

# IMPACT OF OPENNESS AND ECONOMIC FREEDOM ON ECONOMIC GROWTH IN THE TRANSITION ECONOMIES OF THE EUROPEAN UNION

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## **Abstract**

The globalization process has accelerated, particularly as of the 1980s, and countries began to remove obstacles on the flows of goods, services and capital. Hence, substantial increases have resulted in both global trade volume and cross-border capital flows. Moreover, countries have improved their institutional and legal infrastructure to achieve sustainable economic growth and attract foreign capital. This study examines the impact of openness and economic freedom on the economic growth of the transition economies in the European Union during the 1996-2012 period, through the use of panel data analysis. We have found there is a long-run relationship among the variables and both economic freedom and trade openness have a positive impact on economic growth, while financial openness has a negative impact on economic growth.

**JEL Classification:** C32, F43, O10, O40

**Key Words:** Openness, Economic Freedom, Economic Growth, Panel Data Analysis

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## 1. Introduction

Countries began to remove constraints on the movement of goods, services and capital with the increasing globalization after the Second World War. Trade and financial liberalization contributed to increasing world trade volume and cross-border capital flows. World trade volume, as a percentage of GDP, increased from 25.62% in 1960 to about 60% in 2013 (World Bank, 2015a). Furthermore, cross-border capital flows increased to about 20% of the world GDP in 2007, but then decreased to 5% of the world GDP in 2012 (James *et al.*, 2014).

Transition economies of the European Union (EU) belatedly integrated into the liberalization process in the world after the collapse of Communism. They implemented transition from centrally planned economies to market economies as of the late 1980s and then joined the EU in the 2000s. During this transition process, the countries liberalized their trade, integrated into global financial markets and improved their quality of institutional infrastructure through structural reforms.

In this regard, new growth theories have emphasized that openness and institutional quality have had a positive impact on economic growth (See McKinnon (1973), Shaw (1973), Bencivenga and Smith (1991), King and Levine (1993), Fedderke (2002), Andersen and Babula (2008), Hye and Lau (2015)). This study investigated the impact of openness and economic freedom on the economic growth in transition economies of the EU. Our empirical findings also verified that increases in the level of both institutional quality and trade openness raised economic growth. However, we found that financial openness had a negative impact on economic growth and we came to the conclusion that this can result from the fact that the financial sector of these countries has not reached the necessary threshold level during their development process.

The rest of the paper is organized as follows: The next section presents an overview of the theoretical and empirical literature on our topic. Section 3 presents data and the econometric methodology; section 4 conducts the empirical analysis and presents major findings. Finally, the study is completed with the Conclusion.

## 2. Literature Review

There has been a wide range of theoretical and empirical studies on the impact of trade openness, financial openness and economic freedom on economic growth in relevant literature. The literature review led us to select the method and variables used in the study. We also found that there have been extensive empirical studies on the topic of this article, but there have been few studies specifically on the transition economies of the EU. Therefore, this study will bridge the gap of current extensive literature by examining the impact of openness and economic freedom on the economic growth in this group of countries. Finally, we are going to use econometric tests, which consider structural breaks contrary to most empirical studies in the litera-

ture, because traditional econometric tests with no structural breaks may yield biased results in cases of structural breaks.

### *2.1. Trade Openness and Economic Growth*

Trade openness is one of the important variables of sustainable economic growth in the globalized world. Endogenous growth theories provide a theoretical basis for the relationship between trade openness and economic growth. In the context of these theories, trade openness possibly has an impact on economic growth via knowledge spillovers, capital accumulation, and factor price equalization (See Romer (1990) and Hye and Lau (2015)).

Extensive empirical studies have been conducted so as to determine the impact of trade openness on economic growth and they have reached mixed findings on the relationship between two variables. Some studies, such as those by Marelli and Signorelli (2011), Sakyi *et al* (2012), Mercan *et al* (2013), Zakaria and Ahmed (2013) and Razmi and Refaei (2013), found that trade openness has a positive impact on economic growth, while some studies, such as those by Menyah *et al* (2014) and Ulasan (2015), have found that trade openness has no significant impact on economic growth. On the other hand, other studies, such as those by Kim (2011) and Hye and Lau (2015), found that the relationship between trade openness and economic growth could be different depending on the level and duration of development.

