THE IMPORTANCE OF PROJECT SCALE FOR FDI LOCATION CHOICE: EVIDENCE FROM SERBIA

Aleksandra Pavlović [1] [ORCID 0000-0002-2435-0895], Andrea Ivanišević [2] [ORCID 0000-0003-3342-7257], Ivana Katić [3] [ORCID 0000-0003-4511-1954]

[1] The Academy of Applied Technical Studies Belgrade, Belgrade Polytechnic, Belgrade, Serbia
[2,3] University of Novi Sad, Faculty of Technical Sciences, Department of Industrial Engineering and Engineering Management, Novi Sad, Serbia

Abstract: *Domestic investment by itself is not enough in today's era of globalization and accelerated economic growth, thus, it is necessary to direct capital beyond the borders of the country. Similar to that, project management must also move across borders. Management across borders require specific set of skills in order to contribute to the successful implementation of projects in the host countries. The aim of this paper is to examine the relationship between project scale and foreign direct investment in the Republic of Serbia. According to a few previous studies in this area, the project scale is expressed through capital expenditures and employment, while foreign direct investments are expressed as net inflows of foreign capital to Serbia. It was concluded that there is a significant interdependence between the project scale and foreign investments, in the terms of the sensitivity of foreign investments to the choice of investment location. In the future, it is important to pay more attention to this issue and provide a quantitative model that would include some other important macroeconomic variables.*

Key words: project scale, project management, fdi, fdi location choice, pearson correlation

1. INTRODUCTION

Foreign Direct Investments (FDI) are considered to be the most acceptable form of engaging private foreign savings in the process of financing economic growth. On the other hand, Project Scale (PS) is proportional to the size and experience of the company that is the project host (for example, a project worth 25 million EUR may be a simple project for one company, but a daunting project for another company).

Foreign investors do not invest the excess of their capital in the market of each country, but make a strict selection when choosing an investment location. There is still controversy in the professional literature about what exactly are the factors that attract foreign capital to the markets of the host countries. According to Belkhodja, Mohiuddin and Karuranga (Belkhodja, Mohiuddin and Karuranga, 2017), protection of intellectual rights, agglomeration economies, investments in education, and gross regional product (GRP) affect the most the location choice of FDI in China, but this choice varies depending on the origin of the FDI. The choice of locational determinants of foreign investors in this paper was made on the basis of numerous contemporary professional literature summarizing the locational determinants of foreign capital (Jain, Kothari & Kumar, 2016; Belkhodja et al., 2017; Nielsen, Asmussen & Weatherall, 2017; Feng & Wang, 2021; Warsame, 2021). Those determinants are as follows: market size; labour costs; taxation; and institutional quality.

This paper is structured as follows: the first part of the paper (section 2.) provides an overview of previous research on the relationship between PS expressed as capital expenditures and employment, and FDI location choice (above mentioned location choice determinants). The second part of the paper (section 3.) deals with data sources and methodology. The third part of the paper (section 4.) presents the results of the research. In the last, fourth part of the paper (section 5.), discussion and conclusions are given.

The aim of this paper is to analyze and discuss the relationship between PS and FDI location choice, considering the sensitivity of foreign investors to the chosen location determinants in Serbia using the Pearson correlation coefficient (r) in the twelve-year observed period.

2. PREVIOUS RESEARCH

A number of foreign researchers have addressed the issue of the relationship between PS, i.e. capital expenditures and employment and FDI location choice determinants.

