

REGIONAL DETERMINANTS OF FOREIGN DIRECT INVESTMENTS IN CROATIA

Ines KERSAN-ŠKABIĆ
Lela TIJANIĆ

Ines KERSAN-ŠKABIĆ

Professor, Faculty of Economics and Tourism 'Dr. Mijo Mirković', Juraj Dobrića University of Pula, Pula, Croatia
Tel.: 00385-52-377.028
E-mail: letijan@unipu.hr

Lela TIJANIĆ

Postdoctoral researcher, Faculty of Economics and Tourism 'Dr. Mijo Mirković', Juraj Dobrića University of Pula, Pula, Croatia
Tel.: 00385-52-377.028
E-mail: letijan@unipu.hr

Abstract

The aim of this paper is to identify the factors that influence the unequal distribution of FDI inflows and that foreign investors identify as significant in making investment decisions regarding Croatian regions. Panel data analysis was applied: static (random effects) and dynamic analysis. The results show that positive and significant influences on FDI have: education, infrastructure, the manufacturing industry, dummy variables for areas of special state concern and capital city region, while negative statistically significant influences are: unemployment and dummy variable for border regions with the EU. The basic conclusion is that FDI inflows follow the development path of the Croatian regions (with the highlighted agglomeration effect) and that efforts in creating preconditions for economic growth will, at the same time, have an impact on attractiveness of a particular region for foreign investments.

Keywords: FDI, regional determinants, Croatia, panel data analysis.



1. Introduction

Financial globalization is characterized by capital movements that in the last thirty years have become increasingly liberalized (especially among developed countries and European transition countries) and which in 2012 reached \$1.35 trillion despite the turmoil in the global economy (UNCTAD, 2013). In the group of developing countries which represents half of the total Foreign Direct Investments (FDI) are the countries of Central and Eastern Europe and of Southeast Europe. These countries are competing with each other in attracting FDI, and their successes are dependent on a number of economic and political factors.

There are a number of different types of location-specific advantages that characterize motifs for FDI: resource-seeking, market-seeking, efficiency-seeking or strategic asset-seeking. Efficiency-seeking FDI implies a production movement to places where there are lower input costs. In this way a firm can improve its competitive position. Market-seeking investment aims at achieving foreign market proximity and it determines whether it is better to export to a particular market (that incurs transportation costs) or to move production to this market and in this way supply this market.

In the literature relating to FDI, there is a lot of research on the determinants of FDI inflows and such analyses were done mainly at the country level or groups of countries. These studies explain the dependency of FDI on market size, market growth, barriers to trade, wages, production, transportation and other costs, political stability, psychic distance, the host government's trade and taxation regulations affected the location decisions (Dunning, 1992; Dunning, 1993; Kinoshita and Campos, 2002; Markusen, 1998; Markusen and Venables, 1998; Brainard, 1997; Blonigen, 2005).

Far less research relating to the determinants of the attractiveness within a particular country has been carried out. Every country has areas/regions that are lagging behind the average level of economic development and all such regions aim to create conditions for economic growth and employment that could result in convergence to the most developed parts of their countries. To reach this goal it is crucial that regions open their economies and connect with foreign partners, as this is the only way they can access new technologies, knowledge, and a wider market which are preconditions for their future development (Balasubramanyam, Salisu and Sapsford, 1996). At the same time it is important to point out that while FDI cannot solve the problems of a region, it can serve as a supplement to other measures to stimulate the economy.

Why are some regions more attractive than others within the same macroeconomic, institutional and legal framework? Regions differ from each other in many characteristics, such as: size (area and population), economic development, and the sectors (industries) that dominate in their economies. In the case of small countries, foreign investors are probably not drawn to the market of individual regions but the countries and geographic areas to which a certain country belongs. Wage levels can vary slightly among regions within a country. Economic development and the effectiveness of institutions are usually monitored at the country level although there are differences in the functioning of institutions within a country. The legal framework is often pref-

erential (tax exemptions or reduced tax rates) for investments in less attractive and less developed areas, but in the main this does not result in greater investment. The capital city effect can also be observed, where the high concentration of population and activities are attractive to foreign investors.

Croatia, as a small Southeast European country needs foreign investments in the expectation that they will act as a push-factor to the domestic economy. According to data from Croatian National Bank (2014), Croatia received 24.2 billion euros in the period from 1993 till the end of 2012, which is a very large amount of FDI in per capita terms – 6,049 euros. About 90% of total investments in Croatia come from the EU-27. In the group of Central and East European countries only three countries: Estonia, the Czech Republic, and Hungary have received a greater amount of FDI per capita.

The aim of the empirical study in this paper is to identify the determinants of FDI in Croatian NUTS 3 regions¹ that could be of interest in attracting FDI on a regional level in Croatia in the future, looking from the side of foreign investors in the EU and abroad, as well as from the perspective of Croatian national and regional policy makers.

FDI in Croatia is mostly directed towards the service sector, with a predominance of the financial sector (banking and non-banking) with 34% of the total investment which together with the insurance and tourism sector represent the biggest share of FDI. There is also evidence of unequal distribution of FDI among Croatian regions. A huge proportion of FDI is located in City of Zagreb (72% of total FDI), followed by Primorje-Gorski Kotar county (6.5%) and Split-Dalmatia county (5%) (Croatian National Bank, 2013). It should also be pointed out that FDI in Croatia is prevalingly brownfield investments with only a modest amount of greenfield investments.

In Croatia there is a uniform law for the promotion of foreign investment that provides greater benefits for investors in less developed counties (tax benefits) and the benefits depend on the amount of investment and the number of new jobs created. Incentive measures are regulated by the Act on Investment Promotion and Enhancement of the Investment Environment (Official Gazette of Republic of Croatia, no. 111/12 and 28/13). In the framework of regional development it is useful to consider the incentives that are connected with the county's development. The first incentive concerns the county unemployment rate: if the unemployment rate is 10-20% (over 20%) the incentive for capital expenses is a cash grant in the amount of 10% (20%) of the eligible costs of investment for: construction of a new factory, production facility

1 NUTS is the Nomenclature of Territorial Units for Statistics of the European Union. The NUTS of Croatia were defined during the Accession of Croatia to the European Union, codified by the Croatian Bureau of Statistics in early 2007. The regions were last revisited in 2012. The three NUTS levels are: NUTS-1: Croatia; NUTS-2: 2 Regions (non-administrative), and NUTS-3: 21 Counties (administrative). More about the definition of regions in the EU can be found in Sövoiu, Dinu and Manea (2013).

or tourist facility and the purchase of new machines, i.e. production equipment.² The second regional incentive concerns the City of Vukovar and areas of special state concern and they are focused on the implementation of reduced profit taxation.³

The hypothesis of this paper is that there are many factors, such as workforce characteristics (level of education, labor costs), the geographical position of the region (close to the EU market), and the development of the region that affect the attractiveness of the Croatian regions to foreign investors.

