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ECONOMIC FREEDOM AND ECONOMIC GROWTH: A PANEL CAUSALITY ANALYSIS FOR SELECETED TRANSITION ECONOMIES

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Abstract

In this study, the relation between economic freedom and economic growth is analysed for the period 1996 and 2013 by panel casuality analysis for selected 11 transition economies. The most widely spreading idea in the World economy for last 30 years has been the liberal economic idea. The liberal economic idea is based on economic freedom. In this context, most of the countries try to transform their economic structure into this economic alteration. Particularly, the transition economies, which concentrate on market economy, started significant regulations for economic freedom. At this point, the effect of this alteration on growth is tested by panel casuality test. According to the results of this study, there is a casuality relation from growth to economic freedom for only Albania and Czech Republic and there is no casuality relation from economic freedom to growth for the selected 11 transition countries.

Keywords: Economic Freedom, Economic Growth, Panel Causality Analysis

1. INTRODUCTION

In the last three decades neo-liberal economic policies are clearly seen to gain importance in the World economy. The countries, which carry out the neo-liberal economic policies, actualised regulations intended economic freedom. The basis of the liberal economic policies, which are dominant in the World economies today, depends on free market mechanism and economic freedom. Economic freedom makes a significant contribution on economic growth and development.

There are many definitions of economic freedom in the literature. In one of these definitions Siegen (1992) defines economic freedom as entrepreneurship freedom, having a commercial activity, choice of profession, associating production and distribution of goods and services. In a similar definition, Friedman (2002) defines economic freedom as protection and possession of property rights, freedom of labour, trading and competition rights. In brief, the general features of economic freedom can be expressed as,

- Accepting free market system
- Minimizing state interference in economy

- Maximizing individual and economic prosperity
- Improving economic growth and development
- Implementing natural balance in economy
- Making economic decisions freely.

There is a significant relation between economic freedom and economic growth. Economically free individuals can make a positive contribution to economic growth presenting their own abilities. In economically free societies individuals can set up business and have the right to labour without state interference. As a result, in an unlimited free economy, entrepreneurs provide economic growth by supplying goods and services of high quality in a competitive market (Dursun, 2002:93).

Economic freedom affects savings and investment relation positively. Individuals, who are economically free, are able to hold their income as saving. Thus, this situation makes a positive effect on economic growth by increasing funds necessary for investment. On the other hand, liberalizing the financial markets affects growth and investment positively by foreign capital inflow. The countries, which seek free market economy, can improve their production techniques by importing foreign technology. The relation between technology and economic growth is evaluated systematically by Schumpeter. According to Schumpeter, technology affects economic growth positively by the amount of output per capita labor (Akıncı v.d., 204:83).

The economic freedom levels of countries are evaluated by using various criteria and separate institutions. The most widespread freedom index in literature is published by the Heritage Foundation. This index is evaluated according to 10 different criteria. The general economic freedom indices take values between 0 and 100. Freedom decreases when the index gets close to 0 and increases when it gets close to 100.

In this study, the relation between economic freedom and growth is tested by Panel Casualty Analysis for 1996-2013 period for 11 transition economies. The selected transition economies are the middle and eastern European and Baltic Republic countries except Macedonia, in the context of the classification of IMF (2000). Transition economies undergo a set of structural transformations intended to develop market-based institutions. These include economic liberalization, where prices are set by market forces rather than by a central planning organization. In addition to this trade barriers are removed, there is a push to privatize state-owned enterprises and resources, state and collectively run enterprises are restructured as businesses, and a financial sector is created to facilitate macroeconomic stabilization and the movement of private capital. The major reason of choosing these countries is their intention of restructuring their economies recently. This study consists of the introduction, literature summary, ampirical model, estimation results and conclusion.

2. LITERATURE SUMMARY

There are many studies evaluating the relation between economic freedom and growth in the literature. Different results are obtained from these different studies. Some of these studies found strong relations and some found weak relations between economic freedom and growth. Also, there are some studies in the literature that found no relation between growth and freedom. The results summarized from the relevant studies are as the table below.

