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Size, competitiveness and FDIs: Small or transition country curse?

Igor Velickovski
National Bank of the Republic of North Macedonia
University American College Skopje, North Macedonia
velickovski@uacs.edu.mk

and

Marjan Petreski
University American College Skopje, North Macedonia
Finance Think – Economic Research & Policy Institute, Skopje, North Macedonia
marjan.petreski@uacs.edu.mk

Abstract: The objective of the paper is to assess the relationship between a set of competitiveness indicators and foreign direct investment (FDI) inflows with reference to the size and transition-economy status of a heterogeneous set of 60 countries. Results suggest that an increase of competitiveness is robustly, statistically and sizably related to an increase of FDI inflows. Goods market efficiency, market size and business sophistication were identified to have been particularly important for FDIs. However, the positive relationship between competitiveness and FDI is weakened or wiped out in a small country, suggesting that, because of their size, small countries need to undertake extra efforts in converting their improvements in competitiveness to work in favour of FDI attraction. On the other hand, we do not find robust evidence that transition economies are disadvantaged in improving their competitiveness to attract FDIs. Given that many transition economies are small, we suggest that it has been rather the size of the country and not the fact that it has gone through a transition process, which may have affected how its competitiveness works for attracting FDI.

Keywords: competitiveness, FDIs, small countries, transition economies

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Introduction

Economies engage in improving competitiveness in order to increase growth and income. FDI have become an important instrument for realizing these goals. FDI is expected to positively affect the productivity and efficiency in allocating resources in the host country by transferring technology and know-how. Yet, attracting FDI is challenging, given that it depends on various [illegible] countries' ability to attract FDI depends on their capacity to adapt governments, markets, educational systems and social and cultural contexts to be attractive to the reception of FDI flows.

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A set of relevant factors which may drive FDI flows has been incorporated in a comprehensive framework established by the World Economic Forum to measure economic competitiveness in comparative context across countries. The Global Competitiveness Index, published yearly in the Global Competitiveness Report, captures a range of different aspects of competitiveness followed by investors. The index calculation relies on 12 pillars: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training,

goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation.

Despite the fact that there is an all-encompassing theoretical framework for the determinants of FDI flows, the empirical studies exploring these determinants in a comprehensive framework, are very limited. Our research seeks to fills this gap by estimating the importance of the 12 competitiveness pillars of the Global Competitiveness Index on FDI inflows in a heterogeneous set of countries. Furthermore, this paper contributes to identifying the differences associated with small and transition countries. These characteristics have been rarely investigated in the empirical literature and therefore, we attempt to discover whether small and/or transition economies are advantaged or disadvantaged in improving their competitiveness to attract FDI. In this context, even though there is no clear threshold of the small size of the country in economic theory, we consider the small country in this research if it has less than 3 million inhabitants (Armstrong et al., 1998). The transition countries are all former centrally planned economies from Central, Eastern and South Eastern Europe, as well as countries from the former Soviet Union.

The analysis uses a dataset for countries belonging to the European Economic Area as well as from the Western Balkans, the Commonwealth of Independent States, Middle-East and North Africa, which gravitate closely to the European Union in geographic and economic terms. The following 60 countries are analyzed: Albania, Algeria, Armenia, Austria, Azerbaijan, Bahrain, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Iran, Ireland, Israel, Italy, Jordan, Kazakhstan, Kuwait, Kyrgyz Republic, Latvia, Lebanon, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Montenegro, Morocco, Netherlands, Norway, Oman, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkey, Ukraine, United Arab Emirates and United Kingdom. The analysis is conducted in a pooled OLS framework for the period 2007-2017.

The rest of the paper is organized as follows. In Section 2, we review the relevant theoretical and empirical literature on the determinants of FDI flows. In Section 3, we elaborate the model and methodology and present the data and variables used in the empirical analysis. Section 4 discusses our empirical findings. Section 5 presents some concluding remarks.

Theoretical and empirical literature

There has already been an extensive theoretical discussion about the factors that determine FDI flows (e.g., Simpson, 1962; Frankel, 1965; Kindleberger, 1969; Caves, 1971; Cohen, 1975; Helpman, 1984; Froot and Stein, 1991; Graham, 1996; Altomonte and Pennings, 2003; Latorre, 2008; Nayak and Choudhury, 2014). FDIs were typically seen as an international movement of physical capital in search of higher returns (Mundell, 1956). This theory was further elaborated by MacDougall (1958) and Kemp (1964) in a framework assuming perfectly competitive market. If there was free movement of capital from an investing country to a host country, the marginal productivity of capital tended to be equalized between the two. However, Hymer (1976) emphasized that in a world characterized by perfect competition, FDI would not have occurred if some form of distortion did not exist. In this context, he laid grounds for a theory based on an imperfect market setup. His theory pointed out that foreign firms must offset the disadvantages they have in comparison with host firms in terms of culture, language, legal system and consumer preference by exploiting some form of market power. It may arise from patent-protected superior technology, brand names, marketing and management skills, economies of scale and cheaper sources of finance. These sources of market power encourage

a firm to invest in a foreign country in order to fully exploit the monopolistic advantages and render international investment profitable.