### *2.2. Financial Openness and Economic Growth*

There are two major theoretical views on the relationship between financial openness and economic growth. One view states that financial openness affects economic growth positively by efficiently allocating resources and providing better access to foreign capital, by improving risk sharing and contributing to the stabilization of the economy and through the development of the financial sector. The other view supports that the benefits of financial openness may not be realized or may be realized in a limited manner and that financial openness makes a national economy more vulnerable to crises (Kim *et al*, 2014).

Empirical studies on the relationship between financial openness and economic growth have also reached mixed findings. Some studies, such as those by Bekaert *et al* (2005), Ranciere *et al*. (2006), Garita (2009), Levchenko *et al*. (2009) and Kim *et al*. (2014), have found that financial openness has had a positive impact on economic growth, while relatively few studies, such as those by Gine and Townsend (2004), Fratzscher and Bussiere (2004), Tswamuno *et al*. (2007), have found that financial openness has had a negative or no significant impact on economic growth. Furthermore, some studies have investigated the causality between financial openness and economic growth. Other studies, such as those by Yapraklı (2007), found that there was unidirectional causality from financial openness to economic growth, while other

studies, such as those by Kar and Pentecos (2000), Bas-Dinar *et al.* (2015), found that there was unidirectional causality from economic growth to financial openness.

### *2.3. Economic Freedom and Economic Growth*

Economic freedom may be accepted as a quality indicator of institutions and a legal structure which countries have. Institutional and legal structure becomes very important both for creating an investment environment and, also, for attracting foreign investment and capital in a globalized world. Discussions on economic freedom go back to Adam Smith, but the concept of economic freedom has different meanings depending on various economic theories and approaches. In this study, we are using the economic freedom index calculated by The Heritage Foundation. This index is based on four pillars, namely, the rule of law (property rights, freedom from corruption), limited government (fiscal freedom, government spending), regulatory efficiency (business freedom, labour freedom, monetary freedom) and open markets (trade freedom, investment freedom, financial freedom) (The Heritage Foundation, 2015).

There have been a large number of empirical studies on the relationship between economic freedom and economic growth, especially in the last two decades. Most of the studies have found that economic freedom has generally had a positive impact on economic growth (See Nelson and Singh (1998), Gwartney *et al* (2004), Yun-Peng and Tuan-Yuen (2009), Paakkonen (2010), Peev and Mueller (2012), Piątek *et al* (2013), Razmi and Refaei (2013) and Akıncı *et al* (2014)).

## **3. Data and Econometric Methodology**

We examined the long run relationship between economic growth, openness and economic freedom in transition economies of the EU during the 1996-2012 period using the Basher and Westerlund (2009) cointegration test.

### *3.1. Data*

In the study we have used the real GDP per capita growth as a proxy for economic growth (dependent variable). We also used the sum of export and import as a percentage of the GDP as a proxy for trade openness and Chinn-Ito index (KAOPEN) as a proxy for financial openness and economic freedom index, as calculated by The Heritage Foundation (2015). The data of economic growth and trade openness were obtained from the World Bank (2015a & 2015b), the data of financial openness from Chinn and Ito (2015) and the data of economic freedom from The Heritage Foundation (2015). Our sample and study period were dictated by data availability. Variables used in the econometric analysis and their symbols are presented in Table 1.

**Table 1.** Variables Used in the Study

Variable	Symbol	Source
Real GDP per capita growth	GROWTH	World Bank (2015b)
Trade openness (export and import of goods and services as a percentage of GDP)	TRAOP	World Bank (2015a)
Financial openness	FINOP	Chinn and Ito (2015)
Economic freedom index	EFR	The Heritage Foundation (2015)

E-views 8.0, WinRATS Pro. 8.0 and Gauss 11.0 software packages were used for analyses in the study.

### 3.2. Econometric Methodology

In this study, we investigated the impact of trade openness, financial openness and economic freedom on economic growth in transition economies of the EU. Firstly we tested cross-sectional dependence with the bias-adjusted LM (Lagrange Multiplier) test of Pesaran *et al* (2008) and conducted the stationarity testing of the series using the PANKPSS (Panel Kwiatkowski, Phillips, Schmidt and Shin) test by Carrion-i-Silvestre *et al* (2005). Then we analyzed long run relationships between variables using the Basher and Westerlund (2009) method and cointegrating coefficients were estimated with the panel Augmented Mean Group (AMG) analysis by Eberhardt and Bond (2009).

