

Influence of Trade and Institutions on Economic Growth in Transitional Economies: Evidences from Countries from Central and Eastern Europe and Western Balkans

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ABSTRACT

The importance of institutions and free trade for economic growth is widely acknowledged in recent economic literature. In this paper we are focused on determining the fractional effects of changes of institutions and trade on economic growth as dependent variable. The analysis includes selected transitional economies from Central and Eastern Europe and Western Balkans. In order to estimate the effect on the institutions and trade on growth rates we develop an ordinary least squares (OLS) panel regression model. The model examines 16 cross section units (countries) in the period 2000-2016. The novelty of our work is that this is the first organized effort to inspect the importance of institutions and trade on economic prosperity in this specific geographic area. Cross-country log-log regressions models demonstrate that both institutions and trade are statistically significant determinants the gross domestic product per capita in the selected economies.

Key words: *trade, institutions, growth, Central and Eastern Europe, Western Balkans*

JEL Classification: F10, F13, P20

INTRODUCTION

The main assumption on which this paper is based is that countries that have institutions that work efficiently and countries that participate in the international trade have higher rates of economic growth. Another hypothesis is that countries that have "solid" institutions, realize higher trade flows. These connections have been recognized in many academic papers (Dollar and Kraay, 2003; Groot, Linders and Rietveld, 2005, Wei, S.-J., 2000).

In this paper we investigate the partial effects that institutions and trade cause on growth in several economies of transition. Transitional countries that are considered are from two geographical regions: Central and Eastern Europe and Western Balkans. We chose the following group of countries since they passed through a transition process from socialist planning economies to market economies. The transition was initiated as a result of the new ideological perspective towards accession in the European Union. In the last two decades and within a short time span, parallel to the process of transition from planned to market economy the countries had to adjust to the process of globalization. That meant reforms in the liberalization of the four freedoms (goods, services, capital and people) without permits and restrictions. In this group of

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transitional economies from Central and Eastern Europe, alphabetically ordered, we include: Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia. In our paper, we also include the Western Balkans countries: Albania, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro and Serbia, since countries that belong to this region followed the same trend of transformation to market economy and EU integration, but with slower pace compared to the CEE countries. Most of them are candidate countries of the EU and Croatia already became a member in 2013. In the analysis are included representative countries from both group of countries, mainly countries that have data availability.

The analysis goes back to 1995, since it is considered that most of the transition reforms were completed and countries started to show positive rates of economic growth (Fischer and Sahay, 2004). Figure 1, demonstrates the economic prosperity through the indicator: average GDP per capita from 1995 to 2016. It can be seen that there are significant differences between the selected countries. The highest values are evident for the Czech Republic, Slovenia and Slovakia, as well as Poland. These countries suffered less from the current economic and financial crisis and therefore remain to sustain high levels of GDP per capita. In general the average value for all countries from the CEE countries is higher than in Western Balkans, which might be result of the catching up process towards the EU. The only exceptions are Bulgaria and Romania which achieved modest gains since the entrance in the EU in 2007. In addition due to the economic crisis they undertook mostly austerity measured rather than structural reforms, which is not likely to stimulate economic growth. It seems that the Baltic countries are having future growth prospects since they undertook many structural reforms in their domestic economy.

According to the World Bank Regular Economic report for the Western Balkans countries (2017), it seems that the countries are following two separate growth patterns. Serbia and Albania experienced fiscal consolidation and structural reforms that helped them to increase export and therefore economic growth. Kosovo, Macedonia, Montenegro and Bosnia and Herzegovina are growing slowly due to political uncertainty and slow pace of structural reforms.

