

European Integration as a Determinant of Foreign Direct Investment in Central and Eastern Europe, 1995-2013

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I. INTRODUCTION

When companies choose to undertake foreign direct investments (FDI) in emerging countries (such as those in Central and Eastern Europe) rather than their home countries or developed ones, they are usually attracted by lower wages and a lucrative entrance¹ to a new and un(der)utilized market (Walsh and Yu, 2010). At the same time, investors have to trade off exchange rate and inflation stability, highly educated workforce and well-regulated markets of countries in the EU-15, for instance, and face poorer legal frameworks and corruption. However, with CEE countries having the prospect of joining the European Union and converging to the institutional framework of the developed countries, thus providing the investors with the best of both worlds, it was reasonable to expect increasing flow of FDI into these countries after they started their European integration process. Kaminski (2000) suggests that the legal and political climate rather than macroeconomic fundamentals shaped FDI to these transitional economies.

Since the beginning of political and economic transition towards democracy and market economy in the early 1990s, Central and Eastern European Countries (CEECS) have seen a significant increase of incoming foreign investments, especially from Western Europe. Public commitment by old EU member-states to the EU enlargement at the Essen European Council in 1994 further pronounced this trend (Bevan, Estrin, Grabbe 2001). These flows greatly increased in volume and became significantly less volatile after the EU decided to open membership negotiation processes in 1997 with the so-called Luxembourg Group², and especially after waves of enlargement in 2004, 2007 and 2013. The underlying reasons for such changes include investors anticipation of removal of capital controls, privatizations and improved business environment during the negotiation process, while increased legal security and compatibility with Western European norms have increased investors' confidence. Accordingly, traditional literature on FDI determinants puts a strong emphasis on the importance of legal protection (Blonigen, 390). Countries joining the European Monetary Union and accepting the Euro as their currency had to rein in inflation and excess exchange rate volatility, which made them more attractive for FDI,

¹Sometimes, especially in transition countries, this entrance through FDI is a means to bypass trade barriers.

²Czech Republic, Slovenia, Hungary, Poland, Estonia. Helsinki Group Slovakia, Lithuania, Latvia, Bulgaria and Romania followed suit in 1998.

as investors shun the prospect of host currencies exchange rate uncertainty. Capital "has moved downhill", (Mody et al., 2008) eastbound, where it was greatly needed and where many opportunities for greater returns existed.

This course of events provides motivation for this paper, as it poses an inevitable question of what models for attracting foreign investments should be engaged in the future and how the EU integration process should be used by accessing countries to attract desirable FDI inflows. This study intends to examine the effect of progress of eleven CEE EU member-states on their path to European integration political, economic and monetary on the inflow of FDI. By closing the gaps in the existing literature and bringing together different successful approaches to the issue of the EU integrations effect on FDI inflows, this study will provide important lessons for policy-makers in EU, CEE, and other non-EU countries alike.

This study is organized as follows. In the next section a brief literature review on determinants of FDI inflows in CEE countries with an emphasis on the factor of European integration is provided. At the same time this study is positioned in the literature and its importance is shown. Then the data used in the empirical analysis is analyzed and the choice of determinants is discussed, with a special emphasis on the European integration. Concise description of the model adopted and discussion of empirical results are presented next. The last section contains the main conclusions.

II. LITERATURE REVIEW

The literature on FDI determinants in transition CEE countries is extensive. However, the majority of the literature is by now outdated and does not take into consideration different steps in the EU integration process or does not differentiate among candidate countries. Kaminski (2001) examined the effect of the accession process on CEE trade and capital flows. He found that the EU Factor and especially preferential access to the large EU market CEE countries were given (even before becoming full members) significantly increased their trade and FDI inflow. With access to the EU market, the host countrys size mattered less, while credibility-enhancing accession process allowed western companies to invest without fear of worse conditions than home. Thus, with respect to geography, the legal and political climate shaped FDI inflow. However, he finds the influence of the EU Factor too difficult to assess quantitatively due to the presence of many factors, while arguing that some

developments would have occurred even without accession process. This is certainly a valid point due to the accelerating globalization in the region in the observed period.

Resmini (2000), using firm-level data, showed that FDI stocks in CEE countries are largely determined by sector-specific considerations, although usual gravity factors such as market size are significant and positively correlated with FDI inflow. In addition to that, she concluded that progress in an economy's transition (privatization, trade liberalization etc.) is another key determinant of FDI inflows in the CEE. However, the study was published four years before any of the observed countries entered the EU, so the full impact of European integration did not happen yet and could not have been examined.

