Inward Greek FDI and Location Advantages

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Abstract.
The aim of this paper is to construct and test a model explaining the inward FDI position of Greece on the basis of its location advantages during 1981-2009 period. The model consists of variables approximating location advantages as these are suggested by economic theory and empirical research. The model has an adequate explanatory ability and highlights market, wages, labour productivity and the availability of technological capabilities as important determinants of inward FDI in Greece. Also Common market is identified by our model as having a positive impact on FDI. Furthermore the European Monetary Union and the openness of the market (mainly dependent on imports) have a significant, negative impact on FDI.

JEL classification codes: F21, F23.

Keywords: FDI, Greece.
1. INTRODUCTION

Greece historically has not achieved to attract significant amount of Foreign Direct Investment (FDI) inflows and is below country’s potential (Papazoglou 2001, Kokkinou and Psycharis 2004). Furthermore the opportunity of the Olympic Games was not exploited and no significant improvement was achieved in terms of improving country’s attractiveness (Pantelidis, Nikolopoulos, 2008). The main factors of the relative low FDI inflows of Greece are bureaucracy, high taxation and the general macroeconomic conditions (Apergis and Katrakylidis 1998, Fillippais and Kotardi 2004, Pantelidis and Nikolopoulos, 2008).

The literature on FDI began in 1960s (Hymer 1960). The eclectic paradigm of international production created by Dunning (1977, 1988) melded many parts of the prevailing until then theories of FDI. The eclectic paradigm suggests that there are three sets of variables, which determine the extent and the form of the foreign owned production. The first set is the ownership specific advantages. These are ownership advantages, which are hold exclusively by the multinational like expertise or patents, and allow the multinational to compete with the other enterprises despite the disadvantages that might occur by the fact that it is a foreign company. The second set is the location-specific advantages, which include factors specific to a place that must also be used in that particular place. These include labour advantages, natural resources, trade barriers that restrict imports, etc. According to Yoshitomi, the location-specific advantages are largely exogenous at the time that the decisions for the FDI are made (Yoshitomi and Graham, 1996). The elimination of trade barriers between the countries of the union and the easement of the transactions are some of the reasons that could affect the decision on the extent of FDI and make one country more or less attractive. Finally, the third set is the internalisation advantages. These advantages refer to the gains that a multinational has by using its ownership internally instead of buying or selling from third parties.

Dunning (1993) identified four categories of motives for FDI: resource seeking, market seeking, efficiency seeking and strategically motivated seeking. The resource seeking FDI has as a target to acquire specific resources less costly than if purchased in the home country or in another place in which the multinational operates. The basic types of resources that the multinational enterprises are investing for are the natural resources, the raw materials and the technologically or created assets (e.g. patents). The market seeking FDI has as a main target to gain access to the market of the host
country, to provide the goods and services of the company and possibly to expand to adjacent countries. The main reasons that multinationals could prefer to invest to a foreign country rather to export are the possible trade barriers imposed by the host country (e.g. tariffs) and the high transport costs. Furthermore, the main factors of the attractiveness of market seeking FDI are the size of the market-population and the rate of the market growth. The efficiency seeking FDI seeks to gain from scope and scale economies from common governance. One of the main forms of this FDI has as a target to increase the efficiency of the company by transferring part of the activities of the multinational to countries with lower labour costs. Finally, the strategically motivated seeking FDI has as a main target to sustain, establish or advance the position and the advantages of the multinational over a long-term period.

The creation of the European Monetary Union (EMU) and the impact that the union had in trade and FDI has become during the last years an interesting topic for research. Empirical research has shown that during the first years of EMU there is a positive impact on trade among the member countries (Glick and Rose 2002, Micco et al 2003). Also initial research about FDI has indicated that there is positive and significant effect from the creation of EMU (Aristotelous 2005, Schiavo 2007, Brouwer et al 2008). However very interesting is also the finding of Aristotelous, Fountas (2009) who state that there is a positive and statistically significant impact of euro on inward FDI flows to Euro zone but however this impact is not the same across all countries. They show that there exists a positive impact in the core countries of the Euro zone and mixed or negative impact in the countries of the periphery of the Euro zone.

