EASE OF DOING BUSINESS AND FDI IN THE EX-SOCIALIST COUNTRIES

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Abstract:

This study investigates if ease of doing business, measured through the Doing Business indicators of the World Bank, affects foreign direct investment in 27 ex-socialist countries. Classical and Bayesian econometric techniques are employed. Results point out that there is a lot of uncertainty regarding the effects, with most of the indicators being either insignificant or lacking robustness. One aspect of the business regulation stands out as a robust determinant in the two estimations - the ease of trading across borders. It also seems that investors are discouraged by bureaucracy, because four of the five indicators that are significant in either of the estimations refer to bureaucratic impediments, not to financial costs.

Keywords: Doing business, business regulation, foreign direct investment, ex-socialist countries

JEL classification: E02, E22, F21

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1. Introduction

The Doing Business indicators (DBI) of the World Bank measure the ease of doing business, that is, the business regulation across world. The indicators cover ten aspects of the ease of doing business - starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. As of 2014, there are in total 52 indicators, measuring different sides of each of the 10 aspects (days for obtaining permit, number of documents required, money required, and so on). They have been published annually since 2003, and covered 189 economies in 2014.

The indicators have become very popular in recent years, especially in the ex-socialist countries. Notable example is the home country of the authors of this study, Macedonia, where the most popular daily newspaper, "Dnevnik", has written more about the DBI than about Steve Jobs, for example[1]. Another noteworthy example is Russia. Russia's president, Vladimir Putin allegedly 'ordered the government to improve Russia's "Doing Business" ranking with the World Bank from 120th in 2011 to 50th by 2015 and 20th in 2018.' (Adelaja (2012)).

Despite this, there is a very limited research on the effects of the ease of doing business on economic outcomes in the ex-socialist countries. This paper will contribute to filling-in this gap, by investigating if the DBI affect foreign direct investment (FDI) inflows in these countries. These countries all had a socialist economic system in the past, but have had different experiences with the transition, which makes them an interesting group for analyzing how business regulation, and institutions in general, affects economic outcomes.

The following 27 countries will be analysed: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Ukraine and Uzbekistan. The analysis will be done for the period 2004-2011, on the bilateral FDI inflows to these countries from 22 OECD countries (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Japan, Korea, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, UK, US). The ease of doing business will be measured by the scores of the individual DBI (that is, the native units, like days, number of documents and so on). 31 individual indicators will be considered.

[1] "doing business" search (in cyrillic transcription) on www.dnevnik.com.mk on 10 December 2014 gave 160 articles published since 2006, while "Steve Jobs" search (in cyrillic transcription) gave 120. Similar results were obtained on other daily newspapers' websites.

The analysis will be done using classical and Bayesian econometric techniques. The classical econometric technique that will be used is the Generalized Method of Moments (GMM), which is chosen due to the possible endogeneity in the regressions. Due to the uncertainty regarding the correct econometric model, arising from the high number of explanatory variables, the GMM analysis will be accompanied by a Bayesian technique. More precisely, Instrumental Variable Bayesian Model Averaging (IV-BMA) will be used, which accounts both for endogeneity and model uncertainty. Findings that are common for the two techniques will be considered as robust.

Two aspects of the business regulation appear significant according to the GMM analysis - the ease of trading across borders and the ease of paying taxes. The IV-BMA analysis also points at two aspects as important for the FDI - ease of trading across borders and enforcing contracts. Therefore, only trading across borders may be considered as a robust determinant of FDI. Five individual indicators are significant in at least one of the analyses - number of documents to import, number of tax payments, number of procedures to enforce a contract, cost of enforcing contracts and time to export. Only one of these refers to direct financial costs, while four of them refer to red tape. Therefore, it would seem that bureacratic impediments are more important to investors than direct financial costs.

The paper is structured as follows. Section 2 briefly overviews the existing literature on the effects of the ease of doing business. Section 3 reviews the existing theoretical and empirical literature on FDI, with the purpose to identify the variables that should be used in the regressions. Section 4 presents the model and the variables that will be used in the analysis. Section 5 describes the econometric approach. Section 6 presents the econometric results. Section 7 discusses the results. Section 8 concludes.

2. Literature overview

Rich literature exists on the effects of the ease of doing business. The "Doing Business" website reports more than 100 academic papers in 50 academic journals, as of December 2014. However, to our knowledge, only one paper has examined the effects of the ease of doing business in the ex-socialist countries, Petreski (2014). He focuses on the growth effects of the ease of doing business, in 30 ex-socialist countries, for the 2005-2011 period. The study finds that the ease of doing business matters for growth only if accompanied with better institutions. The study measures the ease of doing business by the aggregate index and by the 10 sub-indices.

Not many studies have investigated the role of the ease of doing business for FDI in other countries, either. To the knowledge of the authors, only three such papers exists, Jayasuriya (2011), Corcoran and Gillanders (2012) and Anderson and Gonzalez (2013). Jayasuriya (2011)

uses dynamic panel methods – the system Generalized Method of Moments technique developed by Blundell and Bond (1998), on a panel of 84 countries for a 4-years period (2006-2009), to regress the level of FDI inflows (in millions of USD) on a set of controls (including GDP growth, GDP per capita, inflation, openness and taxes) plus the overall Doing Business ranking of the country. The author finds that the Doing Business ranking affects positively FDI inflows for all the countries, but not for the sample of developing countries. Looking at individual indicators, enforcing contracts seem to be the most important aspect. Corcoran and Gillanders (2012) also investigate whether DBI affect FDI. They use two approaches - they analyze determinants of total cross-country FDI over 2004-2009, and determinants of FDI flows from the US during 2004-2008. They find that better DBI lead to higher FDI, with the most important component being the Ease of Trading Across Borders. Anderson and Gonzalez (2013) analyze if there is a relationship between FDI inflows and the Doing Business ranking of a country, on a sample of around 150 countries. They find that there is a positive correlation between the two, i.e. that countries that rank higher on the Doing Business rankings attract more FDI inflows per capita (in USD).

The main problem with these studies is that they measure the ease of doing business by the rankings of the indicators, not by the scores (the cardinal values). The use of the rankings is one of the biggest criticisms of the DBI, as pointed out by an independent panel of experts, appointed by the President of the World Bank Group (see Manuel et al. (2013)). In addition, there are several more drawbacks of these studies. Jayasuriya (2011) expresses the dependent variable in the regressions in absolute terms (in 100 millions of USD), which is problematic, because it does not consider the size of the economy (for instance, 100 millions of USD are a big amount for a small country like Macedonia, but negligible for a large economy, like Russia). Corcoran and Gillanders (2012) uses Ordinary Least Squares to estimate the regressions, which may result in biased and inconsistent estimates, because there might be endogeneity in the regressions, since FDI are likely to affect some of their explanatory variables, including the DBI. The results of Anderson and Gonzalez (2013) are pure correlations, authors correctly note, which means they cannot be interpreted in a causal way.

Differently from these three studies, we will use the native forms of the individual indicators (that is, their cardinal values, like days, number of documents and so on). This approach seems more realistic than the use of the rankings. When a company chooses between countries, it is more likely that it will examine all the aspects of the business regulation in details, not just look at the position of the country in the Doing Business ranking. In addition, we will express the dependent variable in logs, which eliminates scaling effects. Furthermore, we will use estimation techniques that account for the potential endogeneity between FDI and the DBI. Finally, in addition to the

classical econometric technique, we will use a Bayesian technique, too, which should address the issue of model uncertainty, arising from the high number of candidate explanatory variables.

3. Determinants of FDI

Many *theoretical* models have been developed for FDI. For an overview, see Faeth (1999), Assuncao, Forte and Teixeira (2011), Blonigen (2005) and Blonigen and Piger (2011). Early theories were based on the neoclassical trade theory, assumed perfect competition and tried to explain FDI by expected return on capital. Examples are the Heckscher-Ohlin model (Ohlin (1933)) and the MacDougall-Kemp model (MacDougall (1960) and Kemp (1966). Kindleberger (1969), Caves (1971) and Hymer (1976) criticized the neoclassical approach for its assumption of perfect competition. They argued that explanation of FDI needed structural market imperfections, and linked FDI to the theory of multinational enterprises, which possess ownership advantages such as product differentiation, managerial expertise, technology or economies of scale. Dunning (1981) proposed the OLI paradigm, which tries to explain firms' choice of FDI as depending on ownership (O), location (L) and internalization (I) considerations (ownership means that the company possesses specific technology or skill; location means that the company chooses markets where it can profit from lower costs or bigger size; internalization means that in the presence of imperfect information, firms decide to internalize their activities, instead of licensing). New Trade theories, starting from Helpman (1984) and Markusen (1984), developed general equilibrium models featuring differences in technology and factor endowments between countries in trying to explain FDI flows. Institutional theories suggest that political factors, like taxes, subsidies, ease of repatriation of profits, corruption and business regulation, are important determinants of FDI flows (Benassy-Quere, Coupet and Mayer (2007)).