#### 3.2.1. Cross-sectional Dependence Test

Cross-sectional dependence of variables is very important for determining further econometric tests used in the study. Therefore, we should test whether there is cross-sectional dependence in the series and the cointegrating equation. When the time dimension of the panel is higher than the cross-section dimension, the Breusch-Pagan (1980) LM test was used. Otherwise, the cross-section dependence (CD) LM test by Pesaran (2004) was used. Later the  $CD LM_{adj}$  test was developed by Pesaran *et al* (2008) through adding variance and mean to test statistics in order to adjust its bias, because the  $CD LM_{adj}$  test yields biased results when the group mean is zero and the individual mean is not zero. The  $CD LM_{adj}$  test statistics developed by Pesaran *et al* (2008) is calculated as follows:

$$CD LM_{adj} = \left( \frac{2}{N(N-1)} \right)^{1/2} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \left[ \hat{\rho}_{ij}^2 \left( \frac{(T-K-1)\hat{\rho}_{ij} - \hat{\mu}_{Tij}}{v_{Tij}} \right) \right] \sim N(0,1) \quad (1)$$

where  $\hat{\mu}_{Tij}$  represents the mean and  $v_{Tij}$  represents the variance in equation 2. The test statistics from equation 2 exhibits an asymptotically standard normal distribution. The null hypothesis of the test is that there is no cross-sectional dependence, while the alternative hypothesis is that there is cross-sectional dependence.

### 3.2.2. PANKPSS Unit Root Test

The PANKPSS unit root test developed by Carrion-i-Silvestre *et al* (2005) considers the cross-sectional dependence and the possible multiple structural breaks in the dataset. The test model is as follows:

$$Y_{it} = \alpha_{it} + \beta_{it} + \varepsilon_{it} \quad i = 1, 2, \dots, N \text{ and } t = 1, 2, \dots, T \quad (2)$$

$$\alpha_{it} = \sum_{k=1}^m (\theta_{ik} K1_{it}) + \sum_{k=1}^m (\gamma_{ik} K2_{it}) + \alpha_{it-1} + u_{it}$$

$$\beta_{it} = \sum_{k=1}^n (\varphi_{ik} K1_{it}) + \sum_{k=1}^n (\delta_{ik} K2_{it}) + \beta_{it-1} + v_{it}$$

where **K1** and **K2** are dummy variables defined as follows:

$$K1 = \begin{cases} 1 & t = T_B + 1 \\ 0 & \text{other cases} \end{cases} \quad K2 = \begin{cases} 1 & t > T_B + 1 \\ 0 & \text{other cases} \end{cases}$$

where  $T_B$  represents the structural break point in equation 3 and it allows m structural breaks in the constant term and n structural breaks in the trend. The PANKPSS unit root test allows a maximum of 5 structural breaks. The null hypothesis of the test is that the series is stationary, while the alternative hypothesis of the test is that the series is not stationary.

### 3.2.3. Basher and Westerlund (2009) Cointegration Test

The Basher and Westerlund (2009) cointegration test considers cross-sectional dependence and multiple structural breaks and allows a maximum of three structural breaks, while testing the long run relationship among the variables. The test statistics of the model developed by Basher and Westerlund (2009) is as follows:

$$Z(M) = \frac{1}{N} \sum_{i=1}^N \sum_{j=1}^{M_i+1} \sum_{t=T_{ij-1}+1}^{T_{ij}} \left( \frac{S_{it}^2}{(T_{ij} - T_{ij-1})^2 \hat{\sigma}_i^2} \right) \tag{3}$$

where  $S_{it} = \sum_{s=T_{ij-1}+1}^t \widehat{W}_{st}$  and  $\widehat{W}_{it}$  is a residual vector obtained from an efficient estimator; for example, fully modified least squares,  $\hat{\sigma}_i^2$  is a variance estimator based on  $\widehat{W}_{it}$ . Test statistics exhibits a standard normal distribution. The null hypothesis of the test is that there is cointegration of variables for all cross-sections, while the alternative hypothesis is that there is no cointegration of variables for some of the cross-sections.