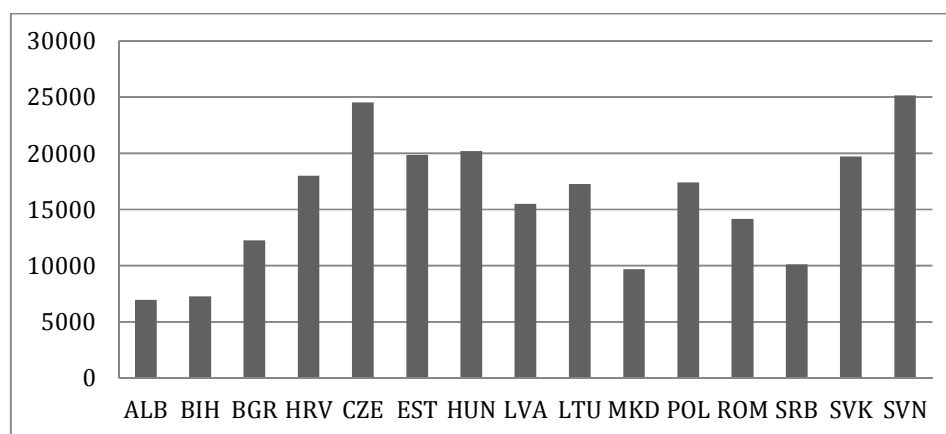


Figure 1. GDP per capita, PPP (constant 2011 international \$), average value 1995-2016

Source: Authors' calculations. Data from World Bank development indicators.

Trade openness is strong determinant of the long term economic growth (Grossman and Helpman 1991, 1996; Aghion and Howitt 1992, Feyrer, 2009). Trade openness supported by the expansion of the multilateral trading system under the auspices of the World Trade Organization, had brought many advantages for the countries, such as higher productivity, increased competition, lower prices, technological spillovers and therefore higher economic growth and better living standards. However, to what extent the economy will prosper will depend on the characteristics and domestic policies, such as the nature of export specialization

and degree of production diversification (Henn et al., 2015), as well as from the quality of institutions. However, since the early 2000s, there is a significant slowdown in the trade reforms, rise of protectionism as a result of the economic downturn.

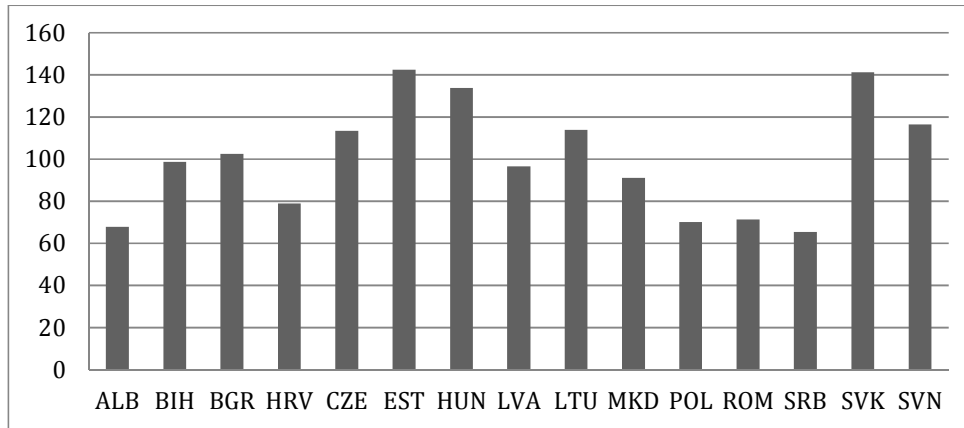


Figure 2. Average trade openness (sum of export and import as percent of GDP), 1995-2016

Source: Authors' calculations. Data from World Bank development indicators.

The degree of trade openness, calculated as the sum of total export and total import as percentage of the gross domestic product (GDP) of the country results in values over 100 percents in most of the observed countries. In Poland, Romania, Serbia and Albania the value of the indicator is below 80 and it appears to be stagnating in the last decade (Figure 2). However, in 1995, the ratio of trade was less than 100 percent for more than 10 countries (out of 15 observed countries) in Central and Eastern Europe and countries has been steadily increase their trade openness especially toward the countries in the EU. In the whole analyzed period from 1995 to 2016, the highest average trade openness has been notified in Estonia, Hungary and Slovakia (by more than 20 percent). The level of openness is higher in the Western Balkans countries, which is understandable since these are small economies and export-dependent. Countries from the Western Balkans are part of the Central Eastern Free Trade Area – CEFTA 2006, have preferential treatment in the intra-trade and also almost half of the trade is with the EU countries.