Buch, Kokta and Piazzolo (2003) explored whether FDI were redirected from Southern Europe (Italy, Spain, Greece) to the CEE in the late 1990s and early 2000s, trying to explain rapid growth of FDI inflow in the latter group. They used a group of Western investors countries and examined factors of distance, size and demand proxies, as well as common language and legal systems between host and investor countries to forecast FDI flows to Southern and CEECs. They found that their predictions fit actual flows well, dismissing any redirection hypothesis and thus helped with determining good models for FDI flows to CEECs. However, the sample is relatively small, and in 2003 most of the FDI inflow surge was only about to happen. Galego et al. (2004) examined the same issue and reached the same conclusion, albeit using different model to predict FDI flows. Their model included variables such as sharing frontiers, which shows and compensation level, mimicking unit labor costs.

Bevan, Estrin and Grabbe (2001) examined the accession process and its influence on FDI in CEECs. They found that, controlling for the usual FDI determinants, announcements of progress in EU accession have significantly increased inflow of FDI in the accession process, proving that investors' expectations were important. They add country credit risk as a measure of investors' perceived risk in the country and argued that increasing FDI helps lower country credit risk. As then investors are more prone to invest in a country, this leads to self-reinforcing cycle in which front-runners in accession process keep doing better from less successful CEECs: more FDI is a further incentive for restructuring and succeeding in accession process. Building on their findings, Bevan and Estrin (2004) further developed a model for determining FDI to CEECs with respect to EU announcements on their accession prospects in 1998. As the EU's Cologne meeting in 1998 separated countries in three groups regarding their membership progress, so do the authors, finding that announcements about accession prospects increase FDI inflows to countries that are evaluated positively, which is the theoretical foundation of this paper. However, they failed to distinguish between countries that entered the EU in 2004 and less successful ones (Romania and Bulgaria) due to the dating of the paper.

Another valuable insight was provided by Walch and Worz

(2012), who analyzed the impact of country risk ratings and status of EU integration on FDI inflows in CEE countries. Adopting a new approach to valuing EU integration, they distinguish between seven stages of EU integration. Especially important is including a variable for economic crisis from 2009 onwards, thus separating crisis influence on FDI inflows. The authors also use host country credit risk as another determinant of FDI. However, this risk mainly concerns portfolio investors, not FDI, and Bevan et al. (2001) found feedback effects of FDI on credit rating. They actually found that EU accession is correlated with country credit rating, meaning that Walch and Worz's decision to use it remains doubtful.

Pilarska and Walega (2014) set out to determine the influence of selected factors on FDI inflows in Poland, Czech Republic and Hungary countries that accumulated the biggest FDI stock in CEE region during the period 1996-2012. Besides traditional variables such as economy's openness, business costs and host country GDP growth rate, they also included the number of higher education students (as a measure of quality of human resources to show a country's ability to absorb FDI) and an EU integration variable. Their EU integration variable has multiple stages (1-5) and they found a strong influence of EU membership on the inflow of FDI to aforementioned countries, in addition to the significance of the number of students and GDP growth rate on FDI inflows.

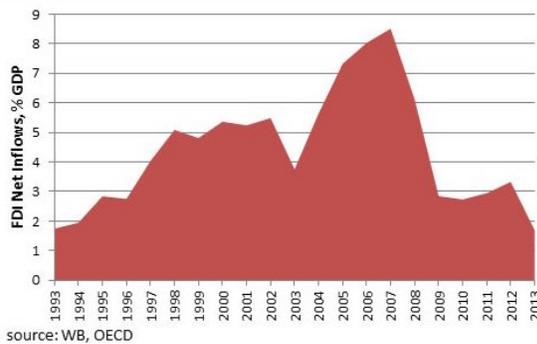
The point of departure of this paper is amending Walch and Worz's model with that from Bevan and Estrin (2004). The model of differentiating multiple stages of EU integration is thus supplemented with Bevan, Estrin and Mateevs (2008, p.5) argument of importance of announcements rather than real steps in the accession process. Unlike the Walch-Worz model, this study's model employs no measure of host country credit risk, according to the findings outlined in Bevan et al. (2001): FDI and host-country credit risk are self-reinforcing and thus have feedback effects. In addition to that, the model in this study will distinguish among the individual effects of different and more subtle steps in EU integration process instead of assuming that each step is equally important for the investors, as assumed in Walch and Worz and elsewhere in the literature. The importance of this study and its comparative place in literature is displayed in this look-up table:

Walch and Wörz (2012)	Bevan and Estrin (2004), Bevan et al. (2001)	Babić (2015)
7 stages of EU integration	Started negotiations or not	Multiple stages of EU integration
Stages have same impacts	/	Stages have different impacts
Steps important	Announcements of steps important	Announcements of steps important
Credit risk included	Credit risk has feedback effects, not included	Credit risk has feedback effects, not included

III. DATA

Year-level data was used from eleven CEE countries, 8 that entered in 2004, Romania and Bulgaria that entered in 2007, and finally Croatia, entering in 2013. The time framework, originally envisaged to span from as early as 1993, was reduced to starting in 1995. The chief reason for such a decision was the lack of available data for FDI determinants for most of the countries before 1995. Additionally, in 1993 Croatia was in the middle of the Croatian War of Independence, while Czechoslovakia was still a single country. Most of the literature takes 1995 or 1996 as a starting point for their analyses. Many comparable statistics were not uniformly measured until these countries applied for EU membership; thus 1995 was the earliest possible year this empirical analysis could have started, despite FDI data going back to 1993 (Figure 1).