In a similar context characterized with oligopolistic market imperfections, apart from increased access to the host country's market and utilization of its abundant factors, Knickerbocker (1973) formulated another motivation for investing abroad which is explained by the intention to match a rival's move. More specifically, firms often imitate their rivals who change their strategies from exporting to setting up a manufacturing subsidiary in the host country. In this way, they expect to reduce the risk of being undercut by rivals and to preserve their strategic advantage. Market imperfections are also considered by Buckley and Casson (1976) to explain the internalization of FDI by putting emphasis on intermediate inputs and technology. Firms internalize by using backward and forward integration. Namely, the technology or output of a subsidiary in one country can be used as an input to the production of a different subsidiary in another country.

Dunning (1980) combined the FDI motivations driven by market imperfections that had been expounded in previous theories and expanded the combined theoretical framework with a locational aspect to explain why firms invest abroad. Thus, FDI is dependent on three sets of factors that should exist simultaneously and are summarized in so called OLI framework: O – ownership advantage, L - location advantage and I - internalization advantage. The ownership advantage focuses on developing a competitive advantage by the foreign firm in terms of specific technology or skill to be used to compete with local firms in the host country. The location advantage addresses the profitability of the foreign firm as regard to locating its business outside the home country. Finally, the internalization advantage compares the costs and benefits for the foreign firm having established a subsidiary vis-à-vis hiring a company licensed to provide goods and/or services in the host country. While the first and the third factor are related to the home-country characteristics, allowing a firm to develop competitive advantage and become multinational, the second factor, location advantage, is host-country specific (Resmini, 2000). The latter encompasses various determinants such as host country's market size, economic growth, labour cost, levels of competition, technology, infrastructure, political and legal environment and government policy (UNCTAD, 1998; Wang et al., 2009).

On the empirical side, a wide range of factors has been estimated as significant in interfering with FDI flows. Kravis and Lipsey (1982) estimated a positive effect of market size on FDI. Resmini (2000) reached a similar conclusion for Central and Eastern Europe, estimating that countries with larger populations draw investors' attention and induce higher FDI inflows than smaller countries. Infrastructure also plays an important role in directing FDI flows (Coughlin et al., 1991). As for the macroeconomic variables, Froot and Stein (1991) and Klein and Rosengren (1994) pointed out that exchange rate depreciation has a positive impact on FDI flows. Root and Ahmed (1979) and Schneider and Frey (1985) found that FDI is significantly affected by political instability, while Wei (2000) estimated that an increase in the degree of corruption results in smaller FDI flows. Benassy-Quere et al. (2007) also found that bureaucracy, corruption and legal institutions are important determinants of FDI. Lahrèche-Révil (2006) estimated that high tax rates have negative impacts on FDI. Narula and Wakelin (1998) put technology at the core of competitiveness and suggest that inward FDI is influenced by technological capability and human capital availability.

Most of the empirical studies investigating determinants of FDI flows focused on selected aspects of the host country characteristics reflecting its competitiveness. A more comprehensive approach in examining a broader set of competitiveness factors which may influence FDI flows is adopted by Anastassopoulos (2007). His study takes into account four

pillars on which competitiveness is measured in the IMD World Competitiveness Yearbook: economic performance, governmental efficiency, business efficiency and infrastructure. The results which refer to the EU-15 member states suggest that FDI determinants differ between northern and southern EU member states. In the northern economies, investors are driven by market size, reduced bureaucracy, and the openness and efficiency of the business sector; in the south, they are more interested in the efficiency of the government and the reduction of investment risk. More research on the competitiveness-FDI nexus using cross-section data for 129 countries in 2010 suggests that competitiveness (measured by the Global Competitiveness Index) and levels of corruption (measured by the Corruption Perception Index) of the host country are important determinants of FDI inflows (Curtis et al., 2013).

Our study enriches this empirical space by using a wide set of competitiveness indicators which may reflect the host country attractiveness for FDI inflows and brings the small and transition countries to the fore in this research. Although there are a few studies suggesting that foreign investors are swayed by market size (Kravis and Lipsey, 1982; Resmini, 2000; Anastassopoulos, 2007), the empirical work did not focus on exploring the behaviour of foreign investors depending on the transition status of the country. Thus, we shed light on the possible effect of competitiveness indicators on FDI by probing how small and transition countries are considered by foreigners when they consider whether and how much to invest.

Model and methodology

Based on our theoretical and empirical discussion in Section 2, we define a model which includes a set of determining factors that are related to location advantages of the OLI framework. Thus, our model includes the following host country FDI determinants:

$$FDI_{it} = \alpha_0 + \beta_j Competitiveness_{it} + \gamma_j X'_{it} + \delta_1 Small_{it} + \delta_2 Transition_{it} + \delta_3 EU_{it} + \alpha_t + \varepsilon_{it} \quad (1)$$

Whereby FDI_{it} stands for the log of the inward FDI in country i in period t, in US dollar; $Competitiveness_{it}$ is a competitiveness indicator, capturing a wide set of competitiveness facets of country i in period t, as follows: institutions; infrastructure; macroeconomic environment; health and primary education; higher education and training; goods market efficiency; labour market efficiency; financial market development; technological readiness; market size; business sophistication; and innovation. X'_{it} is a vector of explanatory variables, frequently used in the literature: the log of the GDP per capita in US dollar, trade to GDP, domestic credit to private sector in GDP, inflation, total tax as share in commercial profits, government net lending in GDP, the customs burden and the unemployment rate. $Small_{it}$ is a dummy variable taking a value of 1 if the country has less than 3 million inhabitants and 0 otherwise; $Transition_{it}$ is a dummy variable taking a value of 1 if the country is a former central planner and 0 otherwise; EU_{it} is a dummy variable taking a value of 1 if the country is a member of the EU and 0 otherwise. α_t stands for year fixed effects, while ε_{it} is the usual disturbance term which is assumed to be well-behaved. Annex 1 provides information about the definition and sources of variables used.