The aim of this paper is to construct and test a model explaining the inward FDI position of Greece on the basis of its location advantages. Also at the same time we examine the impact of Greece’s participation in Common market and EMU in terms of FDI inflows.
2. THE MODEL

**Dependent Variable**
Annual FDI inflows to Greece.

**Independent Variables**

**Market size**
A positive relation between market size of the host country and inward FDI is expected. A large host market facilitates the exploitation of economies of scale and gives scope for the production of more varieties of the same product. Production and marketing of differentiated products is a strong competitive advantage of MNEs. However, in the case of product differentiation the absolute quantity of demand should be associated with differentiated consumption. The latter is attributed to economies of adequate incomes and therefore of development levels. GDP is proposed as an approximation for both market size and level of development. The higher the level of GDP the more advanced the country and the greater its aggregate demand is expected to be, and then the higher the level of inward FDI.

**Interest Rate**
Domestic interest rates indicate both the local cost of money, and the availability of capital, and they are related to the government's monetary and exchange rate policies. Low interest rates make investments financed via local capital sources more profitable. On the contrary, high interest rates lead to investment financing through foreign capital markets. MNEs given their ability to pursue international capital sourcing are expected to finance their already existing affiliates in a country through local or foreign sources according to the relative cost of borrowing in the host market. Higher domestic interest rates relatively to interest rates abroad is expected to increase borrowing in foreign currencies in order to finance investments of already established subsidiaries and to limit local financing in new direct investments, and therefore to increase FDI inflows. The ratio of the nominal lending interest rate in the Greece to the nominal lending interest rate in Germany is suggested as a proxy for the relative cost of borrowing. The higher this ratio is the higher the FDI inflows are expected to be.
Exchange Rate
A domestic currency depreciation is expected to increase the motive for direct production because, first, it increases the prices of imports, making import substitution through direct production more profitable, second, improves the nominal competitiveness of locally produced exports making more attractive the country as an export platform location, and third, increases the value of foreign financial flows in local currency. However, the value of local subsidiary profits in foreign currency becomes lower and that decreases the potential for profit repatriation; the possibility of an inflationary process increases and so it does the possibility for a deterioration of the long run nominal competitiveness and that in turn will decrease domestic and foreign sales, especially when productivity and future currency depreciations are unable to restore competitiveness; and finally the value of the subsidiary’s fixed assets in foreign currency is depreciated with negative effects on the parent MNE's total value. Overall, it is not predictable on a priori theoretical grounds the relationship between FDI and exchange rate. In the present case the Greek drachmae per US dollar exchange rate (and the euro per US dollar since 2002) is used for testing the effect of the latter on incoming FDI.

Technological Capabilities
The ability of a country to transfer, adapt and create technological inputs constitutes a very important part of its location advantages. Both rationalised and strategic asset seeking FDI take advantage of locally available technological inputs that either complement or strengthen the ownership advantages of the parent company. The proposed approximation for a country's technological ability is the number of patent applications. The higher this number the higher the country's technological ability is, and then the higher the rate of FDI inflows.

Host Country Exports and Imports
World market integration of a country is associated with both export orientation and a liberal attitude towards imports. An internationally oriented strategy is based on the country's competitive advantages and applies policies aiming at their restructuring. Usually FDI is more likely to be attracted in countries pursuing liberal policies because, first, it is considered as a vehicle of world market integration and
advancement of local competitive advantages; second, intra-firm trade of resources and goods is easily pursued; third, it may take advantage of the continuous upgrading of local resources in order to build exports; and fourth, imports may be used for creating demand, that at a later stage will be met by direct production if other factors, e.g. economies of scale and scope, production and transportation costs, possibility of using the specific country as a regional center of production and marketing, etc. favor this option.

Thus although in general a positive correlation is expected among FDI and imports in the case of Greece this might not be the case. It is also true for Greece that the imports and exports are a measure of openness and liberalization of the country however it is also true that Greece has significant issues that discourage foreign investors (bureaucracy, etc). Also the fact that the openness of the economy is driven mainly from imports implies that the possibility Greece to be selected as regional production center, and export the products, is limited. Taking into account all these limitations for FDI and the elimination of exchange rate risk, it is also very plausible that imports could have in the case of Greece a mixed or even negative impact on FDI since the multinationals might select to offer their goods and services by operating remotely instead of investing directly in the country.

