Intra-EU Direct Investment and Enlargement

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Abstract: This paper examines the determinants of the intra-EU direct investment (IDI) into the New Member States (NMS) using a panel dataset of bilateral capital flows for the period 1993-2013. It is found out by using a simple gravity model that EU membership is the most important determinant. Unlike previous studies including non-EU countries, the distance is insignificant, which is caused by proximity of these countries to one another. A separate analysis focused on subgroups of accession countries gives some evidence that even when size of their economy, distance, institutional quality and EU accession are taken into account, Central European countries receive more IDI than the Baltic and the Balkan states. On the contrary to that, the analysis restricted to the Balkan countries which have joined the EU shows the inexistence of a negative Balkans effect in attracting foreign investment. This finding is relevant because previous studies demonstrate a persistent negative Balkans effect for non-EU Balkan countries and suggests a crucial impact of the EU accession in determining the intra-EU capital flows.

Key words: Intra-EU direct investment, EU membership, New Member States

JEL Classification: C33, P27, P33

Introduction

The determinants of foreign direct investment (FDI) into the New Member States (NMS) of the EU have attracted much attention during the past decades, even before the EU accession. In the recent twenty years, Europe has seen historical developments in the ex-socialist countries and, in economic terms, a transition from socialism to free-market economies as well as an increasing FDI into these economies.

The EU enlargement policy helped this transition process, giving the basis of a common legislation across a wide range of subjects, including common trade and financial rules, customs union and free movement of workers, capitals and services. This process moved contemporaneously with the economic transition of these countries which share similar political and economic features. In fact, they all have faced institutional and social challenges in the 1990s, followed by economic reforms in order to comply with the EU legislation.

The goal of this paper is to analyze the determinants of the *intra*-EU direct investment (IDI) into NMS, for which panel data on bilateral capital flows from EU-15 countries to NMS during the period 1993-2013 will be used. Because the most important part of the FDI into the transition economies comes from the developed Europe, as showed by Bevan and Estrin (2004), the analysis is focused on the determinant of IDI to investigate which are the main factors driving the capital flows in the continental Europe with a special regard to the EU membership for the transition economies to be considered the symbol of the re-integration into the developed Europe. In fact, the perspective and, more importantly, the accession to the EU can be crucial in determining the capital flows into the NMS.

The paper is organized as follows: Section 1 introduces the issue of IDI into the European transition economies. Section 2 provides a brief overview of the literature, and Section three illustrates data and empirical specification. Section 4 highlights the results, and finally, Section 5 concludes.

Literature

A number of studies investigated the determinants of capital flows into the ex-socialist European countries during the transition phase (for instance, Baldwin et al., 1997; Bartlett, 2008; Bevan and Estrin, 2004; Bevan, Estrin and Mayer, 2004; Brenton et al, 1997; Buch et al., 2003; Dikova and van Witteloost, 2007; Di Mauro, 1999; Estrin and Uvalic, 2013; Estrin, Xavier and Brada, 2000; Lankes and Venables, 1996; Meyer and Estrin, 2004; or Richet and Brada, 2000).

Some papers focus on the key determinants of FDI into the transition economies by analysing forms and origins (Hunya 2011, 2012; Kalotai, 2010). Brada et al. (2006) show that the Balkan countries which experienced political transition problems receive less FDI compared to the Central-European and Baltic countries.

Bevan and Estrin (2004) investigate the determinants of FDI into the ex-socialist European economies and find out that unit labour costs and gravity factors are important in affecting the capital flows. Furthermore, they came to the conclusion that the announcement about the EU accession has a positive impact on the capital inflows. In fact, it is perceived as an important step that is achievable only after substantial economic and political reforms. In general, the process took time so the announcement itself should be considered a crucial achievement for a transition country.

Estrin and Uvalic (2013) found out that Western-Balkan countries receive less FDI compared to countries of Central East Europe (CEEC) even when market size, distance and EU accession are taken into account. The authors suggest that this difference is due to the inadequate level of the public institutions, the heritage of a historical fragmentation, current political risks and the economic environment, too, in which the protection of property rights has not yet reached the level of more developed economies.

Garibaldi et al. (2001) ascertained that market size, availability of resources, openness and barriers to investment are significant determinants of capital flows, whereas wages, initial liberalization and initial condition do not seem to play the key role.

Furthermore, Barrell and Pain (1999) find out that positive initial conditions play a role in determining capital inflows by attracting significant FDI at the early stage of transition as well as supporting economic development and growth.

Uvalic (2003) and Brada, Kutan and Yigit (2006) stress the fact that political instability negatively affects the investment flows, especially for the region of the Balkans, where there are still important and unresolved political issues. These findings are substantially confirmed by Demekas et al. (2005).

On the other hand, Kekic (2005) finds out that the determinants of FDI for the Balkans are equivalent to other ex-socialist economies even if the analysis does not cover the whole transition phase.

Despite consistent literature on this topic is abundant, there is still a lack in the investigation of the *intra*-EU direct investment (IDI) from EU-15 member states into the transition countries. Because several NMS joined the EU during the last decade, now it is possible to check the importance of the EU membership in determining the capital inflows after some time since the accession. IDI, as well as FDI, can be crucial to accelerate and complete the transition to free market economies (see, for instance, Mayhew 1998). Moreover, because some group of countries share similar social and institutional features, it is possible to investigate whether some subgroups of NMS have benefited from the EU membership more than others and, if so, to which extent.