Note that we do not use country-fixed effects because the three dummy variables defined – $Small_{it}$, $Transition_{it}$, EU_{it} – would capture regional fixed effects, which are the effects we would like to reveal. If country fixed effects are included, then the coefficients in front of the three regions will be wiped out. In addition, as we include a broad set of explanatory variables

(competitiveness indicators and the other explanators), we believe there is sufficient ground to capture other aspects of country characteristics, part of which are certainly time-invariant.

Therefore, equation (1) will be estimated by relying on a simple Ordinary Least Squares (OLS) method for estimating the unknown parameters in a linear regression model. The existence of the regional dummies and the time fixed effects impose sufficient panel structure of the calculations.

The source of the data is multiple. Inward FDI flows are taken from UNCTAD. Competitiveness indicators are sourced from the Global Competitiveness Report: they range between 1 – low performance to 7 – high performance. The source of the remaining variables is the World Development Indicators of the World Bank. The referent period is 2007-2017.

In equation (1), competitiveness indicators are each examined separately. This is mainly because of their considerable mutual correlation, which prevents putting them in one equation altogether. Table 1 presents a correlation matrix of the competitiveness indicators and suggests that almost all of them are inter-related with a correlation coefficient of over 50% and statistically significant. This justifies our approach of investigating their relationship with FDI in equation (1) separately.

Table 2 provides the basic descriptive statistics of the variables utilized in the study. Note that almost one fourth (23%) of the countries involved correspond to the definition of a small state, while 42% are transition economies.

Results and discussion

Baseline results appear in Table 3. Each column represents one competitiveness indicator, found in the second row of the table. Results robustly suggest that competitiveness is related to higher inflow of FDI into the country. Most of the competitiveness indicators are positive and significant, with the exception of the macroeconomic environment (which is negative) and health and primary education (which is insignificant). Coefficients suggest that an increase of the competitiveness indicator by one unit (on the 1-7 scale) is related to an increase of inward FDI by about 40-50%, which is considerable. Results also identify three areas of competitiveness that are particularly important for FDI: goods market efficiency, market size and business sophistication. The coefficients on these three competitiveness pillars are large and range from 90% to 173%. The first two are related to the placement of products: FDI – especially the inflows of the last two decades – mainly sought competitively priced labour but also sufficiently large markets which countries frequently crafted by securing free-trade agreements or belonging to economic unions at higher level of integration. The third aspect reflects FDI's shift towards services and technology-based manufacturing observed since the 1980s (Curtis et al., 2013).

Small countries attract less FDI as may be expected, given that we measure FDI in their logged absolute amount (Kravis and Lipsey, 1982). Similarly, transition economies attract less FDI compared to non-transition economies in the sample, which is also expected given their level of development, market size and economic structure emerging from a centrally-planned economy. In contrast, EU member states attract more FDI than non-members, which relates to the advantages of integration, but also to other factors such as the countries' level of development, the robustness of their economic structure and the probity of their financial institutions.

Table 1: Correlation matrix of competitiveness indicators.

	Institutions	Infrastructure	Macro-environment	Health and primary education	Higher education	Goods market efficiency	Labour market efficiency	Financial market	Technological readiness	Market size	Business sophistication	Innovation
Institutions	1											
Infrastructure	0.7885*	1										
Macro-environment	0.4978*	0.3660*	1									
Health and primary education	0.6238*	0.7260*	0.1800*	1								
Higher education	0.7027*	0.7890*	0.2850*	0.8709*	1							
Goods market efficiency	0.8885*	0.7808*	0.4540*	0.6770*	0.7532*	1						
Labour market efficiency	0.6473*	0.4752*	0.4307*	0.3910*	0.5793*	0.6455*	1					
Financial market	0.7711*	0.5602*	0.5187*	0.4805*	0.5689*	0.7624*	0.6032*	1				
Technological readiness	0.7364*	0.8513*	0.3577*	0.8083*	0.8702*	0.7941*	0.5625*	0.6039*	1			
Market size	0.1620*	0.4531*	0.1287*	0.2535*	0.3314*	0.1972*	-0.0723	0.1157*	0.2917*	1		
Business sophistication	0.8634*	0.8450*	0.4034*	0.7250*	0.8206*	0.8753*	0.5740*	0.7437*	0.8195*	0.4435*	1	
Innovation	0.8339*	0.8144*	0.3925*	0.7320*	0.8492*	0.7925*	0.6027*	0.6749*	0.8329*	0.4045*	0.9266*	1

*Source: Authors' calculations. * refers to a statistical significance at the 5% confidence level.*

Table 2: Descriptive statistics.

