

Localization Factors and Inward Foreign Direct Investment in Greece

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Abstract. *This study examines the foreign direct investment (FDI) attractiveness for Greece as a host country in the period 1998-2007. The purpose of this paper is to analyze the impact of variables, such as market size, labour costs, trade openness, taxes, inflation and economic stability. The manuscript applies a panel data approach (Fixed Effects estimator and GMM system estimator). In contrast to previous studies, this paper used a dynamic panel data to solve the problems of serial correlation and endogeneity. The empirical results indicate that the market size, trade openness, and labour costs are significant factors to explain inward FDI to Greece. These results indicate that the FDI attracting will be influenced by market size. Our results also show that Greece has some problems of macroeconomic stability, which discourages the investors.*

Keywords: foreign direct investment; panel data; Greece.

JEL Codes: F21, F41.

REL Codes: 3D, 10F.

Introduction

The regional trade agreements (RTA) has contributed to an increasing globalization of world economy. To add to this, sum the process of internationalization and relocation of multinational enterprises into new markets. The World Bank (2002) refers three waves of globalization. The first came between 1870 -1915. The second wave occurred between 1945 -1980. The current wave began in the 1980s. Foreign direct investment (FDI) is having a crucial role in the global economy. According to UNCTAD (2006), FDI has increased in recent years to overcome the role of international trade.

These new changes in the global economy helped to reduce transaction costs and transportation. The liberalization of trade policies and the removal of some barriers led to the growth of FDI. Foreign direct investment (FDI) refers to a movement of capital that involves ownership and control.

As Rugman and Verbeke (2008) show, FDI is one channel for the globalization of word economy. Foreign direct investment is usually discussed in the context of multinational enterprise (MNE). The multinational enterprises pretend to acquire news markets, because these firms have specific advantages, or they want to acquire localization advantages (OLI paradigm – O: ownership, L: localization, I: internalization) (Dunning, 1992, Dunning, Lundan, 2008).

It should be noted that there are host countries that are more attractive to investors than others. In this context we can mention some disadvantages inherent in the operations of MNE such as transaction costs and transportation, macroeconomic problems (high taxation, high inflation). The political and social instability as bureaucracy and corruption discourage foreign investors.

This paper analyses the determinants of inward FDI in Greece for the period.

Literature review and empirical studies

In order to proceed a discussion on the determinants of FDI to a particular country, and analyze the barriers to FDI inflows in this section we present a survey of empirical studies.

According to the literature (Bitzenis et al., 2007, Louri et al., 2000), the FDI began in early 1950s. With the European Monetary Union (EMU) and the accession of Greece on January 1 2001 several structural reforms have occurred. Moreover, the Greek Government produces a number of reforms, including the telecommunications market, and the energy market.

Several empirical studies (Apergis, Katrakylidis, 1998, Filippaios, Kottardi, 2004, Psycharis Kokkinou, 2004, Pantelidis, Nikolopoulos, 2008) show that Greece has poor conditions of attractiveness for foreign investment. These studies show that high taxation and weak macroeconomic stability are the factors that prevent the establishment of investors.

The study of Bitzenis et al. (2007) applies a questionnaire to multinational companies that have invested in Greece during the period 1995-2003. The study demonstrates that investors chose Greece, because they considered that the conditions were met in terms of market (size), efficiency and resources.

The literature on FDI began in 1960s and 1970s with Hymer (1960), Kindleberger (1969), and Caves (1971). Dunning (1981) with the eclectic theory of FDI, suggested that internalization could explain the movements of MNEs. The author introduced the eclectic paradigm in 1992.

The OLI paradigm explains why the investors invest in host country. Ownership advantages could explain a free access to technology, new products. Firms have ownership characteristics (inputs) as in patents, brand, human resources, and financial assets.

Localization advantages are explained by the motivation of FDI. In this topic, we need to think about efficiency, that J. Dunning calls movement of production where there are lower inputs costs (outsourcing of production). The author also analyses the foreign market proximity (strategic asset-seeking). In this case Dunning explains the relationships between foreign market proximity and exports, or foreign market proximity and new production (i.e, if it is better to move production).