Therefore, this paper aims to contribute to the existing literature in several ways. At the beginning of our study, we found two papers that explore the regional determinants of FDI inflows in Croatia (Škuflić and Botrić, 2009; Derado, Škudar and Rakušić, 2011). Škuflić and Botrić (2009) applied econometric analysis, where the analysis was performed in the period up to 2007, however, Croatia recorded the highest FDI inflows in 2008 (over 4 billion EUR). We will show what determined the total foreign investments in Croatian regions in the period 2000 to 2010 and we will make several models where we will use different panel data estimators. We will apply panel data analysis to find out which of the variables have a significant positive or negative influence on FDI flows among Croatian regions. Static and dynamic analysis will be carried out. The analysis will include relevant and accessible information in a way that the obtained models will give the best possible explanation of FDI determinants in the Croatian regions.

The paper is organized as follows: the following section presents the literature review, the third section describes the data, the methodology of analysis and presents the results and the final section gives the concluding remarks.

2. Literature review

Location determinants are very broad concepts and they include traditional factors such as natural resources availability (prices, infrastructure), the size of the market (living standards, wages, production costs), the macroeconomic environment (inflation, unemployment, interest rates, GDP growth rates) and institutional factors (property rights, FDI incentives, bilateral trade/investment agreements, taxes, etc.). A comprehensive framework of FDI attractiveness has been made by Dunning (1992) who

2 Max. amount 0.5 million EUR (1 million EUR) with the condition that the part of investment in the machines/equipment equals at least 40% of the investment and that at least 50% of those machines/equipment are of high technology.

3 In the City of Vukovar profit taxpayers paid profit tax rates reduced by 75% in the period from 2011 to 2013, and reduced by 25% in the period 2014 till 2016. From 2017 the tax payers should pay profit tax in the amount prescribed by the applicable tax rates. Tax incentives in accordance with the Act on the Areas of Special State Concern depend on the classification of areas in three groups where the first group has the incentives as the City of Vukovar, and second and third group had applying reduced tax rates (reduction of 25% or 15%) till the end of 2013.

introduced the eclectic paradigm (also known as the OLI paradigm). Jordaan (2005) points out that modern theory includes macro and microeconomics determinants in seeking to give a complete picture of the location of FDI. The type of FDI is connected with the development stage of the host country. This explains why most FDI inflow in developing countries is resource (natural resources, raw materials, or low-cost inputs such as labor) and market-seeking. Manea and Pearce (2001) highlight the importance of knowledge-seeking as a motive for FDI.

Furthermore, some authors (Kinoshita and Campos, 2002; Menghinello, De Propris and Driffield, 2010, Pelegrin and Bolance, 2008) emphasize the agglomeration effect of existing FDI – the self-reinforcing effect of FDI stock. FDI is found to agglomerate more often than regular financial investment partly because FDI is a long-term capital investment that is irreversible in the short term.

Institutional development is also important in the attractiveness framework (North, 1991; Globerman and Shapiro, 2002; Pournarakis and Varsakelis, 2004; Bevan and Estrin, 2004; Rodrik, Subramanian and Trebbi, 2004). Institutional weaknesses, frequent changes in laws and inefficiency of public administration, may cause a weak inflow or the absence of FDI inflows. The inclusion of institutions in relation to FDI inflows is particularly important for developing countries, because developed countries have strong institutional frameworks conducive to business development and market forces.

All these factors are determinants of FDI inflows into the country or group of countries. Which aspects of the regional determinants need to be highlighted in order to attract FDI in a country? What are the underlying factors that foreign investors identify as significant in making investment decisions regarding a region?

Foreign investors do not only seek access to raw materials and cheap labor, their conduct and business (investment) decisions also depend on the market and efficiency-seeking indicators such as: market size, supportive financial and business services, accessibility to international markets and access to domestic political and business elites. This type of FDI tends to be located in national capitals and a few highly developed regions within host economies and in that way they reinforce the existing spatial asymmetries in production structures and capabilities (Guimaraes, Figueiredo and Woodward, 2000; Cantwell and Iammarino, 2001; Resmini, 2008). This is especially the case with FDI in banking, financial, and service types of investments that are located in capital cities thus increasing their primacy in the domestic economy.

In addition, most of the researches on regional location advantages have been conducted in large countries (mostly China, but also the United States, India, Russia and Turkey), and only rarely are studies conducted in smaller countries. Fu (2008) found that FDI intensity is positively associated with innovation efficiency in the host region and FDI has a significant positive impact on the overall regional innovation capacity in China. Chen (2007) has concluded the opposite – the impact of FDI and regional innovation capability is weak. Inward FDI might have the crowding-out effect on innovation and domestic R&D activity. Mai (2002) found that the infrastructure, local

market size and quality of labor force are the main determinants of local FDI inflows in Vietnam while government policy does not have any influence. As a consequence FDI has been allocated unequally among the regions and in this way increases the development gap between rich and poor regions.

Researches on European countries (and their regions) have been conducted by Menghinello, De Propriis and Driffield (2010) on Italian industrial districts; Bronzini (2007) on Italian industrial and service sectors; Villaverde and Maza (2012), and Rodríguez and Pallás (2008) on Spain, Hansoon and Olofsdotter (2013) on the EU15; and Dimitropoulou, McCann and Burke (2013) on the UK. Most of these papers highlight the impact of agglomeration and the concentration of activities on the attractiveness of the region, but they also identify some other important factors in the attractiveness of the regions: economic potential, educated work force, labor costs and competitiveness. Market size can be important, but Villaverde and Maza (2012) found that it is not a relevant variable.

In considering the case of Croatia, it is certainly valuable to examine the studies conducted in European countries in transition where we would call attention to Gauselmann, Knell and Stephan (2011), Chidlow, Salciuviene and Young (2009), Hilber and Voicu (2010) and Gauselmann and Marek (2012). Boudier-Bensebaa (2005) confirms that labor availability, demand conditions (where variable manufacturing density is also included), and agglomeration economies all have a significant and positive influence on the inward FDI attracted by Hungarian counties. Carstensen and Toubal (2004) have shown that the traditional determinants such as market potential, low relative unit labor costs, a skilled workforce and relative endowments have significant and plausible effects. They determine the negative influence of relative unit labor costs, the positive influence of skill ratio, the positive influence of market potential and the negative influence in trade costs as the determinants of FDI in Central and Eastern European countries. Babić and Stučka (2001) found that openness had a negative and statistically insignificant influence on FDI in CEE6 countries (Czech Republic, Slovakia, Poland, Hungary, Slovenia, and Croatia). They explain that either sign could be expected in the case of trade openness. The importance of knowledge-seeking factors alongside market (and agglomeration) factors act as the main drivers for FDI inflow into the Mazowieckie region (including Warsaw) in Poland, while efficiency and geographical factors encourage FDI in the other regions of Poland according to Chidlow, Salciuviene and Young (2009).