Early *empirical* studies on FDI mainly investigate whether the predictions of the neoclassical trade theory hold in reality. These studies usually analyze the importance of the classical factors, such as factor endowments, relative factor costs and market size. Significant and positive effect of the market size was found by Kravis and Lipsey (1982), Wheeler and Mody (1992), Barrell and Pain (1996) and Love and Lage-Hidalgo (2000), among others. Relative factor prices were found to be significant determinants of FDI by Hughes and Oughton (1992), Pain (1993), Milner and Pentecost (1996) and Barrell and Pain (1996). Barrell and Pain (1996) also find that FDI depend on short run fluctuations in the nominal exchange rate (expected appreciation reduces investment in the current period).

In addition to the classical factors, Wheeler and Mody (1992) analyze whether FDI depend also on risk, openness and agglomeration economies (agglomeration economies comprise the quality of

infrastructure and the availability of specialized support activities). They find that the agglomeration factors are very important for FDI - the infrastructure quality for the developing countries, whereas the specialized support services for the industrial countries, but fail to find any evidence for the importance of the risk and openness variables.

More recent studies emphasize the importance of the institutional factors. Corrupted legal system and poor quality of institutions increase the cost of doing business and from here, reduces the FDI activity. Wei (2000) studies the relationship between the corruption and the country's ability to attract foreign capital. The central finding is that an increase in the degree of corruption results in smaller FDI flows. Negative and statistically significant relationship between corruption and FDI is also found by Asiedu (2006), Cleeve (2008) and Mohamed and Sidiropoulos (2010). Biswas (2002) also finds that the institutions that protect investment result in higher FDI. Benassy-Quere, Coupet and Mayer (2007) re-examine the importance of the institutions for FDI, using a new, detailed dataset consisting of 75 institutional variables. Their results point out to bureaucracy, corruption, information, banking sector and legal institutions as important determinants of inward FDI. Guerin and Manzocchi (2009) investigate the effect of political regime on FDI, finding that democracy has a positive effect on FDI.

4. Model and variables

Based on the presented theoretical and empirical literature, the model will include as main explanatory variables the variables presented in Table 1 (the data sources and the precise constructions of the variables are given in Table A1 in the Appendix). The models can be, therefore, considered as eclectic, originating from all the above explained theories.

Table 1: Macroeconomic variables used in the analysis

Variable name	Variable meaning	Explanation for the inclusion
gdp_parent	GDP in the parent country. In logarithms.	Bigger countries are likely to invest more in other countries
gdp_pc_parent	GDP per capita in the parent country. In logarithms.	More developed countries are likely to invest more in other countries
gdp_host	GDP in the host country. In logarithms.	Bigger countries are likely to attract more FDI
gdp_pc_host	GDP per capita in the host country. In logarithms.	According to the OLI paradigm, less developed countries are likely to attract more FDI.
distance	Distance between capital cities. In logarithms.	Higher distance = lower FDI
gdp_exp_gr	Expected GDP growth for the observed period, in %.	Higher expected GDP growth is likely to lead to higher investment and FDI. From the accelerator theory of investment.
ulc	Unit labor costs. In logarithms.	Lower labur costs are likely to lead to higher investment and FDI, according to the neoclassical trade theory.
inflation	Inflation during the observed period, in %.	Higher inflation implies higher user cost of capital (through the inflation tax), so is likely to lead to lower investment and FDI. From the neoclassical theory of investment.
openness	Exports plus imports, as a percent of GDP.	Higher openness is likely to lead to higher investment and FDI.
ner_euro_dep	Depreciation of the nominal exchange rate against the euro during the observed period, in %.	Higher depreciation represents higher price competitiveness, so is likely to lead to higher investment and FDI.
education	Secondary education enrollment, in %.	Higher enrollment represents better human capital, so is likely to lead to higher investment and FDI.
infrastructure	Percentage of paved roads.	More paved roads, i.e. better infrastructure, is likely to lead to higher investment and FDI.
tax	Corporate tax rate, in % of commercial profits.	Lower taxes imply lower user cost of capital, so are likely to lead to higher investment and FDI. From the neoclassical theory of investment.
promotion	Dummy if the country had an investment promotion agency with active promotion function.	Promotion is likely to attract FDI (Morisset (2003), Morisset and Andrews-Johnson (2003), and Cass (2007)).
eu	Dummy taking unitary value since it was announced that the host country will join the EU.	EU membership is likely to stimulate investment and FDI, as Breuss, Egger and Pfaffermayr (2010) point out.
fin_dev	Financial development, i.e. credit to private sector, % of GDP.	More developed financial markets are likely to lead to higher investment and FDI.
resources	Natural resources rent. In logarithms.	More natural resources may lead to lower investment and FDI, due to the "natural resource curse".
tech_sup	Technological superiority of the parent country over the host country.	According to the OLI paradigm, higher technological superiority of the parent country over the host country leads to higher FDI.

In addition to these main macroeconomic variables, the models will feature the Worldwide Governance indicators (WGI) and the Doing Business indicators of the World Bank (Table 2). The six WGI will be included with their cardinal values, that is, their estimates, not their percentile ranks. Nine sub-groups of the DBI will be included (the getting electricity indicators will be excluded, because they were introduced only in 2010). Similarly, some of the recent sub-indicators will be excluded, too, as a result of what a total of 31 sub-indicators will be considered, from the 52 available in 2014. The sub-groups of the DBI will be included one by one, with all the individual sub-indicator, in their native unit - days, hours, number of documents and so on. Summary statistics of the variables are presented in Tables A3-A4 in the appendix.

Table 2: WGI and DBI variables

Variable name	Variable meaning
voice	Voice and Accountability indicator of the WGI indicators. Estimate of the indicator, ranging from approximately -2.5 (weak) to 2.5 (strong) performance.
pol_stab	Political Stability and Absence of Violence indicator of the WGI indicators. Estimate of the indicator, ranging from approximately -2.5 (weak) to 2.5 (strong) performance.
reg_qual	Regulatory quality indicator of the WGI indicators. Estimate of the indicator, ranging from approximately -2.5 (weak) to 2.5 (strong) performance.
rule_law	Rule of law indicator of the WGI indicators. Estimate of the indicator, ranging from approximately -2.5 (weak) to 2.5 (strong) performance.
cont_cor	Control of corruption indicator of the WGI indicators. Estimate of the indicator, ranging from approximately -2.5 (weak) to 2.5 (strong) performance.
gov_eff	Government effectiveness indicator of the WGI indicators. Estimate of the indicator, ranging from approximately -2.5 (weak) to 2.5 (strong) performance.
sb_proc	Starting a business, procedures required (number).
sb_time	Starting a business, time (days).
sb_cost	Starting a business, cost (% of income per capita).
sb_min_cap	Starting a business, minimum capital (% of income per capita)
cp_proc	Construction permits, procedures required (number).
cp_time	Construction permits, time (days).
cp_cost	Construction permits, cost (% of income per capita).
rp_proc	Registering property, procedures required (number).
rp_time	Registering property, time (days).
rp_cost	Registering property, cost (% of property value).
gc_lr_index	Getting credit, legal rights index (0-10).
gc_dci_index	Getting credit, depth of credit information index (0-6).
gc_public_reg	Getting credit, public registry coverage (% of adults).
gc_pb_coverage	Getting credit, private bureau coverage (% of adults).
pi_ed_index	Protecting investors, extent of disclosure index (0-10).
pi_edl_index	Protecting investors, extent of director liability index (0-10).
pi_ess_index	Protecting investors, ease of shareholder suits index (0-10).
pt_payments	Paying taxes, payments (number).
pt_time	Paying taxes, time (hours).
tab_de	Trading across borders, documents to export (number).
tab_time_ex	Trading across borders, time to export (days).
tab_cost_ex	Trading across borders, cost to export (USD per container).
tab_di	Trading across borders, documents to import (number).
tab_time_im	Trading across borders, time to import (days).
tab_cost_im	Trading across borders, cost to import (USD per container).
ec_time	Enforcing contracts, time (days).
ec_cost	Enforcing contracts, cost (% of claim).
ec_proc	Enforcing contracts, procedures (number).
ri_time	Resolving insolvency, time (years).
ri_cost	Resolving insolvency, cost (% of estate).
ri_rrate	Resolving insolvency, recovery rate (cents on the dollar).