Data and methodology

In this paper, the data have been drawn from the comprehensive and comparable Eurostat database for 27 EU member states for the period 1993-2013. Observations of IDI are in thousands of Euros and describe the direct investment flow from an EU-15 country to a NMS. The dataset includes 2506 observations and covers the full period of transition so it is possible to have a complete framework of what has been the effect of the EU accession on *intra*-EU direct investment. EU-15 countries are the source economies, ex-socialist countries that were involved in the enlargement process are the host economies. Current official and potential candidates, as well as the 28th EU member state (Croatia) have been excluded from the final sample because of insufficient data, especially for the Western-Balkan countries. In order to study the impact of the EU accession on IDI, the focus is therefore on transition economies that joined the EU during the last decade (that is, Bulgaria, Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia). In fact, the EU membership can be viewed as a signal of development and democratization, albeit as regards to market size, institutional development and the degree of assimilation of the acquis communitaire (Bevan and Estrin, 2004), there are lingering differences between the old and new member states. Nevertheless, the EU membership allows to directly investigate on how accession affected the economies under observation by considering the bilateral investment flows as an appropriate signal of integration and development.

On the other hand, European association agreements were not taken into account because of multicollinearity issues. These agreements might be considered a part of the pre-accession phase. As a consequence, their role is considered to be captured by the EU membership dummy in the empirical estimates.

The idea underlying this paper is that the more the continental Europe will experiment with large capital flows between old and new member states, the more these economies will become integrated and developed. One of the main objectives of the enlargement policy is to establish common grounds of rules allowing the EU enterprises to operate without barriers in any member state. The goal is to ensure as much as possible same opportunities to do business all over the European Union, regardless of the enterprises' country of origin. The EU membership is a symbol of stability of a country, quality of its institutions as well as implementation of political reforms. Thus, investors consider it the most important signal that an ex-socialist country can send. In fact, even if the enlargement process includes several progressive steps, it is only at the moment of the accession that a candidate country demonstrates that it fulfils all the conditions to be part of the developed EU. Thus the EU membership reduces the country risk and it is expected to positively affect the inward capital flows, albeit the accession could be a better signal for extra-EU rather than *intra*-EU foreign investors.

However, despite the EU membership the IDI flows can be limited by gravity factors. In general, the greater is the distance between two countries, the lesser should similarities be, for instance, at social and cultural level, and the lesser should the bilateral trade and investment flows be, too. As stated by Bevan and Estrin (2004), the distance is a measure of transactional cost of doing business abroad. Moreover, the IDI flows are expected to be influenced by market size of the involved economies as well as by distance. In order to investigate whether or not the IDI flows are determined by gravity factors, a simple gravity model was used.

The gravity approach is used widely in literature. It assumes that the size of economies, the distance between source and host countries and other factors (unit labour cost, institutional and social stability, or membership in economic associations, for instance) are the main drivers for trade or investment flows. In line with recent research, this approach was adopted to investigate the determinants of the bilateral investment flows between the old and new EU member states. Following Helpman (1984), Brainard (1997) and Bevan and Estrin (2004), the model controls for different variables typically used to capture comparative advantages in the NMS, and has the following form [Eq.1]:

$$lnIDI_{iit} = \beta_0 lnGDP_{it} + \beta_1 lnGDP_{jt} - \beta_2 lndistance_{ij} + \beta_3 lnopenness_{jt}$$
$$- \beta_4 lnRULC_{jt} + \beta_5 Membership2004_j + \beta_6 Membership2007_j$$
$$+ \beta_7 Institutions_j + \varepsilon_{ijt}$$

where the subscript i stands for the source country, j stands for the host country, and finally t for year. Any variable entering the equation provided above is in logs, except for the distance variable and the membership dummy. The IDI from a source EU-15 country to a host NMS is the dependent variable. On the right hand side (RHS) of the equation [1], GDP_{it} is the size of the source country; GDP_{jt} is the size of the host country; $distance_{ij}$ stands for the distance from the capitals (in kilometers); $openness_{jt}$ stands for the sum of total import and export over GDP of the host country; $RULC_{jt}$ stands for the real unit labor cost of the host country; $Membership2004_j$ is the EU accession dummy variable which assumes the value of 0 before 2004 and then 1 for the Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia; *Membership2007* is the EU accession dummy variable that assumes the value of 0 be-

fore 2007 and then 1 for Bulgaria and Romania$_j$; *Institutions$_j$* considers a measure drawn by the Heritage Foundation's Index of Economic Freedom: the investment freedom index (Estrin and Uvalic, 2013); and finally ε_{ijt} is the error term. The model is estimated with random effects because the Hausman test does not reject the null hypothesis of hortogonality between regressors and the error term. The model controls for gravity factors and for factors of cost and market conditions. The variables are in logs to address non-linearities of the data (Estrin and Uvalic, 2013). Due to the fact that investment decisions take time and are not influenced by the RHS variables immediately, the model was estimated with a lag of one period in the independent variables, the only exception being the constant. This appears to be a reasonable assumption especially as regards time consuming decisions such as the decision of investing abroad. Moreover, it helps us address potential endogeneity issues.

