proximity. The expectation is that the social dimension should have a statistically insignificant impact on growth.

FDI: Foreign Direct Investment is measured as a percentage of GDP. The variable FDI is included in the model to find out the impact of the outside capital resource on growth.

OPEN: Trade Openness is measured as the ratio of total trade to GDP. It demonstrates the economy's ability to succeed in foreign markets. According to Winters (2004), the most important benefit of trade openness is achieving faster and less volatile economic development.

In the present study, the impact of globalization on development is investigated by using ARDL Boundary Test Approach. The long-term relationships among series of interest are tested by co-integration test. In the ARDL model, the series is not essential to integrate at the same level to apply the co-integration test but the series must be not integrated in order two or more.

The model was established for the application of the ARDL approach as follow:

$$\begin{aligned}
 \Delta LGDP_t = & \beta_0 + \sum_{i=1}^p \beta_{0i} \Delta LGDP_{t-i} + \sum_{i=0}^{q_1} \beta_{1i} \Delta LK_{t-i} + \sum_{i=0}^{q_2} \beta_{2i} \Delta LL_{t-i} \\
 & + \sum_{i=0}^{q_3} \beta_{3i} \Delta LEGI_{t-i} + \sum_{i=0}^{q_4} \beta_{4i} \Delta LPGI_{t-i} + \sum_{i=0}^{q_5} \beta_{5i} \Delta LSGI_{t-i} \\
 & + \sum_{i=0}^{q_6} \beta_{6i} \Delta FDI_{t-i} + \sum_{i=0}^{q_7} \beta_{7i} \Delta OPEN_{t-i} + \theta_0 LGDP_{t-1} \\
 & + \theta_1 LK_{t-1} + \theta_2 LL_{t-1} + \theta_3 LEGI_{t-1} + \theta_4 LPGI_{t-1} \\
 & + \theta_5 LSGI_{t-1} + \theta_6 FDI_{t-1} + \theta_7 OPEN_{t-1} + u_t \quad (3.1)
 \end{aligned} \tag{2}$$

Where θ_i ($i = \overline{1,7}$) and β_{kj} ($k = \overline{1,7}$) show the long-range coefficients and the short-range coefficients between the corresponding variable and growth, respectively; Δ is the first difference; β_0 is the constant term; u_t is the error term.

The short-range and long-range relationships among variables are examined by the ARDL approach in three steps. Firstly, the short-range and long-range associations among the series are examined by testing the hypothesis $H_0: \theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = \theta_7 = 0$ that the long-range association (co-integration) among the series does not exist. Against the null hypothesis H_0 , the alternative hypothesis $H_1: \theta_1 \neq \theta_2 \neq \theta_3 \neq \theta_4 \neq \theta_5 \neq \theta_6 \neq \theta_7 \neq 0$ claims that the long-range relationship does exist among the variables of interest. If the F-statistic value in this test is less than the lower limit value then H_0 cannot be rejected, meaning that hypothesis H_0 is accepted; if it exceeds the upper limit value, H_1 is accepted; if the the F-statistic value lies between the upper and lower limits, no decision can be made.

In this study, Akaike Information Criteria are used to select the appropriate lag-lengths for the series in the model. In the model, we assume that the appropriate lags for the series are $(p, q_1, q_2, q_3, q_4, q_5, q_6, q_7)$ where “ p ” represents the lag length of LGDP series and “ q_1 ”, “ q_2 ”, “ q_3 ”, “ q_4 ”, “ q_5 ”, “ q_6 ”, “ q_7 ”, refer to lag lengths of series LK, LL, LEGI, LPGI, LSGI, FDI, OPEN, respectively.

Finally, using the determined optimum lag lengths, the error correction model is estimated as follow:

$$\begin{aligned}
 LGDP_t = & \beta_0 + \sum_{i=1}^p \beta_{0i} \Delta LGDP_{t-i} + \sum_{i=0}^{q_1} \beta_{1i} \Delta LK_{t-i} + \sum_{i=0}^{q_2} \beta_{2i} \Delta LL_{t-i} \\
 & + \sum_{i=0}^{q_3} \beta_{3i} \Delta LEGI_{t-i} + \sum_{i=0}^{q_4} \beta_{4i} \Delta LPGI_{t-i} + \sum_{i=0}^{q_5} \beta_{5i} \Delta LSGI_{t-i} \\
 & + \sum_{i=0}^{q_6} \beta_{6i} \Delta FDI_{t-i} + \sum_{i=0}^{q_7} \beta_{7i} \Delta OPEN_{t-i} + \mu ECM_{t-1} + u_t \quad (3.2)
 \end{aligned}
 \tag{3}$$

In the equation above, β_{kj} ($k = \overline{1,7}$) are coefficients; ECM is error correction term; μ is the speed of adjustment. It is expected that the estimated adjustment speed should be between -1 and 0 , and statistically significant.