The analysis will be done on data on bilateral FDI flows from 22 OECD countries (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Japan, Korea, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, UK, US) to 27 ex-socialist countries (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Ukraine and Uzbekistan), during the period 2004-2011. The use of bilateral FDI flows should result in greater variability of the dependent variable, than the use of aggregate FDI inflows.

5. Methodology

There are two obvious econometric challenges in the analysis. The first is the endogeneity of the regressors. FDI do not only depend on the explanatory variables, but can also affect them - countries that attract more FDI are likely to improve their business regulation, as a result of the suggestions made by the foreign companies, for instance. To account for this issue, we will use estimation technique that accounts for endogeneity, that is, we will use the GMM technique, using lags of the explanatory variables as instruments for the endogenous variables. GDP and GDP per capita in the host country, unit labour costs, openness, natural resources rents, financial development and the WGI and DBI will be treated as endogenous variables, since FDI can affect them. The remaining variables will be treated as exogenous.

The second challenge is the high number of explanatory variables (56). To deal with this, we will apply a modeling strategy can be described as a stepwise general-to-specific approach (for more on the general-to-specific approach, see Hendry (2000), or Campos, Ericsson and Hendry (2005)). More precisely, we will first regress the dependent variable on all the macroeconomic variables at hand, and then we will remove the insignificant variables one by one, until we find a parsimonious specification in which all the regressors are significant. To this specification we then add all the WGI variables, and we exclude the insignificant ones one by one, until we again reach a parsimonious specification. Then, to this combination of macroeconomic and WGI variables, we add each of the 9 sub-groups of DBI one by one, and eliminate the insignificant indicators. Finally, we add all the significant DBI indicators in one regression, and eliminate the insignificant one by one. The DBI that remain significant after this final step can be considered as truly important for the FDI.

Because of the numerous zero observations for the bilateral FDI flows, the analysis will be effectively done only on the non-zero observations. Consequently, the sample on which the analysis will be done will not be random, i.e. a sample selection bias might emerge. To account for this,

the Heckman (1979) two-step estimation will be applied. In the first step, the selection equation will be estimated, by regressing a dummy for the non-zero FDI observations on all the variables entering the main model, plus a dummy variable for country pairs that had FDI in 2002-2003 (the latter variable is needed to satisfy the exclusion restriction, because, to obtain credible estimates, the selection equation should include at least one variable that is not included in the equation of interest[2]). In the second step of the analysis, the regression for the determinants of FDI will be estimated, using GMM. In addition to the explained explanatory variables, the regression will feature the inverse Mills ratio from the first-step regression as an additional regressor, to control for the selection bias. Significance of the inverse Mills ratio points out to existence of sample selection bias.

This analysis, then, will be followed by a Bayesian analysis, in order to address the issue of the model uncertainty, arising from the high number of explanatory variables, more rigorously. More precisely, Instrumental Variable Bayesian Model Averaging (IV-BMA) will be used in the second stage of the analysis. This technique has been proposed by Karl and Lenkoski (2012). It introduces model averaging in a two-stage linear regression framework. Basically, it estimates many different models of all the possible variable combinations, using Bayesian techniques, and then weights the results of the different models by their goodness of fit. Inference is usually based on the posterior model probability, PIP, which, loosely speaking, is the probability that a variable is significant (with PIP above 0.5 indicating significance), and on the posterior mean, which can be treated as the size of the effect.

6. Results

6.1. **GMM results.** We first present the GMM results. The results of the selection equation, which is used to construct the inverse Mills ratio, are shown in the Appendix, Table A2. Table 3 below shows the results of the specifications with the macroeconomic variables. The final specification is shown in column 9. The inverse Mills ratio (lambda) is significant in all the regressions, pointing out that there is a selection bias, and that failure to control for it is likely to lead to wrong inference.

All the five gravity variables - parent GDP, parent GDP per capita, host GDP, host GDP per capita and distance, are significant. The positive coefficients on parent GDP and parent GDP per capita suggest that bigger and more developed countries tend to have higher FDI outflows. The

[2]The dummy for non-zero FDI in 2002-2003 is likely to affect the probability for non-zero FDI in 2008-2011 because of the persistence in the economic relations. On the other hand, the exclusion criterion should also be satisfied, because the amout of FDI flows between two countries in 2008-2011 need not be correlated with the very existence of FDI relations six years ago.

positive coefficient on host GDP suggests that the size of the host market is an important factor for attracting FDI, while the negative coefficient on host GDP per capita implies that less developed countries receive more FDI, probably because of the higher return on capital there. The negative distance coefficient implies that FDI between two countries will be higher the closer they are to each other.

Four additional macroeconomic variables stand out as significant - natural resources, financial development, the tax rate and EU membership. The effect of the natural resources appears sizeable - a country that has rents from natural resources equal to the 75th percentile of the variable (e.g. Romania)[3] will have around 80 percent higher FDI, on average, ceteris paribus, than a country on the 25h percentile of the distribution (Serbia)[4]. Financial development also seems important - a country with domestic credits to the private sector of 63 percent (like Croatia), will attract approximately 26 percent higher FDI than a country with credit/GDP of 37 percent (like Moldova). The effect of the total tax rate is such that a country with lower total tax by 10 percentage points (p.p.) has 13 percent higher FDI. Demekas et al. (2007) also find that the tax rate is important for FDI in these countries. This result points out that lower taxes are one direct measure that governments can use in order to attract FDI. Many ex-socialist countries have actually used this measure in the past decade, including the home country of the authors, Macedonia, which substantially lowered its corporate tax rate starting in 2008. The effect is found to be relatively low, however, questioning the appropriateness of such measures, given the adverse effects they may have on income distribution. The EU membership effect is found to be very strong - once a country is announced to join the EU, its FDI inflows increase by two-and-a-half times. Breuss, Egger and Pfaffermayr (2010) find sizeable EU membership effects, too.

It is also interesting to observe which factors appear irrelevant for the FDI. The most interesting one seems to be the unit labour costs. Bevan and Estrin (2004), Carstensen and Toubal (2004), Demekas et al. (2007) and Leibrecht and Scharler (2009) have found the unit labour costs to be significant for FDI in these countries. Since the main focus of this study are not the labour costs, we will not investigate more thoroughly why our findings differ. Investment promotion agencies are also found to be irrelevant for attracting FDI. The explanation may be that most of these countries have investment promotion agencies with a promotion function (15 of 27), as a result of what the investors are already well informed about the situation. Another factor that is often considered important for FDI appears insignificant - education. This might be explained by the fact that all these countries have relatively well educated populations, measured through our variable, the

[3]The interquartile ranges for all the variables, as well as other descriptive statistics, can be seen in Tables A3 and A4 in the Appendix.

[4]$exp(0.22 * 15.5) - 1 = 29.3$. All the other effects are calculated in the same way.

