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TRADE OPENNESS AND COMPETITIVNESS: EMPIRICAL ANALYSIS FOR WESTERN BALKAN COUNTRIES

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Abstract: The level of trade openness plays a crucial role on boosting countries' competitiveness, innovation and productivity. Thus, the purpose of this paper is to empirically analyze the linkage of trade openness and competitiveness for Western Balkan countries covering the time period 2005-2015. The research method consists of a panel regression analysis by examining the static models for both fixed and random effects and using the Hausman test for deciding for the most appropriate model for the proposed sample countries. First, the gross competitiveness index is modelled as dependent variable on trade openness and a set of control variables such as: GDP per capita, gross fix capital formation, FDI, inflation and a number of interaction variables with trade openness. Second, innovation is taken as dependent variable whereas trade openness and the aforementioned indicators as independent variables. The empirical results of the fixed effects model suggest that trade openness positively affect competitiveness, as well as trade openness enhance innovation as in both models the coefficients of trade openness seem to be statistically significant and with positive signs. Regarding interaction variables between trade and FDI as well as trade and gross capital formation, it is confirmed that countries with higher level of FDI and higher physical capital benefit more from international trade, and in turn increase competitiveness. The findings of this research reveal important policy implications for Western Balkan countries, in terms of strengthening the mutual trade cooperation and joining the efforts for increasing even more their participation into the global market. It will imply extension of competitiveness and a range of paybacks, such that job creation, poverty alleviation and better standards of living of their citizens.
Keywords: trade openness, competitiveness, Western Balkan, panel regression analysis

1. INTRODUCTION

International trade is a key component of the market economy and economic prosperity. It is perceptible that the level of trade openness plays the crucial role on boosting countries' productivity, competitiveness, and innovation. Moreover, Syed (2016) states 'trade openness has transformed world economies into an era of continuous evolution; intensification of competition in global market, job creation, deepening economic integration, firms' movement to low cost localities without any restrictions and most importantly poverty alleviation are all consequences of trade liberalization'. Thus, the purpose of this paper is to empirically analyze the effects of trade openness on competitiveness for Western Balkan countries and reconcile the above perception with observed facts and with the latest data. While there are plenty of empirical studies that analyze the effects of trade openness on economic growth, there is a lack of empirical literature that investigates the role of trade openness on competitiveness, especially for Western Balkan.

The Western Balkan countries have recently engaged in a regional integration process, through the establishment of free trade agreements between themselves and with the European Union (EU). They have been focused to undertake measures towards reforms that led to improvements of trade liberalization process and strengthening their mutual regional trade connections. Indeed, Western Balkan countries have comparative advantages in many products that are in demand in the EU and globally. Current export industries use relatively low skills and technology, meaning they can raise export growth by upgrading the products sold abroad (World Bank, 2017). The degree of openness recovered somewhat after the dip in 2009 because of the global financial and economic crisis, and it appears to have stabilized at close to or below to pre crisis levels. However, the region lags behind central European and Baltic comparators on openness, perhaps unsurprisingly given that the latter region has been part of the European Union's large internal market for over a decade (Sanfey, Milatovic and Kresic, 2016).

Concerning competitiveness there is a gap between the Western Balkans region and the European Union. On average, the Balkan region is ranked 86th, compared with an average 50th place for the EU-11 and 36th for the European Union as a whole. The gap is particularly large with respect to the EU-15, where the average ranking is 23rd. Although, there has been a gradual improvement in competitiveness since the pre-crisis years, from 96th rank in

year 2007-08 to 86th in year 2016-15, it still is behind their potential (EBRD, 2016). The competitiveness of economies in an integrated world determines how well countries convert the potential created by access to global markets into opportunities for their firms and their citizens.

The reminder of the paper is as follows: the second section affords a brief literature review, section three describes data and the methodology, section four analyses the empirical results while section five concludes.