The impact of agglomeration is significant as a major pull factor in attracting foreign investment (Gauselmann, Knell and Stephan, 2012; Hilber and Voicu, 2010; Chidlow, Salciuviene and Young, 2009). Hilber and Voicu (2010) found that the main determinant in the attraction of FDI inflows are external economies from service agglomeration, while in countries dominated by investment in the industry the following are of importance: the educational structure of the region (knowledge-seeking factors), market size and agglomeration factors (Chidlow, Salciuviene and Young, 2009). Some authors (Gauselmann, Knell and Stephan, 2011; Chidlow, Salciuviene

and Young, 2009) highlight the importance of wages to attract FDI, especially in less urban areas. Other economic and technological characteristics of the region are also important (Gauselmann, Knell and Stephan, 2012). Cheng and Kwan (2000) estimated the effects of the regional determinants of FDI and found that a large regional market, good infrastructure and preferential policy had a positive effect while wage cost had a negative effect on FDI. They found that the effect of education was positive but not statistically significant while there was also a strong self-reinforcing effect of FDI on itself.

In the case of Croatia two researches should be highlighted. Škuflić and Botrić (2009), using Granger causality tests, analyzed FDI determinants on the county level (for the first time in Croatia) and they confirmed that the proportion of highly-educated workforce, export orientation and a higher share of domestic investment in the county are positive factors for foreign investors in Croatia. They determined that coverage (the coverage of goods imports by goods exports at the county level) does not Granger cause FDI. Derado, Škudar and Rakušić (2011) show strong positive correspondence between the performance of local economies (sales, labor productivity, export and net-wages) and the amount of inward FDI.

3. Methodology

Different methods can be used to evaluate the effect of FDI and its determinants. Grozea-Helmenstein, Helmenstein and Slavova (2009) analyze the attractiveness of 61 NUTS 2 EU regions as FDI locations. The authors applied a new method for the benchmarking of regions (based on the solution of a non-linear and non-convex optimization problem) in order to analyze the location quality and competitiveness in an international framework with particular emphasis on Austrian (all border) regions and the border regions in the neighboring countries. They present three different benchmarking indices to analyze the attractiveness of the regions as locations for foreign direct investment. The Granger causality test is used in mentioned work of Škuflić and Botrić (2009). Škuflić, Rkman and Šokčević (2013) use the PROMETHEE⁴ multi-criteria decision making method to analyze FDI attractiveness in six Southeast European countries (including Croatia) as well as the EU 27. The analysis in this paper focuses on the impact of different FDI determinants on regional FDI by using panel data analysis which is described below.

Considering the fact that the database for this investigation involves two dimensions: a cross-sectional and time-series, based on Hsiao (2003) we have panel data, so panel data analysis will be used (this methodology has not been previously used in the analysis of FDI on a regional level in Croatia only on a national level as can be seen in Babić and Stučka (2001), Bogdan (2010), etc.). Hsiao (2003) describes the advantages of panel data, which confirms the benefits of using this kind of analysis.⁵ Detailed ad-

4 Preference Ranking Organization Method for Enrichment Evaluations.

5 Besides other advantages, 'by utilizing information on both the intertemporal dynamics and the individuality of the entities being investigated, panel data analysis is better able

vantages (and challenges) of using panel data analysis can be found in Baltagi (2005) and Hsiao (2007). In analyzing the determinants of FDI in Croatian NUTS 3 regions panel data analysis is also performed because data on the regional level are available for a short period (the analysis is applied from 2000 to 2010), while at the same time it is necessary to analyze the determinants of FDI on the regional level. Villaverde and Maza (2012) recognize that just a small number of papers have been devoted to the study of FDI at the regional level. This is also the case in Croatia.

Random effects specification (RE) is used in the empirical estimation of FDI determinants in this analysis because we wanted to include time invariant variables in modeling (that was also confirmed with tests⁶ presented in the next section). As Mattev and Anastasov (2010, p. 287) explain, RE allows the estimation of the impact of time-invariant variables on dependent variable and actually provides more efficient estimates if the region-specific effects are not correlated with the other explanatory variables. This is confirmed in Lessmann (2013). The random effect model is also used in Bevan and Estrin (2004) in analyzing the determinants of FDI in European transition economies. The feasible generalized least square method (FGLS), allowing for group-wise heteroscedasticity and panel specific error autocorrelation was also employed in this study to take into consideration proven problems of heteroscedasticity and autocorrelation. The same method was used in Aristovnik (2006) based on Beck and Katz (1996) and in Menghinello, De Propris and Driffield (2010) to deal with the stated problems in modeling.

The functions for panel-type set of data will be estimated based on Maddala (2008) as random effect model:

$$y_{it} = \alpha_i + \beta'x_{it} + u_{it} \quad (1)$$

α_i refers to random effect, x_{it} is vector of independent variables (presented in Table 1 below) for region i at time t . Namely, variables have two subscripts: $i = 1, 2, \dots, N$ (N refers to number of regions that is 21 and $t = 1, 2, \dots, T$ (T refers to year from 2000-2010). u_{it} are called idiosyncratic errors. It is assumed that α_i and u_{it} are independent and identically distributed with mean zero and variance $\sigma_\alpha^2, \sigma_u^2$.

In order to capture the dynamic effect and to overcome the limitations of static panel analysis (explained in Carkovic and Levine (2002)) as well as with the purpose of testing the robustness of the results from static panel analysis, dynamic panel analysis is performed. Dynamic panel analysis is also applied in Cheng and Kwan (2000), in the previously mentioned work of Carkovic and Levine (2002), Campos and Kinoshita (2003), Carstensen and Toubal (2004), Aragones, Salgado and Rios (2012), Aleksynska and Havrylchuk (2013), and others.

to control in a more natural way for the effects of missing or unobserved variables' (Hsiao, 2003, p. 5).

6 Hausman test and Breusch-Pagan Lagrangian multiplier (LM) test for random effects.

Campos and Kinoshita (2003, p. 12) 'assume that it takes time for FDI to adjust to equilibrium or the desired level' so they 'relate current FDI stock to past FDI stock along with other explanatory variables'. Following their approach the dynamic panel model that is estimated takes the following form:

$$\begin{aligned} Y_{it} &= \delta Y_{it-1} + \lambda X_{it} + \varepsilon_{it} \\ \varepsilon_{it} &= \eta_i + \gamma_t + u_{it} \end{aligned} \quad (2)$$

Y_{it} refers to dependent variable (that is also included with time lags), X_{it} is vector of independent variables (presented in Table 1) for region i at time t (as it is described below the relation (1)), ε_{it} is error term that includes country specific attributes and time-specific attributes.