Thus, Loncan (Loncan, 2021) conducted a study on a large project sample of over 15,000 FDIs directed at 25 emerging economies over a twelve-year period. The research confirmed that larger PS makes FDI location selection more sensitive to larger market size and cheaper workforce, and less sensitive to higher corporate taxes and lower institutional quality. Owusu-Nantwi (Owusu-Nantwi, 2019) analyzed the influence of institutional quality on FDI flows, on the example of South America. This study revealed a strong and statistically significant relationship between the observed variables, i.e. improvements in institutional quality lead to FDI flow increase, and that foreign investors will always prefer to choose host countries with a stronger quality of institutions. Shen and Puig (Shen & Puig, 2018) in one of their studies were engaged in analysis of two essential foreign investor decisions – the entry mode and location choices. It has been proven the host-country entry strategies of foreign investors consider conditions that vary among countries and within the host country, as well as that the above mentioned essential investor decisions can be considered as alternative strategies for overcoming barriers to entry, where a trade-off between both is required.

3. DATA AND METHODOLOGY

This paper first analyzes the relationship between PS and FDI net inflows of Serbia in the period 2010. – 2021. All necessary data were taken from the official website of Statistical Office of the Republic of Serbia, World Bank – World Development and World Governance Indicators, and Tax Foundation. The linear relationship between selected variables (PS expresses as Capital Expenditures and Employment) and FDI net inflows was examined, and Pearson's bivariate correlation was used for this purpose.

Capital Expenditures (CapEx), in short, are investments in fixed assets. Fixed assets (land, buildings, machines, equipment, etc.) are part of the balance sheet and are recorded on its left side, which is called assets. Two expressions are important here: a) OpEx (Operating Expenditures), and b) CapEx (Capital Expenditures). In this paper, the focus is on CapEx. In order for an expenditure to be considered as CapEx, it must meet the following conditions: 1) to last longer than one year; 2) that it has a value greater than some reasonable amount (around EUR 400 in Serbia); and 3) that there is future economic benefit. Data were taken from the official website of Statistical Office of the Republic of Serbia, as expenditures for investments in fixed assets by financing sources and activities, total, in million RSD.

Employment (Emp), according to the International Labour Office (ILO), is defined as the total number of persons aged 15 and over in a country, who perform at least one hour of paid work in a given week, or who are absent from work for various reasons (sickness, maternity, etc.) and for certain period of time. Data were collected from the official website of Statistical Office of the Republic of Serbia, in total, as a number of active working population.

FDI net inflows (FDI), according to the United Nations (UN) definition, represent the value of inward direct investments made by non-resident investors in the observed country, including reinvested earnings and the company's internal loans, net of repatriation of capital and repayment of loans. Data were collected from official website of World Bank – World Development Indicators, expressed as percentage of Gross Domestic Product (GDP).

In the next step, location determinants were introduced into the analysis, as factors of the greatest influence on the location choice made by a foreign investor, considering PS. Four significant location determinants were singled out: 1) market size; 2) labour costs; 3) taxation; and 4) institutional quality.

Market size (MS), also known as market volume, can be defined as total number of customers multiplied by purchases expected in a given period of time. It is also calculated as total trade divided by GDP. Data were collected from official website of World Bank – World Development Indicators, expressed as percentage of GDP.

Labour costs (LC) refers to all payments in cash and kind to employees in exchange for their work, as well as government contributions to social insurance schemes (social security, pensions, etc.) that provide benefits to employees. Data were collected from official website of World Bank – World Development Indicators, expressed in billion current LCU.

Taxation (Tax) refers to corporate tax rate. Data were collected from official website of Tax Foundation, expressed as percentage.

Institutional quality (IQ) is a measure of the quality of government as well as the quality of institutions in a country. It consists of six important elements: Control of Corruption (percentile rank); Political Stability and Absence of Violence/Terrorism (percentile rank); Regulatory Quality (percentile rank); Rule of Law (percentile rank); and Voice and Accountability (percentile rank). Data were collected from official website of World Bank – World Governance Indicators, expressed as percentage.

In both steps, IBM SPSS Statistics software package was used to calculate Pearson's r.