2. BRIEF LITERATURE REVIEW

The gains from international trade have been discussed and theoretically argued by a wide range of authors. According to the theory of comparative advantage, if a country wants to trade with another country the latter will produce goods in which it has a comparative advantage. It specializes in those sectors for which it has lower opportunity cost and can produce goods on a larger scale. As a result, productivity and exports of those sectors will rise and this will boost the competitiveness among enterprises and the overall economic activity. Furthermore, the export and import-competing products cause greater market share and create employment in various sectors of the economy. While, international trade may be an engine that drives economic activity of countries, competitiveness represents the fuel that empowers that engine (Ezeala-Harrison, 1999: 3).

Grossman and Helpman (1996) and Aghion and Howitt (1992) offer theoretical support to the prediction that trade openness might influence long run economic growth through various channels. 'The first, and more prominent, channel operates as a transmission mechanism of technological progress and spillovers that are generated by improvements in knowledge in trade-partner countries. The access through international trade to a large variety of intermediate goods and new final products will affect a country's productivity growth. Second, trade and technological diffusion reduce the redundancy effect of research duplication, and enlarge the size of the market in which the typical firm operates; this raises the monopoly rents allocated to innovators by encouraging research-intensive production that spurs economic growth. Third, a related indirect channel of international trade occurs via competition among firms in outward-oriented countries' (cited in Capolupo and Celi, 2008: 6) .

Although the theoretical literature explores dominant support for the gains of trade openness on economic growth, its impact is still an open and a debatable issue among scholars. In fact, this study is focused more on effects on competitiveness however, trade and competitiveness are integral to spur growth (World Economic Forum, 2015), as was stated above the competitiveness is an indirect channel that influences the economic growth. In that regard, a range of empirical studies have established a positive relationship between these two variables. For instance, Sachs and Warner (1995); Edwards, (1998); Frankel and Romer (1999) provide support for the growth enhancing effect of international trade. Sachs and Warner examine the impact of trade liberalization on the growth of 122 countries and they summarize that open countries exhibit higher growth rates than protectionist ones. However, Rodriguez and Rodrik (2001) re-investigate critically the conclusion of previous cross-country studies that openness is associated with higher rates of growth. They argue that a variety of measures of openness used in previous studies are proxies for other policy or institutional variables and the results that openness enhances growth are not robust. In addition, Chang et al. (2009), highlight that the positive relationship between growth and openness may be significantly improved if complementary policies are undertaken. Furthermore, Calderon and Poggio (2010) examined the structural factors that may have impact on growth as a result of trade openness. The growth benefits of intensifying trade openness are conditional on the level of progress in some structural areas including education, innovation, infrastructure, institutions, the regulatory framework, and financial development. Indeed, they found that the lack of progress in these areas could restrict the potential benefits of trade openness. In fact, the main distinctive characteristic of the recent papers on this issue lies in the use of the Generalized Method of Moments (GMM) estimator on panel datasets. In this way, endogeneity and invariant omitted variables bias could be tackled. Generally speaking, empirical studies which rely on within-country variation mostly report robust growth benefits from trade liberalization (Daumal& Ozyurt, 2011).

3. METHODOLOGY AND DATA

The research method of this inquiry consists of a panel regression analysis examining the static models for both fixed and random effects and using the Hausman's test for determining the appropriate model for Western Balkan countries. Thus, the following theory describes the methodology of a panel regression analysis.

In fact, data sets that combine time series and cross sections (in this case countries) are called longitudinal or panel data sets. Panel data sets are more orientated towards cross section analyses – they are wide but typically short (in terms of observations over time). Heterogeneity across countries is central to the issue of analyzing panel data. The basic framework is a regression of the form:

$$Y_{it} = X_{it}\beta + Z_i\pi + \varepsilon_{it} \quad (1)$$

X has k columns and does not include a constant term. The heterogeneity or individual effect is $Z_i\pi$ where Z contains a constant term and a set of individual or group specific variables. It will be considered two cases:

Fixed Effects Z_i is unobserved, but correlated with X_{it} then OLS estimators of β are biased. However, in this case where $\alpha_i = Z_i\pi$ embodies all the observable effects and specifies an estimable equation. This takes α_I to be a group specific constant term.