The basic dynamic panel data model that is used in this analysis relies on Arellano and Bover (1995), Blundell and Bond (1998) system GMM (Generalized Method of Moments) estimator. Namely, the inability to control for some of the elements (that are not included in the model) which can affect the dependent variable leads to potential endogeneity. 'The lagged dependent variable is by construction correlated with time-invariant elements in the error term' (Stojčić, 2012, p. 428), while determinants of FDI included in our modeling can also be correlated with error. The potential endogeneity problem can be overcome by applying dynamic panel GMM estimation. One of the possible dynamic estimators is the mentioned system GMM estimator. 'The system GMM equation uses first-difference equations instrumented by lagged levels and level equations instrumented by the first differences' (Faustino and Vali, 2013, p. 25). Besides other advantages of system estimator (more in Roodman, 2009b) it can include time-invariant variables which are necessary in our analysis. Two-step estimator is applied because it is robust to heteroscedasticity or cross-correlation (more in Stojčić, 2012), with the use of Windmeijer's (2005) correction for the standard errors which is also explained in Roodman (2009b). After the estimation the relevant diagnostics are checked.

4. Data collection and empirical analysis

The database for performing the empirical analysis was formed by taking the findings of the literature review into account (that is the results of similar researches of determinants of FDI) as well as the data availability at the regional level in Croatia. FDI stock is used as dependent variable as in Campos and Kinoshita (2003) and Boudier-Bensebaa (2005), Botrić and Škuflić (2006).

The definition and expected sign of the variables that are used in this analysis are presented in Table 1.

As can be seen from the table above the independent data chosen for empirical analysis refer to labor market conditions, demand conditions and agglomeration effects (as in Boudier-Bensebaa, 2005) or it can be grouped as economic potential, labor conditions and competitiveness factors according to Villaverde and Maza (2012) who also include variables that refer to market size; but in this analysis due to a possible multicollinearity between the variables that refer to market size and labor conditions

Table 1: Definition of variables that are used in empirical analysis and expected impact

Variable	Definition	Expected impact
<i>Dependent variable</i>		
FDI	FDI stock (in kn, deflated with country-level deflator)	
<i>Independent variables</i>		
EDUC	Share of employees with higher education in the total number of employees	+
ULC	Real unit labor cost (average annual wages per county expressed in kn divided by labor productivity (real GDP expressed in kn per employee))	+/-
OPEN	Openness (sum of import and export over GDP, in %)	+/-
INFR	Density of road network (in m/km ²)	+
INO	Patent applications (by county of origin)	+
MANUF	Number of employees in manufacturing industry	+
UNEMP	Unemployment rate, in %	+/-
DUM ₁	Dummy variable that refers to the border regions with the EU (DUM ₁ =1 for border regions)	+/-
DUM ₂	Dummy variable that refers to the areas of the special state concern (DUM ₂ =1 for counties in which the share of population in the areas of the special state concern in total population is > 20%)	+/-
DUM ₃	Dummy variable that refers to region where the capital city (Zagreb) is situated (DUM ₃ =1 for capital city region, that is County of Zagreb=1)	+

Source: Authors; databases used in the analysis: Croatian Bureau of Statistics (2001a, 2001b, 2002a, 2002b, 2003a, 2003b, 2004a, 2004b, 2005a, 2005b, 2006a, 2006b, 2007a, 2007b, 2008a, 2008b, 2009a, 2009b, 2010a, 2010b, 2011a, 2011b, 2012a, 2012b, 2013), Croatian National Bank (2013), Official Gazette of Republic of Croatia (no. 86/08, 57/11 and 51/13), State Intellectual Property Office (2005-2011).

those variables were not chosen as input variables.⁷ The chosen variables from Table 1 can also be seen in the framework of the research in Škuflić and Botrić (2009) as resource-seeking motives for FDI and efficiency-seeking motives (besides market-seeking). A dummy variable that refers to areas of special state concern is based on the research of Boudier-Bensebaa (2005) who discusses the role of taxes and incentives in attracting foreign firms and Liu, Daly and Varua (2012) who observe the significance of government incentives in attracting FDI. The question here is whether or not fiscal policies have an effect in attracting foreign firms, whether subsidies and incentives can offset and overcome the weakness or lack of comparative advantage of a particular location (Boudier-Bensebaa, 2005, p. 620). Fiscal incentives can be seen in the Act on the Areas of Special State Concern (Official Gazette of Republic of Croatia, no. 86/08, 57/11 and 51/2013).⁸ Škuflić and Botrić (2009) have emphasized that fiscal incentives could have a heterogeneous influence on regional dispersion of FDI. It is possible that border regions with the EU (another dummy variable in the model) will

7 Namely, Villaverde and Maza (2012) use also factor analysis to get rid of collinearity problems in the regression analysis that can be one of the implications for future researches of FDI determinants in Croatian regions where some additional variables in the other categories will be included.

8 As well as in Act on Investment Promotion and Income Tax Act.

absorb higher levels of FDI; however, foreign investors usually base their decisions on other determinants so it is possible that the influence of this variable will be insignificant or even negative. A dummy variable that refers to capital city region is also included in modeling. The main reason for doing this is because a huge amount of FDI is absorbed in the County of Zagreb, which Boudier-Bensebaa (2005) call the capital city effect. 'Previous analysis has indicated that FDI at the national level during the period 1993-2008 in Croatia was under the significant influence of the FDI structure and dynamics in one region, North West Croatia' (where the capital city/county of Zagreb is located), 'which accounted for more than 80 per cent of overall FDI' (Škuflić and Botrić, 2009, p. 20).

Some time periods are missing for some of the regions in the sample so the analysis is performed on an unbalanced panel. The data used in the empirical analysis are taken from the Croatian National Bank, the Croatian Bureau of Statistics and the State Intellectual Property Office. The aim of the study is to investigate the determinants on a regional level therefore NUTS 3 (county) level in Croatia is chosen because most of the data are available for that level and because this level also satisfies the requirements of the definition of region (homogeneity, functionality, etc.).

The estimation is based on three regression models that differ with respect to the used panel data estimator. Twenty-one Croatian NUTS 3 regions were included in modeling. The results are presented and explained in more detail in the next section.

5. Empirical results and discussion

Based on the literature review and the methodology of the research outlined above, panel data analysis is performed in order to estimate the influence of the chosen variables on FDI stock in the Croatian NUTS 3 regions. That will ensure encryption of the significant determinants of FDI in Croatian NUTS 3 regions.

The results of the static models are presented in Table 2 (models (1) and (2)) while the results of the dynamic panel data analysis can be seen in Table 3 (model (3)).