4. RESULTS

Before calculating the Pearson correlation coefficient (r), the ratio of the analyzed variables (CapEx, Emp and FDI) is represented by the scattering matrix (Figure 1).
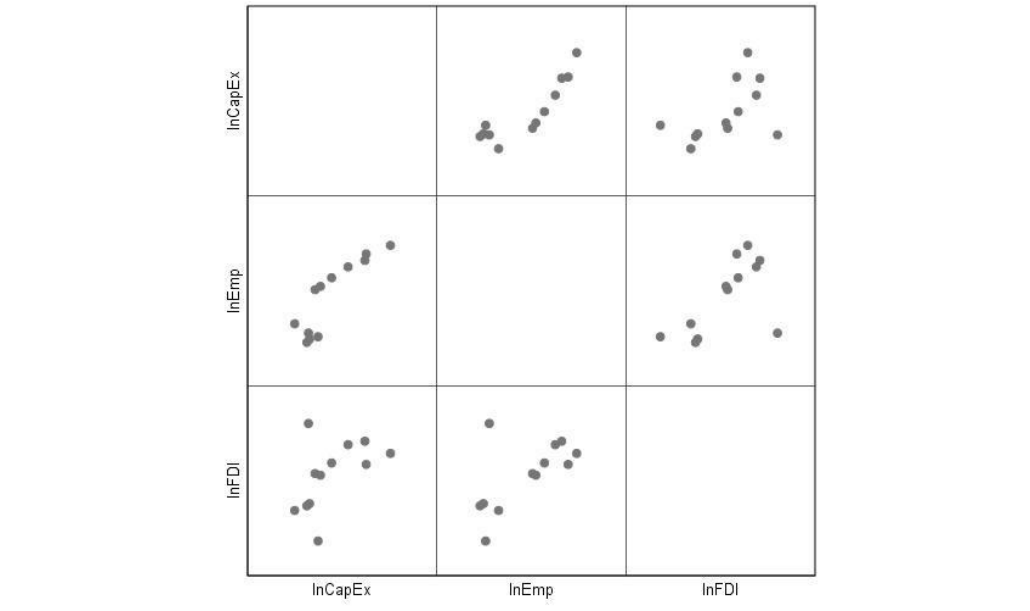

Figure 1: Relationships between the observed variables (CapEx, Emp and FDI). Source: SPSS analysis output, author's interpretation.

Figure 1 shows the potential bivariate relationships between the analyzed variables. It can be concluded that there are probably two positive linear correlations (CapEx – Emp, and Emp – FDI) of the observed variables. There is another positive correlation between CapEx and FDI, however, it is not linear, ie. statistically significant. The following Figure 2 represents the ratio of the analyzed variables (CapEx, FDI, MS, LC, Tax, and IQ).
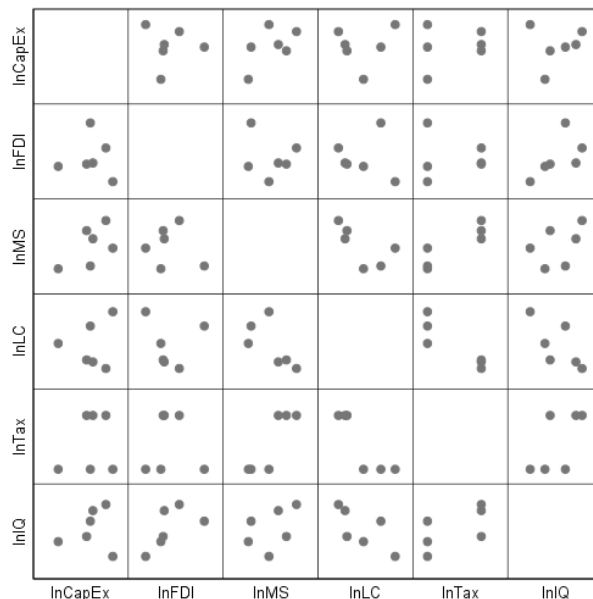

Figure 2: Relationships between the observed variables (CapEx, FDI, MS, LC, Tax, and IQ). Source: SPSS analysis output, author's interpretation.