With regard to the RHS variables, the coefficients for both GDP and openness variables are expected to be positive related to IDI because market size and openness of the economies should be thought of as signals of the capacity to supply and development (Bevan and Estrin, 2004). On the other hand, the higher the factor costs are in a host country compared to the factor costs of the source country, the less an enterprise of the source country is motivated to invest there. Thus the coefficient of the real unit labor cost for the host country is expected to negatively affect investment flows. The distance variable is a proxy for transnational costs (in economic and social terms, i.e. different cultures, languages, etc.). It holds true that the greater the distance between source and host countries, the higher the transnational costs are expected to be. Hence, the coefficient of this variable should be negatively related to IDI. *Vice versa*, the EU membership dummy as a signal of institutional stability and economic development should positively affect the dependent variable and the investment freedom index.

In order to detect heteroskedasticity, White's and Breusch-Pagan/Cook-Weisberg's tests for heteroskedasticity were performed. They evidence the presence of heteroskedasticity in the residuals of the main model. Moreover, as far as autocorrelation is concerned, the Cumby-Huizinga general test for autocorrelation was performed with the null hypothesis of no serial correlation or that serial correlation exists, but died out at a known finite lag ($q > 0$). The test can be used in cases where alternatives such as the Box-Pierce/Ljung-Box, Durbin's h test and the Breusch-Godfrey test are not applicable. For example, the Box-Pierce/Ljung-Box is not applicable if regressors are not strictly exogenous and there is heteroskedasticity in the residuals. The Breusch-Godfrey test as well as the Durbin's h test, relaxes the assumption of strictly exogenous regressors but are inappropriate in presence of conditional heteroskedasticity. The Cumby-Huizinga test is advantageous in the fact that it can be applied in the fixed-T large-N panel data context. The test rejects the null hypothesis of no serial correlation in the residuals. Therefore, because the residuals may exhibit heteroskedasticity and autocorrelation, the model was estimated correcting for heteroskedasticity and within-cluster correlation in order to obtain cluster-robust standard errors and mitigate the problem of autocorrelation. This method was chosen because the main specification shows some differences between the cluster-robust and default standard errors. In this case, cluster-robust estimation should be preferred.

On the other hand, the estimator proposed by Driscoll and Kraay (1998) – that is robust to heteroskedasticity, both within and across cluster correlations and that has the advantage that correlations across clusters are possible – was not used because the asymptotics of its standard errors require a larger number of time periods. The Newey–West/Bartlett kernel (HAC) estimator was not used either because it requires large-T asymptotics.

The data was clustered at the state level, with residuals assumed to be uncorrelated across clusters but correlated within a cluster. In other words, the residuals in different periods for a given state may be correlated, while the residuals for different states are assumed to be uncorrelated. It should be noted that, in general, if observations are correlated over time, cluster-robust standard errors account even for such serial correlation. However, as a robustness check, the data were clustered in the N-dimension, that is, on panel units in order to obtain standard errors robust to arbitrary serial correlation. The main findings remain unaltered.

Results

The analysis of determinants of the *intra*-EU capital flows into the new member states is based on the assumption that the EU membership positively affects IDI while gravity factors, such as the distance between the source and host countries negatively affects the investment flows. Furthermore, factor costs, size and openness of the countries involved should play a role in this contest (in a negative and positive manner, respectively).

Table 1 shows the annual investment flows into the NMS. At a first glance, it is possible to see substantial increase in investment flows after 2000 for all the transition economies. This is a result of macroeconomic and political stability. Despite the fact that the EU accession is a better signal for extra-EU rather than *intra*-EU foreign investors, even the *intra*-EU investment flows benefited from the EU enlargement. Table 1 shows that in comparison to 2003, capital flows into the NMS increased twice during the accession phase (2004 – 2007). Moreover, the year after the second enlargement (Romania and Bulgaria, 2008), capital flows into the NMS reached their historical peak. These flows decreased due to global economic crisis after that year. Nevertheless, they were always larger compared to the last year before the first enlargement (2003). Thus, it is possible to state that the EU accession reduced the country risk even in case of IDI flows. The increase in investment flows widened after the first enlargement (2004) for several countries, albeit with differentiation. It should be underlined that all the NMS attracted more IDI in comparison to the 1990s. On the other hand, the second enlargement, which was restricted to Bulgaria and Romania, did not impact investments flows of these countries in any notable manner, especially for Bulgaria. The reason for that can be seen in the economic crisis that caused a fall in IDI after 2007-2008 in most ex-socialist countries.

Table 2 illustrates the top three source countries in each NMS, and provides an analysis of the latest year available (2012). In the group of countries that represented major investors in at least three NMS, there is only the Netherlands (Cyprus, Hungary and Slovakia). Denmark (Czech Republic and Romania), Spain (Malta and Poland) and Sweden (Estonia and Latvia) are major investors in two NMS, while Luxembourg (Bulgaria),

Belgium (Slovenia) and Germany (Lithuania) are major investors in one country. This could suggest that distance may play a role in determining the IDI flows. In fact, Spain and two Nordic countries (Denmark and Sweden) are to be found among the top source countries. In comparison to mainland Europe, these countries are relatively more distant to the NMS. On the other hand, it should be noted that the most important EU economy (Germany) is the top investor in one country only. Here, it should be underlined that an enterprise can opt to invest as well as to export without investing abroad. This is especially valid for enterprises of countries that are export-oriented economies, such as Germany.