Random Effects if the unobserved heterogeneity however formulated can be assumed to be uncorrelated with X_{it} then :

$$Y_{it} = X_{it}\beta + E[Z_i\pi] + \{ Z_i\pi - E[Z_i\pi] \} + \varepsilon_{it} \quad (2)$$

$$= X_{it}\beta + \alpha + u_i + \varepsilon_{it} \quad (3)$$

This random effects approach specifies that u_i is a group specific random element which although random is constant for that group throughout the time period.

Hausman's test

The specification test devised by Hausman is used to test for whether the random effects are independent of the right hand side variables. This is a general test to compare any two estimators. The test is based on the assumption that under the hypothesis of no correlation between the right hand side variables and the random effects both fixed effects and random effects are consistent estimators but fixed effects is inefficient (**This is the assumption with random effects**).

Whereas under the alternative assumption (**i.e. that with fixed effects**) fixed effects is consistent but random effects is not.

The test is based on the following Wald statistic:

$$W = [\beta_{FE} - \beta_{RE}]' \Psi^{-1}[\beta_{FE} - \beta_{RE}]$$

where

$$Var[\beta_{FE} - \beta_{RE}] = Var[\beta_{FE}] - Var[\beta_{RE}] = \Psi$$

W is distributed as X^2 with (K-1) degrees of freedom where K is the number of parameters in the model. If W is greater than the critical value obtained from the table then we reject the null hypothesis of that both estimators are consistent i.e. of "no correlation between the right hand side variables and the 'random effects'" in which case the fixed effects model is better.

3.1 The Data

This study is an empirical study using secondary data. The annual data from 2005 to 2015 of five Western Balkan countries namely Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia, were collected from World Development Indicator (WDI) provided by World Bank. All data are transformed into logarithmic in order to measure the relative impact and elasticity of openness on competitiveness in the sample countries.

3.2 The specification of econometric model

The econometric model that assesses the effects of trade openness on competitiveness of Western Balkan (WB) countries would be specified as in the following form:

$$lnY_{it} = \beta_0 + \beta_1 GDPC_{it-1} + \beta_2 \ln(Openness)_{it} + \beta_3(FDI_{it}) + \beta_4 \ln(CPI)_{it} + \beta_5 \ln(GFCF)_{it} + \beta_6(lnOpenness_{it} * lnFDI_{it}) + \beta_7(lnOpenness_{it} * lnGFCF_{it}) + \lambda_i + \mu_t + \varepsilon_{it}$$

Where Y_{it} is the dependent variable that represents the overall or gross competitiveness index for country i at time t. The independent (control) variables are: the initial stock of income that is proxied by the logarithm of GDP per capita of country *i* at the beginning of each period ($GDPC_{it-1}$, initial GDP per capita); trade openness that corresponds by the ratio of the total value of external trade (exports plus imports) to GDP. The other independent variable is Consumer Price Index (CPI) that investigates how prices affect the competitiveness. Physical capital accumulation is an important determinant of competitiveness that is proxied by the share of gross fixed capital