	Variable	Obs	Mean	Std.Dev	Min	Max
	Log of inward FDI	622	8.12	1.65	2.56	12.28
Competitiveness indicators	Institutions	647	4.38	0.88	2.66	6.18
	Infrastructure	647	4.55	1.01	2.05	6.65
	Macro-environment	647	4.96	0.89	2.27	6.84
	Health and primary education	647	5.97	0.42	4.72	6.90
	Higher education	647	4.71	0.70	3.06	6.27
	Goods market efficiency	647	4.50	0.51	2.99	5.62
	Labour market efficiency	647	4.39	0.55	2.79	5.95
	Financial market	647	4.24	0.71	2.39	6.17
	Technological readiness	647	4.55	1.03	2.14	6.46
	Market size	647	4.01	0.98	1.31	6.02
	Business sophistication	647	4.33	0.75	2.54	5.93
	Innovation	647	3.72	0.90	2.01	5.82
Regional dummies	Small country	660	0.23	0.42	0	1
	Transition country	660	0.42	0.49	0	1
	EU member	660	0.47	0.50	0	1
Other controls	Trade to GDP	653	105.80	54.46	30.02	423.99
	Log of GDP per capita	660	10.04	0.80	7.54	11.77
	Domestic credit to GDP	645	75.25	45.32	4.25	253.26
	Inflation	595	3.85	4.93	(4.86)	48.72
	Total tax in commercial profits	649	38.01	15.70	7.4	84.5
	Custom burden	647	4.41	0.82	2.50	6.30
	Unemployment rate	660	9.45	5.95	0.12	34.93

The other explanatory variables have largely the expected sign and some of them are significant. Trade openness, availability of credit and the level of development of the country are all positively related to FDI, while higher customs burden deters FDI. Interestingly, total taxes are correlated with more FDIs, but the result is not robust and the coefficient is very small. Annex 2 presents a correlation matrix of these variables with competitiveness indicators. As could be noted, some correlations are fairly high, hence potentially interfering with our key results. To prevent this, the annex also provides a robustness check, whereby Table 3 is replicated without using the controls. Results remain robust to this treatment.

Table 3: Baseline results.

	Dependent variable: Log of inward FDI											
	Institutions	Infrastructure	Macro-environment	Health and primary education	Higher education	Goods market efficiency	Labour market efficiency	Financial market	Technological readiness	Market size	Business sophistication	Innovation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Competitiveness indicator	0.349**	0.441***	-0.182**	0.284	0.401***	1.725***	0.453***	0.510***	0.558***	1.372***	0.903***	0.454***
	(0.152)	(0.100)	(0.084)	(0.259)	(0.151)	(0.216)	(0.170)	(0.123)	(0.136)	(0.090)	(0.148)	(0.101)
Small country	-1.48***	-1.40***	-1.47***	-1.47***	-1.44***	-1.49***	-1.42***	-1.43***	-1.43***	-0.084	-1.33***	-1.34***
	(0.148)	(0.149)	(0.149)	(0.148)	(0.149)	(0.141)	(0.146)	(0.149)	(0.151)	(0.176)	(0.145)	(0.147)
Transition country	-0.346**	-0.354**	-0.327*	-0.431**	-0.575***	-0.292*	-0.779***	-0.498***	-0.592***	-0.064	-0.264	-0.449***
	(0.172)	(0.167)	(0.166)	(0.169)	(0.173)	(0.169)	(0.212)	(0.171)	(0.172)	(0.139)	(0.167)	(0.167)
EU member	0.520***	0.399**	0.273*	0.369**	0.373**	0.490***	0.598***	0.441***	0.349**	-0.271*	0.407***	0.480***
	(0.170)	(0.156)	(0.165)	(0.160)	(0.157)	(0.152)	(0.176)	(0.157)	(0.156)	(0.141)	(0.151)	(0.156)
Trade to GDP	0.004***	0.004***	0.004***	0.004***	0.004***	0.002	0.003**	0.003***	0.003**	0.011***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Log GDP per capita	0.818***	0.660***	1.026***	0.826***	0.750***	0.738***	0.797***	0.792***	0.593***	-0.06	0.627***	0.702***
	(0.127)	(0.130)	(0.131)	(0.136)	(0.134)	(0.121)	(0.127)	(0.125)	(0.153)	(0.119)	(0.131)	(0.132)
Credit to GDP	0.004**	0.003	0.004**	0.004*	0.002	0.003	0.002	0.004**	0.001	0.007***	0.002	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Inflation	0.020*	0.016	0.013	0.019	0.018	0.030**	0.023*	0.028**	0.028**	-0.016	0.027**	0.020*
	(0.012)	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)	(0.011)	(0.012)	(0.010)	(0.012)	(0.012)
Customs burden	-0.440***	-0.451***	-0.142	-0.216*	-0.331***	-0.832***	-0.317***	-0.383***	-0.453***	-0.052	-0.549***	-0.433***
	(0.144)	(0.121)	(0.110)	(0.112)	(0.110)	(0.119)	(0.110)	(0.116)	(0.108)	(0.091)	(0.114)	(0.104)
Total tax in GDP	0.010**	0.007*	0.013***	0.010**	0.008*	0.013***	0.011**	0.013***	0.006	-0.006	0.005	0.006
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Unemployment rate	0.013	0.007	0.001	0.006	0.011	0.032***	0.019*	0.019**	0.012	-0.003	0.022**	0.011
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)
Constant	-0.27	1.34	-1.021	-1.21	0.057	-4.082***	-0.807	-1.134	1.987	3.123***	-0.166	1.027
	(1.215)	(1.270)	(1.235)	(1.343)	(1.238)	(1.271)	(1.219)	(1.205)	(1.428)	(1.051)	(1.242)	(1.262)
Observations	533	533	533	533	533	533	533	533	533	533	533	533
R-squared	48.3%	49.1%	48.3%	47.9%	48.5%	52.6%	48.6%	49.3%	49.5%	63.7%	50.9%	49.7%

*Source: Authors' calculations. *, ** and *** refer to a statistical significance at the 10, 5 and 1% level, respectively. Robust standard errors provided in parentheses. Time fixed effects not shown due to space.*

Since we measure inward FDI in its logged absolute value, we cannot derive important conclusions about how country size and transition status relate to FDI only by referring to the two dummies included; they will always be negative, since small and transition countries typically attract less FDI. However, we may utilize this information further. In Table 4, we add the interaction of the small country status and the competitiveness indicators, while in Table 5, the one of the transition status and the competitiveness indicator. By so doing, we are able to judge if a small country that improves its competitiveness environment is advantaged in relation to a large country doing so, with respect to FDI attraction. The same question holds for the transition vis-à-vis non-transition countries.