The growing uncertainty in external risks, might indicate reverse trend in the following years. Those risks include: the rise of protectionism, slowdown of the economic growth in the EU economy, possible depreciation of the Euro and variability in commodity prices as well as political tensions especially for the countries from the Western Balkan.

Finally, Figure 3 sketches the median and average values of Rule of Law Estimate published in the Worldwide Governance Indicators. The estimates are presented on -2.5 to 2.5 scale, where higher values symbolize better rule of law. We consider this estimate to be precise variable representing the institutions in this research agenda (Auer, 2013; Easterly & Levine, 2003; Rodrik, Subramanian & Trebbi, 2004). From the graph we can conclude that there is difference in the rule of law between the countries from Central Europe and countries from Western Balkans. As it can be noticed, average and median values of ROL estimate in Central European countries are higher than 0 (zero), while the Western Balkans countries they receive negative values. The only exception the WB countries group is Croatia. The average and median estimates are calculated for the period 2000-2016.

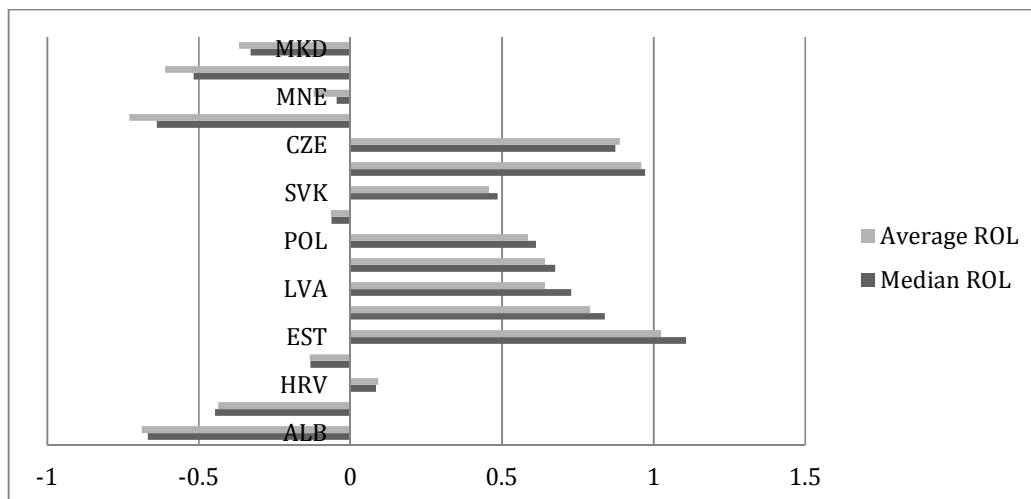


Figure 3. Rule of Law average and median estimate, 2000-2016

Source: Authors' calculations. Data from World Bank development indicators.

LITERATURE REVIEW

Questions regarding influence of trade on the economic growth have been persistently present in the economic literature. Openness generates predictable and positive consequences for growth (OECD 1998: 36). The design of the foreign trade policies, i.e. trade liberalization, trade agreements and the policy of foreign exchange rate are very important determinant of the economic growth for the countries in transition. This is empirically confirmed in the studies of Krueger (1998: 1513), as well as Stiglitz (1998, p. 36) and Dollar (1992). Trade integration and participation in the multilateral trading system can help countries to increase their economic growth (Fischer, 2000).

One of the first most comprehensive definitions of institutions is given by the pioneer of the New Institutional Economy, Nobel Prize laureate Douglass North. By institutions North defines the humanly devised constraints that structure human behavior (1994: 360). More detailed approach in determination of this category understands institutions as legal, administrative or customary arrangements (Pejovich, 2008). The purpose of the institutions is to enhance human interactions that are repeated, but cannot be predicted. According to Pejovich, "good" institutions are those that are credible and stable.

On the subject of the importance of institutions on economic prosperity, Acemoglu, Johnson and Robinson, (2005a) argue that institutions are the primary cause that explain the differences in economic development around the countries of the world. These authors recognize two separate types of institutions, economic and political institutions and they further continue with estimation of the effects of these institutions on different economic variables. Glaeser et al. (2004), state that countries can assure higher rates of economic growth if they have stable political institutions and investments in human and physical capital.