**Labor Cost and Labor Productivity**

Relatively low labor cost either of the general workforce or of specific types of labor and skills is an important motive for FDI. Cheap unskilled labor may attract export platform FDI of goods at the declining phase of their cycle or the labor intensive parts of vertical regionally integrated FDI. Cheap semi-skilled or skilled labor may motivate rationalized FDI. Strategic asset FDI may be oriented to countries with available low cost research and scientific personnel. In any case what it really matters is not the absolute cost of labor but its relationship with labor productivity. Potential for productivity advancements faster than the increase of labor cost may be proved adequate motive for inward FDI.

The wage rate index is chosen as the approximation for unit labor cost with a negative relationship with FDI. However, as FDI accumulates that may cause pressures in segments of the host country labor market and eventually wage increases. The same may occur in the case of fast productivity increases in conditions of skills scarcity either generally or in segments of the market.
Common market and European Monetary Union

The emergence of a single market as an outcome of the process of economic integration in Western Europe is expected to have contributed to the growth of trade and investment. Increasing liberalization and competition results to increasing cross border penetration of economic activity. Location choices for European Union (EU) firms are wider within an integrated regional market and investments of firms originated from non-member countries are attracted in order to serve a growing market and exploit economies of scale and scope. Defensive foreign direct investment (FDI) aiming to overcome host market protection or to manipulate competition in final product markets through import substitution, local presence and economies of scale is a reasonable expectation in the case of interregional FDI. On the contrary, regional economic integration nullifies the import substitution motive of intra-regional FDI, that type investment is likely to be substituted by free trade in the emerging single market, and raises the scope of a regionally integrated network of affiliated firms that facilitates production rationalization and increases intra-firm trade. The location of each affiliated firm that undertakes a specific stage of production (vertical integration) or a specific variety of a product (horizontal integration) is made upon differences of local production conditions instead of local market needs. Economic convergence, though, which is the expected result of economic integration and especially monetary integration smoothes differences between member states in factors affecting production conditions, for instance wages, interest rates, external economies, economic policies, etc., and so it influences the flows of intra-regional FDI. The same influence economic convergence is expected to exercise on the location choice between different member states of non European FDI that aims to servicing the unified European market.

The elimination of exchange rate risk, after the launch of euro, would tend to increase the FDI inflows inside the currency union. Also the increase on trade volume would tend to create a stronger incentive to expand the production activities inside the union and thus increase FDI. However this does not mean that the impact will be same and positive for all the members of the monetary union. A country in order to gain from the monetary union and increase its FDI inflows should have specific competitive advantage vs. the rest members of the union in order to attract investment. At the same time since both direct and indirect (exchange rate) potential trade barriers have
been eliminated by the membership of the countries in EU and especially in EMU, specific countries might have a positive impact while others might have mixed or even negative impact from the participation in a monetary union, in terms of FDI inflows.

3. ESTIMATION AND RESULTS.
The model can be summarised in the following equation estimated by OLS:

\[
\text{FDI} = f(Y, \text{TE, OP, W, LPRO, EU, CM})
\]

\[
\text{(+)} \quad \text{(+)} \quad \text{(-)} \quad \text{(+) }
\]

Where:

FDI = Inward foreign direct investment in Greece.
Y = Real GDP which is a proxy for market size.
TE = Patent applications. That variable is a proxy for technological capabilities.
OP = Openness of the economy (exports + imports)
W = wage rate index is a proxy for labour cost.
LPRO = labor productivity
EMU = Dummy variable for the Greek membership in Euro area since 2002.
CM = Dummy variable for the Greek membership in Common market area since 1992.

The equation is estimated by OLS in log-linear form with annual data for period 1981-2009. The expected signs are shown below the relevant coefficients. The equation has a log linear form because under this specification elasticities given by the estimated coefficients are constant. There is also no strong indication of multicollinearity, since all the statistically significant coefficients have the expected signs.

The estimated equation after correction for autocorrelation is presented in Table 1. The market size, technological capabilities, labour cost, labour productivity and common market are statistically significant variables and they all have the expected sign. The openness of market and the participation in the European Monetary Union are also significant and have a negative impact on FDI.
Table 1: OLS estimates of FDI equation for period 1981-2009.