Table 4 presents the results on the competitiveness-FDI nexus when the size of the country is specifically considered. Two greyed lines in the table are important for this consideration. First, the coefficients on the competitiveness indicators largely contain their previous magnitudes and significances, which corroborates our previous findings and conclusions. When the coefficient on the interaction between competitiveness and the small country is considered, then important conclusions emerge. First, almost all coefficients are significant, suggesting that the positive relationship between competitiveness and FDI is weakened or wiped out in a small country. This is a clear sign that, because of their size, small countries need to undertake extra efforts in converting their investments into improved competitiveness for FDI attraction.

Second, results suggest that in some cases the negative coefficients on the interactions outweigh the positive ones on the competitiveness indicators. This is particularly the case for institutions, infrastructure, health and education, labour market and innovation. It may suggest that these areas of competitiveness may have been particularly aggravated in small countries so that, for these to work positively for FDI attraction, a sustained effort is needed. On the other hand, the net result is still positive in the case of goods-market efficiency, financial market development, technical readiness, market size, and business sophistication, part of which are the spheres where the relationship between competitiveness and FDI has been the largest. It may also refer to areas where small countries have already pursued early reforms so as to take advantage in attracting FDI. Overall, however, small countries are shackled the trying to attract FDI, compared to big(ger) counterparts, based on their competitiveness reforms. Constrained by their size, they may require greater efforts to achieve the same result in terms of the competitiveness-FDI nexus achieved by larger countries.

The other coefficients in Table 4 remain largely the same as in Table 3, hence serving as a check of the robustness of results.

Table 4: Results: Competitiveness and FDIs in small countries.

	Dependent variable: Log of inward FDI											
	Institutions	Infrastructure	Macro-environment	Health and primary education	Higher education	Goods market efficiency	Labour market efficiency	Financial market	Technological readiness	Market size	Business sophistication	Innovation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Competitiveness indicator	0.322**	0.430***	-0.167**	0.473*	0.455***	1.699***	0.570***	0.580***	0.591***	1.478***	0.826***	0.470***
	(0.152)	(0.099)	(0.082)	(0.267)	(0.150)	(0.215)	(0.174)	(0.130)	(0.134)	(0.091)	(0.153)	(0.102)
Small country	0.751	1.372**	-0.974	6.359***	3.889***	1.122	4.803***	-0.077	1.003*	3.739***	1.212	0.944
	(0.749)	(0.578)	(1.032)	(1.642)	(0.851)	(1.212)	(1.470)	(0.756)	(0.574)	(0.539)	(0.953)	(0.615)
Competitiveness * Small country	-0.500***	-0.625***	-0.099	-1.29***	-1.125***	-0.574**	-1.354***	-0.317*	-0.533***	-1.27***	-0.613***	-0.655***
	(0.176)	(0.139)	(0.204)	(0.281)	(0.185)	(0.275)	(0.326)	(0.179)	(0.131)	(0.178)	(0.237)	(0.180)
Transition country	-0.394**	-0.420**	-0.344**	-0.421**	-0.502***	-0.330*	-0.847***	-0.534***	-0.630***	-0.05	-0.315*	-0.454***
	(0.171)	(0.167)	(0.167)	(0.169)	(0.171)	(0.169)	(0.213)	(0.174)	(0.174)	(0.133)	(0.168)	(0.168)
EU member	0.469***	0.417***	0.289*	0.364**	0.381**	0.490***	0.571***	0.439***	0.347**	-0.193	0.401***	0.452***
	(0.168)	(0.152)	(0.162)	(0.156)	(0.151)	(0.152)	(0.172)	(0.157)	(0.152)	(0.138)	(0.150)	(0.153)
Trade to GDP	0.005***	0.005***	0.004***	0.004***	0.004***	0.003**	0.003**	0.004***	0.005***	0.011***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Log GDP per capita	0.858***	0.671***	1.023***	0.796***	0.736***	0.750***	0.812***	0.793***	0.594***	-0.074	0.672***	0.751***
	(0.130)	(0.130)	(0.130)	(0.136)	(0.132)	(0.122)	(0.126)	(0.126)	(0.154)	(0.118)	(0.134)	(0.134)
Credit to GDP	0.004**	0.004*	0.004*	0.004**	0.003*	0.003*	0.002	0.004*	0.001	0.005***	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Inflation	0.026**	0.025**	0.014	0.025**	0.027**	0.032***	0.030**	0.031***	0.036***	-0.017	0.031**	0.027**
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.011)	(0.012)	(0.012)
Customs burden	-0.398***	-0.412***	-0.141	-0.222**	-0.258**	-0.809***	-0.320***	-0.408***	-0.439***	-0.022	-0.505***	-0.414***
	(0.144)	(0.121)	(0.110)	(0.111)	(0.110)	(0.120)	(0.112)	(0.118)	(0.109)	(0.090)	(0.115)	(0.106)
Total tax in GDP	0.011**	0.008*	0.013***	0.011**	0.010**	0.013***	0.013***	0.013***	0.008*	-0.008**	0.006	0.007
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Unemployment rate	0.005	-0.006	0.001	-0.007	-0.003	0.027***	0.012	0.018**	0.003	-0.011	0.013	0.005
	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)
Constant	-0.799	0.939	-1.074	-2.076	-0.585	-4.237***	-1.492	-1.384	1.498	2.918***	-0.536	0.22
	(1.225)	(1.262)	(1.257)	(1.380)	(1.226)	(1.269)	(1.210)	(1.224)	(1.444)	(1.036)	(1.241)	(1.267)
Observations	533	533	533	533	533	533	533	533	533	533	533	533
R-squared	49.0%	50.5%	48.3%	49.2%	50.9%	53.0%	50.1%	49.5%	50.7%	65.9%	51.4%	50.7%