Fig. 1: Average net FDI inflow in CEE countries, per year



Data on foreign direct investments as a share of host countrys GDP are taken from the World Banks Development Indicators Database, which, in turn, uses UNCTAD³ and IMF databases. These are reliable data spanning till 1993 for all observed countries, as data before 1993 is unreliable or missing for certain countries. Data for two years for Hungary seemed implausible, implying that foreign direct investments in excess of 40% of countrys GDP entered the country each year. At the same time, annual FDI inflow in other years and other countries almost never exceeded 10% of host countrys GDP. After more carefully comparing data across different databases (OECD, UNCTAD, EUROSTAT) it was established that numbers for Hungary included portfolio investments in FDI inflows in those years, which caused misleading data. FDI data for Hungary in the years 2007 and 2008 was then corrected to actual levels. On the other hand, numbers for Bulgaria, reporting FDI inflows amounting to 23 and 29% of GDP in 2006 and 2007, respectively, are the same across all databases.

By using a flow variable (net inflow in a year) rather than a stock (stock of FDI in the country), it is easier to observe the immediate impact of announcements of further steps of EU integration for aforementioned countries. Rather than using absolute value of FDI net inflows, they are represented

³United Nations Conference on Trade and Development.

as a share of the host countrys GDP in order to observe their relative size and importance for host economies. Even before empirical results, it is observable that, on average, FDI inflows increased gradually as CEE countries moved on their EU integration path (Table 1). In Table 1 below countries are briefly characterized according to only two major milestones: 1) the European Commissions decision to open accession negotiations with the country and 2) joining the EU as a full member state. Countries are additionally vertically separated in groups regarding the dynamics of their accession.

Table 1: Average FDI Net Inflow as Percentage of GDP in CEECs in Different Accession Process Stages

Country	Before negotiations decision	During negotiation process	Since membership
Hungary	7,06	5,52	4,57
Poland	2,44	3,67	3,29
Czech Republic	2,48	7,22	3,73
Estonia	4,53	7,50	10,32
Slovenia	0,98	2,18	1,41
Latvia	4,80	3,87	4,54
Lithuania	1,42	4,15	3,33
Slovakia	1,09	5,13	3,51
Bulgaria	1,68	7,18	12,58
Romania	1,37	3,92	4,33
Croatia	1,40	4,98	4,38
Average	2,66	5,03	5,09

A. FDI Determinants

Foreign direct investments can be generally classified in different categories. For so-called market-seeking FDI, the most important determinants are market size and growth prospects, as well as access to other markets. For efficiency-seeking FDI, cost of inputs and transportation have a crucial impact on the decision of whether and where to invest. Resource-seeking FDI are aiming at resources in host countries the availability of labor, natural resources etc. (Pilarska and Walega, 1169).

Consensus exists in the aforementioned literature on FDI determinants in CEECs (especially Resmini, 2000, Bevan and Estrin, 2004, and Walch and Wrz, 2012) about the significant impact of a host countrys trade openness and GDP on FDI inflows. Trade openness captures the openness of a countrys economy, as investors are interested in access to the EU market and markets of surrounding countries. Additionally, a country whose economy is already quite open possesses established and well-utilized trade connections/routes that prospective investors can readily use. A host countrys GDP as a proxy for market size and demand is found to be significant since investors are interested in taking advantage of emerging economies of scale. Therefore, both variables are used in this regression. Data about trade, here taken as sum of imports and exports as a share of GDP, are also taken from World Banks World Development Indicators. Missing data for 2012 and 2013 for certain countries are obtained from the UN Economic Commissioner for Europe (UNECE)s database. GDP in constant 2005 USD is also obtained from the WDI Database to increase consistency.

An infrastructure variable is added in order to reflect development level of the overall infrastructure. It also serves

as a proxy for the development and quality of institutions in CEE countries. Unlike some studies that use length of motorways in host countries, this study uses percentage of roads in host countries that have been internationally categorized as top quality, namely, motorways. Data on motorway and overall road network length in CEE countries is obtained from EUROSTAT. Thus by using a relative indicator (quality of road infrastructure) rather than absolute (length of motorways) our data becomes more comparable. CEE countries have very different area and population, as well as different geographic and transit strategic importance. For instance, despite Romanias longer motorways (due to its area), smaller countries like Hungary or the Czech Republic have much better roads and our infrastructure variable enables us to capture it. Additionally, before 1989, the CEEC region had very few modern motorways; thus, the increasing share of motorways in total road network can capture the development of the overall infrastructure/institutions since which is obviously important to foreign investors (Walch and Worz, 16). In addition to that, better road infrastructure is obviously important for possible investors and their shipping their products.