### 3.2.4. Panel Augmented Mean Group (AMG)

The Panel AMG method estimates cointegrating coefficients by considering cross-sectional dependence; it also calculates the average group effect by weighting the overall panel results and individual coefficients. Therefore, it is more reliable than the common correlated effects method developed by Pesaran (2006) for estimating cointegrating coefficients (Eberhardt and Bond, 2009). Therefore, we estimated cointegrating coefficients with the panel AMG developed by Eberhardt and Bond (2009). In this estimation method variables are decomposed in the following manner:

$$y_{it} = \beta'_i x_{it} + u_{it}; \quad u_{it} = u_{it} + \lambda'_t f_t + \varepsilon_{it} \tag{4}$$

$$x_{mit} = \pi_{mi} + \delta'_{mi} g_{mt} + \rho_{1mi} f_{1mt} + \dots + \rho_{nmi} f_{nmt} + v_{mit} \tag{5}$$

$$f_t = \phi' f_{t-1} + \varepsilon_{it} \text{ and } g_t = \aleph' g_{t-1} + w_t \tag{6}$$

where  $f_t$  represents unobservable common factors, while  $g_t$  represents country specific factors.

## 4. Empirical Analysis

### 4.1. Cross-Sectional Dependence Test

We tested cross-sectional dependence of variables and the cointegrating equation using the  $CD LM_{adj}$  test by Pesaran *et al* (2008) and the results of the test are presented in Table 2. Results showed that the null hypothesis (cross-sectional independence) was rejected, because probability values are lower than 1%. In this case, the remaining countries were affected by a shock in one of the countries in the panel. Therefore, we should select econometric tests taking into consideration cross-sectional dependence.

**Table 2.** Results of Adjusted  $CD LM_{adj}$  Test

Variable	Test Statistics	Probability
GROWTH	6.334	0.000
FINOP	4.268	0.019
TRAOP	3.782	0.004
EFR	5.331	0.000

#### 4.2. PANKPSS Unit Root Test

We used the PANKPSS unit root test to determine the stationarity of the variables in our study. We selected the model which allows for structural breaks in both the constant term and trend, when applying the test. Critical values were obtained by Monte Carlo simulations with 1,000 simulations. Results of the PANKPSS unit root test are presented in Table 3. These results indicate that variables were not stationary at their level, but became stationary after the first differencing. We also present the dates of structural breaks in Table 3 and results showed that the test determined structural breaks successfully, as well. In the dates of structural breaks, the Russian crisis, the global financial crisis and the Eurozone sovereign debt crisis, respectively, emerged in 1998, 2008 and 2009, during our study period.

**Table 3.** Results of PANKPSS Unit Root Test

Countries	DGROWTH		DFINOP		DTRAOP		DEFR	
	<i>p-value</i>	<i>S. break</i>	<i>p-value</i>	<i>S. break</i>	<i>p-value</i>	<i>S. break</i>	<i>p-value</i>	<i>S. break</i>
Bulgaria	0.157*	1999 2008	0.132*	1998 2008	0.231*	1999 2009	0.136	1998 2009
Croatia	0.162*	1998 2009	0.238*	1998 2009	0.134*	1999 2009	0.182	1998 2009
Czech Republic	0.216*	1998 2009	0.261*	1999 2009	0.119*	1999 2009	0.109	1999 2009
Estonia	0.194*	2008	0.205*	2009	0.226*	2009	0.231	2008
Hungary	0.289*	2009	0.266*	2008	0.137*	2009	0.226	2008
Latvia	0.215*	2008	0.392*	2009	0.141*	2009	0.248	2009
Lithuania	0.138*	2009	0.246	2008	0.102*	2009	0.159	2009
Romania	0.275*	1997, 1998, 2009	0.207 *	1998 2009	0.173*	1999 2008	0.144	1998 2009
Slovak Republic	0.119*	2009	0.178*	2008 2009	0.168*	2009	0.152	2009
Slovenia	0.185*	2009	0.108	2009	0.217*	2009	0.180	2009
Panel	0.235*		0.268*		0.195*		0.163 *	

\*Stationary at 5% significance level



#### 4.3. Basher and Westerlund (2009) Cointegration Test

We used the Basher and Westerlund (2009) cointegration test for testing long run relationship between variables. We selected the model that allows structural breaks in both the constant term and trend for the cointegration test and results are presented in Table 4. Critical values were obtained by Monte Carlo simulations with 1,000 simulations. Results showed there was a cointegration relationship between variables when structural breaks were taken into consideration.