*Source: Authors' calculations. *, ** and *** refer to a statistical significance at the 10, 5 and 1% level, respectively. Robust standard errors provided in parentheses. Time fixed effects not shown due to space.*

Table 5 presents the relationship between competitiveness and FDI when transition status is considered. While small countries may face insufficient market size and insufficient funds and capacities to pursue reforms to enhance competitiveness, transition economies may suffer other problems impeding reforms, such as unfavourable economic structure, inadequate educational systems, even cultural settings inherited from the socialist past which favours paper qualifications rather than skills, inclination to seek employment with the public service, risk avoidance and innovation non-preparedness. We need to note, however, that many of the transition economies are at the same time small, so that any impediments to competitiveness may be reinforced by small country size.

Results, however, overturn these considerations, to some extent. The coefficient on the competitiveness indicator in Table 5 remains robust as in Tables 3 and 4. Furthermore, the coefficient on the product of the competitiveness and transition country is largely insignificant. It does not lend support to the hypothesis that transition economies are disadvantaged in improving their competitiveness to attract FDI. Observed together, Tables 4 and 5 suggest that it is rather the *size* of the country and not the fact that it has gone through a transition process which potentially interferes negatively on how competitiveness works for attracting FDI. The results are in line with those of Resmini (2000), suggesting that foreign investors prefer large markets in regard to transition countries from Central and Eastern Europe.

It follows that small states lack enough capacity to absorb much FDI. In line with the results in Table 4, this may be related to a weak infrastructure which requires large financial resources for its improvement that cannot be easily generated or borrowed by small states. A lack of capacity to build strong institutions may also contribute to lower FDI in small states. Labour market inefficiency may be greater in small states driven by inadequate resources to invest in education, which consequently result in limited innovative capability. All these factors challenge much more the small states than the transition economies to attract FDI.

In Table 5, there are notable exceptions to this general conclusion. For some of the competitiveness indicators, the transition status of the country still worked to disadvantage the competitiveness-FDI relationship. These pillars include infrastructure, goods-market efficiency, financial market, technological readiness and innovation. Though, in all cases the negative coefficient on the interaction is smaller than the positive coefficient on the competitiveness indicator. We should note that the transition status actually worked negatively in the competitiveness-FDI link in the areas where the relationship between the two is most productive. This highlights some differences between the transition and other (mainly more developed) countries in the sample, in line with Anastassopoulos (2007) who estimated that FDI determinants differ between northern (more developed) and southern EU member states.

Table 5: Results: Competitiveness and FDIs in transition countries.