Unfortunately, Latvia in all 18 years has had 0% of motorways in its road network, which might skew results of the empirical analysis. Furthermore, Bulgarias road classification has drastically changed since 2002 before that year, the countrys total road network had around 36,000km. From 2002 onwards, EUROSTAT nearly halved Bulgarian road network length due to almost half of its roads being categorized as being in too poor a shape to be recognized as roads. (EUROSTAT, notes). A perfect measure would have been road network density, but such data does not exist previous to mid-2000s and cannot be obtained.

Unit labor costs (ULC) as an important part of cost differences (together with other factors such as business-friendly tax framework) have been especially important for efficiency-seeking FDI in this area. Literature uses this measure extensively, sometimes in addition to corporate tax rates. However, (Bevan and Estrin) and (Walch and Worz) use index value data. Since potential investors compared costs across countries in the region, using index values would only signal ULCs movement across years in a single country. It would not be possible to compare ULC across countries in the same year. For instance, ULC in Poland and Croatia in 1999 were, respectively, 67% and 70.1% of ULC in those countries in 2010. But that does not tell us where ULC were lower neither in 1999 nor in 2010.

Therefore, in this study ULC corresponds to Unit Labour Cost (based on persons) in [the] total economy - all activities, converted to current Euros by using a fix parity. Data is obtained from the European Central Banks Statistical Data Warehouse, where it is annually published for all EU member states under the Scoreboard of Macroeconomic Imbalances. Thus most consistent and most standardized data, enabling easy comparison across countries and years, was obtained. For certain countries (Latvia, Lithuania and Bulgaria) data was spanning only till 2000 or 2002. However, index values

(where 2005=100) were obtained from the same database and from Bloombergs Datastream for those countries.⁴ Then, actual ULC for the years 1995-2000 were calculated with 2005 as a reference point. These numbers were compared to the OECDs ULC database (spanning till 1999 or 2000) in order to check validity of such process. ULC numbers obtained for missing years matched available OECD data, implying validity of index values, and, consequentially, ULC numbers 1995-2000.

B. European Integration

European integration can be observed as a part of the larger global integration during this period, but it has a more direct and a standardizing effect with its equal approach to different countries, asking them to abide, for instance, Maastricht treaties freedom of capital movement in the same way. The essential problem is how to measure the effects of the EU integration, since it is also a proxy for opening to trade and global integration in general. EU integration especially affects institutional improvement, as the various institutional requirements, such as ease of doing business, legal protection and judiciary efficiency are contained in the EU accession process as goals that need to be fulfilled in order to advance to the next step.

If FDI inflows as a function of the announcement of certain important stages in the EU integration process are observed, the effects of EU integration might be separated from government reform efforts that are not connected to the EU accession process or even from real transition progress, thus solving Kaminskis aforementioned problem (2000). The conclusion is built on the premise of investors trust in the European Commissions judgment of CEE countries progress in economic and legal reform and investors expectations of benefits that every step brings, such as the 1997 lift of tariffs and quotas on industrial imports from CEECs that Kaminski finds important (p. 30) or access to CAP funds and subsidies that Josling and Tangermann notice (p. 284). A number of CEE countries experienced an increase in FDI inflows around the milestones in their EU accession process. See Appendix A for the more appropriate and detailed display by individual countries throughout the years, from 1993 to 2013.

However, progress regarding EU integration might not have just positive effect on FDI inflows to a country. Pilarska and Walega (2014) summarize observations from the literature that countrys introduction of EUs legal proceedings (so-called *acquis communautaire*) and, for instance, higher environmental protection standards countries adopt might reduce their attractiveness for FDI (Pilarska and Walega, p. 1171).

Despite differences in each countrys size, development, and openness to trade, CEE countries are still similar enough and went through the same integration/alignment process to control for some endogenous differences. With controlling for aforementioned variables, it is the European integration

⁴Datastream index values perfectly corresponded with ECB's and were used to check its consistency.

that is the most difficult to capture. The primary purpose of this study is to measure and quantify the effect of European integration on FDI inflows. In literature before 2004 the simplest form of quantifying the EU integration progress was to distinguish whether a country was declared ready to start negotiations by the European Commission in 1998 or not, thus using just one dummy variable (Bevan and Estrin 2004, pp. 781-2). As mentioned earlier in the literature overview (in section II), after 2004 the most common approach to evaluate and quantify the EU integration variable was to assign different numbers to different steps in the process of EU accession. Thus Walch and Worz (2012) and Pilarska and Walega (2014) separate multiple stages and assign values from 1 to 7 or from 1 to 5, respectively.