Data used for estimating the model is collected from the database of The World Bank Development Indicators (2020) and KOF Index of Globalization (2020) in the period 1995-2017.

RESULTS AND DISCUSSION

The globalization level of Vietnam shown in the KOF globalization index increased significantly from 37.94 in 1995 to 64.5 in 2017. In the three dimensions of globalization, the level of political globalization is the highest and always keeps a steady increasing trend from 48.7 in 1995 to 74.4 in 2017; the economic globalization level ranked second, increasing more slowly from 45.6 in 1995 to 60.4 in 2017; the level of social globalization ranked third and gradually increased from 17.5 in 1995 to 58.6 in 2017 (**Figure 1**). In 2017, Vietnam ranked 83/203 in the ranking globalization level. In three areas of globalization, Vietnam ranked 95/203 in



economic globalization, 76/203 in political globalization, and 132/203 in terms of social globalization. This indicates that Vietnam has been highly integrated into the world politically, economically, and socially. Moreover, the country has given importance to the political aspect over the social aspects and economic.

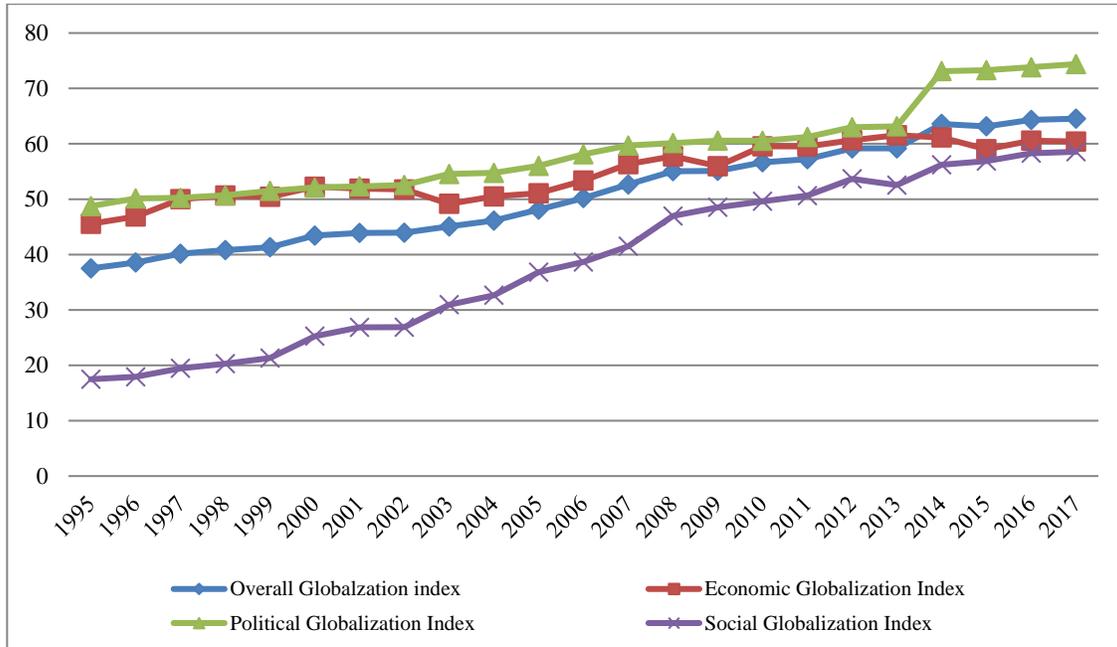


Figure 1. Change in Globalization Levels of Vietnam over Time.

To research the impact of three dimensions of globalization on growth in Vietnam, the empirical estimation was conducted according to the following steps.