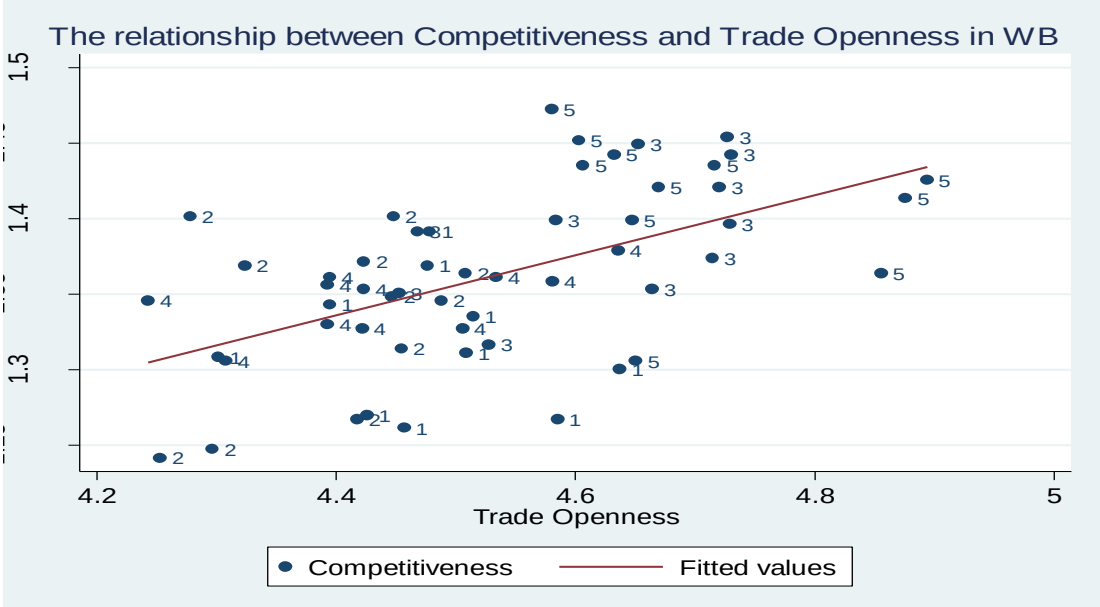
formation (GFCF) as % of GDP. Foreign direct investment (FDI) as percent of GDP is included in the model to capture the effect of external sources of investment on competitiveness. In the model are also included two interaction variables between openness and country's FDI and gross fixed capital formation that determines whether competitiveness is conditioned by the level of foreign direct investments and physical capital and as a result of trade openness and which countries benefit more from trade openness. Whereas, λ_i is the unobserved country specific effect; μ_t is the unobserved time specific effect which captures global shocks; and ε_{it} is the error term.

The econometric model that assesses the effects of trade openness on innovations of Western Balkan (WB) countries is specified in a similar way, only the dependent variable differs, ie innovation is the dependent variable and trade openness, FDI, consumer price index and physical capital are considered as independent variables.

5. EMPIRICAL RESULTS

In this section, the empirical results are represented for all models. The study examines whether trade openness can be considered as a determinant of competitiveness for WB countries or not. According to the OLS fitted line, the relationship between competitiveness and trade openness clearly show that there is a positive correlation between them. Figure 1 below shows a scatter plot of their linkage. It suggests that a 1 percentage point increase of trade openness is associated with an increase of competitiveness of 0.16 percentage points, holding other factors unchanged (constant).

Figure 1. The relationship between competitiveness and trade openness of Western Balkan



Source: Author's calculations

In (Table 1) below are displayed the regression results of fixed effects and random effects for both specifications. In Model 1 and Model 2, competitiveness is dependent variable, whereas in Model 3 and 4 innovation is dependent variable.

Table 1. Panel regression Results

Variables	Fixed Effects Model 1	Random Effects Model 2	Fixed Effects Model 3	Random Effects Model 4
Dependent variable	**Competitiveness**		**Innovation**	
$lnGDPc_{it-1}$	0.3307*** (0.0971)	0. .3061*** (0.0541)	0.5647*** (0.1482)	0.4412*** (0.0815)

ln Openness	0.156*** (0.0332)	0.1424** (0.0487)	0.1082** (0.0812)	0.4121* 0.7359
ln(FDI)	0.231* (0.450)	0.3498* (0.1890)	0.7102** (0.3429)	0.5419* (0.2856)
ln(CPI)	-0.0703 (0.0738)	-0.0571 (0.0617)	-0.3539*** (0.1132)	-0.2726*** (0.0934)
ln(GFCF)	0.9666 (0.8099)	-0.1787 (0.7205)	-0.8528 (1.2412)	-0.060 (1.0888)
***ln (FDI)*ln(*openness*)**	0.0833** (0.0506)	0.0799** (0.0415)	0.16122** (0.0767)	0.1232** (0.0627)
***ln(GFCF)*ln(*openness*)**	0.3095* (0.177)	0.04712 (0.1595)	0.1761 (0.2713)	0.0141 (0.2409)
Constant	1.1377 (2.8395)	1.6163 (2.2396)	-1.1444 (4.351)	-3.0579 (3.3841)