Authors	Countries/Regions	Period	Result
De Vanssay&Spindler (1994)	100 Countries	1985-1988	Freedom→Growth
Ayal&Karras (1998)	58 countries	1975-1990	Freedom→Growth
Ashby&Sobel (2008)	American States	1980-2003	Freedom→High-Income
Gounder (2002)	Fiji	1968-1996	Freedom→Growth
Bengoa&Sanchez-Robles(2003)	18 Latin American Countries	1970-1999	Freedom→Growth
Weede(2006)	102 Countries	1980-2000	Freedom→Growth
Justesen (2008)	72 Countries	1970-1999	Freedom→Growth (Strong Relation) Growth→Freedom (Weak Relation)
Mahmood et.al 2010)	5 SAARC Countires	1995-2007	Freedom→Growth
Mahmood&Azid (2011)	29 High, 18 upper-middle, 26 lower-middle, 23 low income countries	2000-2006	Freedom↔Growth (high and lower-middle income countries) Freedom→Growth (upper-middle and low income countries)
Beşkaya ve Manan (2009)	Turkey	1970-2005	Freedom→Growth
Akıncı at.al (2014)	Developed, developing and underdeveloped countries	1995-2012	Freedom→Growth
Carlsson&Lundström(2001)	74 Countires	1975-1995	Relation freedom and growth is necessary but relation is weak in their model.
Sturm et.al (2002)	40 Countires	1980-1990	No relationship
Santhirasegaram (2007)	70 Devolving Countries	2000-2004	Relationship freedom and growth is negative
Sarıbaş (2009)	49 Countries	1995-2004	Relationship freedom and growth is negative
Ismail (2010)	Devolving and underdeveloped countries	2000-2007	No relationship

3. THE MODEL SPECIFICATION AND DATA

In this study, the estimated models are shown in the following equations.

$$GDP_{i,t} = \alpha_{1i} + \sum_{l=1}^{P_1} \beta_{1il} GDP_{i,t-l} + \sum_{l=1}^{P_1} \delta_{1il} FREEDOM_{i,t-l} + \varepsilon_{1it} \quad (1)$$

$$FREEDOM_{i,t} = \alpha_{2i} + \sum_{l=1}^{P_1} \beta_{2il} GDP_{i,t-l} + \sum_{l=1}^{P_1} \delta_{2il} FREEDOM_{i,t-l} + \varepsilon_{2it} \quad (2)$$

In the model, GDP symbolizes the rate of growth, FREEDOM symbolizes freedom index of Heritage Foundation, N is the number of countries ($j=1, \dots, N$), t is the time period ($t=1, \dots, T$), and p is the lag length. N is 11 and includes Albania, Bulgaria, Croatia, Czech Republic, Hungary, Romania, Slovakia, Slovenia, Estonia, Latvia, Lithuania. The time period is between 1996 and 2013. The lag lengths are chosen by Schwarz Bayesian Criterion.

Since each equation in the system has different predetermined variables and the error terms might be cross-sectionally dependent, the sets of equations are the SUR system. To test for Granger causality, alternative causal relations are likely to be found for country j. Firstly, there is one-way Granger causality from FREEDOM to GDP if not all δ_{1i} 's are zero, but all β_{2i} 's are zero. Secondly, there is unidirectional Granger causality from GDP to FREEDOM if all δ_{1i} 's are zero, but all β_{2i} 's are not zero. Thirdly, there is bidirectional Granger causality between FREEDOM to GDP if both δ_{1i} 's and β_{2i} 's are not zero. Lastly, there is no Granger causality between FREEDOM to GDP if all δ_{1i} 's and β_{2i} 's are zero.

4. THE METHODOLOGY AND FINDINGS

The followed methodology in this study consists of three steps. In the first step, whether the SUR estimators more efficient than the OLS estimators was analyzed. If there is contemporaneous correlation in the system, the SUR estimators are more efficient than the OLS estimators (Zellner, 1962). The Monte Carlo experiment carried out by Pesaran (2006) emphasizes the importance of testing for the cross-sectional dependence in a panel data study and also illustrates the substantial bias and size distortions when cross-sectional dependence is ignored. Therefore, our empirical approach starts with examining the existence of cross-sectional dependency across the countries in concern.

To test for cross-sectional dependency, Breusch and Pagan (1980) and Pesaran (2004) proposed Lagrange multiplier test. However the later test is suitable when N is large and T is small. In the context of large T and small N, the following Lagrange multiplier test statistic proposed by Breusch and Pagan (1980) can be used to test for cross-sectional dependence:

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

where $\hat{\rho}_{ij}$ is the estimated correlation coefficients among the residuals obtained from individual OLS estimations. The statistic has chi-square asymptotic distribution with $N(N-1)/2$ degrees of

freedom, under the null hypothesis of cross-sectional independency with a fixed N and time period $T \rightarrow \infty$. Result of the Breusch and Pagan test is depicted in Table 1.