Unit Root Test Results on the Stationary of Variables

Firstly, the Augmented Dickey-Fuller (ADF) unit root examination is used on the level of all series, followed by on the first difference. The findings of the ADF test on the level and the first difference of the series are presented in **Table 1**.

Table 1. Unit Root Test Results

Variables	Level		1 st Difference		Results
	t-statistic	Prob.	t-statistic	Prob.	
LGDP	-0.035202	0.9447	-3.781778	0.0101	I(1)
LK	-1.8409932	0.5587	-3.803527	0.0097	I(1)
LL	-4.492081	0.0020			I(0)
LEGI	-1.646513	0.4432	-4.663331	0.0015	I(1)
LPGI	0.207871	0.9667	-5.265614	0.0004	I(1)
LSGI	-2.526478	0.1237	-4.723687	0.0013	I(1)
FDI	-0.891348	0.7715	-3.621300	0.0143	I(1)
OPEN	1.411575	0.9983	-4.232177	0.0038	I(1)

ADF test type: Intercept without trend.

According to the ADF test results, LL is stationary at level, meaning that I (0), while LGDP, LK, LEGI, LPGI, LSGI, FDI, and OPEN are not stationary at level but they are stationary at the first difference, (i.e. I(1)). Since all series of interest are not integrated at the second or more levels of difference, the ARDL boundary test can be used to examine the co-integration existence among the series.

Lag Length Criteria

After checking the unit root test, the appropriate ARDL model is chosen based on the AIC criterion. In the list of the top 20 models with the lowest AIC value, the most suitable model is ARDL (1, 0, 0, 1, 1, 0, 0, 1).

Bound Test Results for Co-integration

Table 2 reports the ARDL Bound test results. The F-statistic value of 5.3766 is greater than the I (1) bound at all significance levels. The result suggests the rejection of the null hypothesis of no long-run relationship between LGDP and its determinants. This shows the existence of a long-run equilibrium relationship between LGDP and the explanatory variables LK, LL, LEGI, LPGI, LSGI, FDI, OPEN.

Table 2. Bound Test Results

Test Statistic		Critical Value Bounds							
		90%		95%		97,5%		99%	
k	F-statistic	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
7	5.376602	2.03	3.13	2.32	3.5	2.6	3.84	2.96	4.26



Estimated Results of Long-run Coefficients

Table 3 reports the estimation results of long-run coefficients based on the ARDL (1, 0, 0, 1, 1, 0, 0, 1) model. The long-term coefficient of LEGI is statistically significant and this shows that economic universalization is one of the key determinants of growth. The estimated ratio of -0.365047 indicates that a 1% enhancement in economic globalization level is correlated with a decrease in growth by 0.36 percent, ceteris paribus. Thus, economic globalization has a negative and significantly impact on growth in the long-term. The result mostly does not agree with analyzed in previous studies (such as Ying *et al.*, 2014; Kilic, 2015; Suci, 2015; Paudel, 2014; Olimpia and Stela, 2017; Rahnama *et al.*, 2017; Kılıçarslan and Dumrul, 2018; Ahmad, 2019; Santiago *et al.*, 2020) which found a positive link between economic globalization and growth. The result is also not in line with result of Majidi (2017) on the insignificant effect of economic globalization on growth. The negative sign of the estimated coefficient could be interpreted by the usage of different country data set as well as by different periods and different control variables in estimated models. However, the negative impact could be described by the vulnerability of developing countries like Vietnam when the domestic conditions cannot “win” against the outside effects. Some studies suggest that, due to the expansion of investment, agreements, and trade relations, which do not immediately come into force, economies are growing in developing countries with a positive trade balance. Because countries cannot fully and instantly absorb financial flows as well as foreign investment and trade agreements, the effect can be seen only in later years. Therefore, economic globalization begins to have a positive impact on growth with a certain lag.

The statistical significance of the estimated coefficient of the LPGI series shows that there is a positive association between growth and political globalization in the long-range. This finding is consistent with empirical results of Kilic (2015), Suci (2015), Olimpia and Stela (2017) to the beneficial aspect of political globalization in developing countries. However, the result is not in line with the result of Majidi (2017), Kılıçarslan and Dumrul (2018) about the negative effect of political globalization on growth.