Figure 1 illustrates the sectoral distribution of the IDI flows. The data have been aggregated into the agriculture, mining, manufacturing and services sector of the NMS in 2011. This analysis can be useful in evaluating the long-run impact of the capital flows on employment and growth (Estrin and Uvalic, 2013). At a first glance, it is possible to see that the services sector collects substantial capital flows, on average 59 percent of total. In particular, this sector represents more than 75% in Hungary, while lower shares were registered in other countries (47% in Romania, 51% in Slovakia, and 52% in the Czech Republic). As far as manufacturing is concerned, there is an important differentiation among the NMS. In fact, compared to other ex-socialist economies, the Central NMS (the Czech Republic, Slovakia and Poland) attracted a substantial amount of IDI in the manufacturing sector (more than 68% of total).

Table 3 shows the main results. It should be noted that in all specifications, any variable entering the eq. [1] has the expected sign, with the exception of the investment freedom index. This index is insignificant, though. Column (1) illustrates the empirical specification without the EU membership dummies. As expected, the coefficient of the distance variable (-.018) is negative. However, it is insignificant. This result diverges from the previous studies – which include extra-EU countries as source economies – but is not surprising given the proximity of the countries to each other.

The model is estimated including the EU membership 2004 dummy in Column (2). The coefficients of the other variables do not change significantly. More importantly, it should be noted that the EU membership dummy is the main determinant of the IDI flows as shown by its magnitude (.208). The distance, on the other hand, does not play the key role in determining investment flows into the NMS. In fact, the coefficient reaches a value close to zero (-.006) and is statistically insignificant. The size of the source economies is always positive and significant (from .047 to .050; Table 1) while the size of the host economies and openness of the host countries to world trade seems not to have any crucial impact on determining the investment flows. The same reasoning is valid to factor costs measured by real unit labor costs whose coefficient in any specification is negative but insignificant. It is necessary to say that this was expected.

The model is estimated including both the EU membership 2004 and 2007 dummies in Column (3). The coefficients of the RHS variables do not change much. Once again, the EU membership 2004 and 2007 dummies are the main determinants of the *intra*-EU capital flows as shown by their magnitude (.253 and .424, respectively) and significance at 1%.

Column (4) presents the results adding the investment freedom index among the independent variables as a measure of institutional quality. The results remain unchanged albeit the coefficient of the investment freedom variable is insignificant as in the work of Estrin and Uvalic (2013). Thus the impact of the institutional qualities is – not surprisingly – fully absorbed by the EU membership dummies.

Our variable of interest, EU membership dummies, retains its significance and magnitude (.258 and 424, respectively). If we were to put it another way, even when controlling for other institution variables, the EU membership is the main determinant for IDI flows while the distance between the source and the host countries does not play the key role. Interestingly, the IDI flows to the NMS in any specification do not seem to be significantly affected by the size market of the host countries while the size market of the source countries is positive and significant. Real unit labor costs and openness show insignificant coefficients. These results partly contrast with the previous findings (Bevan and Estrin, 2004), especially with regard to the factor costs, even if the coefficients of both GDPs are similar. However, it should be noted that the authors in their paper investigated the determinant of foreign direct investment into transition economies, including capital flows from non-EU countries, such as US or Japan.

Furthermore, because table 7 shows that there are some issues of collinearity – for instance, among the institutional variables and the EU membership as well as among distance and GDP variables – and in order to investigate the impact of collinearity on the results, the model was estimated by adding one or several regressors at a time; after doing this, the main findings did not change.

Table 4 illustrates the results related to the Baltic countries (Estonia, Latvia, and Lithuania). The recent history of these countries is similar in political, social and economic terms, which allows us to consider them a sub-group of the NMS, and to proceed with a separate analysis. By focusing our attention to these young democracies, it is possible to see that, once again, the coefficients of all the explanatory variables have the expected sign, with the exception of the investment freedom index because of collinearity. The EU membership dummies for 2004 and 2007 are significant at 1% and have notable magnitude. Hence, the EU accession was vital in attracting IDI for this subgroup of countries, too. Source GDP and openness show significant coefficients at 10% (.046 and .009, respectively). On the contrary, the Baltic dummy is negative (-.028 and -.027, respectively in column 1 and 2), therefore suggesting that being a Baltic country could negatively affect the investment flows. Because the distance is statistically insignificant, this impact should not be attributed to geographic reasons. In fact, it should be noted that among the NMS, these economies were the only ex-socialist countries which had once been a part of the USSR. In comparison to other NMS, these disadvantageous initial conditions can be interpreted as more pronounced political barriers to investment from the rest of Europe.

Table 5 restricts the analysis to the Balkan countries (Bulgaria, Romania, Slovenia and Hungary). Once again, the EU membership dummies are the main determinants of the IDI flows with coefficients significant at 1% while the coefficient of the source GDP is significant at 10% (.047 and .046, respectively in column 1 and 2) and the distance is negative but insignificant. More importantly, the coefficient of the Balkans dummy is close to zero (-.006 and -.007 in column 1 and 2, respectively). Thus, the analysis re-

stricted to the Balkan countries that joined the EU demonstrates the inexistence of a negative Balkans effect in attracting IDI. This finding is remarkable because previous research identified a persistent negative Balkans effect for non-EU Balkan countries (Estrin and Uvalic, 2013).