The economic factors, such as market size, its growth rate, labour costs, labour skills, per capita income, have been considered as explanatory variables in the econometric models.

Dunning (1993) shows three as the most common investment motivations (resource- seeking, market seeking, and efficiency-seeking).

The availability of natural resources (minerals) and the production costs cheaper are the main determinants of a host country.

Market-seeking investment is stimulated by factors such as income per capita, economic growth and economies of scale of the host countries.

The efficiency-seeking is explained by credible government policy to promote the attraction of FDI. Systems and political regimes, the cultural aspects are some of the factors that characterize it.

Recently the researchers of international foreign investment as in Pantelidis and Nikolopoulos (2008), Jeon and Rhee (2008), Maniam (2007), Skabic and Orlic (2007), and Rodriguez and Pallas (2008) explained the determinants of FDI by market size, labour costs, labour skills, openness risk, macroeconomic and political stability and other factors. Other variables such as Knowledge capital (Markusen, 2001), human capital (Sun et al., 2002), similar language and cultural levels (Dunning, 1981).

Pantelidis and Nikolopoulos (2008) investigate the FDI attractiveness for Greece as host country during the period 1976-2004. The study comes to

interesting conclusions. The proxies used for market size, technological capacity, human capital and labour costs are in line with theoretical predictions. However the study refers some barriers to investment attraction as inability governance, high taxes, problems in terms of infrastructure and macroeconomic instability. According to the authors it is necessary to reduce bureaucracy and corruption.

Jeon and Rhee (2008) analysed the determinants of Korea's FDI from US between the periods 1980-2001. The authors concluded that Korea's FDI inflows from the United States have a significant association with real exchanges rates, relative wages costs, and interest rate differentials using a pooled OLS estimation.

Maniam (2007) used an OLS estimator to analyse the determinants of FDI in Latin America for the period 1975-2003. The author concluded that FDI has increased rapidly in Latin America. According to Maniam (2007, p. 13) there are relationships between the economics variables and investors expectations, the latter on the host countries need to develop better their strategies.

Skabic and Orlic (2007) applied the fixed effects estimator from the period 1993 to 2005 for Central and Eastern European countries and Western Balkan countries. The work of Skabic and Orlic (2007, p. 348) demonstrates that Western Balkan countries should make additional efforts in order to cut corruption in their economies in order to become attractive to FDI.

Rodríguez and Pallas (2008) utilized a panel data to examine the determinants of FDI in Spain during the period 1993-2002. Rodríguez and Pallas (2008) consider that human capital and the export potential of the sector are the most important determinants.

The recent literature as in Naudé and Krugell (2007), and Alguacil, Cuadros, and Orts (2008) consider that foreign direct investment is a dynamic phenomenon.

Nudé 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.

Econometric model

The dependent variable is Greek inward FDI. The explanatory variables are country-specific characteristics. The data for explanatory are sourced from Work Bank (2009), World Development Indicators. The source used for dependent variable, is inward FDI from OECD International Direct Investment Database.

Static and dynamic panel data models

The static panel data models were estimated with pooled ordinary least squares (OLS), fixed effects (FE) and random effects (RE) estimators. The F statistics tests the null hypothesis of same specific effects for all countries. If we

accept the null hypothesis, we could use the OLS estimator. The Hausman test can decide which model is better: random effects (RE) versus fixed effects (FE). For purposes of comparison with dynamic model, the FE model was selected because it avoids the inconsistency due to correlation between the explanatory variables and the country-specific effects. In the FE model, all explanatory variables are potentially correlated with the effects.

This manuscript estimates the dynamic panel data model using GMM-System estimator. The system GMM estimator (GMM-SYS) was proposed by Arellano and Bond (1995) and Blundell and Bond (1998, 2000), and Windmeijer (2005) to a small sample correction to have corrected standard errors of Blundell and Bond (1998, 2000) but correction the estimated standard errors using the Windmeijer correction. The GMM estimator permits efficient estimates to be obtained.