Furthermore, the heterogeneity in estimated parameters for each individual of panel in order to impose a restriction for the causal relationship should be taken into account, since the causality from one variable to another variable by imposing the joint restriction for whole panel is the strong null hypothesis (Granger, 2003). Country specific characteristics lead to vary from assumption of the homogeneity for the parameters in a panel data setting (Breitung, 2005). Whereas, in many economic relationship such as energy consumption and economic growth nexus, it is highly possible to find out that while a significant relationship may exist in some countries, vice versa may also be true in some other countries. To test the groupwise heteroskedasticity, the modified WALS test which has a null hypothesis of homoscedasticity of the residuals was employed.

Table 1. Cross-Sectional Dependency and Homoscedasticity

CD Test	Test.Stat.: 347.441	p-value: 0.0000
Modified WALS Test	Test.Stat.: 45.98	p-value: 0.0000

The result in Table 1 indicates that the null hypothesis of cross-sectional independency is rejected, which provides strong evidence on the existence of the cross-sectional dependency across eleven transition countries. Also, the modified WALS test rejects the null hypothesis of homoscedasticity. Having cross-sectional dependency and heterogeneity across countries, we need to apply a causality method, which is able to capture these features. In this regard, the panel causality approach proposed by Konya (2006) seems to be an appropriate method, which is good enough to account for both cross-sectional dependency and heterogeneity.

In the second step, the sets of equations (Eq. 1 and Eq. 2) are estimated with SUR method and in the last step, following Konya (2006), the country-specific bootstrap critical values are produced. The results from the panel Granger causality analysis are reported in Table 2 and Table 3.

Table 2: Panel Granger Causality Test Results (From Growth to Freedom)

Countries	H0: Growth does not cause Freedom			
	WALD Stat	Bootstrap Critical Values		
		1%	%5	10%
Albania	13.802773***	98.61201	14.04482	9.45493
Bulgaria	3.7716735	61.96443	33.41573	22.84952
Croatia	1.8163897	69.31047	34.48398	23.62954
Czech Republic	37.555892**	76.42754	34.94333	22.49905
Hungary	17.002422	67.04676	33.04331	22.13048
Romania	2.1734617	46.30900	22.35609	14.97383
Slovakia	1.4696335	52.70424	27.73416	18.52762
Slovenia	5.8186157	67.90899	32.56244	21.22922
Estonia	6.0559360	71.66196	35.64664	23.86779
Latvia	6.5772114	95.82205	34.41826	20.55621
Lithuania	0.6726895	69.00298	31.69700	20.71696

The critical values were based on bootstrapped distribution with 10,000 replications. *indicates the rejection of the null hypothesis at 1% level of significance, **indicates the rejection of the null hypothesis at 5% level of significance, *** indicates the rejection of the null hypothesis at and 10% level of significance.

Table 3: Panel Granger Causality Test Results (From Freedom to GDP)

Countries	H0: Freedom does not cause Growth			
	WALD Stat	Bootstrap Critical Values		
		1%	%5	10%
Albania	2.3922900	68.08307	26.53849	16.55629
Bulgaria	7.2175051	50.98203	22.17513	14.31970
Croatia	7.5819535	35.07981	17.40409	11.28715
Czech Republic	2.1575838	45.51323	22.35810	14.65808
Hungary	1.4657986	42.35739	20.28180	13.15563
Romania	0.55037740	42.00267	18.97652	12.45449
Slovakia	0.72778611E-01	41.98444	19.72730	13.28329
Slovenia	4.3166824	36.51932	17.46666	11.36506
Estonia	6.2753724	40.45782	19.25856	12.48829
Latvia	2.5766353	44.07698	21.52650	14.08895
Lithuania	0.69743034E-01	33.45319	17.36050	11.68104

The critical values were based on bootstrapped distribution with 10,000 replications. *indicates the rejection of the null hypothesis at 1% level of significance, **indicates the rejection of the null hypothesis at 5% level of significance, *** indicates the rejection of the null hypothesis at and 10% level of significance.

5. CONCLUSION

The results obtained from this study, which evaluates the relation between economic freedom and growth using Panel Casualty Analysis for 1996-2013 period for 11 transition economies, are summarized as below.

- There is a cross-sectional relation between the variables.
- There is a casualty relation from growth to economic freedom for only Albania and Czech Republic.
- There is no casualty relation from economic freedom to growth for the selected 11 transition countries. This result is different from the studies, which claim that there is a strong relation from economic freedom to growth. The results of our study are in harmony with Sturm's and Ismail's studies.
- Briefly, in this study, a strong casualty relation can not be determined from economic freedom to growth for the transition economies, which try to liberalize their economic structure, beginning from the second half of 1990s.

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