Table 3: Macroeconomic determinants of FDI

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
gdp_pc_host	-0.71**	-0.56**	-0.67***	-0.71***	-0.65***	-0.69***	-0.66***	-0.61***	-0.49***
	(0.284)	(0.268)	(0.252)	(0.245)	(0.227)	(0.227)	(0.216)	(0.201)	(0.183)
gdp_host	0.61**	0.73***	0.90***	0.87***	0.92***	0.81***	0.80***	0.79***	0.81***
	(0.255)	(0.225)	(0.201)	(0.185)	(0.163)	(0.146)	(0.141)	(0.143)	(0.144)
ulc	0.51								
	(0.334)								
openness	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)		
resources	0.41**	0.29**	0.20*	0.23**	0.21**	0.27***	0.27***	0.25***	0.22***
	(0.167)	(0.132)	(0.117)	(0.101)	(0.098)	(0.090)	(0.089)	(0.078)	(0.076)
fin_dev	0.00	0.01	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**	0.01**
	(0.008)	(0.008)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
promotion	0.00	0.11	0.08	0.12					
	(0.249)	(0.242)	(0.244)	(0.235)					
distance	-1.51***	-1.52***	-1.52***	-1.52***	-1.52***	-1.54***	-1.54***	-1.53***	-1.54***
	(0.101)	(0.101)	(0.102)	(0.102)	(0.101)	(0.102)	(0.102)	(0.101)	(0.100)
gdp_pc_parent	2.10***	2.07***	2.08***	2.08***	2.09***	2.12***	2.12***	2.10***	2.11***
	(0.208)	(0.208)	(0.208)	(0.208)	(0.207)	(0.206)	(0.206)	(0.205)	(0.205)
gdp_parent	0.70***	0.69***	0.69***	0.69***	0.70***	0.70***	0.70***	0.70***	0.70***
	(0.052)	(0.052)	(0.052)	(0.053)	(0.052)	(0.053)	(0.053)	(0.052)	(0.051)
gdp_exp_gr	-0.07	-0.06	-0.02						
	(0.051)	(0.050)	(0.06)						
tax	-0.01*	-0.02***	-0.01**	-0.01***	-0.02***	-0.01***	-0.01***	-0.01***	-0.01***
	(0.007)	(0.007)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
inflation	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	
	(0.022)	(0.022)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	
ner_euro_dep	-0.00	-0.00	-0.01	-0.01	-0.01	-0.01			
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)			
education	-0.01	-0.00	-0.01						
	(0.020)	(0.020)	(0.019)						
infrastructure	-0.00	-0.00	-0.00	-0.00	-0.00				
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)				
eu	1.28***	1.00***	0.96***	0.97***	0.97***	1.18***	1.19***	1.21***	1.26***
	(0.287)	(0.217)	(0.217)	(0.216)	(0.216)	(0.183)	(0.182)	(0.179)	(0.175)
tech_sup	0.44***	0.50***	0.50***	0.50***	0.49***	0.48***	0.48***	0.49***	0.48***
	(0.140)	(0.134)	(0.134)	(0.134)	(0.133)	(0.134)	(0.134)	(0.134)	(0.133)
lambda	-1.69***	-1.74***	-1.77***	-1.76***	-1.66***	-1.62***	-1.64***	-1.76***	-1.60***
	(0.519)	(0.519)	(0.517)	(0.518)	(0.460)	(0.460)	(0.461)	(0.430)	(0.405)
Constant	-42.61***	-45.63***	-46.36***	-46.97***	-48.32***	-47.48***	-47.40***	-46.70***	-47.94***
	(4.504)	(4.104)	(4.090)	(4.068)	(3.264)	(3.219)	(3.221)	(3.160)	(3.004)
Observations	919	919	919	919	919	919	919	919	919
R-squared	0.551	0.549	0.547	0.547	0.548	0.546	0.546	0.546	0.546

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

percentage of people that enroll secondary schools (the average value is 93 percent, while the lowest one is 83). Potentially better variables for the quality of the education, like PISA scores, would drastically reduce the sample size, since not all of these countries have participated in the PISA project. Finally, the road infrastructure does not seem to affect the FDI. This might actually be due to other variables capturing the effect of the infrastructure (EU membership, GDP per capita).

In the next step, we add the governance (institutions) indicators to this specification. These results are shown in Table 4. It can be seen that governance does not seem to be important for the investment[5].

[5]The WGI remain insignificant even when they are included not with their estimate values, but other forms, like the percentile rank, or dummies for high or low values of the indicator.

Table 4: FDI and governance indicators

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
gdp_pc_host	-0.49***	-0.25	-0.33	-0.84***	-0.74***	-0.71***	-0.65***
	(0.183)	(0.428)	(0.419)	(0.252)	(0.243)	(0.231)	(0.212)
gdp_host	0.81***	0.92***	0.95***	0.93***	0.81***	0.82***	0.83***
	(0.144)	(0.183)	(0.179)	(0.177)	(0.162)	(0.146)	(0.145)
resources	0.22***	0.14	0.15	0.20*	0.26**	0.25***	0.23***
	(0.076)	(0.115)	(0.116)	(0.112)	(0.105)	(0.087)	(0.077)
fin_dev	0.01**	0.01	0.01*	0.01**	0.01*	0.01**	0.01**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
distance	-1.54***	-1.53***	-1.54***	-1.55***	-1.54***	-1.54***	-1.54***
	(0.100)	(0.100)	(0.099)	(0.100)	(0.099)	(0.100)	(0.100)
gdp_pc_parent	2.11***	2.08***	2.10***	2.12***	2.11***	2.12***	2.11***
	(0.205)	(0.206)	(0.205)	(0.206)	(0.206)	(0.205)	(0.204)
gdp_parent	0.70***	0.69***	0.69***	0.70***	0.70***	0.70***	0.70***
	(0.051)	(0.051)	(0.050)	(0.051)	(0.051)	(0.051)	(0.051)
tax	-0.01***	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**
	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
eu	1.26***	0.76*	0.66*	1.07***	0.93***	0.92***	0.95***
	(0.175)	(0.401)	(0.393)	(0.296)	(0.260)	(0.259)	(0.253)
tech_sup	0.48***	0.47***	0.46***	0.47***	0.47***	0.47***	0.48***
	(0.133)	(0.135)	(0.134)	(0.134)	(0.134)	(0.135)	(0.132)
lambda	-1.60***	-1.75***	-1.69***	-1.63***	-1.54***	-1.52***	-1.55***
	(0.405)	(0.428)	(0.421)	(0.423)	(0.417)	(0.405)	(0.404)
voice		-0.25	-0.38	-0.40			
		(0.319)	(0.299)	(0.299)			
pol_stab		0.11	0.17	0.16	0.10	0.11	
		(0.226)	(0.221)	(0.220)	(0.213)	(0.214)	
reg_qual		0.69	0.89*	0.46	0.30	0.39	0.40
		(0.484)	(0.454)	(0.367)	(0.359)	(0.245)	(0.244)
rule_law		0.76	0.55	0.18	0.12		
		(0.492)	(0.454)	(0.388)	(0.382)		
cont_cor		-0.46					
		(0.375)					
gov_effect		-0.81	-0.97				
		(0.604)	(0.596)				
Constant	-47.94***	-50.07***	-50.59***	-47.14***	-46.85***	-47.22***	-47.33***
	(3.004)	(4.163)	(4.149)	(3.495)	(3.490)	(3.084)	(3.053)
Observations	919	919	919	919	919	919	919
R^2	0.546	0.550	0.550	0.548	0.548	0.547	0.547

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In the following step, we add the sub-groups of the Doing Business one by one. Table 5 shows the results of the specifications with the Starting Business (prefix 'SB'), Construction Permits (prefix 'CP') and Registering Property (prefix 'RP') indicators. From the starting business indicators, the only significant one is the cost of starting a business (sb_cost). From the Construction Permits indicators, the cost of obtaining a permit is significant. From the registering property indicators, again, the cost of registering is significant.