Several authors have been interested in examining the links between the institutions and trade versus the economic growth (Dollar and Kraay, 2003; Rodrik, 2008, 2003). Moreover, Fischer and Sahay (2004) by "strong" institutions recognize independent central banking, development of credible tax systems and fully operating market economy. They find large variation in functioning of the institutions in different transition countries.

There is some more recent literature that is attempting to explain the differences between development levels using institutions, trade and geography. For example, Bhupatiraju and

Verspagen (2013) conclude that the institutions are at same importance as geography and trade in determining the level of the GDP per capita in the long run.

Research on institutions in Western Europe as particular geographic region is included in the study of Acemoglu et al, (2005b). These authors show that the rise of Western Europe after year 1500 is correlated with improved trade and the allied colonialism. Consequently, increasing trade led to development of dynamic institutional environment.

There are published studies that confirm the joint effect of trade and institutions on the economic growth for African countries (Balioune-Lutz and Ndikumana, 2007). Studies for the Central Eastern European countries and Western Balkans are rare and few. They are focused particularly on the relationship between either trade and growth or alternatively institutions and growth. Moers (1999) suggests that improvement of institutions in the CEE countries is necessary; in particular state institutions are crucial for delivering macroeconomic stabilization and economic growth. The author suggests that institutional development should be one of the key priorities in the transition countries. Kucharčuková et al. (2010), referring to the countries from South Eastern Europe, explain that weak economic institutions lead to lower international trade.

DATA AND SOURCES

In order to examine the relationship between economic growth and, on the other hand, institutions and trade we use modification of the model of Dollar and Kraay (2003). This model captures the effects of trade by exploring the deeper trade factors, such as geographic determinants. According to these authors, both landlocked countries and countries that are distant from the main markets have tendency to trade less compared to the other countries.

The depended variable in the model is titled GDP and it presents the logarithm of the gross domestic product (GDP) per capita, measured in PPP in constant terms for 2011. The data is obtained from the World Bank national accounts database and National Accounts database from OECD.

In our paper we use several independent variables for the model construction. First, the variable TRADE symbolizes the sum of exports and imports of goods and services in the selected economies. It is presented as a share of the gross domestic product of the country. TRADE is also collected from the World Bank national accounts database and National Accounts database from OECD.

The variable POPULATION GROWTH stands for annual population growth rate. It is the exponential rate of growth of midyear population from two subsequent years, expressed as a percentage. Population is based on the *de facto* definition of population, which counts all residents regardless of legal status or citizenship. The data are derived from the World Population Prospects of the United Nations Population Division and United Nations Statistical Division. The values are based on the *de facto* definition of population, presented as midyear estimates.

TRADE and POPULATION GROWTH variables are treated as measurement of the market size. Further, our model includes an institutional variable. For this purposes we use RULE OF LAW *Index* as a variable that represents the institutional environment. This index is published in the Worldwide Governance Indicators, a colossal research project by the World Bank. This index captures “perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence” (Kaufmann, Kraay and Mastruzzi, 2010). This aggregate indicator originally is published on a -2.5 to 2.5 scale. For the purposes of our research, we have rescaled the Rule of Law Index on a 0-100 scale, where 0 (zero) stands for worst, while 100 (hundred) for best performance. We use the title ROLNEW for the rescaled variation of the Rule of Law Index.

In our model, we also introduce one geographical variable. LCR is the percentage of the land area within 100 km of ice-free coast in the selected countries (Gallup, Mehlinger, Sachs: 2010). This variable is time invariant.

Other control variables for economic sectors other than external are included in the model. These variables are: INFLATION, measured as annual growth rate of the GDP deflator. This indicator shows the rate of price change in the economy as a whole; GROSS CAPITAL FORMATION as percentage of GDP and DEBT or central government debt as total expressed as percentage of GDP. The data are obtained from World Bank national accounts database and National Accounts database from OECD.

Because many of the countries that are included in the model received their independence in the late 20th century, we have decided to use the period from year 2000 to year 2016 for the analysis.

Descriptive statistics of the common sample are presented in Table 1.