Notes: Robust standard errors are in parentheses. For the specification tests, p-values are reported. *, ** and *** indicate that the coefficients are significant at the 10%, 5% and 1% level of significance, respectively.
Source: Author's calculations

The Hausman's test suggested that fixed effects model is more preferred than random effects model. This holds for both specifications, i.e. for competitiveness model and innovation model.
From the fixed effects panel regression model, where competitiveness is dependent variable, can be observed that trade openness positively affects competitiveness and its coefficient is statistically significant. Also, the model confirm that an increase of FDI spur competitiveness, as the coefficient is statistically significant and with positive sign. Consumer price index (CPI) and gross fixed capital formation (GFCF) seem to be statistically insignificant. Whereas the coefficient of the interaction variable between FDI and trade openness is positive and statistically significant, meaning that countries with higher FDI benefit more from trade openness than countries with lower FDI. The other interaction variable between gross fixed capital formation and trade openness is also with positive sign and statistically significant at 10 percent significance level, that implies a higher competitiveness for countries with higher physical capital due to trade openness.
From the other model where the innovation is the dependent variable, the results show that trade openness positively affects innovation of Balkan region. Also increasing FDI increases innovation as the coefficient is positive and statistically significant. The coefficient of consumer price index (CPI) is negative and highly significant in this case, meaning that an increase of prices reduces the innovation. Concerning the physical capital, it's not statistically significant, even the interaction variable between trade openness and physical capital is not statistically significant, whereas the coefficient of interaction variable between trade openness and FDI is positive and statistically significant at 5 percent significance level. Thus countries with higher FDI increase innovation due to trade openness. In all estimated models the GDP per capita is highly statistically significant, meaning that as the income per capita increase the competitiveness increases as well.
The findings of this research are in line with a recent study conducted by Pilinkiene (2016) for Central and Eastern European countries (CEEc). The results of her research have confirmed empirical interdependence among trade openness, economic growth and competitiveness, i.e. it has been concluded that economic growth leads to the improvement of trade openness, while competitiveness of the CEE region leads to the improvement of economic growth, and trade openness to a rise of competiveness. These results can obviously disclose the validity of the theoretical insights.

5. CONCLUSIONS

The main purpose of this research paper was to empirically examine the effects of trade openness on competitiveness of the Western Balkan countries (Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia). To accomplish this goal it has been performed some regression models based on panel data (from 2005-

2015), such as, fixed effects and random effects models, as well as a Hausman test is run in order to determine the most appropriate model for the sample countries. The results of both types of models show that there is a positive and statistically significant relationship between trade openness and competitiveness for the analyzed countries. Based on the results of Hausman test the most appropriate model was selected fixed effects model. From the OLS fitted line one can be concluded that, for 1% increase of trade openness, competitiveness will increase approximately by 0.16% over time. In addition, trade openness enhance innovation as the coefficient of trade openness seem to be statistically significant and with positive sign for this model as well. Regarding interaction variables between trade and FDI as well as trade and gross capital formation, it is confirmed that countries with higher level of FDI and higher physical capital benefit more from international trade, and in turn increase competitiveness.

The findings of this research reveal important policy implications for Western Balkan countries, in terms of strengthening the mutual trade cooperation and joining the efforts for increasing even more their participation into the global market. It will imply extension of competitiveness and a range of paybacks, such that job creation, poverty alleviation and better standards of living of their citizens.

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