Table 5: FDI and first three sub-groups of Doing Business indicators

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
gdp_pc_host	-0.49***	-0.45*	-0.54***	-0.49**	-0.49**	-0.83***	-0.83***	-0.72***	-0.68**	-0.73***	-0.67***
	(0.183)	(0.235)	(0.199)	(0.197)	(0.197)	(0.286)	(0.283)	(0.229)	(0.307)	(0.207)	(0.203)
gdp_host	0.81***	0.89***	0.89***	0.84***	0.84***	1.02***	1.02***	1.01***	1.08***	1.07***	1.11***
	(0.144)	(0.172)	(0.172)	(0.173)	(0.172)	(0.216)	(0.211)	(0.210)	(0.203)	(0.202)	(0.198)
resources	0.22***	0.17*	0.19**	0.21**	0.21**	0.11	0.11	0.10	0.09	0.10	0.07
	(0.076)	(0.092)	(0.082)	(0.083)	(0.083)	(0.114)	(0.109)	(0.109)	(0.112)	(0.106)	(0.102)
fin_dev	0.01**	0.01	0.01*	0.01**	0.01**	0.00	0.00	0.00	0.01	0.01	0.01
	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
sb_proc		-0.04									
		(0.061)									
sb_time		0.01	0.01								
		(0.007)	(0.006)								
sb_cost		-0.02	-0.02*	-0.02	-0.02						
		(0.012)	(0.012)	(0.012)	(0.010)						
sb_min_cap		0.00	-0.00	0.00							
		(0.002)	(0.001)	(0.001)							
distance	-1.54***	-1.67***	-1.67***	-1.66***	-1.66***	-1.59***	-1.59***	-1.60***	-1.58***	-1.58***	-1.59***
	(0.100)	(0.111)	(0.111)	(0.112)	(0.111)	(0.142)	(0.141)	(0.143)	(0.118)	(0.117)	(0.119)
gdp_pc_parent	2.11***	2.20***	2.21***	2.20***	2.20***	2.17***	2.17***	2.16***	2.03***	2.03***	2.02***
	(0.205)	(0.220)	(0.220)	(0.221)	(0.216)	(0.258)	(0.258)	(0.258)	(0.236)	(0.236)	(0.237)
gdp_parent	0.70***	0.73***	0.74***	0.73***	0.73***	0.61***	0.61***	0.60***	0.63***	0.63***	0.63***
	(0.051)	(0.054)	(0.054)	(0.055)	(0.054)	(0.068)	(0.068)	(0.067)	(0.059)	(0.059)	(0.059)
tax	-0.01***	-0.02***	-0.02***	-0.01***	-0.01***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.009)	(0.009)	(0.008)	(0.007)	(0.006)	(0.005)
eu	1.26***	1.24***	1.32***	1.32***	1.32***	1.55***	1.55***	1.45***	1.46***	1.50***	1.44***
	(0.175)	(0.219)	(0.183)	(0.182)	(0.178)	(0.270)	(0.269)	(0.229)	(0.249)	(0.206)	(0.205)
tech_sup	0.48***	0.53***	0.53***	0.54***	0.54***	0.43**	0.43**	0.46**	0.53***	0.53***	0.56***
	(0.133)	(0.148)	(0.148)	(0.149)	(0.146)	(0.180)	(0.180)	(0.180)	(0.164)	(0.163)	(0.159)
lambda	-1.60***	-1.22***	-1.16***	-1.30***	-1.30***	-1.09**	-1.09**	-1.14**	-1.25***	-1.25***	-1.33***
	(0.405)	(0.442)	(0.439)	(0.436)	(0.433)	(0.506)	(0.505)	(0.501)	(0.459)	(0.459)	(0.460)
cp_proc						-0.04**	-0.04**	-0.03**			
						(0.021)	(0.021)	(0.017)			
cp_time						0.00	0.00				
						(0.001)	(0.001)				
cp_cost						-0.00					
						(0.000)					
rp_proc									-0.08*	-0.09**	-0.09***
									(0.045)	(0.034)	(0.034)
rp_time									0.00	0.00	
									(0.001)	(0.001)	
rp_cost									-0.02		
									(0.083)		
Constant	-47.94***	-49.53***	-49.64***	-49.00***	-48.99***	-43.25***	-43.23***	-43.53***	-45.74***	-45.41***	-45.93***
	(3.004)	(3.157)	(3.162)	(3.165)	(3.156)	(4.151)	(4.087)	(4.046)	(3.771)	(3.478)	(3.469)
Observations	919	844	844	844	844	519	519	519	678	678	678
R^2	0.546	0.544	0.543	0.541	0.541	0.538	0.538	0.537	0.532	0.532	0.529

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6 shows the results for the next three groups of indicators - Getting Credit (GC), Protecting Investors (PI) and Paying Taxes (PT). None of the Getting Credit indicators is significant. Two Protecting Investors indices are significant - Extent of Director Liability and Extent of Shareholder Suits. Turning to the Paying Taxes indicators, the only significant indicator is the number of payments.

Table 7 shows the results of the specifications with the last three sub-groups of DBI - Trading Across Borders (TAB), Enforcing Contracts (EC) and Resolving Insolvency (RI). From the Trading Across Borders indicators, the most important one seems to be the number of documents to export[6]. From the Enforcing Contracts variables, the cost appears significant. Finally, from the Resolving Insolvency indicators, the recovery rate is significant.

Finally, we include all the DBI that were found to be significant so far in one joint regression, and exclude the insignificant ones one by one. Table 8 shows these results. It can be seen that only the number of payments from the Paying Taxes sub-group (pt_payments) and the number of documents to import, from the Trading Across Borders sub-group (tab_di) remain significant. The effect of the paying taxes is sizeable and points out that investors are destimulated by bureaucracy - a country with 15 payments per year (e.g. Lithuania) is likely to have around 30% higher FDI inflows than a country with 66 payments (e.g. Montenegro). The effect of the trading across borders indicator is sizeable, too, suggesting that a country that requires 9 documents to import will have 40% lower FDI than a country that requires 6 documents to import.

[6]The Time to Export (tab_time_ex) indicator has been excluded due to a wrong sign, most probably due to high correlation with the Documents to Export (tab_doc_ex) indicator.

Table 6: FDI and second three sub-groups of Doing Business indicators

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
gdp_pc_host	-0.49***	-0.86**	-0.98***	-0.90***	-0.66***	-0.53	-0.87***	-0.70***	-0.57**	-0.53**
	(0.183)	(0.418)	(0.377)	(0.313)	(0.217)	(0.407)	(0.271)	(0.219)	(0.223)	(0.219)
gdp_host	0.81***	0.80***	0.84***	0.84***	0.83***	0.95***	0.90***	0.85***	1.19***	1.09***
	(0.144)	(0.256)	(0.206)	(0.206)	(0.205)	(0.223)	(0.226)	(0.218)	(0.233)	(0.215)
resources	0.22***	0.29**	0.30**	0.28**	0.23**	0.15	0.18*	0.19*	0.01	0.05
	(0.076)	(0.142)	(0.118)	(0.112)	(0.103)	(0.108)	(0.109)	(0.108)	(0.120)	(0.113)
fin_dev	0.01**	0.01	0.01*	0.01*	0.01*	0.01	0.01	0.01	0.01*	0.01
	(0.004)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
gc_lr_index		-0.02	-0.02							
		(0.048)	(0.045)							
gc_dci_index		-0.07	-0.10	-0.09						
		(0.149)	(0.091)	(0.086)						
gc_public_reg		-0.01								
		(0.033)								
gc_pb_coverage		0.01	0.01	0.01	0.00					
		(0.010)	(0.008)	(0.006)	(0.005)					
distance	-1.54***	-1.50***	-1.52***	-1.52***	-1.54***	-1.56***	-1.52***	-1.54***	-1.58***	-1.58***
	(0.100)	(0.143)	(0.140)	(0.139)	(0.137)	(0.148)	(0.140)	(0.140)	(0.140)	(0.139)
gdp_pc_parent	2.11***	2.21***	2.14***	2.14***	2.13***	2.15***	2.14***	2.13***	2.08***	2.07***
	(0.205)	(0.276)	(0.274)	(0.272)	(0.271)	(0.258)	(0.257)	(0.258)	(0.265)	(0.264)
gdp_parent	0.70***	0.64***	0.65***	0.65***	0.65***	0.60***	0.59***	0.59***	0.58***	0.58***
	(0.051)	(0.069)	(0.068)	(0.067)	(0.067)	(0.067)	(0.067)	(0.067)	(0.069)	(0.068)
tax	-0.01***	-0.01	-0.02***	-0.02***	-0.02***	-0.03***	-0.03***	-0.02***	-0.01	-0.01
	(0.004)	(0.019)	(0.006)	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
eu	1.26***	1.57***	1.66***	1.55***	1.44***	1.21***	1.53***	1.45***	1.04***	1.20***
	(0.175)	(0.345)	(0.347)	(0.239)	(0.228)	(0.361)	(0.237)	(0.224)	(0.264)	(0.225)
tech_sup	0.48***	0.38**	0.40**	0.39**	0.43**	0.42**	0.39**	0.42**	0.53***	0.54***
	(0.133)	(0.186)	(0.183)	(0.184)	(0.181)	(0.183)	(0.180)	(0.178)	(0.179)	(0.178)
lambda	-1.60***	-1.35**	-1.35**	-1.28**	-1.33**	-1.12**	-1.30***	-1.22**	-1.37***	-1.46***
	(0.405)	(0.542)	(0.541)	(0.517)	(0.519)	(0.515)	(0.496)	(0.489)	(0.496)	(0.487)
pi_ed_index						0.02	-0.04			
						(0.058)	(0.033)			
pi_edl_index						0.12***	0.10**	0.11**		
						(0.043)	(0.041)	(0.042)		
pi_ess_index						0.14				
						(0.122)				
pt_payments									-0.01**	-0.01***
									(0.004)	(0.002)
pt_time									0.00	
									(0.000)	
Constant	-47.94***	-45.58***	-44.61***	-45.29***	-45.81***	-47.63***	-42.70***	-43.25***	-47.62***	-46.10***
	(3.004)	(4.508)	(4.400)	(4.031)	(3.984)	(5.742)	(4.208)	(4.170)	(4.273)	(3.957)
Observations	919	553	565	565	565	519	519	519	519	519
R^2	0.546	0.503	0.512	0.512	0.513	0.541	0.539	0.538	0.536	0.536

