

## What is “Race-to-the-Bottom” Effect on FDI Inflow?

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### **Abstract**

The inflow of foreign direct investment (FDI) increased rapidly during the late 1980s and the 1990s in almost every region of the world revitalizing the long and contentious debate about the costs and benefits of FDI inflows. The “race-to-the-bottom” hypothesis was initially formulated in the context of local competition for investments within countries, where the decentralized environmental responsibilities gave in setting their environmental standards in line with their priorities (WTO 1999). Most critics argue that increased competition for foreign direct investment could lead to lowering of environmental standards and regulations (WB 2000). Furthermore, governments which attempt to maintain high standards will see their efforts undermined by the existence of less stringent regulations elsewhere. This will then lead to an overall lowering of environmental standards internationally (Jenkins et al. 2002). This paper aim is examination of “race-to-the-bottom” effects on the FDI inflow for 4 euro-Mediterranean countries, over 1980-2010. I have found that a decrease in the environmental regulations stringency has positive and statistically significant effect on the FDI inflow to this region.

**Keywords:** FDI, Environment, Environmental Regulation, Euro-Mediterranean Countries.

### **1- Introduction**

The inflow of foreign direct investment (FDI) increased rapidly during the late 1980s and the 1990s in almost every region of the world revitalizing the long and contentious debate about the costs and benefits of FDI inflows. On one hand many would argue that, given appropriate policies and a basic level of development, FDI can play a key role in the process of creating a better economic environment. On the other hand potential drawbacks do

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exist, including a deterioration of the balance of payments, as profits are repatriated having negative impacts on competition in national markets. At present the consensus seems to be that there is a positive association between FDI inflows and economic growth, provided that receiving countries have reached a minimum level of educational, technological and/or infrastructure development. However, as in many other fields of development economics, there is not universal agreement about the positive association between FDI inflows and economic growth.

A large number of empirical studies on the role of FDI in host countries suggest that FDI is an important source of capital, complements domestic private investment, is usually associated with new job opportunities and enhancement of technology transfer, and boosts overall economic growth in host countries. A number of firm-level studies, on the other hand, do not lend support for the view that FDI promotes economic growth.

Early empirical studies suggest that environmental stringency has no discernible effect on location choice. Though FDI in pollution-intensive industries did occur, there was little evidence that it had been influenced by differing pollution abatement costs, or had flowed faster into developing countries relative to industrial countries.<sup>1</sup> Recent econometric studies have adopted one of three approaches to investigate whether or not FDI flows have resulted in pollution havens: inter-state plant location choice; inter-industry FDI flows within a country; and inter-country FDI location choice.<sup>2</sup> Results from these studies are mixed. In his review of four studies that use the first approach to study US plant location choice, Levinson (1996) finds little evidence that inter-state differences in environmental regulations affect the location of plants in the US. However, controlling for unobserved state characteristics and adjusting their abatement cost measure for inter-state differences in industrial composition, Keller and Levinson (2003) find robust

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1- Leonard (1988) found some evidence that governments used lenient environmental regulations to attract FDI in the 1970s, but he also found that incentives were not substantial enough to offset other determinants of location choice, particularly labor productivity, infrastructure and stability.

2- While there is some evidence of a positive relation between FDI share and air pollution-intensity, there is a negative relation between FDI share and both water pollution and toxic - release intensity.

evidence that pollution costs have a moderate deterrent effect on foreign investment into US states.

Eskeland and Harrison (2003) adopt the second approach, examining the pattern of foreign investment across industries within Mexico, Venezuela, Morocco, and Cote d'Ivoire. They find that abatement costs are not significant determinants of the distribution of foreign investment among manufacturing industries within a country. Additionally, the relationship between FDI and pollution intensity depends upon the pollutant.<sup>1</sup> Within an industry, foreign ownership is actually significantly and robustly associated with lower energy use (a proxy for lower pollution-intensity).