**Table 4.** Results of Basher and Westerlund (2009) Cointegration Test

	Test Statistics	Probability	Decision
Exclusion of structural breaks in the constant term and trend	3.887	0.021	There is no cointegration
Consideration of structural breaks in the constant term and trend	34.678	0.349	There is cointegration

#### 4.4. Estimation of Cointegrating Coefficients

We applied the panel AMG method for estimating cointegrating coefficients and the results are presented in Table 5. Autocorrelation and heteroscedasticity problems were eliminated using the Newey-West method. Findings demonstrated that trade openness and economic freedom have a positive impact on economic growth at 95%, while financial openness has a negative impact on economic growth at 95%.

**Table 5.** Results of Panel AMG Estimation

Variables	Coefficient	Probability
FINOP	-0.214	0.015*
TRAOP	0.326	0.002*
EFR	0.289	0.017*

*\*Statistically significant at 5% level*

The positive impact of trade openness and economic freedom on economic growth is supported by endogenous growth theories (See Acemoglu *et al* (2004), Hye and Lau (2015)) and the findings of most empirical studies in the literature. However, the negative impact of financial openness on economic growth is not consistent with the propositions of endogenous growth theories. Kim *et al* (2014) asserted that

the impact of financial openness on economic growth depends on country specific factors, including the level of economic development, macroeconomic development and stability. Consequently, our findings could have arisen due to underdeveloped financial structures and institutional structure as well as the insufficient and unstable economic performance of transition countries.

Short run relationships between variables were estimated by the panel AMG and results are presented in Table 6. We found that the coefficients of error correction terms were negative and statistically significant. This demonstrated that deviations among series in the short run were eliminated and series converged to their long run equilibrium values. This finding also verified that our variables were cointegrated. On the other hand, the small coefficients of error correction terms showed that the equilibrating velocity of variables was low.

**Table 6.** Short Run Analysis

Variables	Coefficient	Prob.	Coefficient of Error Correction Terms
FINOP	-0.193*	0.031	-0.083*
TRAOP	0.294*	0.004	-0.107*
EFR	0.286*	0.007	-0.091*

*\*Statistically significant at 5% level*

## 5. Conclusion

The transition economies of the EU transitioned from centrally planned economies to market economies concurrently with the fall of the Berlin Wall in 1989 and then these countries were integrated into the EU. During this process, these countries liberalized their economies and improved the quality of their institutional infrastructure. This study examined the impact of openness and economic freedom on economic growth in the transition economies of the European Union, including Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia during the 1996-2012 period. Our findings indicate that trade openness and economic freedom had a positive impact on economic growth in the long run, while financial openness had a negative impact on economic growth in the long run. The propositions of endogenous growth theories and empirical studies in the literature support the positive relationship between economic growth, trade openness and economic freedom.

The quality of the institutions has an impact on the arrangement of economic institutions, which, in turn, affects economic growth by channelling the allocation of resources into the economy. So the findings of the study verified that institutional

quality is one of the important components behind economic growth, as proposed by new endogenous growth theories. On the other hand, trade openness may also affect economic growth through various channels, such as technological spillovers and increasing productivity. In this regard, the economic performances of our sample were positively affected by trade openness. Finally, our expectations had been that financial openness would have a positive impact on economic growth, considering the prevailing positive relationship between financial development and economic growth in the extensive theoretical and empirical literature. However, we found that there was a negative relationship between economic growth and financial openness and we concluded that this may have resulted from the fact that the financial sectors of these countries have not sufficiently developed to make a positive contribution to economic growth.

The findings of the study imply that trade openness and economic freedom foster economic growth, while financial openness slows it down. Therefore, it is important for less developed countries that they improve their institutional quality and liberalize their trade gradually. Institutional quality is a prerequisite condition for long run growth, but the impact of trade liberalization on economic growth depends on the ability of countries to adjust and endogenize technological spillovers and to improve their productivity and competitiveness. Finally, countries can benefit from financial openness, if they have adequate financial infrastructure. Therefore, it is possible that economic growth was negatively affected by financial liberalization during its first stages. Further empirical studies can be conducted to determine the channels through which openness affects economic growth; this will be useful for policymakers so as to boost the impact of such factors in regard to economic growth.

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