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

TABLE 7: FDI AND LAST THREE SUB-GROUPS OF DOING BUSINESS INDICATORS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
gdp_pc_host	-0.49***	-0.02	0.09	0.08	0.00	-0.56**	-0.56**	-0.39*	-0.44**	-0.47**	-0.40**	-0.43**	-0.44**
	(0.183)	(0.360)	(0.320)	(0.320)	(0.291)	(0.220)	(0.221)	(0.206)	(0.196)	(0.197)	(0.204)	(0.195)	(0.195)
gdp_host	0.81***	0.84***	0.85***	0.85***	0.84***	0.94***	0.94***	0.86***	0.86***	0.95***	0.85***	0.86***	0.98***
	(0.144)	(0.222)	(0.216)	(0.215)	(0.215)	(0.218)	(0.208)	(0.174)	(0.174)	(0.168)	(0.196)	(0.193)	(0.167)
resources	0.22***	0.18	0.17	0.18*	0.19*	0.05	0.05	0.18**	0.21**	0.15*	0.16	0.16	0.10
	(0.076)	(0.117)	(0.115)	(0.105)	(0.105)	(0.111)	(0.113)	(0.091)	(0.089)	(0.086)	(0.099)	(0.099)	(0.088)
fin_dev	0.01**	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01*	0.01	0.01	0.00
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
tab_de		0.15											
		(0.374)											
tab_time_ex		0.08**	0.09***	0.08***	0.07***								
		(0.033)	(0.029)	(0.026)	(0.022)								
tab_cost_ex		-0.00	-0.00										
		(0.001)	(0.001)										
tab_di		-0.39	-0.30**	-0.31**	-0.33**	-0.18	-0.18**						
		(0.324)	(0.154)	(0.152)	(0.153)	(0.122)	(0.090)						
tab_time_im		-0.01	-0.02	-0.01									
		(0.041)	(0.024)	(0.019)									
tab_cost_im		-0.00	-0.00	-0.00***	-0.00***	-0.00							
		(0.001)	(0.001)	(0.000)	(0.000)	(0.000)							
distance	-1.54***	-1.62***	-1.62***	-1.63***	-1.64***	-1.58***	-1.58***	-1.65***	-1.66***	-1.65***	-1.65***	-1.65***	-1.66***
	(0.100)	(0.147)	(0.147)	(0.147)	(0.147)	(0.142)	(0.141)	(0.107)	(0.107)	(0.108)	(0.109)	(0.109)	(0.109)
gdp_pc_parent	2.11***	2.17***	2.18***	2.20***	2.21***	2.20***	2.20***	2.18***	2.18***	2.16***	2.12***	2.13***	2.14***
	(0.205)	(0.265)	(0.267)	(0.264)	(0.266)	(0.269)	(0.264)	(0.214)	(0.214)	(0.218)	(0.214)	(0.213)	(0.215)
gdp_parent	0.70***	0.64***	0.64***	0.65***	0.65***	0.61***	0.61***	0.73***	0.73***	0.72***	0.71***	0.71***	0.71***
	(0.051)	(0.068)	(0.069)	(0.067)	(0.067)	(0.068)	(0.068)	(0.054)	(0.054)	(0.054)	(0.054)	(0.053)	(0.053)
tax	-0.01***	-0.00	-0.00	-0.00	-0.00	-0.02**	-0.02**	-0.02***	-0.02***	-0.02***	-0.01	-0.01*	-0.02***
	(0.004)	(0.010)	(0.010)	(0.010)	(0.009)	(0.008)	(0.008)	(0.005)	(0.004)	(0.004)	(0.006)	(0.006)	(0.004)
eu	1.26***	1.10***	1.00***	1.04***	1.04***	1.15***	1.15***	1.15***	1.23***	1.33***	1.33***	1.32***	1.30***
	(0.175)	(0.363)	(0.274)	(0.250)	(0.250)	(0.235)	(0.239)	(0.197)	(0.179)	(0.178)	(0.179)	(0.179)	(0.177)
tech_sup	0.48***	0.39**	0.38**	0.36**	0.36*	0.38**	0.38**	0.54***	0.55***	0.58***	0.58***	0.57***	0.59***
	(0.133)	(0.181)	(0.183)	(0.183)	(0.185)	(0.185)	(0.182)	(0.145)	(0.145)	(0.145)	(0.143)	(0.144)	(0.143)
lambda	-1.60***	-0.50	-0.46	-0.39	-0.38	-1.01*	-1.02*	-1.20***	-1.23***	-1.53***	-1.59***	-1.55***	-1.42***
	(0.405)	(0.543)	(0.557)	(0.557)	(0.560)	(0.535)	(0.529)	(0.419)	(0.418)	(0.416)	(0.447)	(0.430)	(0.410)
ec_time								0.00***	0.00***				
								(0.000)	(0.000)				
ec_cost								-0.02*	-0.02*	-0.02**			
								(0.010)	(0.010)	(0.010)			
ec_proc								-0.02					
								(0.017)					
ri_time											-0.17	-0.16	
											(0.117)	(0.110)	
ri_cost											-0.00		
											(0.009)		
ri_rrate											0.01	0.01*	0.02***
											(0.009)	(0.008)	(0.006)
Constant	-47.94***	-48.65***	-49.59***	-50.13***	-49.09***	-42.56***	-42.51***	-48.34***	-49.31***	-49.40***	-47.69***	-47.91***	-50.01***
	(3.004)	(5.176)	(4.486)	(4.518)	(4.230)	(4.495)	(4.250)	(3.302)	(3.124)	(3.138)	(3.639)	(3.559)	(3.165)
Observations	919	519	519	519	519	519	519	844	844	844	844	844	844
R^2	0.546	0.531	0.535	0.534	0.531	0.522	0.521	0.548	0.548	0.543	0.547	0.547	0.546

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: All significant DBI together

	(1)	(2)	(3)	(4)	(5)	(6)
gdp_pc_host	-0.39	-0.49*	-0.48*	-0.44*	-0.44**	-0.46**
	(0.336)	(0.275)	(0.264)	(0.227)	(0.223)	(0.222)
gdp_host	1.09***	1.13***	1.15***	1.11***	1.11***	1.11***
	(0.267)	(0.263)	(0.236)	(0.212)	(0.212)	(0.211)
resources	-0.04	-0.05	-0.07	-0.05	-0.05	-0.07
	(0.156)	(0.160)	(0.124)	(0.124)	(0.125)	(0.126)
fin_dev	0.01	0.00	0.00	0.00	0.00	0.01
	(0.007)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
cp_proc	0.03					
	(0.037)					
rp_proc	-0.04	-0.03	-0.03			
	(0.066)	(0.069)	(0.072)			
pi_edl_index	0.03	0.01				
	(0.059)	(0.064)				
pt_payments	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.002)
tab_di	-0.15	-0.12	-0.12	-0.13	-0.13	-0.17*
	(0.140)	(0.118)	(0.107)	(0.098)	(0.092)	(0.087)
ec_cost	-0.00	-0.01	-0.01	-0.00		
	(0.018)	(0.018)	(0.019)	(0.018)		
ri_rrate	0.01	0.01	0.01	0.01	0.01	
	(0.017)	(0.016)	(0.016)	(0.013)	(0.012)	
distance	-1.55***	-1.59***	-1.59***	-1.59***	-1.59***	-1.59***
	(0.141)	(0.139)	(0.138)	(0.138)	(0.138)	(0.137)
gdp_pc_parent	2.08***	2.10***	2.10***	2.10***	2.10***	2.10***
	(0.265)	(0.266)	(0.267)	(0.264)	(0.264)	(0.266)
gdp_par	0.58***	0.59***	0.59***	0.59***	0.59***	0.59***
	(0.068)	(0.067)	(0.068)	(0.067)	(0.067)	(0.067)
tax	-0.01	-0.02	-0.01	-0.01	-0.01	-0.01
	(0.016)	(0.012)	(0.010)	(0.010)	(0.009)	(0.008)
eu	1.08**	1.19***	1.18***	1.12***	1.10***	1.00***
	(0.453)	(0.379)	(0.348)	(0.298)	(0.274)	(0.252)
tech_sup	0.51***	0.53***	0.53***	0.53***	0.53***	0.53***
	(0.184)	(0.183)	(0.179)	(0.176)	(0.176)	(0.177)
lambda	-1.31***	-1.18**	-1.19**	-1.18**	-1.18**	-1.18**
	(0.497)	(0.504)	(0.516)	(0.511)	(0.510)	(0.515)
Constant	-45.45***	-44.03***	-44.20***	-44.46***	-44.39***	-43.14***
	(4.535)	(4.413)	(4.426)	(4.462)	(4.415)	(4.211)
Observations	519	519	519	519	519	519
R^2	0.534	0.537	0.536	0.535	0.535	0.530