Explanatory variables

The paper uses the following explanatory variables in logs:

- *Market size*, LogGDP is the logarithm of the absolute value of Greek in GDP per capita (PP, in current international dollars). According to the literature (Pantelidis, Nikolopoulos, 2008, Naudé, Krugell, 2007, Maniam, 2007) we expected a positive sign.
- *Openness trade*, LogTRADE it is a proxy for trade openness. It is the logarithm of exports/GDP ratio. Pantelidis and Kyrkilis (1997), Skabic, Orlic (2007) found a positive sign.
- *Taxes*, LogTAXEs, is the logarithm of Greek taxes levels. The taxes levels of the host country manipulate the decision of foreign investors. According to the literature we expected a negative sign. The studies of Psycharis and Kokkinou (2004) and Pantelidis and Nikolopoulos (2008) reported that the Greek case has a high taxation.
- *Inflation*, LogINF, is the logarithm of Greek inflation rate. The inflation rate is used to measure the level of economic stability. The theoretical predictions give it a negative sign (Naudé, Krugell, 2007). However, previous studies (Apergis, Katrakylidis, 1998, Filippaios, Kottaridi, 2004) show that Greece has some problems of macroeconomic stability, which discourages the investors.
- *Real wages*, LogW, is the logarithm of Greek real wages. Countries with lower wages would attract more FDI. Pantelidis and Nikolopoulos (2008), Pantelidis and Kyrkilis (1997) found a negative correlation between labour costs and FDI.

Model specification

$$FDI_{it} = \beta_0 + \beta_1 \times X_{it} + \delta t + \eta_i + \varepsilon_{it} \quad (1)$$

Where FDI_{it} is the Greek foreign direct investment flows, 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 identical distributed (IID) with $E(\varepsilon_{it})=0$; $Var(\varepsilon_{it})=\sigma^2 > 0$.

The model can be rewritten in the following dynamic representation:

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

Estimation results

In Table 1, we see the results with the fixed effects estimator. The explanatory power is very high (Adjusted $R^2=0.815$). All explanatory variables are significant with the exception of LogTAXES.

As expected the lagged dependent variable presents a positive sign, confirming the importance of FDI for the Greek economy.

Table 1

The determinants of foreign direct investment (FDI): Fixed Effects

Variables	Coefficient	Expected Sign
LogFDI _{t-1}	0.925 (3.476)***	(+)
LogGDP	6.269 (2.278)**	(+)
LogTRADE	11.206 (2.141)**	(+)
LogTAXES	-0.095 (-0.582)	(-)
LogINF	1.851 (1.716)*	(-)
LogW	-1.505 (-1.976)**	(-)
Adj. R ²	0.815	
Observations	210	

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

***/**/* - Statistically significant, respectively at the 1%, 5 and 10% levels.

The coefficient for market size (GDP) is positive and significant at the 5 per cent level. Pantelidis and Nikolopoulos (2008), Fotopoulos and Louri (2004) found a positive sign. This result shows that the FDI attracting will be influenced by market size.

The variable LogTRADE (trade openness) has a significant and positive effect on inward FDI. This result is according to the literature (Pantelidis, Kyrkilis,

1997, Louri et al., 2000). This result demonstrates that the trade partners and the openness of economy are an important vehicle to expand FDI. For the variable LogINF (inflation) that is used to evaluate the economic stability. The theoretical predictions give it a negative sign (Naudé, Krugell, 2007). However, previous studies (Apergis, Katrakyliadis, 1998, Filippaios, Kottardi, 2004) show that Greece has some problems of macroeconomic stability, which discourages the investors. Our result is according with these previous studies.

The lower wages in Greece are an important factor to attracting FDI. As in Fotopoulos and Louri (2004), and Louri et al. (2000), we found a negative sign.

Table 2 presents the estimation using the GMM-system (GMM-SYS) estimator. The model presents consistent estimates, with no serial correlation (m1, m2 statistics). The specification Sargan test show that there are no problems with the validity of instruments used. The equation presents five significant variables (LogFDI_{t-1}, LGDP, LogTRADE, LogINF and LogW).

