

FOREIGN DIRECT INVESTMENT: LOCALIZATION AND INSTITUTIONAL DETERMINANTS

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Abstract

This article examines the foreign direct investment (FDI) in Portugal, i.e why foreign companies are located in Portugal. The compression of the determinants of FDI is important to take decisions on economic policy. The determinants of the location were used as market size, labour cost, taxes and economic stability. Beyond these were introduced two institutional variables the impact of globalization and corruption on FDI. The study applies a panel data approach (Fixed Effects and GMM system estimator). The results show that the market size and globalization has a positive impact on FDI. The corruption has a negative impact on investor decisions. Wages, inflation and taxes are also statistically significant.

Keywords: Foreign Direct Investment, Panel Data, Portugal, Globalization, and Corruption.

1. INTRODUCTION

When it comes to evaluating the determinants of foreign direct investment (FDI) is important to consider not only the theory of location as well as new developments such as globalization and the impact of corruption on FDI¹.

The costs of production, technology transfer, trade barriers emerge as explanatory factors².

During the decade of 1980 and 1990, researchers were concerned to learn why investors invest in a foreign country. Dunning (1981,1992) explained the process of internationalization based on three characteristics or three advantages³ (ownership-Localization and Internalization).

This paper has relevance because it considers not only the variables of location, but also tests the impact of globalization and corruption on FDI.

Jeon and Rhee (2008), Maniam (2007), Skabic, and Orlic (2007), and Rodríguez and Pallas (2008), Mukherjee (2008) explained the determinants of FDI using market size, labour costs, labour skills, openness risk, macroeconomic and political stability.

¹ The literature on FDI began in 1960s and 1970s with Hymer (1960), Kindleberger (1969), and Caves (1971).

² Caves (1971) was the first researcher to use these variables to explain the determinants of FDI.

³ Ownership advantages explain a free access to technology, new products. Firms have ownership advantage as in patents, human resources, and financial assets. Localization advantages are explained by the motivation of FDI.

The recent literature as in Naudé and Krugell (2007) consider that foreign direct investment is a dynamic phenomenon. Naudé and Krugell (2007) specify a dynamic panel data (GMM-DIF) proposed by Arellano and Bond (1991). The study of Naudé and Krugell (2007) demonstrates that African policy makers have been intensifying their attempts to attract FDI, researching into the determinants of FDI in Africa.

Péridy (2004) explains the interrelationship between exports and FDI using a GMM-System estimator (Blundell and Bond, 1998, 2000). The author applied a gravity equation.

Our study contributes to the literature by providing similar evidence to Europe. This paper analyses the determinants of FDI (inward) in Portugal for the period 1995-2008. The study uses country-specific characteristics (per capita income, market size, labour costs, and the level stability). We also introduced two institutional explanatory variables (globalization and the corruption). The countries selected are the European Countries (EC15), United States, Canada, Brazil and Japan.

2. ECONOMETRIC MODEL

The dependent variable used is Portuguese FDI inward from OECD International Direct Investment Indicators. The index of globalization (KOF) used from *ETH*, Zurich. The Freedom from corruption is taken from *Heritage Foundation*. Other explanatory variables, GDP per capita, taxes, inflation, and wages are taken from *World Development Indicators* (2010), the World Bank.

Based on the literature of FDI, we formulate the following hypotheses:

- *Hypothesis 1: The market size influences the decision of investors.*
- *Hypothesis 2: There is a negative relationship between the level of taxes and FDI.*
- *Hypothesis 3: Macroeconomic stability influences the decision of foreign investors.*
- *Hypothesis 4: Destination markets with lower wages capture more FDI.*

The hypothesis 1 is supported in a theoretical model of Dunning (1992). Krugell and Naudé (2007), and Maniam (2007) found a positive correlation. Regarding the second hypothesis, empirical studies (Kemsley, 1998) find a negative correlation between taxes and FDI. Empirical studies typically use the inflation rate to measure economic stability. An economy with high levels of inflation has no economic credibility; hence it has more difficulty in attracting FDI. The hypothesis 4 was constructed based on the movements of the production, i.e. where there is low labor cost.

In this study we include two more hypotheses:

- *Hypothesis 5: Globalization promotes FDI.*

- *Hypothesis 6: Corruption discourages foreign investment.*

For the hypothesis 5, we use the index of KOF. This index represents three dimension of globalization: economic; social and political (see Dreher, 2006; Dreher, Gaston, and Martnes, 2008). <http://globalization.kof.ethz.ch/>. The variable for the hypothesis 6, we use the index of freedom of corruption from *Heritage Foundation*⁴ (see <http://www.heritage.org/index/>).

3. MODEL SPECIFICATION

These hypotheses can be tested with the following equation:

$$\begin{aligned} \text{LogFDI}_{it} = & \beta_0 + \beta_1 \text{LogGDP}_{it} + \beta_2 \text{LogTAXES}_{it} + \beta_3 \text{LogINF} + \beta_4 \text{LogW} \\ & + \beta_5 \text{LogKOF} + \beta_6 \text{LogCorruption} + \delta t + \eta_i + \varepsilon_{it} \end{aligned} \quad (1)$$

Where FDI_{it} is the Portuguese foreign direct investment, X is a set of explanatory variables. All variables are in the logarithm form; η_i is the unobserved time-invariant specific effects; δt captures a common deterministic trend; ε_{it} is a random disturbance assumed to be normal, and identically distributed with $E(\varepsilon_{it})=0$; $\text{Var}(\varepsilon_{it}) = \sigma^2 > 0$.