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

6.2. **IV-BMA results.** We next turn to the IV-BMA analysis. IV-BMA introduces Bayesian Model Averaging (BMA) into two-stage linear regression framework. It estimates many (or all) the possible models (i.e. different combinations of the explanatory variables), using Bayesian instrumental variables technique, and then weights them by their goodness of fit, to produce

results. This technique has been proposed recently by Karl and Lenkoski (2012), where a more detailed elaboration can be found. As in standard BMA, inference is usually based on the grounds of the posterior inclusion probability (PIP). Values of PIP exceeding 0.5 indicate significance of a certain variable.

The variables that are included in the IV-BMA are the same as above (i.e. all the 56 variables, plus the Inverse Mills ratio are included), and the same classification of the endogenous and exogenous variables is used. To conserve space, we will not report all the estimation details, but only the PIPs and the posterior means and standard errors of the variables. The results from the first stage regressions, as well as the other statistics, are available upon request. The results were obtained using 5000 draws and 500 burn-ins.

There are some similarities between these results and the GMM results regarding the macroeconomic determinants of FDI - the parent country GDP and GDP per capita, as well as the distance, are significant again, with very similar magnitudes of the effects. There are some notable differences, too - the host country GDP and GDP per capita are insignificant in the IV-BMA analysis. as well as the resources, the financial development, the tax rate, the technological superiority and the EU dummy. Instead of them, the unit labour costs and the education are significant now (with opposite than expected signs), together with two governance indicators - voice and accountability and government effectiveness (which have expected signs). Some of these differences are due to multicollinearity - voice and accountability and governments effectiveness are highly correlated with financial development and GDP per capita in the host country.

Turning to the DBI, it can be seen that three of the indicators are significant - time to export (from the trading across borders sub-group), and cost and number of procedures required to enforce a contract. The effect of the time to export is such that a country on the 75th percentile, where 27 days are needed to export (Croatia), will have approximately 80% lower FDI than a country where 13 days are needed (Romania). The effect of the cost of enforcing contracts is sizeable, indicating that a country which the costs of enforcing contract are 26% of the claim (Estonia), will have around 57% lower FDI than a country in which this cost is 19% (Armenia). The effect of the number of procedures required to enforce a contract is even stronger, suggesting that a country requiring 38 procedures to enforce a contract (Serbia) will have 93% lower FDI than a country requiring 30 procedures (Slovakia).

TABLE 9 - IV-BMA RESULTS

	Prob.	Mean.
sb_proc	0.37	-0.08
sb_time	0.05	0.00
sb_cost	0.00	0.00
sb_min_cap	0.00	0.00
cp_proc	0.24	-0.02
cp_time	0.00	0.00
cp_cost	0.00	0.00
rp_proc	0.04	0.00
rp_time	0.00	0.00
rp_cost	0.06	0.00
gc_lr_index	0.25	-0.01
gc_dci_index	0.07	0.00
gc_public_reg	0.41	0.05
gc_pb_coverage	0.00	0.00
pi_ed_index	0.41	0.13
pi_edl_index	0.37	-0.10
pi_ess_index	0.49	-0.05
pt_payments	0.17	-0.01
pt_time	0.00	0.00
tab_de	0.32	-0.05
tab_time_ex	**0.87**	**-0.11**
tab_cost_ex	0.00	0.00
tab_di	0.31	0.07
tab_time_im	0.04	0.00
tab_cost_im	0.00	0.00
ec_time	0.00	0.00
ec_cost	**0.65**	**-0.12**
ec_proc	**1.00**	**-0.34**
ri_time	0.32	-0.11
ri_cost	0.44	-0.09
ri_rrate	0.02	0.00
gdp_pc_host	0.34	0.00
gdp_host	0.31	-0.04
ulc	**0.50**	**0.22**
openness	0.39	-0.02
fin_dev	0.05	0.00
resources	0.14	0.00
promotion	0.30	-0.09
distance	**1.00**	**-1.50**
gdp_pc_parent	**1.00**	**2.23**
gdp_parent	**1.00**	**0.64**
tax	0.03	0.00
inflation	0.05	0.00
ner_euro_dep	0.05	0.00
education	**1.00**	**-0.31**
infrastructure	0.00	0.00
eu	0.49	0.16
gdp_exp_gr	0.13	-0.01
tech_sup	0.43	0.15
lambda	0.43	-0.19
const	**0.52**	**-0.04**
voice	**0.55**	**0.25**
pol_stab	0.42	0.33
gov_effect	**0.54**	**0.01**
reg_qual	0.40	0.11
rule_law	0.42	-0.08
cont_cor	0.47	-0.08

7. Discussion

How to make sense of these results? If one looks at the factors that are significant in the two estimations - the size of the parent country, its level of development, the distance between the host and parent countries and the ease of trading across borders - it would seem that location as the most important determinant of FDI in the ex-socialist countries. Companies invest in countries which are close to them and from which it is easy to import and export. This finding is in accordance with the OLI paradigm, in general.

The significance of the host country GDP per capita and financial development, in the GMM analysis, and their corresponding variables in the IV-BMA analysis (voice and accountability and government effectiveness), points out that the level of development of the host country, i.e. its quality of governance, may also be important. This is in accordance with the institutional theories of FDI.

Finally, turning to the main focus of this paper, the Doing Business indicators, it may seem at first that these do not matter for FDI - the only sub-group that is significant in the both analyses is the ease of trading across borders. However, it can also be noted that from the five indicators that are significant in at least one of the estimations (documents to import, number of tax payments, number of procedures to enforce a contract, cost of enforcing contracts and time to export), that most of them refer to bureaucracy, not costs. Hence, another aspect from the ease of doing business that seems to matter for investment, apart from the ease of trading across borders, is bureaucracy. Investors seem to be turned away by bureaucracy.

Our findings for the DBI are, to some extent, in accordance with the existing literature on DBI and FDI. Corcoran and Gillanders (2012) also find that the most important aspect of the business regulation is the ease of trading across borders. The most important aspect according to Jayasuriya (2011), the enforcement of contracts, is significant in our IV-BMA analysis. Jayasuriya (2011) also finds that ease of doing business does not seem to be important for the developing countries, which is the group where most of the ex-socialist countries belong.

8. Conclusions

Investment are often considered to be the engine of growth of a country. Many developing countries try to boost their investment. One way for doing that is through attracting FDI, and it is often believed that one way to attract FDI is through improving the business regulation. Countries nowadays nearly compete among themselves in terms of offering better conditions for businesses, in order to attract FDI. This is evidenced by the fact that governments in many countries pay particular attention to the Doing Business rankings of the World Bank, which measure the ease of

doing business (i.e. the business climate), and use the rankings as a tool to promote themselves and their countries.

This paper has investigated the role the Doing Business indicators have in attracting FDI, in 27 ex-socialist countries, using classical and Bayesian econometrics. Results suggest that there is an uncertainty regarding the effects of the ease of doing business, with most of the indicators being either insignificant or lacking robustness. The only aspect of the ease of doing business that is robust in the both analyses is the ease of trading across borders. Though it may be hard to say that the ease of doing business is vital for attracting FDI, it still seems that investors are turned away by bureaucracy, because four of the five indicators that are significant in either of the estimations refer to bureaucracy, not to costs.