It can be concluded that there are probably three positive, statistically significant linear correlations (CapEx – MS, CapEx – LC, and MS – Tax) of the observed variables.
The next step is to calculate the Pearson's r. The following tables, Table 1 and Table 2, give the output result of the performed SPSS data analysis.

Table 1: Correlation between selected variables (CapEx, Emp and FDI) in Serbia, in the period 2010. – 2021.

		lnCapEx	lnEmp	lnFDI
lnCapEx	Pearson correlation (r)	1	0.876**	0.509
	Significance (p)		0.000	0.091
	Number of years (N)	12	12	12
lnEmp	Pearson correlation (r)	0.876**	1	0.603*
	Significance (p)	0.000		0.038
	Number of years (N)	12	12	12
lnFDI	Pearson correlation (r)	0.509	0.603*	1
	Significance (p)	0.091	0.038	
	Number of years (N)	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: SPSS analysis output, author's interpretation.

Based on the obtained results for the observed period (2010. – 2021.), it can be concluded that there is a positive correlation between CapEx and Emp, due to the positive value of the correlation coefficient (r = 0.876). As 0.88 ≤ 0.89, this is a strong correlation. As p < 0.01, there is a statistically significant relationship between the observed variables.
There is a positive correlation between Emp and FDI, due to the positive value of the correlation coefficient (r = 0.603). As 0.60 ≤ 0.69 this is a moderate correlation. As p < 0.05 there is a statistically significant relationship between the observed variables.
Due to the positive value of the correlation coefficient (r = 0.509), there is another positive correlation between CapEx and FDI, but this moderate correlation is not statistically insignificant since p > 0.05.

Table 2: Correlation between selected variables (CapEx, Emp and FDI) in Serbia, in the period 2010. – 2021.

		lnCapEx	lnFDI	lnMS	lnLC	lnTax	lnIQ
lnCapEx	Pearson correlation (r)	1	0.509	0.830**	0.695*	0.492	0.129
	Significance (p)		0.91	0.001	0.012	0.104	0.808
	Number of years (N)	12	12	12	12	12	6
lnFDI	Pearson correlation (r)	0.509	1	0.460	0.203	0.294	0.616
	Significance (p)	0.91		0.132	0.527	0.353	0.193
	Number of years (N)	12	12	12	12	12	6
lnMS	Pearson correlation (r)	0.830**	0.460	1	0.203	0.819**	0.434
	Significance (p)	0.001	0.132		0.527	0.001	0.390
	Number of years (N)	12	12	12	12	12	6
lnLC	Pearson correlation (r)	0.695*	0.203	0.203	1	-0.226	-0.699
	Significance (p)	0.012	0.527	0.527		0.481	0.122
	Number of years (N)	12	12	12	12	12	6
lnTax	Pearson correlation (r)	0.492	0.294	0.819**	-0.226	1	0.623
	Significance (p)	0.104	0.353	0.001	0.481		0.186
	Number of years (N)	12	12	12	12	12	6
lnIQ	Pearson correlation (r)	0.129	0.616	0.434	-0.699	0.623	1
	Significance (p)	0.808	0.193	0.390	0.122	0.186	
	Number of years (N)	6	6	6	6	6	6

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: SPSS analysis output, author's interpretation.

It can be concluded that there is a positive correlation between CapEx and MS, due to the positive value of the correlation coefficient (r = 0.830). As 0.83 ≤ 0.89, this is a strong correlation. As p < 0.01, there is a

statistically significant relationship between the observed variables. There is a positive correlation between CapEx and LC, due to the positive value of the correlation coefficient (r = 0.695). This is a moderate correlation. As $p < 0.05$ there is a statistically significant relationship between the observed variables. There is a positive correlation between MS and Tax,due to the positive value of the correlation coefficient (r = 0.819). As $0.82 \leq 0.89$, this is a strong correlation. As $p < 0.01$, there is a statistically significant relationship between the observed variables. Due to the positive value of the correlation coefficient (r = 0.509), there is another positive correlation between CapEx and FDI, but this moderate correlation is statistically insignificant since $p > 0.05$.