Table 2: Estimation results for regional determinants of FDI in Croatia using static panel models (RE and FGLS)

Dependent variable: FDI stock		
Explanatory variables	Model (1) RE	Model (2) FGLS
Constant	16.41275 (0.000)*	17.98236 (0.000)*
EDUC	0.0427415 (0.000)*	0.0388495 (0.000)*
ULC	-0.1872809 (0.173)	-0.0758487 (0.280)
OPEN	-0.0025873 (0.098)***	-0.0019995 (0.003)*
INFR	0.3270354 (0.029)**	0.1462898 (0.000)*
INO	0.0024278 (0.075)***	0.0002531 (0.612)

Explanatory variables	Model (1) RE	Model (2) FGLS
MANUF	0.1507819 (0.038)**	0.1329138 (0.000)*
UNEMP	-8.72e-06 (0.038)**	-0.0000107 (0.000)*
DUM ₁	-0.0487118 (0.324)	0.0251495 (0.607)
DUM ₂	0.0457892 (0.475)	0.0025151 (0.959)
DUM ₃	0.7985582 (0.000)*	1.025017 (0.000)*
R-squared	0.87	
Wald chi2(10)	7819.38	541.57
Prob > chi2	(0.0000)	(0.0000)
Number of obs.	222	222
Hausman test		
Chi2(6)	6.50	
Prob > chi2	(0.3700)	
Breusch and Pagan LM test for random effects		
Chi2(1)	26.87	
Prob > chi2	(0.0000)	
Time effects		
Prob > chi2	0.9515	
Modified Wald Test	Chi2 (21) = 4233.68 Prob > chi2 = 0.0000	
Wooldridge test	F (1, 20) = 106.207 Prob > F = 0.0000	
Breusch-Pagan LM test of independence	Chi2(210) = 392.136 Pr = 0.0000	
Pesaran's test of cross sectional independence	7.987 Pr = 0.0000	

Notes: Standard errors in model (1) are cluster robust. Model (2) allows for group-wise heteroscedasticity and panel specific error autocorrelation. P values are reported in parentheses; *, **, *** indicate significance at the 1%, 5% and 10% levels respectively. All variables except dummies and ratios are in logs.

Source: Author's estimation

Table 3: Estimation results for regional determinants of FDI in Croatia using two-step dynamic panel system GMM estimator

Dependent variable: FDI stock	
Explanatory variables	Model (3) GMM
Lag FDI stock	0.7470919 (0.000)*
EDUC	0.0077144 (0.020)**
ULC	-0.1632054 (0.138)
OPEN	-0.0002429 (0.855)
INFR	0.0688801 (0.063)***
INO	0.0007522 (0.137)
MANUF	0.0893533 (0.055)***

Explanatory variables	Model (3) GMM
UNEMP	-9.36e-06 (0.063)***
DUM ₁	-0.0496836 (0.038)**
DUM ₂	0.0532588 (0.040)**
DUM ₃	0.5313577 (0.002)*
Constant term	3.74002 (0.000)*
Number of observations	202
Number of groups	21
Number of instruments	19
AR(1)	-1.90 Prob > chi2 = 0.057
AR(2)	-1.30 Prob > chi2 = 0.192
Sargan/Hansen J statistics	Chi2(6) = 1.73 Prob > chi2 = 0.943
Wald test	Chi2(12) = 263856.03 Prob > chi2 = 0.000

Notes: p values are reported in parentheses and are obtained with Windmeijer's corrected robust standard errors; *, **, *** indicate significance at the 1%, 5% and 10% levels respectively. All variables except dummies and ratios are in logs. Year dummies are included. Estimations are obtained using the order xtabond2 (Roodman, 2009b).

Source: Author's estimation

In model (1) Hausman test (more in Maddala, 2008) confirms the appropriateness of using random effects over fixed effects. Breusch and Pagan Lagrangian multiplier test (detailed in Baltagi, 2005) also confirms that random effects models are preferable in model (1) over pooled regression. Testing for time-fixed effects imply that no time fixed effect is needed in the model. The Wooldridge test signifies autocorrelation and modified Wald test detects heteroscedasticity following Greene (2000) (so the standard errors are cluster robust). According to the Breusch-Pagan LM test of independence (Breusch and Pagan, 1980) there is cross-sectional dependence in the model while according to Pesaran's test (Pesaran, 2004) of cross sectional independence there is also cross-sectional dependence.

Random effect estimation (in model (1)) implies that statistically significant (at the 1, 5 and 10% of significance level) determinants of FDI in Croatian NUTS 3 regions are education, infrastructure, innovations and number of employees in manufacturing industry. Negative, statistically significant influences are openness and unemployment. Unit labor costs and dummy variables that refer to border regions and areas of special state concern do not have statistically significant influences based on this model. It is also determined statistically significant capital city effect. According to feasible generalized least square regressions (model (2)) the results differ from the random effects models in that innovations are not significant.

The tests for autocorrelation (AR(1), AR(2)) present no evidence of model misspecification in model (3). 'The presence of first-order autocorrelation in the differenced

errors does not imply that the estimates are inconsistent, but the presence of second-order autocorrelation would imply that the estimates are inconsistent' (Mateeov and Anastasov, 2010, p. 288). The result of the Sargan/Hansen test confirms that the overidentifying restrictions are valid because the null hypothesis cannot be rejected, that is also explained in Roodman (2009a). The number of instruments is lower than the number of groups. Results of the Wald test imply that in this analysis the null hypothesis that the variables jointly have no explanatory power is rejected. Additional tests were also performed. Based on difference in Hansen test for validity of subsets of instruments for the levels equation and for the lagged dependent variable, steady-state assumption is satisfied, system estimator should be preferred to difference one and the model does not suffer from cross-sectional dependence (more can be found in Sarafidis, Yamagata and Robertson, 2009).

Model (3) is used as relevant for final conclusions because it relies on dynamic nature that is not included in static models which can lead to misspecification. In model (3), statistically significant determinants of FDI with a positive influence are education, infrastructure, the manufacturing industry, while unemployment has a negative and statistically significant influence. Unit labor costs, openness (with negative influence) and innovations (with positive influence) are not statistically significant regional determinants of FDI in Croatia. It should also be noted that in model (3) statistically significant (with a negative influence) is the dummy variable that refers to border regions so it can be concluded that based on the given results (on the sample of Croatian NUTS 3 regions) border regions have been less attractive for FDI. It can be assumed that investors base their decisions on other determinants and that the proximity to EU countries is not a significant determinant. The insignificant influence of the dummy variable of border regions with EU countries can be seen in the light of the work of Casi and Resimi (2011) who state that regions neighboring with 'national champions' will probably see a reduction in their attractiveness. Dummy variables that signify regions of special state concern and capital-city effect are statistically significant and have positive influence on FDI. That is especially important if we take a look on the effectiveness of FDI measures directed towards inducing FDI and the difference between capital-city region and other regions in attracting FDI which was explained in the theoretical part of this paper.