The study restricted to the countries of Central Europe (the Czech Republic, Slovakia and Poland) confirmed the results of the main model (Table 6). Even for these economies the EU membership is the main determinant of the IDI flows with coefficients of notable magnitude and significant at 1%. Source GDP and openness have coefficients significant at 10%, whereas the distance is insignificant. In particular, unlike the analysis focused to the other subgroups, the Central dummy is positive (.016 and .015, respectively in column 1 and 2), which suggests that even when market size, distance, factor costs, institutional quality and EU membership are taken into account, countries of Central Europe receive more IDI in comparison to the Baltic and Balkans ones. As has been mentioned, the reason could be that the Central NMS attract substantial amount of IDI in manufacturing sector. This sector usually needs more investment compared to the services sector. Moreover, it could better support industrial restructuring, structural changes and employment creation (Estrin and Uvalic, 2013). However, the Baltic and Balkan countries receive substantial amount of IDI in the services sector. This could help explain why the Central NMS received more IDI flows than the other two subgroups of transition countries. However, because all the subgroup dummy variables show insignificant coefficients, this interpretation should be taken with caution. *Vice versa*, the coefficient of zero related to the Balkans dummy demonstrates that being part of the EU eliminated any negative Balkans effect in attracting *intra*-EU investment. This is an important finding because previous research (Estrin and Uvalic, 2013) suggested that a negative Balkans effect in attracting foreign investment still persisted for non-EU Balkan countries.

Conclusions

Using a gravity approach covering the period 1993–2013 with data extracted from the Eurostat database, this paper investigates the determinants of the *intra*-EU direct investment flows into the NMS. The analysis is focused on 27 EU countries divided into source economies (the EU-15 countries) and host economies (the NMS that entered the EU on 2004 and 2007). The paper extends the period analyzed by previous research and gives evidence that the main determinants of the investment flows between EU-15 countries and NMS are represented by the EU accession. Thus, the membership in EU is a crucial *signal* of institutional and macroeconomic stability in order to plan direct investments into the NMS by other EU enterprises.

Moreover, in contrast to the existing literature that evidences the importance of openness as a determinant of foreign direct investment, in this paper this variable is not crucial in determining the IDI flows because is substantially absorbed by the EU membership that, among other things, requires free circulation of goods and services, customs union and the adoption of a common EU legislation with regard to trade rules. This probably helps explain why this variable is positive, as expected and as it was in previous studies, but statistically insignificant in the main specification. As far as the market size is concerned, and in line with previous research, the results suggest that GDP of the

source country is important in determining the IDI flows. *Vice versa*, GDP of the host countries as well as real unit labor cost do not seem to play a key role.

Differently from previous works, the distance is – not surprisingly – statistically insignificant. The reason is to be seen in the proximity of these countries to one another. On the other hand, even this variable is captured by the EU membership for the same reasons related to openness. This is valid also for measures of institutional quality such as the investment freedom index that is fully absorbed by the EU membership dummies.

A separate analysis on three subgroups of NMS – sharing similar political, social and economical features – shows that even when market size, distance, institutional quality and EU membership are taken into account, the Baltic and Balkan countries continue to receive less IDI than Central ones. With regard to the Baltic countries, the reason is to be found in the initial conditions of these economies. In fact, when the transition from socialism to free market economies started, they are the only states which had been a part of the USSR. This might suggest more pronounced political barriers that during the transition process limited the investment flows from Western Europe. With regard to the Central NMS, they probably receive more IDI compared to the Baltic and Balkan countries because they attract substantial amount of IDI in the manufacturing sector that needs more capital compared to the services sector in which the Baltic and Balkan countries receive the most important part of IDI. However, these results should be taken with caution because the related coefficients are insignificant.

On the other hand, the analysis restricted to the Balkan countries which have joined the EU does *not* evidence any negative Balkans effect in attracting IDI. This finding is important because previous studies show a persistent negative Balkans effect for non-EU Balkan countries. Thus, the results suggest that the EU membership is crucial for the EU Balkan countries in order to eliminate any negative Balkans effect in attracting *intra*-EU capital flows.

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Appendix 1: Tables and Figures

Table 1 Annual IDI Flows to the New Member States

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Bulgaria	10	112	10	70	91	193	127	509	187	1014
Cyprus	5	28	1	42	-90	126	-206	73	-224	211
Czech Republic	854	1210	2548	1582	2010	2298	1620	2876	2709	2024
Estonia	5	-3	11	20	47	77	313	213	246	188
Hungary	1335	928	3148	1871	1859	3332	-110	2892	1870	149
Latvia	3	12	26	19	48	71	94	55	85	-22
Lithuania	5	7	27	16	31	99	235	125	175	198
Malta	18	12	5	300	36	-45	103	8	63	23
Poland	749	906	1472	3455	3325	5945	6913	8230	5985	1865
Romania	26	26	99	137	445	530	523	638	770	537
Slovakia	90	182	123	399	331	437	456	1460	1033	3899
Slovenia	65	38	121	98	208	203	258	234	429	1063

Source: Author's elaborations based on Eurostat data. Values in millions of euros.

Table 1 Contiuned

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bulgaria	113	162	1301	846	2173	2827	1671	633	466	170
Cyprus	25	504	2112	2214	6088	5955	43411	1605	1480	30751
Czech Republic	-691	1195	3889	4480	5289	4983	2248	4121	1760	3949
Estonia	233	520	2510	605	448	1346	1177	891	-2287	232
Hungary	2953	4893	16187	4107	13600	6720	-13557	7710	173	-3403
Latvia	-174	235	21	105	319	759	-24	314	906	175
Lithuania	233	228	138	258	132	871	101	466	532	216
Malta	522	725	4213	12174	1866	3469	4570	492	-4543	-3629
Poland	1663	6827	3485	8451	9529	7667	5760	6818	8781	5278
Romania	558	2744	2002	8669	4827	10756	1758	1913	1113	2012
Slovakia	-1052	1017	1422	1763	1544	2117	1682	1240	948	-2914
Slovenia	643	269	575	507	760	2859	-35	169	532	-678

Source: Author's elaborations based on Eurostat data. Values stated in millions of €.