5. DISCUSSION AND CONCLUSIONS

The relationship between the price and the size of the project i.e. project scale, as well as the size and method of its performance, still seem to be incomplete and insufficiently clear (Aleksić, 2016). However, PS expressed as CapEx and Emp, and determinants of FDI location choice are very important to observe in today's conditions of business risk and uncertainty at the global level.

The main goal of this research was to examine the relationship between PS and FDI location choice, considering the sensitivity of FDIs to the chosen location determinants in Serbia. For that purpose, Pearson bivariate correlation (Pearson's r) was applied.

In step one, two positive, strong and statistically significant correlations were detected. The first one is correlation between CapExp and Emp - higher PS means higher employment, and vice versa (when the workload increases due to a large, complex project, the project cannot survive in the long-run without additional workers). The second one is correlation between FDI and Emp – higher FDI net inflows mean higher employment in the host-country, and vice versa (creation of new jobs, pilot projects, greenfield investments, etc.). In step two, three positive, strong and statistically significant correlations were detected. The first one is correlation between MS and CapEx – the effect of MS on FDI location choice is positively alleviated by PS. The second one is correlation between LC and CapEx – larger project scale makes FDI location choice more sensitive to lower labour costs. The third one is correlation between MS and Tax – larger MS leads to higher corporate taxes, and higher corporate taxes are not attractive to foreign investors.

Unfortunately, there is a scarce number of research on this issue in Serbia and the region, therefore the recommendation to future researchers from this area and in this field would be to pay more attention to this important issue.

6. ACKNOWLEDGMENTS

7. REFERENCES

Aleksić, A. (2016) Determination of the complexities of operational projects and modeling the process of management uncertainty and project risks. PhD thesis. University of Novi Sad, "Mihajlo Pupin" Technical Faculty .

Belkhodja, O., Mohiuddin M. & Karuranga,E. (2017) The determinants of FDI location choice in China: a discrete-choice analysis. *Applied Economics*. 49 (13), 1241-1254. Available from: doi: 10.1080/00036846.2016.1153786

Feng, Y. & Wang, Y. (2021) A Literature Review on the Location Determinants of FDI. *International Business Research.* 14 (4), 126. Available from: doi: 10.5539/ibr.v14n4p126

Huang, S. & Cantwell, J. (2017) FDI location choice: the role of locational ambidexterity. *Multinational Business Review*. 25 (1), 28-51. Available from: doi: 10.1108/MBR-04-2016-0016

Jain, N. K., Kothari, T. & Kumar, V. (2016) Location choice research: Proposing new agenda. *Management International Review*. 56 (3), 303-324. Available from: doi: 10.1007/s11575-015-0271-6

Loncan, T. (2021) The Effects of Project Scale on FDI Location Choices: Evidence from Emerging Economies. *Management International Review*. 61 (3). Available from: doi: 10.1007/s11575-021-00442-1

Nielsen, B. B., Asmussen, C. G. & Weatherall, C. D. (2017) The location choice of foreign direct investments: Empirical evidence and methodological challenges. *Journal of World Business*. 52 (1), 62-82. Available from: doi: 10.1016/j.jwb.2016.10.006

Owusu-Nantwi, V. (2019) Foreign direct investment and institutional quality: empirical evidence from South America. *Journal of Economic and Administrative Sciences*. 35 (2), 66-78. Available from: doi: 10.1108/JEAS-03-2018-0034

Shen, Z. & Puig, F. (2018) Spatial Dependence of the FDI Entry Mode Decision: Empirical Evidence From Emerging Market Enterprises. *Management International Review*. 58 (12). Available from: doi: 10.1007/s11575-017-0332-0

Warsame, A. (2021) The Location Choice of Foreign Direct Investment and Economic Development in Africa. *International Journal of Economics*. 13 (10), 69. Available from: doi: 10.5539/ijef.v13n10p69