Table 1. Descriptive statistics of the model variables

| | GDP | Rule of law | Trade | Population growth | LCR | Gross capital formation | Debt | Inflation |
|-----------|----------|-------------|---------|-------------------|--------|-------------------------|--------|-----------|
| Mean | 19984.09 | 60.043 | 114.793 | -0.431 | 74.266 | 25.469 | 37.468 | 5.058 |
| Median | 20299.20 | 62.087 | 116.65 | -0.283 | 75 | 24.774 | 36.627 | 3.316 |
| Maximum | 31137.78 | 77.292 | 184.551 | 0.904 | 98 | 41.538 | 98.083 | 48.126 |
| Minimum | 4461.074 | 25.944 | 43.2202 | -2.258 | 48 | 12.371 | 0.26 | -9.753 |
| Std. Dev. | 5967.023 | 9.621 | 33.4053 | 0.585 | 15.338 | 5.217 | 24.556 | 7.319 |

Source: Authors' calculations.

THE MODEL

The purpose of the paper is to examine the relationship between formal institutions, trade and GDP per capita in selected countries from Central and Eastern Europe and the countries from the Western Balkan Region. The dependent variable in the models we have constructed is GDP per capita PPP, measured in constant 2011 international dollars which is a variable in real terms. The variable is not used in absolute terms, but as logarithm of the value same as in the study of Dollar and Kraay (2003) and Frankel and Romer (1999).

Different independent variables are employed to explain the variance of the dependent variable. As a measurement of institutional quality we use rule of law index published in the Worldwide Governance Indicators dataset. The index is rescaled on 0-100 scale. Trade represents the sum of exports and imports of goods and services in the selected economies given as a percentage of the gross domestic product of selected country. Other than rule of law and trade, we introduce different economic variables in the model in order to strengthen its statistical power.

All of the constructed models are panel regressions using the OLS method. The dependent variable and trade variable are transformed into logarithmic form, while, we use the linear form of the other independent variables.

The approach that emphasizes rule of law and trade has been presented by Dollar and Kraay (2003), but we have made substantial modifications in the other explanatory variables and alternative measurements of institutions.

The results from the regressions are presented in the following tables. Both models have high R squared which explains the variability of the dependent variables the most part of the variability's of the independent variable.

Table 1. Logarithm of GDP per capita models using institutions and trade

| Dependant variable: Log (GDP per capita) | | | | | | | | |
|--|---------------------|--------------------|--------------------|--------------------|--------------------|----------------------|---------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (8) | (9) |
| Constant | 7.99*** (126.75) | 7.35*** (34.02) | 7.41*** (34.09) | 7.04*** (30.14) | 7.08*** (29.5) | 6.98*** (33.63) | 7.26*** (33.3) | 7.03*** (31.46) |
| Rule of Law | 0.03*** (27.35) | 0.03*** (19.47) | 0.03*** (19.53) | 0.03*** (19.07) | 0.03*** (19.04) | 0.02*** (14.64) | 0.02*** (14.6) | 0.03*** (13.28) |
| Log (Trade) | | 0.17*** (3.11) | 0.16*** (2.93) | 0.21*** (3.70) | 0.21*** (3.72) | 0.36*** (7.65) | 0.32*** (6.65) | 0.31*** (6.03) |
| Population growth | | | 0.04* (1.94) | 0.04 (1.63) | 0.04* (1.66) | 0.11*** (4.81) | 0.11*** (5) | 0.08*** (3.63) |
| LCR | | | | 0.001 (1.31) | 0.001 (1.29) | -0.004*** (-3.97) | -0.004*** (-4.4) | |
| Gross capital formation | | | | | -0.002 (-0.66) | -0.001 (-0.005) | 0.001 (0.38) | 0.004 (1.48) |
| Debt | | | | | | 0.001 (1.18) | 0.001 (1.02) | 0.0002 (0.51) |
| Inflation | | | | | | | -0.01*** (-3.32) | -0.005*** (-2.73) |
| Adj. R ² | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 | 0.81 | 0.82 | 0.81 |
| # Obs. | 255 | 255 | 255 | 238 | 238 | 169 | 169 | 169 |

Note: T-stats are given in parenthesis. *** significant at 99% level, ** significant at 95% level, * significant at 90% level.