The statistically insignificant long-term coefficient of the LSGI series hints that social globalization does not affect growth in Vietnam. The finding is in line with the empirical results of Suci (2015), Monica *et al.* (2019) but it is inconsistent with the result of Ying *et al.* (2014), Kilic (2015), Olimpia, and Stela (2017), Kılıçarslan and Dumrul (2018).

Table 3. Long-term Coefficients of ARDL (1, 0, 0, 1, 1, 0, 0, 1) Model

Variables	Dependent Variable: LGDP			
	Coefficient	Std.	t-Statistic	Prob.
LK	0.293536	0.047932	6.124026	0.0001
LL	0.612902	0.318529	1.924164	0.0832
LEGI	-0.365047	0.144070	-2.533821	0.0297
LPGI	0.183496	0.095926	1.912888	0.0848
LSGI	0.100805	0.058190	1.732348	0.1139
FDI	-1.469048	0.294945	-4.980747	0.0006
OPEN	0.224836	0.029111	7.723337	0.0000
C	-7.063419	5.330452	-1.325107	0.2146

The long-term coefficients of 0.293536 and 0.612902 for the LK and LL series, respectively, are statistically significant. These results are completely consistent with economic theory.

In addition, foreign direct investment is found to hurt economic growth. The estimated coefficient of FDI is -1.469048 and statistically significant at a 1% level. It means that an enhancement in the proportion of foreign direct investment to GDP of a 1 percent will lead to a decrease in growth by approximately 1.47 percent, *ceteris paribus*. In other words, foreign direct investment may have a positive effect on the gross domestic product but it cannot necessarily have a positive effect on development in Vietnam.

Openness is another important variable that affects economic growth significantly and positively in the long term. Its partial elasticity of 0.224836 implies that a 1 percent increase in trade openness will increase growth by 0.22 percent, *ceteris paribus*. By developing technological advances, international and domestic competition, theoretical economic growth models argue that business openness may result in development. The empirical results of this study follow the finding of Harrison (1996) that higher trade openness is related to higher growth. The finding is also in line with the results of Wacziarg (2001), Vamvakidis (2002), Lee *et al.* (2004), Chang *et al.* (2009) about the positive impact of business openness on development.

Estimated Results of Short-run Coefficients of Error Correction Model

The estimation results of short-term coefficients are reported in **Table 4**. The estimated coefficients of the three dimensions of globalization are statistically insignificant. These results

suggest that there is no relation between the three dimensions of globalization and growth in the short term.

Table 4. Error Correction Representation of the ARDL Model

Variables	Dependent variable D (LGDP)			
	Coefficient	Std. Error	t-Statistic	Prob.
D(LK)	0.158501	0.050344	3.148334	0.0104
D(LL)	0.330949	0.181581	1.822593	0.0984
D(LEGI)	-0.067479	0.043375	-1.555719	0.1508
D(LPFI)	-0.045862	0.045055	-1.017902	0.3327
D(LSGI)	0.054432	0.031287	1.739752	0.1125
D(FDI)	-0.793242	0.267006	-2.970875	0.0140
D(OPEN)	0.091681	0.021371	4.289874	0.0016
ECT (-1)	-0.539970	0.125739	-4.294377	0.0016

The results in **Table 4** clearly show that the Error Correction Term (ECT) coefficient is negative (-0.539970) and significant as expected. The evaluated result confirms a long-range equilibrium relationship between economic growth and the explanatory variables. The coefficient of the ECT variable shows that the adjustment speed between short-run dynamics and long-run equilibrium is 54%, meaning that approximately 54 percent of the disagreement between short-run and long-run growth is adjusted during one year (annual data).

Moreover, capital investment and labor coefficients in **Table 4** are statistically significant at 10% and take expected positive values. The results also show that foreign direct investment negatively affects growth while trade openness positively affects growth in the short term.



Diagnostic and stability tests on the Error Correction Model

The result of R² adjusted of ECM model indicates that more than 87,7% of LGDP variation may be described by the alterations in levels of universalization and other expository variables in the model. The diagnostic test results represented in **Table 5** evidence that the ARDL (1, 0, 0, 1, 1, 0, 0, 1) model passes the problem of functional form misspecification (p-value = 0.9120). The result of the Breusch-Pagan-Godfrey test for the problem of heteroscedasticity suggests that the variance of the error term is constant (p-value = 0.4602). In addition, the Breusch-Godfrey Serial correlation LM test result implies that the model does not have the autocorrelation problem (p-value = 0.6956). The probability of the normality test is larger than 5%, then the model would distribute normally.