The results can be compared with the results of previous studies (e.g. Cheng and Kwan, 2000; Babić and Stučka, 2001; Carstensen and Toubal, 2004; Boudier-Bensebaa, 2005; Rodríques and Pallás, 2008; Škuflić and Botrić, 2009). In a few cases it can be observed that some of the effects on a regional level coincide with the effects on a national level.

It is also important to highlight some of the constraints and implications for future research. Namely, most regional data are published with a time lag and regional deflators are not available. 'The positioning of individual regions, especially those in the midst of a process of profound economic restructuring (for instance the regions of the new Member States) can be substantially different when using more recent data'

(Grozea-Helmenstein, Helmenstein and Slavova, 2009, p. 288). The data on the structure of FDI on the regional level and some other determinants of FDI that can be used in the research are limited which is also the case if we want to get firm-based data on FDI in the observed regions. It could also be useful to include different indicators of FDI as dependent variables.

Even though this study is just the start of trying to manage the regional determinants of FDI it can contribute to the identification of regional determinants of FDI in Croatia. As Casi and Resimi (2011) conclude, once the 'regional' components of factors attracting FDI have been identified, more effective FDI promotion policies can be implemented at the regional level.

6. Conclusions

The results of the study have confirmed the hypothesis that different determinants have significant influence on regional FDI inflows in Croatia that is on the attractiveness of the Croatian regions to foreign investors. In accordance with that, the following factors have a positive and significant influence on FDI inflows: education, infrastructure, the manufacturing industry. It is interesting to note that the dummy for regions of special state concern is significant which can signify the effectiveness of the numerous incentives for foreign investors in those regions. Obviously they did result in significant inflows of foreign capital. Negative, statistically significant influences are: unemployment and also dummy variables for border regions with the EU. It is important that the capital city effect is also found in Croatia, this confirms the hypothesis about the agglomeration economies but also that FDI follows the development path of Croatian regions – so the capital city is the most developed NUTS 3 region and the location of the main branches of many firms especially banks and insurance which take a huge part of FDI inflows in Croatia.

The contribution of this study is threefold. As it was mentioned before, the analyses of regional determinants of FDI in Croatia are very rare (only two researches that deal with the mentioned question are found). In this paper panel data analysis is conducted for the first time in analyzing the regional determinants of attractiveness of FDI in Croatian NUTS 3 regions, where several (static and dynamic) models have been estimated in order to test the robustness and compare the results between the models. In comparison with the previous researches of regional determinants of FDI in Croatia our analysis also includes dummy variables in modeling to test the significance of closeness with the EU, the importance that the areas of the special state concern have in attracting FDI on regional level as well as the possible influence of agglomeration effects of the economic activity which can be important for future policy implementation.

Some of the constraints and implications for future research are also highlighted: regional data are published with a time lag, the need to include more recent data, different indicators of FDI as dependent variables as well as the data on the structure of FDI on the regional level, firm-based data on FDI and some other determinants of FDI. Regional deflators are not available and that should be observed in future researches.

This study is just the starting point in trying to identify regional determinants of FDI in Croatia. Determinants of FDI obtained at the regional level can help in the creation of more effective policies to promote FDI. These results can be of interest not only in Croatia but also in other European countries, especially those that have attracted huge amounts of FDI.

References:

1. Aleksynska, M. and Havrylchyk, O., 'FDI from the South: The Role of Institutional Distance and Natural Resources', 2013, *European Journal of Political Economy*, vol. 29, pp. 38-53.
2. Aragones, A.M., Salgado, U. and Rios, E., 'Foreign Direct Investments and New Migration Pattern for Europe', 2012, *Migracijske i etničke teme*, vol. 28, no. 1, pp. 29-54.
3. Arellano, M. and Bover, O., 'Another Look at the Instrumental Variable Estimation of Error-Components Models', 1995, *Journal of Econometrics*, vol. 68, no. 1, pp. 29-51.
4. Aristovnik, A., 'Current Account Reversals and Persistency in Transition Regions', 2006, *Zagreb International Review of Economics and Business*, vol. 9, no. 1, pp. 1-43.
5. Babić, A. and Stučka, T., 'Panel Analysis of FDI Determinants in European Transition Countries', 2001, *Privredna kretanja i ekonomska politika*, vol. 11, no. 87, pp. 31-60.
6. Balasubramanyam, V.N., Salisu, M.A. and Sapsford, D., 'Foreign Direct Investment and Growth in EP and IS Countries', 1996, *Economic Journal*, vol. 106, no. 434, pp. 92-105.
7. Baltagi, B.H., *Econometric Analysis of Panel Data*, Chichester: John Wiley and Sons, 2005.
8. Beck, N. and Katz, J.N., 'Nuisance vs. Substance: Specifying and Estimating Time-Series-Cross Models', 1996, *Political Analysis*, vol. 6, no. 1, pp. 1-36.
9. Bevan, A. and Estrin, S., 'The Determinants of Foreign Direct Investment into European Transition Economies', 2004, *Journal of Comparative Economics*, vol. 32, no. 4, pp. 775-787.
10. Blonigen, B.A., 'A Review of the Empirical Literature on FDI Determinants', NBER Working Paper, no. 11299, 2005, [Online] available at <http://www.nber.org/papers/w11299>, accessed on January 4, 2014.
11. Blundell, R. and Bond, S., 'Initial Conditions and Moment Restrictions in Dynamic Panel Data Models', 1998, *Journal of Econometrics*, vol. 87, no. 1, pp. 115-143.
12. Bogdan, Ž., 'Istraživanje veze između inozemnih direktnih investicija i gospodarskog rasta europskih posttranzicijskih zemalja', 2010, *Zbornik Ekonomskog fakulteta u Zagrebu*, vol. 8, no. 2, pp. 59-79.
13. Botrić, V. and Škuflić, L., 'Main Determinants of Foreign Direct Investment in the South-east European Countries', 2006, *Transition Studies Review*, vol. 13, no. 2, pp. 359-377.
14. Boudier-Bensebaa, F., 'Agglomeration Economies and Location Choice – Foreign Direct Investment in Hungary', 2005, *Economics of Transition*, vol. 13, no. 4, pp. 605-628.
15. Brainard, S.L., 'An Empirical Assessment of the Proximity Concentration Tradeoff between Multinational Sales and Trade', 1997, *American Economic Review*, vol. 87, no. 4, pp. 520-544.
16. Breusch, T.S. and Pagan, A.R., 'The Lagrange Multiplier Test and Its Applications to Model Specification in Econometrics', 1980, *Review of Economic Studies*, vol. 47, no. 1, pp. 239-253.