Smarzynska and Wei (2001) adopt the third approach, evaluating the foreign investment choices of multinational firms locating across Eastern Europe and the former Soviet Union. They emphasize the problem of omitted variable bias in previous work: corruption may deter FDI, but may be correlated with laxity of environmental controls. The authors control for the role of corruption, but find little support for the hypothesis that lower environmental standards attract investment, nor for the hypothesis that lower standards are more attractive to pollution-intensive FDI. However, these results are sensitive to the measures chosen to proxy environmental stringency and pollution-intensity.<sup>2</sup>

In the race-to-the-bottom world, decent environmental standards impose high costs on polluters in high-income economies. To remain competitive, these firms relocate to low-income countries whose people are desperate for jobs and income. Local governments ignore regulations in order to promote investment and economic growth, allowing businesses to minimize costs by polluting with impunity. Driven by shareholders to maximize profits, international firms follow suit. Rising capital outflows force governments in high-income countries to begin relaxing environmental standards, but this proves fruitless because the poorest countries have no environmental

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1- While there is some evidence of a positive relation between FDI share and air pollution-intensity, there is a negative relation between FDI share and both water pollution and toxic - release intensity.

2- Measuring stringency and pollution-intensity by participation in international treaties and an emissions index, the authors find dirty projects more likely to locate in areas with low stringency. However, this result is not robust to alternative measures such as actual standards and an abatement index.

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standards at all. As the ensuing race to the bottom accelerates, all countries converge to the hellish pollution levels that afflict the poorest.

The aim of this paper is to examine the impact of “race-to-the-bottom” on FDI inflow to 4 euro countries, France, Italy, Greece, and Spain. In the former we will test whether the decrease of a region’s environmental regulations stringency influences its FDI inflow. The remainder of the paper is organised as follows: Section 2 provides the relation between FDI and Growth and the determinants of the flow of FDI, section 3 examines the race to the bottom hypothesis, and section 4 provides our model and the results and section 5 includes summaries and concludes.

### **2- FDI and Growth**

Direct investment constitutes principal capital invested, reinvestment of profits, and loans between the overseas mother company and its local subsidiary. Generally, factors attracting direct investments depend on three determinants specific to the host country.<sup>1</sup> The first determinant relates to economic policy and the institutional framework; the second determinant deals with business facilitation arrangements and incentives; and the third rests on purely economic factors which largely identify the type of direct investment.<sup>2</sup> These factors are grouped into three types of variables: the first pertains to market-seeking investments, which depend on per capita income and its growth, market size and free trade areas; the second deals with efficiency-seeking investments, which depend on labour costs, quality of infrastructure and transportation networks, and the cost of other production factors; and the third relates to resource/asset-seeking investments, which depend on the abundance of natural resources and the supply of infrastructure assets.

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1- In addition to advantages pertaining to the foreign company undertaking the investment. See Dunning (1993) and UNCTAD (1998) for a detailed discussion of these determinants.

2- Investment incentives (the financial ones like tax exemptions, customs tariffs, subsidised fees for use of infrastructure; and the monetary ones like reduced interest rates etc.) are governed by WTO regulations in the context of the Agreement on Subsidies and Countervailing Duties, and hence cannot be overused. From an economic logic vantage point, these incentives are justified only in cases where direct investments lead to positive external effects.

There is widespread agreement on what determines the flow of FDI to one country rather than another. Countries attracting large amounts of FDI generally have good economic fundamentals, that is, they have achieved a high degree of macroeconomic and political stability and have favourable growth prospects. They also tend to possess a good infrastructure and legal system (including enforcement of laws), a skilled labour force, and a foreign sector that has been liberalized to some extent (membership in free trade areas is a particular attraction). Location, country (market) size and natural endowments are generally important as well.

In the former centrally planned economies, the degree in neo-classical analysis, FDI does not influence the long-run growth rate, but only the level of income. An exogenous increase in FDI would increase the amount of capital (and output) per person, but this would only be temporary, as diminishing returns (on the marginal product of capital) would impose a limit to this growth. FDI can influence the long-run growth rate only through technological progress or growth of the labour force, which are both considered exogenous.

The theory of foreign direct investment (FDI) seeks to explain the existence and growth of foreign investments. It also aims to identify the determinants of FDI flows and the effects of such flows on the host and home country economies, as well as on world welfare. FDI to a country can have two main motivations: to take advantage of the factors of production in the host country, *i.e.* vertical FDI; or to supply the domestic and regional markets, *i.e.* horizontal FDI.