	Dependent variable: Log of inward FDI											
	Institutions	**Infrastructure**	**Macro-environment**	**Health and primary education**	**Higher education**	**Goods market efficiency**	**Labour market efficiency**	**Financial market**	**Technological readiness**	**Market size**	**Business sophistication**	**Innovation**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Competitiveness indicator	0.358**	0.479***	-0.225**	0.402	0.412***	1.830***	0.389**	0.628***	0.555***	1.365***	0.901***	0.450***
	(0.153)	(0.101)	(0.098)	(0.268)	(0.155)	(0.234)	(0.191)	(0.125)	(0.135)	(0.096)	(0.147)	(0.100)
Small country	0.372	0.576	-1.160*	1.362	-0.249	2.017*	-1.974	1.681**	0.61	-0.156	1.144	0.759
	(0.970)	(0.524)	(0.686)	(2.003)	(0.887)	(1.219)	(1.310)	(0.785)	(0.544)	(0.462)	(0.880)	(0.725)
Competitiveness * Transition country	-0.187	-0.227*	0.173	-0.307	-0.072	-0.543*	0.279	-0.549***	-0.286**	0.023	-0.363	-0.364*
	(0.251)	(0.129)	(0.149)	(0.341)	(0.196)	(0.283)	(0.308)	(0.192)	(0.125)	(0.107)	(0.225)	(0.216)
Transition country	-1.436***	-1.376***	-1.491***	-1.465***	-1.435***	-1.416***	-1.449***	-1.395***	-1.389***	-0.079	-1.290***	-1.315***
	(0.166)	(0.149)	(0.149)	(0.147)	(0.151)	(0.148)	(0.148)	(0.146)	(0.149)	(0.181)	(0.146)	(0.146)
EU member	0.523***	0.416***	0.233	0.382**	0.384**	0.539***	0.583***	0.528***	0.415***	-0.270*	0.446***	0.487***
	(0.170)	(0.156)	(0.175)	(0.161)	(0.161)	(0.151)	(0.178)	(0.158)	(0.158)	(0.142)	(0.152)	(0.156)
Trade to GDP	0.003**	0.004***	0.004***	0.003***	0.004***	0.001	0.003**	0.003***	0.003**	0.011***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Log GDP per capita	0.823***	0.693***	1.020***	0.839***	0.759***	0.746***	0.803***	0.831***	0.665***	-0.065	0.670***	0.770***
	(0.126)	(0.129)	(0.129)	(0.137)	(0.134)	(0.121)	(0.128)	(0.124)	(0.155)	(0.126)	(0.131)	(0.137)
Credit to GDP	0.004*	0.003	0.004**	0.003	0.002	0.002	0.002	0.003	0.001	0.007***	0.002	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Inflation	0.020*	0.017	0.014	0.019	0.019	0.030**	0.021*	0.028**	0.026**	-0.016	0.027**	0.022*
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.011)	(0.012)	(0.010)	(0.012)	(0.012)
Customs burden	-0.408**	-0.440***	-0.136	-0.215*	-0.330***	-0.806***	-0.310***	-0.400***	-0.420***	-0.049	-0.527***	-0.403***
	(0.159)	(0.122)	(0.110)	(0.112)	(0.110)	(0.121)	(0.109)	(0.115)	(0.108)	(0.092)	(0.115)	(0.104)
Total tax in GDP	0.011**	0.008*	0.013***	0.010**	0.008*	0.014***	0.010**	0.014***	0.007	-0.006	0.007	0.008*
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Unemployment rate	0.013	0.006	0.001	0.007	0.01	0.031***	0.020**	0.024**	0.01	-0.003	0.019**	0.01
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.008)	(0.010)	(0.009)
Constant	-0.519	0.729	-0.777	-2.041	-0.1	-4.772***	-0.615	-2.018	1.024	3.197***	-0.73	0.108
	(1.248)	(1.292)	(1.188)	(1.606)	(1.307)	(1.379)	(1.218)	(1.233)	(1.500)	(1.167)	(1.281)	(1.360)
Observations	533	533	533	533	533	533	533	533	533	533	533	533
R-squared	48.4%	49.4%	48.4%	48.0%	48.5%	52.9%	48.6%	50.0%	49.9%	63.7%	51.1%	49.9%

*Source: Authors' calculations. *, ** and *** refer to a statistical significance at the 10, 5 and 1% level, respectively. Robust standard errors provided in parentheses. Time fixed effects not shown due to space.*

Conclusion

This study investigated the relationship between various facets of competitiveness and FDI inflow in a set of 60 countries over the period 2007-2017. We put particular emphasis on how the size of the country and/or its transition status potentially interfered with the competitiveness-FDI nexus. We rely on a standard equation where FDI inflows depend on competitiveness indicators and a set of determinants which are usually considered in the literature.

Results suggest that an increase of competitiveness is robustly, statistically and sizably correlated to an increase of FDI inflows. In particular, three spots of competitiveness were identified to have been particularly important for FDI: efficiency in the market for goods, market size and business sophistication. However, the positive relationship between competitiveness and FDI is weakened or wiped out in a small country. This suggests that, because of their size, small countries need to work even harder to render themselves attractive to FDI. Institutions, infrastructure, health and education, labour market development and innovation have been identified as being particularly aggravated in the small countries when the 'competitiveness-FDI' link is considered. All these factors challenge much more the small states than the transition economies to attract FDI. On the other hand, we do not find robust evidence that transition economies are disadvantaged in improving their competitiveness to attract FDI. Since many transition economies are small, it is probably the size of the country (and not the fact that it has gone through transition process) which potentially negatively interferes in how competitiveness works for attracting FDI.

Note

The opinions expressed in this article are those of the authors. They do not necessarily reflect the views of the National Bank of the Republic of North Macedonia, the University American College Skopje or Finance Think – Economic Research & Policy Institute.

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Annex 1

Table A1. Variables' definitions and sources

	Variable	Explanation	Source
	Log of inward FDI	The amount of FDI received in US$, logged	UNCTAD
Competitiveness indicators	Institutions	Different facets of country's competitiveness measured on 1-7 scale (1=extremely inefficient to 7=extremely efficient)	Global Competitiveness Report
	Infrastructure		
	Macro-environment		
	Health and primary ed.		
	Higher ed.		
	Goods market efficiency		
	Labour market efficiency		
	Financial market		
	Technological readiness		
	Market size		
	Business sophistication		
	Innovation		
Regional dummies	Small country	A dummy with value of 1 if the country has fewer than 3 million inhabitants and 0 otherwise	World Development Indicators
	Transition country	A dummy with value of 1 if the country transited from central planning to market economy and 0 otherwise	World Development Indicators
	EU member	A dummy with value of 1 if the country is a member of the EU and 0 otherwise	World Development Indicators
Other controls	Trade to GDP	Imports + Exports divided by GDP	World Development Indicators
	Log of GDP per capita	Per capita GDP (PPP, international dollars), logged	World Development Indicators
	Domestic credit to GDP	Amount of credit extended by banks domestically to GDP	World Development Indicators
	Inflation	Annual growth of prices	World Development Indicators
	Total tax in commercial profits	The amount of taxes collected divided by companies' profits	World Development Indicators
	Custom burden	A measure of the burden of customs procedures (1=extremely inefficient to 7=extremely efficient)	Global Competitiveness Report
	Unemployment rate	The rate of unemployed to active labour force	World Development Indicators

Annex 2

Table A2: Correlation matrix of competitiveness indicators with the rest of the variables.