This approach has two important weaknesses. First, it does not measure different impacts of various steps, but rather assumes that every single step (or an announcement of every single step) has an equal weight and impact on FDI inflows. Clearly an announcement of the European Commission that a country is ready to join the EU as a full member state means more for investors perception of the country than a fact that a country has become a potential candidate in Walch and Worz coordinate system (p. 19). Second, trade openness can be highly correlated with the EU integration variable. The ratio behind this claim is rather simple: CEE countries lowered import barriers and opened up capital markets gradually alongside their accession to the EU. For instance, former Czechoslovakia, Hungary and Poland signed the Central European Free Trade Agreement (CEFTA), which came into force in 1994, eliminating duties on approximately 40 per cent of industrial goods among these countries. It was later expanded and even more liberalized, until all duties were eliminated.

The first draft of this paper used a similar model as Walch and Worz with assigning numbers 1-5 to various stages. (1=potential candidate, 2=decision to open negotiation talks, 3=negotiations, 4=EU announced country is ready to become a member, 5=EU member). However, that EU integration variable was proven to be highly correlated with trade variable, as shown in Graph 2, and it was impossible to measure the individual effect of different steps. It was therefore abandoned for a different approach: somewhat different 5 stages than previously defined were used and to each step a separate dummy variable has been assigned.]par

In this paper, five separate dummy variables for five stages are observed, as presented in Table 2.

Bevan et al. (2003) support the argument that it is the announcement of progress in EU accession that matters, as expectations of future benefits for placing an investment in CEE countries lead to investment being taken or not. For instance, Josling and Tangermann (1998, 284) found that decisions to invest in agriculture in CEE were taken in expectation of EU CAP subsidies. Therefore, instead of actual step being taken in EU accession process, the EU Commission's decisions in advance of steps are observed.

Hungary applied for EU membership in 1994. All other countries in the dataset save for the Czech Republic, Slove-

Graph 2: Correlation of EU integration variable when ex- pressed 1-5 and Trade

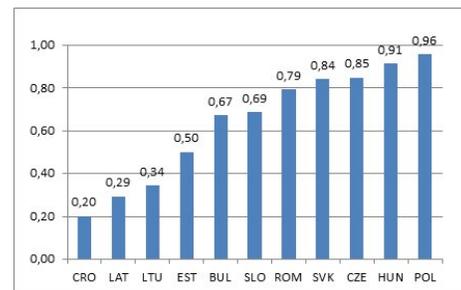


Table 2: Explanation of EU integration variables

Variable	Label	Explanation	Values
EU_1	Potential candidate	Country has filed membership application	{0,1}
EU_2	Candidate	Positive opinion on application issued by EC	
EU_3	Negotiations	EC announced starting negotiations	
EU_4	Ready	EC announced country is ready to join EU as a full member state	
EU_5	Member	Country has joined EU as a member state	

nia, and Croatia applied in 1995. The Czech Republic and Slovenia applied in 1996, while Croatia waited until 2000. Then European Commission usually soon issued a positive opinion on the applications. The Luxembourg group the Czech Republic, Slovenia, Hungary, Poland, Estonia was given positive opinion to start negotiations in July 1997. The formal decision to open negotiations was reached in December 1997, while talks launched in March 1998. The "Helsinki Group" Slovakia, Lithuania, Latvia, Bulgaria and Romania was given positive opinion in 1998, while the decision to open talks was formally reached in December 1999, and negotiations commenced in February 2000. All countries save for Romania and Bulgaria were announced ready to join the EU in December 2002 and actually joined in May 2004, while Bulgaria and Romania were found ready in late 2004 and joined in June 2007. Croatia received positive opinion in June 2004, negotiations start was announced in 2005, and they started almost immediately. Croatia was announced ready to join in 2012 and it joined in July 2013 (European Commission).

Since a country that has reached the next step must have reached the previous step too, the dummy variable for the previous step is simply repeated in the next period. Thus Poland, for example, was assigned value 1 for EU 1 (potential candidate) from year 1995 onwards, since it submitted an application then, 1 for EU 2 (candidate) and EU 3 (negotiations) from 1997 onwards, EU 4 (ready) from 2002, and finally EU 5 (member) from 2004 onwards.

Countries included and examined in this paper and their respective landmark years are presented in Table 3.

Belonging to the European Monetary Union (EMU) was used as another dummy variable. Its use has already been established in the literature, such as (Walch and Worz, 2012). It can be seen as another step towards full European integration. Walch and Worz included it in their monotonous EU variable, thus failing to observe its particulate effect. For investors,

Table 3: CEE Countries and some Important Dates

Country	Started negotiations	Joined EU	Joined EMU
Bulgaria	February 2000	January 2007	Peg ¹
Croatia	June 2006	June 2013	/
Czech Republic	March 1998	/	/
Estonia	March 1998	/	2011
Hungary	March 1998	/	/
Latvia	February 2000	May 2004	2014
Lithuania	February 2000	/	/
Poland	March 1998	/	/
Romania	February 2000	January 2007	/
Slovakia	February 2000	/	2009
Slovenia	March 1998	May 2004	2007

Source: European Commission (2014).