17. Bronzini, R., 'FDI Inflows, Agglomeration and Host Country Firms' Size: Evidence from Italy', 2007, *Regional Studies*, vol. 41, no. 7, pp. 963-978.
18. Campos, N.F. and Kinoshita, Y., 'Why Does FDI Go Where It Goes? New Evidence from the Transition Economies', IMF Working Paper no. 03/228, 2003, [Online] available at <http://www.imf.org/external/pubs/ft/wp/2003/wp03228.pdf>, accessed on January 3, 2014.
19. Cantwell, J. and Iammarino, S., 'EU Regions and Multinational Corporations: Change, Stability and Strengthening of Technological Advantages', 2001, *Industrial and Corporate Change*, vol. 10, no. 4, pp. 1007-1037.
20. Carkovic, M. and Levine, R., 'Does Foreign Direct Investment Accelerate Economic Growth?', University of Minnesota, Department of Finance Working Paper, 2002, [Online] available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=314924, accessed on December 10, 2013.
21. Carstensen, K. and Toubal, F., 'Foreign Direct Investment in Central and Eastern European Countries: A Dynamic Panel Analysis', 2004, *Journal of Comparative Economics*, vol. 32, no. 1, pp. 3-22.
22. Casi, L. and Resimi, L., 'The Spatial Distribution of FDI across European Regions: Does A Country Effect Exist?', Forum for Research in Empirical International Trade, 2011, [Online] available at <http://www.freit.org/WorkingPapers/Papers/ForeignInvestment/FREIT294.pdf>, accessed on December 15, 2013.
23. Chen, Y., 'Impact of Foreign Direct Investment on Regional Innovation Capability: A Case of China', 2007, *Journal of Data Science*, vol. 5, pp. 577-596.
24. Cheng, L.K. and Kwan, Y.K., 'What Are the Determinants of the Location of Foreign Direct Investment? The Chinese experience', 2000, *Journal of International Economics*, vol. 51, no. 2, pp. 379-400.
25. Chidlow, A., Salciuviene, L. and Young, S., 'Regional Determinants of Inward FDI Distribution in Poland', 2009, *International Business Review*, vol. 18, no. 2, pp. 119-133.
26. Croatian Bureau of Statistics, *Employment and Wages*, Zagreb: Croatian Bureau of Statistics, 2001a, 2002a, 2003a, 2004a, 2005a, 2006a, 2007a, 2008a, 2009a, 2010a, 2011a, 2012a.
27. Croatian Bureau of Statistics, *Gross domestic product for Republic of Croatia and for spatial units for statistics of 2nd and 3rd level, 2010-2010*, Zagreb: Croatian Bureau of Statistics, 2013.
28. Croatian Bureau of Statistics, *Statistical Yearbook of the Republic of Croatia*, Zagreb: Croatian Bureau of Statistics, 2001b, 2002b, 2003b, 2004b, 2005b, 2006b, 2007b, 2008b, 2009b, 2010b, 2011b, 2012b.
29. Croatian National Bank, *FDI regional statistics*, Zagreb: Croatian National Bank, 2013.
30. Croatian National Bank, *Standard presentation format*, 2014, [Online] available at <http://hnb.hr/publikac/prezent/hplatna-bilanca-tecaj.pdf>, accessed on February 1, 2014.
31. Derado, D., Škudar, A. and Rakušić, S., 'Regional Aspects of FDI in Croatia', in Reić, Z. and Šimić, V. (eds.), *Proceedings of the Ninth International Conference, Challenge of Europe: Growth and Competitiveness – Reversing the Trends*, Split: Faculty of Economics, University of Split, 2011, pp. 263-292.
32. Dimitropoulou, D., McCann, P. and Burke, S.P., 'The Determinants of the Location of Foreign Direct Investment in UK Regions', 2013, *Applied Economics*, vol. 45, no. 27, pp. 3853-3862.

33. Dunning, J., 'Trade, Location and Economic Activity and the Multinational Enterprise: A Search for An Eclectic Approach', in Dunning, J. (ed.), *The United Nations Library on Transnational Corporation. The Theory of Transnational Corporation*, New York: Routledge, 1992, pp. 183-218.
34. Dunning, J., *Multinational Enterprises and the Global Economy*, Workingham: Addison Wesley, 1993.
35. Faustino, H.C. and Vali, C., 'The Effects of Globalization and Economic Growth on Income Inequality: Evidence for 24 OECD Countries', 2013, *Argumenta Oeconomica*, vol. 1, no. 30, pp. 13-31.
36. Fu, X., 'Foreign Direct Investment, Absorptive Capacity and Regional Innovation Capabilities: Evidence from China', 2008, *Oxford Development Studies*, vol. 36, no. 1, pp. 89-110.
37. Gauselmann, A. and Marek, P., 'Regional Determinants of MNE's Location Choice in Post-Transition Economies', 2012, *Empirica*, vol. 39, no. 4, pp. 487-511.
38. Gauselmann, A., Knell, M. and Stephan, J., 'What Drives FDI in Central-Eastern Europe? Evidence from the IWH-FDI-Micro Database', 2011, *Post-Communist Economies*, vol. 23, no. 3, pp. 343-357.
39. Globerman, S. and Shapiro, D., 'Global Foreign Direct Investment Flows: The Role of Governance Infrastructure', 2002, *World Development*, vol. 30, no. 11, pp. 1899-1919.
40. Greene, W., *Econometric Analysis*, Upper Saddle River: Prentice-Hall, 2000.
41. Grozea-Helmenstein, D., Helmenstein, C. and Slavova, T., 'Who Is the Best? Insights from the Benchmarking of Border Regions', 2009, *Trames*, vol. 13, no. 3, pp. 285-302.
42. Guimaraes, P., Figueiredo, O. and Woodward, D., 'Agglomeration and the Location of Foreign Direct Investment in Portugal', 2000, *Journal of Urban Economics*, vol. 47, no. 1, pp. 115-135.
43. Hansoon, A.M. and Olofsdotter, K., 'FDI, Taxes and Agglomeration Economies in the EU15', 2013, *Applied Economics*, vol. 45, no. 18, pp. 2653-2664.
44. Hilber, C.A.L. and Voicu, I., 'Agglomeration Economies and the Location of Foreign Direct Investment: Empirical Evidence from Romania', 2010, *Regional Studies*, vol. 44, no. 3, pp. 355-371.
45. Hsiao, C., 'Panel data analysis – Advantages and Challenges', 2007, *TEST: Sociedad de Estadística e Investigación Operativa*, vol. 16, no. 1, pp. 1-22.
46. Hsiao, C., *Analysis of Panel Data*, Cambridge: Cambridge University Press, 2003.
47. Jordaan, J.A., 'Determinants of FDI-induced Externalities: New Empirical Evidence for Mexican Manufacturing Industries', 2005, *World Development*, vol. 33, no. 12, pp. 2103-2118.
48. Kinoshita, Y. and Campos, N.F., 'The Location Determinants of Foreign Direct Investments in Transition Countries', 2002, [Online] available at [http://project.iss.u-tokyo.ac.jp/nakagawa/members/papers/3\(9\)kinoshita.final.pdf](http://project.iss.u-tokyo.ac.jp/nakagawa/members/papers/3(9)kinoshita.final.pdf), accessed on December 15, 2013.
49. Lessmann, C., 'Foreign Direct Investment and Regional Inequality: A Panel Data Analysis', 2013, *China Economic Review*, vol. 24, pp. 129-149.
50. Liu, K., Daly, K. and Varua, M.E., 'Determinants of Regional Distribution of FDI Inflows across China's Four Regions', 2012, *International Business Research*, vol. 5, no. 12, pp. 119-126.
51. Maddala, G.S., *Introduction to Econometrics*, Chichester: John Wiley and Sons, 2008.