Table 2 IDI Flows by Source Country (2012)

| Country of destination	Top 3 source countries
Bulgaria	Luxembourg – Netherlands – Denmark
Cyprus	Netherlands – Belgium – France
Czech Republic	Denmark – Ireland – Netherlands
Estonia	Sweden – Ireland – Netherlands
Hungary	Netherlands – Spain – Finland
Latvia	Sweden – UK – Ireland
Lithuania	Germany – Sweden – Spain
Malta	Spain – UK – Luxembourg
Poland	Spain – Netherlands – Denmark
Romania	Denmark – Spain – Netherlands
Slovakia	Netherlands – Spain – Luxembourg
Slovenia	Belgium – Denmark - Luxembourg

Source: Eurostat.

Figure 1 Foreign Direct Investment by Economic Activity, 2011

Clockwise from the top: Agriculture (blue), Mining (red), Manufacturing (green) and Services (purple)

Poland

Romania

Slovenia

Slovakia
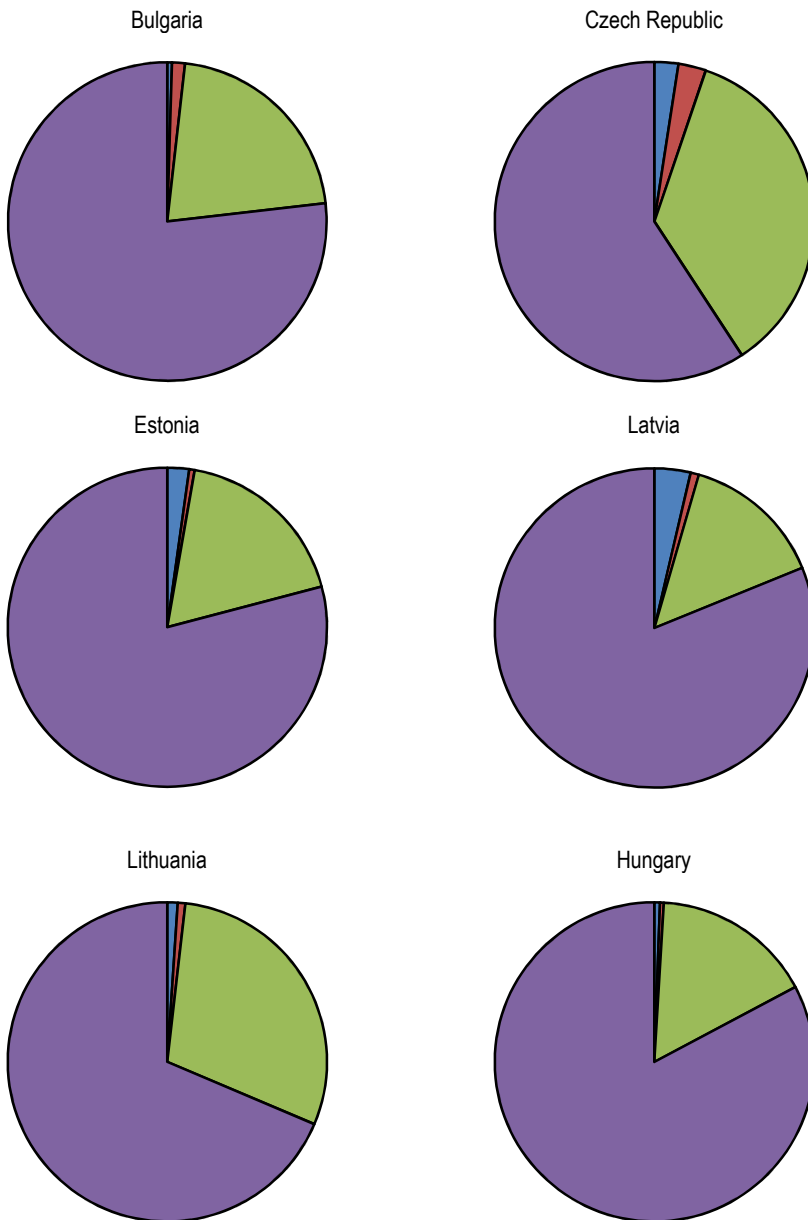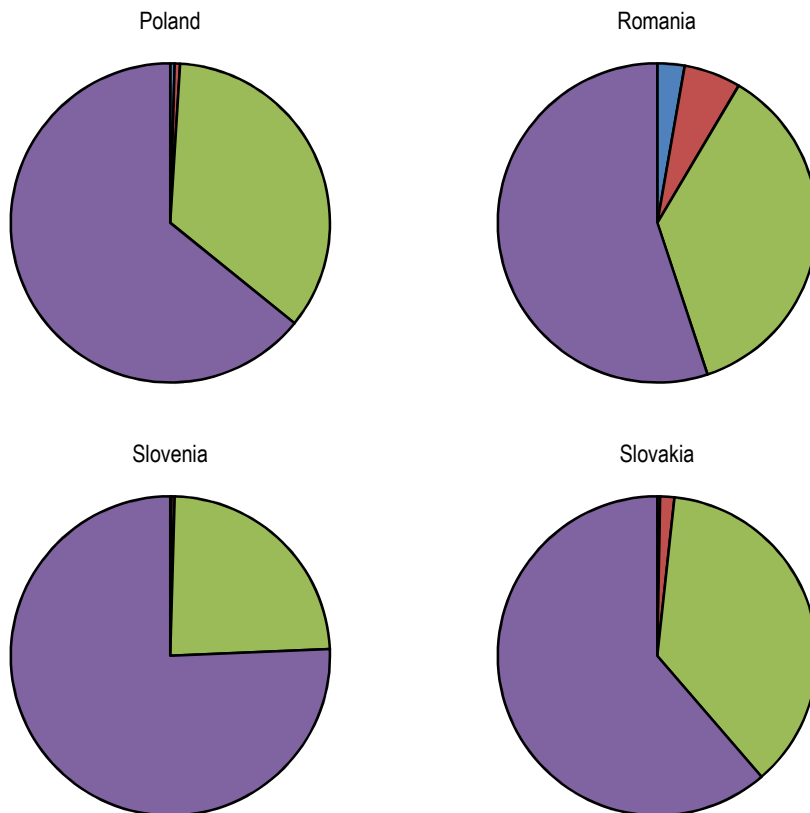
Source: Author's elaborations based on data provided by the Eurostat database. NACE R2. Sectors: Agriculture, forestry and fishing; Mining and quarrying; Manufacturing; Services. Partner: All countries of the world.