¹Note: Bulgaria has not joined the EMU, but it has a currency board.

entrance to the EMU implies exchange rate stability and stable inflation. However, Pilarska and Walega point out that host country losing its autonomous monetary policy means that the country will not be able to use its exchange rate to maintain competitive production costs, which might be detrimental for FDI inflows (Pilarska and Walega, p. 1171). Thus the expected effect of EMU variable is ambiguous. It is important to notice that only Slovenia (since 2007), Slovakia (2009), Estonia (2011) and Latvia (2014) in the region have so far joined the EMU, while other countries have lukewarm attitudes towards it. Some countries that entered ERM II (a prerequisite for joining the EMU) have since kept exchange rate stability, while Bulgaria has a currency board and thus maintains exchange rate stability without formally joining the EMU. All of this further feeds ambiguity and possibly might lead to insignificance of the Eurozone memberships effect on FDI inflows.

All variables used in empirical analyses are presented in Table 4 below.

Table 4: Data Definitions and Sources

Variable	Definition	Source	Effect on FDI
FDI	Foreign Direct Investment net inflows (% of GDP)	World Bank World Development Indicators	
EU	Dummy variable for the level of EU integration	Author according to Walch and Wörz (2012) and European Commission	+
GDP	Gross domestic product, converted into 2005 USD	World Bank World Development Indicators	+
TRADE	Openness to trade (exports+imports as % of GDP)	World Bank, UNECE	+
ULC	Unit labor costs based on persons, total economy, expressed in Euros	ECB (2014), OECD	-
EMU	Member of the European Monetary Union		+/-
INF	Percent of roads in host country classified as motorways	EUROSTAT (2014)	+

IV. METHODOLOGY

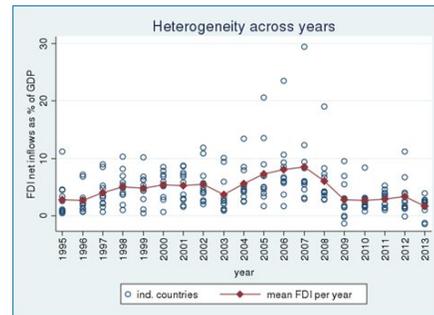
As the key question of this paper is to measure how European integration has affected respective countries FDI inflows, panel data regression will be used with data spanning from 1995 till 2013. Using panel data model allows determination of the evolution of the entire CEE region rather than analyzing the temporal behavior of each of these countries.

The model used in this paper is mostly an adaptation and a supplement of the models presented in (Bevan and Estrin, 2004, and Walch and Wörz, 2012) with explanatory variables discussed in section III. Thus FDI inflows in country i and

year t are determined by a number of gravity effects such as the host country's market size and demand, openness to trade, state of infrastructure/institutions and unit labor costs supplemented by the European integration variable and the EMU variable, discussed in detail above, all in time $t-1$, thus lagged by a year. This is conventional of FDI determinants literature and reflects investors making decisions whether and where to invest earlier than FDI inflows actually happen, according to data available in the previous time period ($t-1$). By using a one-year lag model, the model avoids endogeneity.

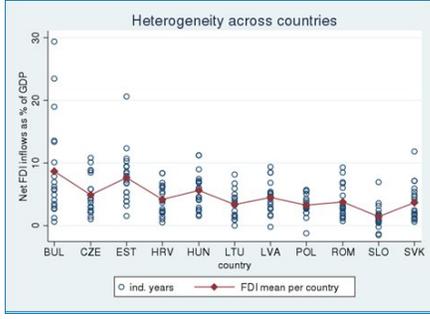
However, it is quite possible that there are unobservable variables intrinsic to individual countries in our sample that do not change over time, but do effect FDI inflows. For instance, investors might be interested in investing in a country in order to serve other markets in the neighborhood. Poland might be very favorable for FDI inflows due to proximity to Germany and bordering with Ukraine, Russia and Belarus. On the other hand, Slovenia might have a disadvantage due to its location between Italy and Austria. In that case, a country's location is a variable that does not change over the time (despite possible infrastructure improvement), but is characteristic to each individual country and affects FDI inflows. Similarly, there might be year-fixed effects that express a common trend in FDI inflows to the entire CEE region. As CEE countries become more integrated with the rest of Europe and the world in general, they begin to share the same shocks and crises. Therefore, running a regression without year-fixed effects would find it difficult to separate fluctuations of FDI inflows from the general conjuncture. Crisis and post-crisis capital reversals and sudden stops in the region (see the drop in Graph 1 after 2007) are one example of such general movements. These possible heterogeneities are analyzed and displayed in graphs 3 and 4, respectively.