	Log of FDI	**Institutions**	**Infrastructure**	**Macro-environment**	**Health and primary education**	**Higher education**	**Goods market efficiency**	**Labour market efficiency**	**Financial market**	**Technological readiness**	**Market size**	**Business sophistication**	**Innovation**	**Trade to GDP**	**Log of GDP per canita**	**Domestic credit to GDP**	**Inflation**	**Total tax in commercial profits**	**Custom burden**	**Unemployment rate**	**Small country**	**Transition economy**
Trade to GDP	0.04	0.25	0.18	0.21	0.23	0.19	0.38	0.28	0.26	0.32	(0.35)	0.15	0.13	1.00								
Log of GDP per capita	0.48	0.70	0.76	0.56	0.66	0.66	0.72	0.43	0.63	0.75	0.41	0.75	0.67	0.25	1.00							
Domestic credit to GDP	0.36	0.53	0.61	0.03	0.62	0.61	0.51	0.37	0.43	0.62	0.23	0.60	0.55	0.06	0.49	1.00						
Inflation	(0.09)	(0.29)	(0.36)	(0.19)	(0.39)	(0.36)	(0.37)	(0.20)	(0.27)	(0.47)	(0.03)	(0.33)	(0.30)	(0.16)	(0.33)	(0.28)	1.00					
Total tax in commercial profits	0.30	0.86	0.80	0.37	0.69	0.73	0.86	0.55	0.70	0.79	0.16	0.77	0.73	0.36	0.67	0.52	(0.41)	1.00				
Custom burden	0.14	(0.19)	(0.06)	(0.22)	0.00	0.02	(0.25)	(0.30)	(0.22)	(0.10)	0.34	(0.01)	0.02	(0.22)	(0.28)	(0.07)	0.12	(0.22)	1.00			
Unemployment rate	(0.28)	(0.45)	(0.35)	(0.47)	(0.20)	(0.32)	(0.47)	(0.39)	(0.44)	(0.33)	(0.23)	(0.46)	(0.38)	(0.17)	(0.46)	(0.11)	(0.04)	(0.30)	0.04	1.00		
Small country	(0.36)	0.10	(0.02)	0.07	0.13	0.04	0.13	0.18	0.08	0.10	(0.59)	(0.08)	(0.08)	0.38	0.10	0.04	(0.12)	0.14	(0.31)	0.13	1.00	
Transition economy	(0.45)	(0.61)	(0.60)	(0.15)	(0.45)	(0.36)	(0.52)	(0.01)	(0.37)	(0.43)	(0.43)	(0.63)	(0.53)	0.02	(0.55)	(0.53)	0.15	(0.45)	0.00	0.33	0.18	1.00

Source: Authors' calculations. All correlations are statistically significant at the 5%.

Table A3: Baseline results without controls.

	Dependent variable: Log of inward FDI											
	Institutions	**Infrastructure**	**Macro-environment**	**Health and primary education**	**Higher education**	**Goods market efficiency**	**Labour market efficiency**	**Financial market**	**Technological readiness**	**Market size**	**Business sophistication**	**Innovation**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Competitiveness indicator	0.295***	0.537***	0.207***	0.917***	0.625***	0.853***	0.586***	0.434***	0.568***	1.000***	0.746***	0.513***
	(0.083)	(0.070)	(0.062)	(0.194)	(0.107)	(0.122)	(0.097)	(0.083)	(0.071)	(0.066)	(0.093)	(0.074)
Small country	-1.316***	-1.281***	-1.233***	-1.363***	-1.283***	-1.426***	-1.326***	-1.316***	-1.408***	0.116	-1.219***	-1.177***
	(0.126)	(0.128)	(0.120)	(0.131)	(0.131)	(0.124)	(0.125)	(0.119)	(0.128)	(0.141)	(0.126)	(0.123)
Transition country	-0.858***	-0.540***	-1.135***	-0.846***	-0.899***	-0.716***	-1.166***	-0.954***	-0.693***	-0.639***	-0.506***	-0.719***
	(0.141)	(0.144)	(0.111)	(0.132)	(0.122)	(0.122)	(0.109)	(0.112)	(0.124)	(0.106)	(0.138)	(0.131)
EU member	0.940***	0.602***	1.014***	0.663***	0.593***	0.769***	0.954***	0.867***	0.428***	0.462***	0.612***	0.717***
	(0.106)	(0.126)	(0.105)	(0.134)	(0.133)	(0.108)	(0.104)	(0.105)	(0.132)	(0.106)	(0.113)	(0.110)
Constant	7.628***	6.708***	7.946***	3.747***	6.283***	5.155***	6.479***	6.996***	6.914***	4.912***	5.648***	7.066***
	(0.442)	(0.356)	(0.351)	(1.134)	(0.497)	(0.589)	(0.449)	(0.433)	(0.320)	(0.322)	(0.458)	(0.346)
Observations	609	609	609	609	609	609	609	609	609	609	609	609
R-squared	39.3%	43.0%	39.2%	40.4%	41.8%	42.0%	41.5%	40.3%	43.4%	54.9%	43.1%	42.6%

*Source: Authors' calculations. *, ** and *** refer to a statistical significance at the 10, 5 and 1% level, respectively. Robust standard errors provided in parentheses. Time fixed effects not shown due to space.*