The first model, model (1), is a simple regression where rule of law is independent variable. The estimated value of the coefficient is 0.03, followed by high value of the t- stat, 27.35. These results indicate that there is a strong positive relationship between institutions and economic prosperity. On average, if rule of law increases by 1 unit on a 0-100 scale, GDP per capita is expected to increase by 3 percentages. The second model, model (2), is augmented by the trade as a percentage of the GDP variable as a regressor. Again, both of the estimates are significant at 99 percent level. All else held constant, one unit increase of the rescaled rule of law index increase GDP per capita by 3 percent on average, while one percentage change of trade variable increases GDP per capita by 0.17 percent, on average. The results are both statistically and economically significant.

In addition we have introduced few other variables as possible explanatory variables of GDP per capita, according to the economic literature. We can conclude that adding new variables in the model slightly improves the explanatory power of the regressions, presented by higher values of adjusted coefficient of determination. Also, the variable rule of law is permanently presents statistical and economical significance, with coefficient estimates between 0.02 and 0.03. Trade, as well, is statistical and economical significant independent variable, with coefficients ranging from 0.16 to 0.36.

In order to overcome the limitations given that the cross-sections are not sampled randomly and when the research focuses on the behavior of the specific sample without drawing inferences about the whole population, we employ fixed-effects panel data model, which seems to be more appropriate when working with macro panels. In addition, the fixed-effects estimator is consistent even when individual effects are correlated with the regressors (Baltagi, 2008). In these regards, the assumption that the regressors are not correlated with the disturbance term, which is critical for employing the random effects model, seems to be implausible (Wooldridge, 2002) as many of the regressors included in the model may be correlated with the unobserved country-specific effects. Formally, we base our choice of the fixed-effects vs. the random-effects model on the Hausman-test. For example, when we conduct this test on regression model (7) from the previous table, it resulted with Chi-Sq. statistic of 27.06 with corresponding p-value of 0.0001. Hausman test of regression model (8) from Table 1, resulted with Chi-Sq. statistic of

15.56 with corresponding p-value of 0.016. Low p-values suggest that we should reject the null hypothesis that the regressors and the disturbances are not correlated. In addition, our preference for the fixed-effects model is supported by the results of the F-test for the joint significance of the fixed effects. In the following Table 2, we present the results from the re-estimated regression models with fixed effects.

Table 2. Logarithm of GDP per capita models using institutions and trade; Fixed effects on cross section

| Dependant variable: Log (GDP per capita) | | | | | | |
|--|--------------------|---------------------|--------------------|--------------------|---------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Constant | 7.64*** (54.6) | 6.02 *** (27.44) | 6.04*** (27.44) | 11.8*** (4.56) | 11.81*** (4.55) | 4.71 *** (21.99) |
| Rule of Law | 0.04*** (14.63) | 0.03*** (9.99) | 0.03*** (9.98) | 0.03*** (11.55) | 0.03*** (11.52) | 0.03*** (11.29) |
| Log (Trade) | | 0.48*** (8.84) | 0.48*** (8.78) | 0.59*** (10.61) | 0.59 *** (10.59) | 0.69*** (14.16) |
| Population growth | | | 0.03 (1.18) | 0.02 (0.8) | 0.02 (0.80) | 0.03 (1.11) |
| LCR | | | | -0.09** (-2.54) | -0.09** (-2.54) | |
| Gross capital formation | | | | | -0.0001 (-0.08) | 0.01*** (4.3) |
| Debt | | | | | | 0.001 (1.07) |
| Adj. R ² | 0.86 | 0.89 | 0.89 | 0.91 | 0.91 | 0.93 |
| # Obs. | 255 | 255 | 255 | 238 | 238 | 169 |

Note: T-stats are given in parenthesis. *** significant at 99% level; ** significant at 95% level, * significant at 90% level.