Therefore, FDI is expected to have impact on trade flows. This impact could be two-fold depending on the motivation. It will have an increasing effect on trade if it is export-oriented or vertical FDI, or a decreasing effect if it aims at the host country market. Therefore, FDI is expected to have direct or indirect impact on growth, through trade. Hence, the relationship between FDI and growth should be analyzed so as to capture both of these effects.

Theory suggests that in order to compete successfully in a foreign market a firm must possess some ownership-specific assets in knowledge, technology, organization, management, or marketing skills. A firm blessed with such assets has several alternative ways (apart from exporting) to claim the rents that they will yield in foreign markets, including subsidiary production, joint ventures, licensing, franchising, management contracts,

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marketing contracts, and turnkey contracts. Of these, subsidiary production and joint ventures involve varying degrees of foreign presence, and force the firm to decide where to locate their foreign activity.

Apart from data and methodological issues, a few studies have tried to find further reasons for the inconclusive evidence. Based on their results, Balasubramanyam et al. (1996) note that FDI might promote growth only in export-promoting rather than in import-substituting countries and that, thus, openness to trade is essential for the growth effects of foreign investment. Borensztein et al. (1998) find that certain characteristics in the host countries may play an important role. More specifically, they discover that countries need a particular educational attainment level to benefit from FDI. Borensztein et al. argue that to be able to benefit from positive (technological) spillover effects, host economies have to have the educational capacity to incorporate these effects.

### **3- The Race to the Bottom Hypothesis**

Environmentalists ardently argue that trade liberalization brings together the expansion of production, consumption and transport of goods causing further environmental degradation, and then makes governments more concerned about their market share leading them not to give environmental issues the required priority (Sturm et al. (2002)).

Environmental dumping or eco-dumping refers to the case in which governments set weaker environmental standards than what is needed to compensate the environmental damage considering trade and its priorities as important. To put differently, environmental standards are set such that the result does not meet optimality conditions.<sup>1</sup> That is, environmental dumping occurs when governments set marginal abatement costs below marginal damage costs.

Race to the bottom hypothesis states that environmental standards will decline over time below socially acceptable levels as countries weaken regulations for competitive purposes and the equilibrium will be a world of

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1- In case of local pollution in a closed economy with perfect competition, optimality requires that marginal abatement costs are equal to marginal damage. If the optimal policy in a trading economy is laxer than this requirement, the country is said to engage in environmental dumping (Sturm 1999).

little or no regulation under the pressures of international competition (Klevorick, (1996)).

Even if there is does turn out to be some evidence that shows that concerns about competitiveness do affect environmental policy, the possibility of a literal race to the bottom seems highly unlikely. The main reason is that weak environmental policy is an inefficient way to subsidize domestic firms - environmental control costs are relatively small, and weakening environmental policy imposes costs on others and encourages green lobbies to become more active. Instead it is more likely that competitiveness issues may act as a damper on the aggressiveness of environmental policy in some industries in high income countries.

Moreover, policy in most high-income countries is set via a political process and not necessarily in a way that is socially efficient. Consequently, an attempt to enforce such linkage on a global basis would introduce so many inefficiencies that it is likely to be unworkable. There is more potential for such an approach to work in regional trade agreements (such as in the EU), where countries are similar in income and in their institutional capacity to deal with environmental problems.

The emergence of a race to the bottom is theoretically possible (Wilson (1997); Klevorick (1997)), particularly in political and regulatory environments that are not transparent and that are vulnerable to capture by dirty-industry interests. (However, capture by “green” interests also is possible, where environmental protection may exceed public preferences.) Constraints on tax instruments, capital mobility, the lack of transparency and disclosure in the regulatory process, and the lack of mobility and representation of the population in the political process all foster the emergence of a race to the bottom.

However, the race to the bottom may exist in certain sectors. For instance, the natural resources sector, where developing countries often have limited regulatory experience, has a strong presence of foreign investors. In Zimbabwe, a country with dominance in the mining sector by foreign enterprises, the Mines and Minerals Act supersedes all other legislation including statutes governing the protection of the environment. Similar experiences in the level of enforcement in the mining sector were seen in Papua New Guinea and Indonesia. However, there are indications that most

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multinational mining enterprises apply equal standards to all of those at the national level of many host countries (UNCTAD (1999)).