Graph 3



Despite the fact that heterogeneity seems small, it is still present enough so that country-fixed effects (α_i) and year-fixed effects (μ_t) are included in the empirical model that will be used to estimate effect of European integration on FDI inflows (Equation 1). Running the Hausman test approved our usage of the fixed-effects model. Controlling for time-fixed effects is especially important due to observed sensitivity to the 2007 crisis that the CEE region showed.

Graph 4



$$\begin{aligned} \ln(FDI_{i,t}) = & \alpha_i + \beta_1 \ln(GDP)_{i,t-1} + \beta_2 \ln(TRADE)_{i,t-1} \\ & + \beta_3 \ln(INF)_{i,t-1} + \beta_4 \ln(ULC)_{i,t-1} + \beta_5 EMU_{i,t-1} \\ & + \beta_6 EU_1_{i,t-1} + \beta_7 EU_2_{i,t-1} + \beta_8 EU_3_{i,t-1} \\ & + \beta_9 EU_4_{i,t-1} + \beta_{10} EU_5_{i,t-1} + \mu_t + \epsilon_{i,t} \end{aligned} \quad (1)$$

Equation (1) is the basis of the empirical model used in this paper. It will first be run without EU_n variables in order to test the robustness of the model, and then (1) will be run with added European integration variables, but without Trade, and then finally with both Trade and European integration variables. This will be done in order to establish any possible noise between those two explanatory variables, as the general course of European integration was highly correlated with Trade (see Graph 2).

Possible shortcomings include the fact that in a similar setting and with similar models Walch and Worz (2012) found country credit risk to be significant, while it is dismissed in this model as discussed above. It is possible that differences among countries progress in accession process might not be significant, as an announcement to take another step with a country or a group of countries (such as Luxembourg group) might have had some spillover effects, increasing confidence in neighboring countries despite being left out.

It is possible that the returns to taking another step in this process, holding everything else constant, could diminish, as countries could add less and less to the integration, and thus FDI and EU integration could have a non-linear relationship. This could be tested by adding EU integration as a variable.

The most obvious problem will be the inconsistency of Bulgarian motorway data and a set of zero-values for the infrastructure variable for all 19 years in Latvia, which might seriously skew infrastructure/institutions impact and significance.

V. EMPIRICAL RESULTS AND DISCUSSION

Table 5 reports the regressions with the impact of EU integration included in specifications (1), (2), and (3). In the first model, since the fixed effects model has been used, it is assumed that all other explanatory variables are included in fixed effects and are thus insignificant. Then, the same model is run without EU integration variables in (2) to check

whether the model alone is robust enough for explaining FDI inflows. In (3), the Everything but Trade variable was included since Trade was supposed to be correlated with EU integration dynamics. Finally, in (4) everything has been included.

Table 5: Determinants of FDI inflows to CEE countries

Variable	(1) EU	(2) Baseline	(3) Baseline+EU -Trade	(4) Everything
GDP		-0.284 (0.899)	-0.187 (1.009)	-0.320 (0.997)
Infrastructure		0.199 (0.131)	0.219 (0.137)	0.204 (0.136)
EU_1	-0.299 (0.242)		-0.362 (0.251)	-0.403 (0.246)
EU_2	-0.657* (0.342)		-0.702* (0.366)	-0.763** (0.364)
EU_3	0.290 (0.297)		0.342 (0.310)	0.344 (0.306)
EU_4	-0.464** (0.185)		-0.448** (0.183)	-0.455** (0.188)
EU_5	-0.392** (0.186)		-0.285 (0.202)	-0.268 (0.204)
ULC		0.188* (0.106)	0.173 (0.110)	0.129 (0.114)
EMU	0.563*** (0.198)	0.563*** (0.198)	0.522** (0.204)	0.529** (0.204)
Trade		-0.324 (0.534)		-0.509 (0.524)
Constant		10.69 (21.12)	7.262 (23.98)	12.52 (23.77)
Observations		176	176	176
R-squared		0.555	0.572	0.574

Note. Robust standard errors in parentheses.

*** Significance at the 1% level. ** Idem, 5% * Idem, 10%.

In the basic regression, without EU integration variables, only ULC and EMU were found to be statistically significant. Thus the reasoning for trade, GDP and infrastructure dependent variables does not matter since their effect is statistically significant. Possible aforementioned problems with correctly measuring road network in Bulgaria and Latvia having no motorways might have slightly impaired infrastructures significance, but not by much. GDP being found not significant could have been expected in this model since FDI as a variable is already normalized it is expressed as a share of host countries GDP.

It was surprising to find unit labor costs having a positive impact on a statistically significant level (of 10%). The expected impact was supposed to be strongly negative. However, it is important to notice that this is a fixed effects panel regression, not a cross-sectional one, meaning that this coefficient grasps and reflects the explanatory variables effect within the entity (in this example, country). One possible interpretation is that investors aimed at countries that had larger standard and labor costs, reflecting more skilled populations (such as the Czech Republic, Hungary and Poland, for instance.) ULCs significance disappears when combined with EU integration and trade variables in (3) and (4) implying that other factors mitigate its effect and that EU integration proves to be more significant.