Table 5. Results of Diagnostic Tests

Types of test	Test statistic	Prob.
Serial correlation	F-statistic = 0.374256	0.6956
Heteroscedasticity	F-statistic = 1.032290	0.4602
Functional form	F-statistic = 0.012713	0.9120
Normality	Jarque-Bera = 0.476864	0.787862

Figures 2a and 2b show that the plot of the cumulative sum of recursive residuals and the cumulative sum of squares of recursive residuals statistic falls inside the critical bands of the 5%

confidence interval of parameter stability. Then, the model does not have the problem of instability. The results of diagnostic and stability tests ensure the goodness of fit of the model. Therefore, the estimated results of short-run and long-run coefficients are reliable.

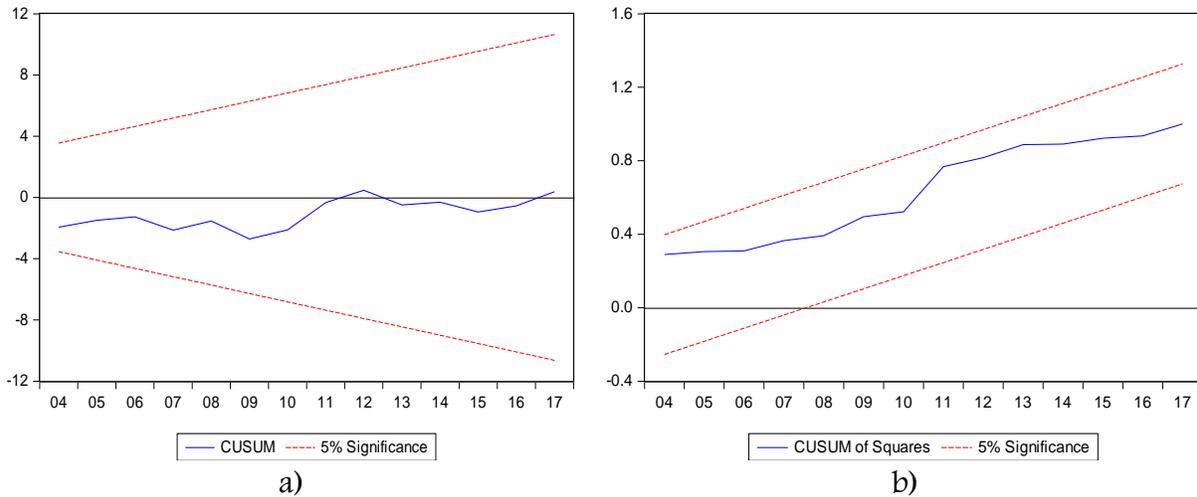


Figure 2. a) The Plot of the Cumulative Sum of Recursive Residuals, b) The Plot of the Cumulative Sum of Squares of Recursive Residuals

CONCLUSION

The present study intends to evaluate what impact globalization has on development in Vietnam for the time 1995-2017. Globalization is assessed by the economic, political, and social factors of the KOF globalization index. The empirical analysis was done using the ARDL approach. Firstly, the ARDL boundary test has been used to test the existence of a long-lasting relationship among the series of interests. Then both short-run and long-run ratios of the variables were evaluated by using the error-corrected form of the ARDL model.

The results showed that economic globalization hurts growth, while political globalization was found to have a positive influence on growth and no significant effect of social globalization on growth has been found in the long-term. In the short-term, there was no significant correlation among the three dimensions of globalization and growth. The empirical findings further showed that the extent of foreign direct investment to GDP affects growth negatively whereas trade openness affects growth positively in the long-term as well as in the short-term.

Vietnam has been integrated economically, politically, and socially into the world for more than three decades but based on the relatively low position of globalization levels of Vietnam, the enhancement in the extent of universalization especially in political and economic, social aspects can be conducted. According to empirical results of this study, to catch a high economic growth rate level, Vietnam needs to increase the political globalization level. In addition, trade openness could be encouraged for meaningful growth to be achieved in Vietnam. To achieve sustained economic growth and fully benefit from globalization, there is a need for sound policies to facilitate international trade and improve human capital.

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