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
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<tbody>
<tr>
<td>Constant</td>
<td>-79.08 (4.61)*</td>
</tr>
<tr>
<td>Y</td>
<td>1.89 (6.54)*</td>
</tr>
<tr>
<td>TE</td>
<td>0.168 (1.78)**</td>
</tr>
<tr>
<td>OP</td>
<td>-0.92 (6.56)*</td>
</tr>
<tr>
<td>W</td>
<td>-1.81 (6.00)*</td>
</tr>
<tr>
<td>LPRO</td>
<td>9.74 (5.34)*</td>
</tr>
<tr>
<td>EMU</td>
<td>-1.18 (4.24)*</td>
</tr>
<tr>
<td>CM</td>
<td>0.36 (3.45)*</td>
</tr>
<tr>
<td>R²=0.92 DW=2.30 F stat=31.09</td>
<td></td>
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</tbody>
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- * means significant at 5% level.
- ** means significant at 10% level.
- The values in parenthesis are t-statistics.

It has been observed a negative impact of imports (the main part of openness of market variable) and EMU on FDI inflows of Greece. It is a fact that Greece did not take the necessary structural reforms and the country continued to have specific issues (e.g. bureaucracy, instable economic environment etc) which discouraged foreign investors. At the same time other core EMU countries increased their exports, achieved significant growth and increased their attractiveness in terms of FDI. Thus, part of market seeking FDI that could be invested in Greece would have significant reasoning to be invested in other EMU countries with the same final results. Furthermore, Greece maintained to be less competitive in terms of attracting FDI (Pantelidis and Nikolopoulos, 2008) and did not succeed to counterbalance potential losses from intra-EMU flows with FDI flows from outside EMU countries. Also the fact that euro during the last years appreciated, had a definite positive impact on imports and at the same time made even worsen the case for Greece to attract FDI outside EMU countries (because of increased comparative cost of labour, cost of investment etc). At the same time if examined we would expect an opposite positive trend for other core countries of EMU. Thus, the EMU did not have a positive impact.
on FDI for Greece potentially because it might was more attractive for companies to remotely operate in Greece through imports rather than actively invest in Greece through FDI.

4. CONCLUSION

The econometric model has an adequate explanatory ability and highlights market, wages, labour productivity, labour cost, technological capabilities and openness (mainly linked with imports) as the more decisive determinants. These findings are in line with the trends of international production as having market and efficiency seeking characteristics. Besides, they offer a possible explanation on the rather low level of FDI coming into Greece. The latter has a market of rather low sophistication and size and a weak record in creating technological and human capital inputs in appropriate quantity and quality along with chronic macroeconomic imbalances. In that respect its attractiveness is limited as long as these handicaps are being maintained.

Also in our model both Common market and EMU have a statistically significant impact on FDI while Common market has a positive impact and EMU a negative. The negative impact of EMU implies that the elimination of trade barriers, exchange rate risk in combination with the appreciation of euro and the chronic disadvantages of Greece made the country even less attractive for direct investment. At the same time the negative impact of imports on FDI indicates that companies, for all the above reasons, might prefer to invest in another country of EMU, instead of Greece, and export their products/services in Greece without having significant or any trade barriers/costs. However further research is needed in order to identify what happened also to other countries of EMU with similar characteristics with Greece and also to the core EMU countries.

NOTES

1. There is extensive literature on the relationship between FDI and market size. For theory see indicatively Buckley and Casson (1981) and for empirical testing see among others Scaperlanda and Mauer (1969, 1972) and Culem (1988).

2. On the issue of financing foreign operations of MNEs see Gilman (1981).
3. For a brief survey on empirical work testing the relationship between exchange rate and FDI flows see Clegg (1995).

4. Interest rate and exchange rate are not included in the equation because are proved to be statistically insignificant.

5. The FDI variable has been taken from UNCTAD, Patent applications, exchange rate, GDP and exports and imports of goods and services have been taken from World Bank. Unit labour cost has been taken from OECD while interest rate and labour productivity from Economist Intelligence Unit.

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Economist Intelligence Unit (EIU), Country Data, Electronic database


Kokkinou, A. and Psycharis, I. (2004), Foreign Direct Investments, Regional Incentives and Regional Attractiveness in Greece, paper presented at the 44th ERSA Congress (Porto, Portugal)

OECD, Main Economic Indicators, Various issues and electronic database


World Bank, World Development Indicators, Various issues and electronic database

UNCTAD, World Investment Report, Various issues and electronic database