Appendix 2: Empirical estimates

Table 3 Determinants of Intra-EU Capital Flows Into the New Member States

The estimated equation is:

$$lnIDI_{iit} = \beta_0 lnGDP_{it} + \beta_1 lnGDP_{jt} - \beta_2 lndistance_{ij} + \beta_3 lnopenness_{jt} - \beta_4 lnRULC_{jt}$$
$$+ \beta_5 Membership2004_j + \beta_6 Membership2007_j + \beta_7 Institutions_j + \varepsilon_{ijt}$$

Dependent variable: lnIDI	(1)	(2)	(3)	(4)
lnGDP$_i$	.014 (.044)	.019 (.030)	.003 (.026)	.005 (.025)
lnGDP$_j$	.048* (.023)	.050** (.022)	.047* (.023)	.047* (.023)
lndistance	-.018 (.025)	-.006 (.027)	-.021 (.024)	-.022 (.024)
lnopenness	.007 (.007)	.007 (.007)	.009 (.005)	.009 (.005)
lnRULC	-.000 (.006)	-.000 (.005)	-.002 (.005)	-.002 (.005)
Membership 2004		.208**(.070)	.253***(.060)	. 258***(.066)
Membership 2007			.424*** (.052)	. 424***(.049)
Investment freedom				-.044 (137)
Constant	3.67*** (.178)	3.46*** (.197)	3.56*** (.192)	3.76***(.569)
Obs.	2506	2506	2506	2506
R^2	.002	.014	.024	.024

(i) In the estimated empirical model, lnIDI$_{iit}$ denotes intra-EU direct investment from an EU-15 country j into a NMS-12 i at time t; (ii) lnGDP$_{it}$ denotes GDP of the source country i at time t; (iii) lnGDP$_{jt}$ denotes GDP of a host country j at time t; (iv) lndistance$_{ij}$ denotes the distance between the source and host capitals; (v)lnopenness$_{ijt}$ denotes the openness of the host country j at time t; (vi) lnRULC$_{jt}$ denotes the real unit labour cost of host country j at time t; (vii) Enlargement$_j$ denotes the EU membership dummy; (vii) Institutions. The estimation sample contains 27 European countries over the period 1993-2013. The model was estimated with a lag of one period in the independent variables, with the exception of the constant. Cluster-robust standard errors in parentheses. *denotes significant at 10%; ** at 5%; *** at 1%.

Table 4 Determinants of Intra-EU Capital Flows Into the Baltic Countries

The estimated equation is:

$$lnIDI_{iit} = \beta_0 lnGDP_{it} + \beta_1 lnGDP_{jt} - \beta_2 lndistance_{ij} + \beta_3 lnopenness_{jt} - \beta_4 lnRULC_{jt}$$
$$+ \beta_5 Membership2004_j + \beta_6 Membership2007_j + \beta_7 Institutions_j + \varepsilon_{ijt}$$

Dependent variable: lnIDI	(1)	(2)
lnGDP$_i$	.003 (.026)	.003 (.025)
lnGDP$_j$	.046* (.023)	.046* (.023)
Lndistance	-.027 (.023)	-.027 (.023)
Lnopenness	.009* (.004)	.009* (.004)
lnRULC	-.002 (.005)	-.002 (.005)
Membership 2004	.257***(.059)	.258*** (.065)
Membership 2007	.412*** (.055)	.412*** (.056)
Baltics dummy	-.028 (.021)	-.027 (.025)
Investment freedom		-.152 (.169)
Constant	3.62***(.187)	2.90***(.624)
Obs.	2506	2506
R^2	.025	.025