The GMM system estimator is consistent if there is no second-order serial correlation in the residuals (m2 statistics). The dynamic panel data are valid. We used the criterion of Windmeijer (2005) to small sample correction. The instruments in levels used are LogFDI(2,7), LogGDP (2,7), LogTRADE(2,7) for first differences. For levels equations, the instruments are used first differences all variables t-1. As expected, the lagged dependent variable is positive.

The variable, LogGDP (income per capita), used also by Pantelidis and Nikolopoulos (2008), has a significant and predicted positive effect on FDI.

Table 2

The determinants of foreign direct investment (FDI): GMM-SYS estimator

Variables	Coefficient	Expected Signs
LogFDI _{t-1}	0.709 (10.4)***	(+)
LogGDP	16.943 (1.70)*	(+)
LogTRADE	18.775 (1.95)*	(+)
LogTAXES	-0.065 (-0.526)	(-)
LogINF	3.362 (2.01)**	(-)
LogW	-2.637 (-1.99)**	(-)
C	0.188 (1.23)	
M1	-0.5514 [0.581]	
M2	0.1955 [0.845]	
Sargan	17.40 [1.000]	
Observations	168	

T-statistics (heteroskedasticity corrected) are in round brackets. The null hypothesis that each coefficient is equal to zero is tested using second -step robust standard error. T-statistics (heteroskedasticity corrected) are in round brackets. **, and * indicates statistical significance, respectively at the 5%,

and 10% level. P-values are in square brackets. Year dummies are included in all specifications (this is equivalent to transforming the variables into deviations from time means, i.e. the mean across the fourteen countries for each period). M1 and M2 are tests for first-order and 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 χ^2 , under the null of instruments' validity (with two-step estimator). ***/** - statistically significant, at the 1% – 5% levels, respectively.

A study of Fotopoulos and Louri (2004) analyse the case of Greece also found a positive sign. The variable trade openness (LogTRADE) presents a positive effect on inward FDI. Pantelidis and Kyrkilis (1997), Louri et al. (2000) found a positive sign.

The variable, real wages in log (LogW) presents a negative sign, confirming the theoretical forecast proposed by the literature. Fotopoulos and Louri (2004) found a negative correlation between labour costs and FDI.

Conclusions

In recent years, there has been significance growth of FDI literature. The academics have been to explain the FDI inflows in context of host countries.

The objective of this study was to analyze some of the determinants of inward FDI in Greece. Comparing our findings with other empirical studies, we obtained similar results. Econometrics estimations support the hypothesis formulated. Our results are robust with Fixed Effects and GMM- system.

As our result show the FDI has a dynamic nature. In relationship to understand this phenomenon we applied a dynamic panel data and we compared the results with a static panel data. The lagged inward FDI variable presents an expected positive sign.

In view of the results, it would seem evident that economic policy in Greece orientated towards attracting FDI is an important factor.

The market size (LogGDP) has been statistically significant. This results is in line with those obtained by Fotopoulos and Louri (2004), Pantelidis and Nikolopoulos (2008).

The relative costs (real wages), which is a fundamental element of increased per-worker labour productivity, is also a significant determinant of inward FDI in Greece.

In addition to productivity, a further indicator of competitiveness is the openness trade, which reveals a positive impact on inward FDI.

The macroeconomic factors used that measure the situation of Greece (inflation) have been statistically significant and positive sign with different estimators (Fixed Effects, and GMM-SYS). This result indicates that Greece should reduce inflation as a way to attract more FDI. Our results validate the study of Pantelidis and Nikolopoulos (2008).

This study has however some limitations. In further research we need to include industry characteristics into the analysis in order to investigate the impact of industry – specific factors on inward FDI, and other control variables: language and cultural similarity, innovation and technology, and human capital.

In terms of economic policy recommendations, the government should control corruption as possible and reducing bureaucracy. These two factors are seen as barriers to investment. This recommendation has been reported in several studies (Pantelidis, Nikolopoulos, 2008, Aristidis et al., 2007).

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