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9. Appendix

Table A1: Variables construction and data sources

Variable	Construction	Source
FDI	FDI flows from parent OECD country to host Eastern European country, in millions of USD. In logarithms.	OECD
gdp_exp_gr	Expected GDP growth for the corresponding year, from the September or October issue of the World Econnomic Outlook of the previous year	IMF World Economic Outlook
ulc	Average gross wage in the economy (converted to US dollars), divided by the real GDP per person engaged	Wages - International Labour Organization (KILM database), except for Montenegro and Tajikistan, which are from their national statistical offices. Exchange rates against US dollar - IMF IFS. GDP per person engaged (constant 2005 US$ at PPP) - from Penn World Tables.
inflation	Year-on-year change in CPI	IMF IFS
openness	Exports plus imports, as a share of GDP.	IMF IFS
ner_euro_dep	Depreciation of the nominal exchange rate against the euro, vis-à-vis the previous year.	IMF IFS
education	School enrollment, secondary, gross	WB WDI
infrastructure	Roads,paved, percentage of total roads. Since these data are not available for each year, the gaps between years are filled by extrapolating the last available data point.	WB WDI
tax	Total tax rate (% of commercial profits), i.e. the amount of taxes and mandatory contributions, after accounting for allowable deductions and exemptions as a share of commercial profits. Taxes withheld (such as personal income tax) or collected and remitted to tax authorities (such as value added taxes, sales taxes or goods and service taxes) are excluded.	WB WDI
promotion	Dummy for investment promotion agency with active promotion function	Constructed by the authors, following Morisset (2003), Morisset and Andrews-Johnson (2004), and Cass (2007), from information collected from the websites of the respective national agencies. More details are available upon request.

TABLE A1 CONTINUED

Variable	Construction	Source
eu	Dummy for announcing joining EU	Since 2002 for Czech Rep., Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, since 2003 for Bulgaria and Romania, since 2011 for Croatia.
fin_dev	Domestic credit to private sector, % of GDP	WB WDI
resources	Total natural resources rents, in US dollars, in logarithms	WB WDI
distance	Distance between capital cities	http://www.geobytes.com/citydistance.htm
gdp_parent	GDP, PPP (constant 2005 international $) in the parent country. In logarithms.	WB WDI
gdp_pc_parent	GDP per capita, PPP (constant 2005 international $) in the parent country. In logarithms.	WB WDI
gdp_cost	GDP, PPP (constant 2005 international $) in the host country. In logarithms.	WB WDI
gdp_pc_host	GDP per capita, PPP (constant 2005 international $) in the host country. In logarithms.	WB WDI
tech_sup	Technological advancement in parent country, minus technological advancement in host country. Technological advancement is created similarly to Petri (2012), as a simple average of four indicators: mobile cellular subscriptions (per 100 people), fixed broadband Internet subscribers (per 100 people), research and development expenditure (% of GDP) and patent applications of residents (per capita). The four variables have been standardized (due to different units of measurement).	WB WDI.

Table A2: Results of the selection equation

Dependent variable: dummy if there are FDI flows	
distance	-0.13
	(0.101)
gdp_pc_host	-0.11
	(0.223)
gdp_host	0.20
	(0.156)
gdp_pc_parent	18.29***
	(5.657)
gdp_parent	-18.13***
	(5.562)
ulc	0.38
	(0.265)
gdp_exp_gr	0.00
	(0.025)
inflation	0.02
	(0.015)
openness	0.01***
	(0.002)
ner_euro_dep	-0.00
	(0.007)
education	-0.01
	(0.014)
infrastructure	-0.00
	(0.003)
tax	-0.01**
	(0.004)
promotion	-0.46***
	(0.148)
eu	0.12
	(0.233)
tech_sup	-0.16
	(0.277)
resources	0.03
	(0.091)
fin_dev	-0.01
	(0.005)
fdi_before	0.30**
	(0.125)
Constant	285.05***
	(91.257)
Observations	1,344

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Coefficients of the parent country dummies omitted, for clarity

Table A3: Summary statistics of variables used in the analysis (1)

stats	fdi	distance	gdp_pc_parent	gdp_parent	gdp_exp_gr	tax
mean	4.02	7.27	10.34	27.01	5.17	48.29
max	9.22	9.26	11.21	30.21	23.20	137.50
min	-4.61	4.01	9.53	24.18	-2.20	18.40
sd	2.54	0.84	0.35	1.38	2.21	13.36
p25	2.56	6.80	10.18	26.14	4.00	42.50
p75	5.83	7.66	10.45	28.25	6.00	51.20
N	919	919	919	919	919	919

stats	inflation	ner_euro_dep	education	infrastructure	tech_sup	gdp_pc_host
mean	7.06	0.46	93.09	70.96	0.80	9.47
max	25.23	40.28	103.63	100.00	2.92	10.21
min	-0.08	-14.07	83.13	20.42	-0.58	7.77
sd	4.85	7.52	4.97	28.15	0.60	0.50
p25	3.53	-3.25	89.34	37.97	0.40	9.26
p75	9.68	1.54	97.04	97.75	1.16	9.78
N	919	919	919	919	919	919

stats	gdp_host	ulc	openness	resources	fin_dev
mean	25.67	-3.75	111.25	25.70	50.85
max	28.37	-2.93	174.82	31.53	107.38
min	22.86	-4.60	48.58	20.31	8.05
sd	1.29	0.35	35.06	2.45	19.92
p25	24.80	-3.97	82.52	24.29	36.86
p75	26.30	-3.48	137.51	27.00	62.78
N	919	919	919	919	919

stats	voice	pol_stab	reg_qual	rule_law	cont_cor
mean	0.40	0.36	0.51	0.12	-0.03
max	1.16	1.12	1.44	1.17	1.05
min	-1.77	-1.25	-1.64	-1.29	-1.12
sd	0.74	0.59	0.67	0.70	0.60
p25	0.03	0.13	-0.18	-0.53	-0.63
p75	0.95	0.85	1.09	0.82	0.38
N	919	919	919	919	919

stats	gov_eff	sb_proc	sb_time	sb_cost	sb_min_cap
mean	0.25	8.29	29.04	9.65	47.29
max	1.19	16.00	121.00	39.60	311.00
min	-1.17	4.00	6.00	0.10	0.00
sd	0.65	2.79	18.01	7.35	56.14
p25	-0.40	6.00	16.00	4.20	17.00
p75	0.87	10.00	32.00	12.00	54.00
N	919	844	844	844	844

Table A4: Summary statistics of variables used in the analysis (2)

stats	cp_proc	cp_time	cp_cost	rp_proc	rp_time	rp_cost
mean	20.29	238.69	522.72	6.69	95.47	2.77
max	36.00	511.00	3904.30	12.00	399.00	11.00
min	11.00	108.00	0.00	3.00	3.00	0.10
sd	6.12	106.31	848.61	2.57	113.92	2.39
p25	15.00	189.00	24.30	5.00	19.00	1.40
p75	25.00	261.00	676.20	8.00	93.00	3.40
N	678	678	678	844	844	844

stats	gc_lr_index	gc_dci_index	gc_public_reg	gc_pb_coverage	pi_ed_index	pi_edl_index
mean	6.39	3.31	3.42	11.57	5.18	3.86
max	10.00	6.00	30.70	91.90	10.00	9.00
min	2.00	0.00	0.00	0.00	0.00	0.00
sd	2.38	1.97	6.00	19.99	2.85	2.09
p25	5.00	3.00	0.00	0.00	3.00	3.00
p75	8.00	5.00	3.50	12.50	8.00	5.00
N	844	839	822	777	678	678

stats	pi_ess_index	pt_payments	pt_time	ec_time	ec_cost	ec_proc
mean	6.29	45.32	433.38	500.68	23.60	34.27
max	9.00	147.00	2085.00	1440.00	41.50	50.00
min	3.00	7.00	81.00	195.00	13.80	27.00
sd	1.64	41.93	500.94	314.38	6.91	4.83
p25	5.00	15.00	196.00	279.00	18.60	30.00
p75	8.00	66.00	325.00	564.00	25.70	38.00
N	678	678	678	844	844	844

stats	tab_de	tab_time_ex	tab_cost_ex	tab_di	tab_time_im	tab_cost_im
mean	6.56	26.86	1299.00	7.83	28.81	1511.87
max	11.00	89.00	3350.00	15.00	104.00	4600.00
min	3.00	5.00	500.00	4.00	5.00	675.00
sd	1.70	22.40	651.83	2.42	25.99	967.19
p25	6.00	13.00	865.00	6.00	13.00	980.00
p75	7.00	27.00	1375.00	9.00	36.00	1440.00
N	678	678	678	678	678	678

stats	ri_time	ri_cost	ri_rrate
mean	2.98	14.31	30.78
max	5.80	42.00	50.50
min	1.50	4.00	1.90
sd	0.96	9.31	13.07
p25	2.00	9.00	19.90
p75	3.30	15.00	40.10
N	844	844	844