*(i) In the estimated empirical model, lnIDI$_{iit}$ denotes intra-EU direct investment from an EU-15 country j into a NMS-12 i at time t; (ii) lnGDP$_{it}$ denotes GDP of the source country i at time t; (iii) lnGDP$_{jt}$ denotes GDP of a host country j at time t; (iv) lndistance$_{ij}$ denotes the distance between the source and host capitals; (v)lnopenness$_{ijt}$denotes the openness of the host country j at time t; (vi) lnRULC$_{jt}$ denotes the real unit labour cost of host country j at time t; (vii) Enlargement$_j$ denotes the EU membership dummy; (vii) Institutions. The estimation sample contains 27 European countries over the period 1993-2013. The model was estimated with a lag of one period in the independent variables, with the exception of the constant. Cluster-robust standard errors in parentheses. *denotes significant at 10%; ** at 5%; *** at 1%.*

Table 5 Determinants of Intra-EU Capital Flows Into the Balkan Countries

The estimated equation is:

$$lnIDI_{iit} = \beta_0 lnGDP_{it} + \beta_1 lnGDP_{jt} - \beta_2 lndistance_{ij} + \beta_3 lnopenness_{jt} - \beta_4 lnRULC_{jt}$$
$$+ \beta_5 Membership2004_j + \beta_6 Membership2007_j + \beta_7 Institutions_j + \varepsilon_{ijt}$$

Dependent variable: lnIDI	(1)	(2)
lnGDP$_i$	.003 (.026)	.005 (.025)
lnGDP$_j$	.047* (.024)	.046* (.023)
lndistance	-.023 (.026)	-.025 (.026)
lnopenness	.009 (.005)	.009 (.005)
lnRULC	-.002 (.004)	-.002 (.005)
Membership 2004	.252*** (.060)	.256*** (.066)
Membership 2007	.428*** (.051)	.429*** (.049)
Balkans dummy	-.006 (.014)	-.007 (.013)
Investment freedom		-.048 (.139)
Constant	3.58***(.213)	3.79***(.578)
Obs.	2506	2506
R^2	.024	.024

(i) In the estimated empirical model, lnIDI$_{iit}$ denotes intra-EU direct investment from an EU-15 country j into a NMS-12 i at time t; (ii) lnGDP$_{it}$ denotes GDP of the source country i at time t; (iii) lnGDP$_{jt}$ denotes GDP of a host country j at time t; (iv) lndistance$_{ij}$ denotes the distance between the source and host capitals; (v)lnopenness$_{ijt}$ denotes the openness of the host country j at time t; (vi) lnRULC$_{jt}$ denotes the real unit labour cost of host country j at time t; (vii) Enlargement$_j$ denotes the EU membership dummy; (vii) Institutions. The estimation sample contains 27 European countries over the period 1993-2013. The model was estimated with a lag of one period in the independent variables, with the exception of the constant. Cluster-robust standard errors in parentheses. *denotes significant at 10%; ** at 5%; *** at 1%.

Table 6 Determinants of Intra-EU Capital Flows Into the Countries of Central Europe

The estimated equation is:

$$lnIDI_{iit} = \beta_0 lnGDP_{it} + \beta_1 lnGDP_{jt} - \beta_2 lndistance_{ij} + \beta_3 lnopenness_{jt} - \beta_4 lnRULC_{jt}$$
$$+ \beta_5 Membership2004_j + \beta_6 Membership2007_j + \beta_7 Institutions_j + \varepsilon_{ijt}$$

Dependent variable: lnIDI	(1)	(2)
lnGDP$_i$	.007 (.027)	.007 (.026)
lnGDP$_j$	.047* (.023)	.047* (.023)
lndistance	-.019 (.026)	-.020 (.026)
lnopenness	.009* (.005)	.009* (.005)
lnRULC	-.002 (.005)	-.002 (.005)
Membership 2004	.251*** (.060)	.254***(.065)
Membership 2007	.429*** (.054)	.428*** (.051)
Central dummy	.016 (.026)	.015 (.025)
Investment freedom		-.024 (.133)
Constant	3.53*** (.218)	2.82***(.644)
Obs.	2506	2506
R^2	.024	.024

*(i) In the estimated empirical model, $lnIDI_{iit}$ denotes intra-EU direct investment from an EU-15 country j into a NMS-12 i at time t; (ii) $lnGDP_{it}$ denotes GDP of the source country i at time t; (iii) $lnGDP_{jt}$ denotes GDP of a host country j at time t; (iv) $lndistance_{ij}$ denotes the distance between the source and host capitals; (v)$lnopenness_{ijt}$ denotes the openness of the host country j at time t; (vi) $lnRULC_{jt}$ denotes the real unit labour cost of host country j at time t; (vii) $Enlargement_j$ denotes the EU membership dummy; (vii) Institutions. The estimation sample contains 27 European countries over the period 1993-2013. The model was estimated with a lag of one period in the independent variables, with the exception of the constant. Cluster-robust standard errors in parentheses. *denotes significant at 10%; ** at 5%; *** at 1%.*

Table 7 Correlation Matrix

	lnGDP$_i$	lnGDP$_j$	lndistance	lnRULC	lnopen	Investfree	Enlarg.	Enlarg2.
lnGDP$_i$	1							
lnGDP$_j$	0.0000	1						
lndistance	-0.1201	-0.2524	1					
lnRULC	0.0707	-0.0000	0.0548	1				
lnopen	0.0856	0.0000	0.0718	0.0425	1			
Investfree	0.0056	0.0000	-0.0832	-0.0752	-0.0773	1		
Enlargement	-0.0074	0.0000	-0.0637	-0.1009	-0.0485	0.2694	1	
Enlargement2	-0.0015	-0.0000	0.0955	0.1115	0.0088	-0.0592	-0.2719	1