Similar to the previous results, the regression models with fixed effects, also confirm the hypothesis that rule of law and trade have strong and positive correlation with GDP per capita in the countries from Central and South Europe, including the Western Balkan, *ceteris paribus*. All of the coefficient estimates of rule of law variable are statistically significant at 99% level. The range of the estimates is from 0.03 to 0.40, which we interpret that one unit increase in rule of law rescaled index, on average will increase GDP per capita for 3 to 4 percent, all else held constant. This conclusion is in line with the results from the regression models with no cross section effect, presented in Table 1.

The coefficient estimates of the logarithm transformation of the trade variable vary in the range from 0.48 to 0.69. In all of the above reported models, the estimates are significant at 99% level. Compared to the previous models that did not include fixed effects, we can notice that the coefficients are slightly higher. On average, 1 percentage increase in trade measured as sum of total export and total import of goods and services in the sample countries, leads to 0.5 to 0.7 percentage change in GDP per capita, *ceteris paribus*.

ALTERNATIVE MEASUREMENTS OF INSTITUTIONS

In this section we have examine the possibilities to use alternative measurements of institutions in order to check the robustness of the previous findings. For this purpose, we have introduced three alternative measurements of institutions as substitutes for the rule of law index: Control of Corruption, Regulatory Quality and Voice and Accountability.

Control of corruption captures perception of the extent to which public powers is exercised for private gain, including minor and grand forms of corruption (Kaufmann, Kraay and Mastruzzi, 2010). *Regulatory quality* captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (Kaufmann, Kraay and Mastruzzi, 2010). *Voice and accountability* captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media (Kaufmann, Kraay and Mastruzzi, 2010). All indexes are published in the Worldwide Governance Indicators and are rescaled on a 0-100 scale. The results from the rerun regression models are presented in Table 3.

Table 3 Regression models using alternative measurements for institutions

| Dependant variable: Log (GDP per capita) | | | | |
|--|--------------------|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) |
| constant | 4.71*** (13.21) | 4.59*** (8.29) | 4.53*** (14.71) | 4.14*** (9.31) |
| Trade | 0.69 *** (9.51) | 0.87*** (10.12) | 0.73*** (10.04) | 0.88*** (9.82) |
| Population | 0.03 (2.14) | 0.03 (1.05) | 0.003 (0.13) | 0.03 (0.73) |
| Gross capital formation | 0.01*** (2.96) | 0.01* (1.74) | 0.01 (1.59) | 0.01** (2.00) |
| Debt | 0.001** (1.57) | 0.001*** (3.22) | 0.002** (2.19) | 0.002*** (3.26) |
| <i>Alternative measurements for institutions</i> | | | | |
| Rule of Law | 0.03*** (7.53) | | | |
| Control of corruption | | 0.017*** (5.04) | | |
| Regulatory Quality | | | 0.02*** (7.14) | |
| Voice and Accountability | | | | 0.02*** (4.04) |
| Adj. R | 0.93 | 0.89 | 0.91 | 0.88 |
| Obs. | 169 | 169 | 169 | 169 |

Note: White cross-section standard errors & covariance (d.f. corrected) are used. Fixed effects assigned on cross section. T-stats are given in parenthesis. *** significant at 99% level; ** significant at 95% level, * significant at 90% level.

We find that in all of the above reported models, trade variable proves to be significant at 99% percent level. In majority of cases, the newly employed measurements of institutions appear to be both statistically and economically significant.

CONCLUSION

The regression models capture the long-run effects of trade and institutions on economic growth in selected countries from Central and Eastern Europe and Western Balkan. We conclude that the constructed OLS panel regressions explaining changes of the logarithm of GDP per capita suggest statistical and economic significance of institutional variables and trade as independent variables. Since, country openness and participation in international trade and better institutional quality can be traced back to common historical factors, we believe that the



findings are applicable to all of the countries. Therefore, joint role of both trade and institutions on long run influence on the rates of economic growth.

These findings indicate that countries should put a greater focus on the institutions quality that is likely to result in enhanced growth prospects. Much attention was given to trade liberalization in the policy agenda compared to the institutional strengthening since these CEE and Western Balkan countries lack resources to reform. We suggest reform oriented towards strengthening the rule of law and the legal environment, in general, in order to stimulate faster growth rates in the selected economies.

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