Belonging to European Monetary Union (using the euro as a currency) proved to be statistically strongly significant and robust through all analyses. Thus the prospect of exchange rate stability clearly outweighs any possible detrimental

effects, as discussed earlier: investors do not fear that the host country will be unable to intervene to maintain its production costs competitiveness. Thus EMU as a final stage of European integration has clearly significantly and robustly positive effects on FDI inflows.

Other stages of EU integration have different effects. Only EU 2 (positive opinion on countrys EU membership application) and EU 4 (EU announced country is ready to join EU) actually seem to have a statistically significant impact. Surprisingly, it is negative. Some earlier concerns might explain this: investors might expect higher costs of doing business due to the expectation of the introduction of Western European standards as country is about to become an official candidate. In addition to that, that step (EU 2) corresponds with the imminent prospect of removing duties to Western Europe. This, for instance, would mean that investors from Germany would have no need to build a factory in the Czech Republic to avoid import duties when serving Czech market. It could simply use its own facilities in Germany or invest in increasing their capacity and then serve Czech market. The negative impact of EU 4, on the other hand, could be interpreted as the phasing out of some perks investors might have enjoyed in host countries earlier. Furthermore, it might represent crowding out FDI from other (mostly Eastern countries) by those coming from old EU-member states, as those FDI were probably technically superior and politically more desirable. Buch, Kokta and Piazzolo (2003) find that indeed FDI from old-EU countries and USA to CEE countries increased substantially during the 1990s. The crowding-out hypothesis, however, would need further analysis.

Following Walch and Worz (2012), more regressions could be run, including a dummy variable for crisis (equal to 1 after 2008) and, possibly, interaction terms with EMU membership and EU integration dummies to see whether the crisis had a stronger impact on FDI in countries that were part of the Eurozone (Estonia, Latvia, Slovakia and Slovenia). Possibly the best change to the used model would be to more closely examine which steps actually brought imminent costs and benefits for efficiency- or market- seeking FDI. Additionally, using more dummy variables for the complex and lengthy EU accession process would possibly be able to convey the dynamics of the process much better than five unevenly spread steps.

VI. CONCLUSION

This study builds upon the substantial literature on FDI determinants in Central and Eastern Europe and certain studies that more closely examine integration with the EU as an important determinant. The EU accession process is

lengthy and consists of many steps that do not have equal weight. Different steps have different impact on investors perception of a countrys advance towards a stable business and legal environment. Certain steps also bring concrete benefits such as availability of subsidies or the removal of duties. In this paper, five EU integration steps were singled out as the most important signals to possible investors. Using approach already applied in some literature (Mateev (2008), Bevan and Estrin (2004)), the announcements of steps are taken as important dates rather than actual steps, since investors decide to invest to advance to set positions and thus be certain to obtain these benefits.

A fixed effects panel data regression was run. The initial hypothesis of EU integration as being overwhelmingly positive for FDI inflows in CEE countries from 1995 and 2013 has not been proven. On the contrary, negative effects of (the announcements) of certain individual steps in the EU accession process were found. Positive opinion on countrys EU membership application and EU announcement of countrys readiness to join the EU are found to have negative effect on FDI inflows. Possible explanations include:

1. Investors expectation of higher costs of doing business due to the imminence of the introduction of Western European standards as country is about to become an official candidate;
2. Expectation of removing duties could render market-seeking FDI unfeasible, as investors could serve new markets without duties from their home countries;
3. New investments from the West crowding out Russian and other Eastern FDI.

Findings support the idea that the announcements of further steps on countrys accession process matter more than actually taking steps. For instance, the announcement that a country is ready to join the EU was highly significant, but the country actually joining the EU did not have a significant effect on FDI inflows. In addition to that, countrys membership in the European Monetary Union was found to be highly significant and positively impacting FDI inflows. This implies that exchange rate and inflation stability in those countries that adopted euro were attractive to investors rather than being seen as an obstacle to maintain competitive production costs.

A more meticulous approach to EU integration process could be taken, by more closely examining steps that inflict imminent costs and benefits for efficiency- or market-seeking FDI. Separating the complex and lengthy EU accession process in multiple steps and explanatory variables would possibly reflect the dynamics of the process better and thus allow for much thorough analysis.

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APPENDIX

FDI inflows to CEE countries as a percentage of their GDP. Trend line selected to fit the data to the line is the two-period moving average, which was found suitable for such a representation. Dashed lines represent three significant events: European Commission's decision to open negotiation talks for membership process, becoming a full member state of the European Union, and, where applicable, joining the European Monetary Union.