The model can be rewritten in the following representation:

$$\text{LogFDI} = \rho \text{LogFDI}_{it-1} + \beta_1 X_{it} - \rho \beta_1 X_{it-1} + \delta t + \eta_i + \varepsilon_{it} \quad (2)$$

4. EMPIRICAL RESULTS

In this section we present the empirical results with static (Fixed Effects) and dynamic panel data (GMM-System). We include in this estimation the European Union (EU-15), United States, Canada, Brazil and Japan.

The Fixed Effects estimator is report in table 1. All explanatory variables are statistically significant. The hypothesis for market size (LogGDP) is according to the hypothesis formulate, i.e, the market size influences the decision of investors.

For the coefficient of taxes levels (LogTAXES), the literature predicts a negative sign. The result confirms the existence of such negative effect on the FDI. The variables labour costs (logW), inflation (LogINF), and

⁴ The index of economic freedom has ten components : Business Freedom; Trade Freedom; Fiscal Freedom; Government spending; Monetary Freedom; Investment Freedom; Financial Freedom; Property Freedom; Freedom Corruption; and Labour Freedom.

corruption (LogCorruption) are significant with the expected negative sign. For the variable LogKOF⁵ (index of globalization), it was expected a positive sign, and the result confirm this.

TABLE 1 - FDI - LOCALIZATION AND INSTITUTIONAL DETERMINANTS : FIXED EFFECTS ESTIMATOR

Variables	Coefficient	<i>t</i> -statistics	Significance	Expected Sign
LogGDP	2,77	(2,91)	***	(+)
LogTAXES	-2,27	(-4,98)	***	(-)
LogINF	-0,80	(-1,79)	*	(-)
LogW	-2,12	(-2,85)	***	(-)
LogKOF	3,64	(5,21)	***	(+)
LogCorruption	-1,53	(-3,19)	***	(-)
N	126			
R^2	0,36			

T-statistics (heteroskedasticity corrected) are in round brackets.

***/*- statistically significant at the 1%, and 10% levels.

The GMM-System is reported in table 2. The equation presents consistent estimates, with no problems with the validity of Ar(2). The Sargan test shows that there are no problems with validity of instruments used. We used the criterion of Windmeijer (2005) to small sample correction. All explanatory variables are significant with exception lagged dependent variable (LogFDI_{t-1}). The instruments in levels used are LogFDI(2,7), LogGDP(2,7) and LogW(2,7) for first differences. For levels equations, the instruments are used first differences all variables lagged t-1.

TABLE 2 - FDI - LOCALIZATION AND INSTITUTIONAL DETERMINANTS : GMM-SYS ESTIMATOR

Variables	Coefficient	<i>t</i> -statistics	Significance	Expected Sign
LogFDI _{t-1}	0,03	(0,198)		(+)
LogGDP	2,76	(2,87)	***	(+)
LogTAXES	-2,27	(-4,97)	***	(-)
LogINF	-0,83	(-1,84)	*	(-)
LogW	-2,11	(-2,81)	***	(-)
LogKOF	3,63	(5,04)	***	(+)
LogCorruption	-1,52	(-3,12)	***	(-)
C	-1,58	(-2,36)	**	
N	126			
Arellano-Bond test for Ar(2) (P-value)	0,98			
Sargan test (P-value)	0,63			

The null hypothesis that each coefficient is equal to zero is tested using one-step robust standard error. T-statistics (heteroskedasticity corrected) are in round brackets. P-values are in square brackets; ***/**/*- statistically significant at the 1%, 5% and 10% levels. M2 is a test for second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null hypothesis of no serial correlation (based on the efficient two-step GMM estimator). Sargan is a test of the over-identifying restrictions, asymptotically distributed as under the null of instruments' validity (with two-step estimator).

Our results show that market size (LogGDP) is positively correlated with FDI. Naudé and Krugell (2007), and Maniam (2008) found a positive sign.

⁵ LogKOF, this proxy evaluates the effects of mobility and interrelationship between the economies.

A negative effect of taxes (LogTAXES) on FDI was expected and the results confirm this, showing the importance of the taxes levels of host country in the decision of foreign investors.

As expected, the variable LogINF (inflation) has a significant and a negative effect on LogFDI inflows. This proxy analyses the economic stability. Our results confirm the empirical studies of Sun et al. (2002), and Naudé and Krugell, (2007).

The lower wages (LogW) in Portugal are an important factor to attracting FDI. We found a negative sign. This result is according to the literature (Zhao and Zhu, 2003; Skabic and Orlic, 2007; Contractor and Madambi, 2008). So we conclude Portugal has cheap labour.

The coefficient of globalization (LogKOF) is statistically significant, with an expected positive sign. This result indicates that globalization explain the activities of multinational enterprises.

The corruption influences negatively the decision of foreign investors. Our result is according to the hypothesis formulated.

5. CONCLUSIONS

In this article, we analyze the determinants of FDI. To understand this, we introduced the classic localization explanatory variables and the institutional variables as in globalization and corruption. We applied a static panel data (Fixed effects) and the GMM-System approach with orthogonal transformation of data.

There is evidence that foreign investors choose Portugal because this country provides cheaper labour costs. Moreover, there appears to be macroeconomic stability in the period under review. Regarding corruption, the results show there is a negative correlation between corruption and FDI. However, the index of globalization promotes the attraction of FDI, which explains the mobility of production factors and the interdependence between markets.

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