52. Mai, P.H., 'Regional Economic Development and Foreign Direct Investment Flows in Vietnam 1988-98', 2002, *Journal of the Asia Pacific Economy*, vol. 7, no. 2, pp. 182-202.
53. Manea, J. and Pearce, R., 'Multinational Strategies and Sustainable Industrial Transformation in CEE Transition Economies: The Role of Technology', in Taggart, J.H., McDermott, M.C. and Berry, M. (eds.), *Multinationals in A New Area. International Strategy and Management*, New York: Palgrave, 2001, pp. 118-140.
54. Markusen, J.R. and Venables, A.J., 'Multinational Firms and the New Trade Theory', 1998, *Journal of International Economics*, vol. 46, no. 2, pp. 183-203.
55. Markusen, J.R., 'Multinational Firms, Location and Trade', 1998, *World Economy*, vol. 21, no. 6, pp. 733-756.
56. Mateev, M. and Anastasov, Y., 'Determinants of Small and Medium Sized Fast Rowing Enterprises in Central and Eastern Europe: A Panel Data Analysis', 2010, *Financial Theory and Practice*, vol. 34, no. 3, pp. 269-295.
57. Menghinello, S., De Propriis, L. and Driffield, N., 'Industrial District, Inward Foreign Investment and Regional Development', 2010, *Journal of Economic Geography*, vol. 10, no. 4, pp. 539-558.
58. North, D.C., 'Institutions', 1991, *The Journal of Economic Perspectives*, vol. 5, no. 1, pp. 97-112.
59. Official Gazette of Republic of Croatia, *Act on Investment Promotion and Enhancement of the Investment Environment*, no. 111/12 and 28/13.
60. Official Gazette of Republic of Croatia, *Act on the Areas of Special State Concern*, no. 86/08, 57/11 and 51/13.
61. Pelegrin, A. and Bolance, C., 'Regional Foreign Direct Investment in Manufacturing: Do Agglomeration Economies Matter?', 2008, *Regional Studies*, vol. 42, no. 4, pp. 505-522.
62. Pesaran, M.H., 'General Diagnostic Tests for Cross Section Dependence in Panels', 2004, *Cambridge Working Papers in Economics*, no. 0435, [Online] available at <https://www.repository.cam.ac.uk/bitstream/handle/1810/446/cwpe0435.pdf?sequence=1>, accessed on December 15, 2013.
63. Pournarakis, M. and Varsakelis, N., 'Institutions, Internationalization and FDI: The Case of Economies in Transition', 2004, *Transnational Corporation*, vol. 13, no. 2, pp. 77-94.
64. Resmini, L., 'The Location of Multinational Enterprises in Central and Eastern European Countries', 2008, in Krieger-Boden, C., Morgenroth, E. and Petrakos, G. (eds.), *The Impact of European Integration on Regional Structural Change and Cohesion*, London and New York: Routledge, Taylor and Francis Group, 2008, pp. 266-384.
65. Rodrik, D., Subramanian, A. and Trebbi, F., 'Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development', 2004, *Journal of Economic Growth*, vol. 9, no. 2, pp. 131-165.
66. Rodríques, X.A. and Pallás, J., 'Determinants of Foreign Direct Investment in Spain', 2008, *Applied Economics*, vol. 40, no. 19, pp. 2443-2450.
67. Roodman, D., 'A Note on the Theme of Too Many Instruments', 2009a, *Oxford Bulletin of Economics and Statistics*, vol. 71, no. 1, pp. 86-136.
68. Roodman, D., 'How to Do xtabond2: An Introduction to Difference and System GMM in Stata', 2009b, *The Stata Journal*, vol. 9, no. 1, pp. 86-136.

69. Sarafidis, V., Yamagata, T. and Robertson, D., 'A Test of Cross Section Dependence for a Linear Dynamic Panel Models with Regressors', 2009, *Journal of Econometrics*, vol. 148, no. 2, pp. 149-161.
70. Săvoiu, G., Dinu, V. and Manea, C., 'Methodology for Calculating A Complex Index for Assessing the Pressure of Regional Indicators on Public Administration', 2013, *Transylvanian Review of Administrative Sciences*, no. 40 E, pp. 201-221.
71. Škuflić, L. and Botrić, V., 'Foreign Direct Investments in Croatia: Regional Perspective', 2009, *Ekonomski istraživanja*, vol. 22, no. 3, pp. 9-28.
72. Škuflić, L., Rkman, P. and Šokčević, S., 'Evaluation of the FDI Attractiveness of the European Countries using PROMETHEE Method', 2013, *Croatian Operational Research Review*, vol. 4, no. 1, str. 258-269.
73. State Intellectual Property Office of the Republic of Croatia, *Annual Reports*. Zagreb: State Intellectual Property Office of the Republic of Croatia, 2005-2011.
74. Stojčić, N., 'The Competitiveness of Exporters from Croatian Manufacturing Industry', 2012, *Ekonomski pregled*, vol. 63, no. 7-8, pp. 424-445.
75. UNCTAD, *World Investment Report*, 2013, [Online] available at http://unctad.org/en/publicationslibrary/wir2013_en.pdf, accessed on December 10, 2013.
76. Villaverde, J. and Maza, A., 'Foreign Direct Investment in Spain: Regional Distribution and Determinants', 2012, *International Business Review*, vol. 21, no. 4, pp. 722-733.
77. Windmeijer, F., 'A Finite Sample Correction for the Variance of Linear Efficient Two-step GMM Estimators', 2005, *Journal of Econometrics*, vol. 126, no. 1, pp. 25-51.