Overall government policy is geared towards attracting investment. Improving environmental regulation may only serve a part of the general effort to render the entry of investment more efficient. In Canada, as well as Germany, governments have streamlined their environmental laws or relaxed enforcement in order to implement the government's policy to present an attractive business-friendly climate for investors (Low, (1992)).

As a solution of the “race to the bottom” problem, high environmental standards that are uniform across the world are proposed. For countries that unwilling or unable to enforce such standards, tariffs, restrictions or penalties should be imposed on exports of their pollution-intensive products to offset their advantage as pollution havens. But how big is the incentive to relocate due to the difference in environmental standards across countries relative to other incentives? Researches the determinants of relocation decisions in both high-income and low-income countries shows that pollution control does not impose high costs on businesses. Jaffe, Peterson, Portney, and Stavins (1995) provide evidence in this direction. They note that firms in developing countries often have lower abatement costs than OECD nations, because the labor and materials used for pollution control are less costly than in OECD economies. Moreover, several studies have demonstrated that pollution control costs are not a major determinant of relocation relative to other motives such as distance to market, infrastructure quality and cost (Tobey (1990); Mody and Wheeler (1992); Grossman and Krueger (1993); Levinson (1997)). These considerations cast doubts on the “race to the bottom” hypothesis. After all, as noted by Dasgupta, Laplante, Wang, and Wheeler (2002), after decades of increasing capital mobility and trade liberalization the “race to the bottom” should be by now well under way everywhere. At the same time, as documented by Wheeler (2001) for China, Mexico and Brazil (countries which received 60% of 1998 total foreign direct investment to developing countries), inflows of foreign direct investment is negatively - not positively - correlated with pollution levels.

Tobey (1990) tested the hypothesis that environmental regulations have altered the pattern of trade in goods produced by ‘dirty’ industries. He found that a qualitative variable describing the stringency of environmental controls in 23 countries fails to contribute to net exports of the five most



pollution intensive commodities. Markusen et al. (1993) demonstrated that plant location and market structure can be a function of environmental policy, by considering the resulting non-cooperative equilibria of a game between the regions. They looked at environmental quality and government competition, given that two regional governments can compete with environmental policies when plant locations are endogenous. Ulph (1994) extended this model and showed that the impact of environmental policy was much greater than the earlier estimates of competitive models. Competition between the two governments to restrict pollution and exploit monopoly power will result in highly restrictive policies and very low levels of pollution and trade.

Using an oligopoly trade model between two similar economies, Markusen (1997) showed that stringent environmental regulations give the multinational companies little incentive either to increase production or to relocate. However, Ulph and Valentini (1997) used a game theory model with inter-sectoral linkages to analyze the impact of environmental regulations on location of imperfectly competitive firms. They showed that under certain circumstances, environmental regulations might affect relocation of industries between countries.

#### **4- The Model**

I estimate a system of simultaneous equations, in which inflow FDI and GDP per capita are endogenously determined by country-specific characteristics. This system approach takes into account the endogeneity of GDP per capita.

I estimate a two-equation system using 1980–2010 panel data for 4 euro-Mediterranean countries, France, Italy, Greece and Spain. For the first equation I assume that GDP per capita and inflow FDI are joint products, produced by country-specific factors: market size, environmental regulations, openness, unemployment rate and exchange rate.

To conserve notation I suppress time and country subscripts in describing the model. The joint inflow FDI function is:

$$F(\text{inflow FDI, GDPP})= G(ER, UT, OPEN, MX)$$

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I invert the relation  $F()=G()$  to obtain the GDP per capita function:  $GDPP= f(K, l, OPEN)$ , which represents the relation between GDP per capita and the variables of physical capital stock, labour force and openness.

### **4-1- Variables Presentation**

#### **4-1-1 Market size**

The basic argument for the market size is economies of scale. A larger market offers more possibilities to realise economies of scale. However, in an open economy a firm can realise economies of scale through trade with foreign markets. It is in this context the market size, as a location factor in determining FDI inflows, should be analysed.

Why is the market size an important factor in an open economy? There are FDI in non-tradable goods and service sectors, and one purpose of market oriented FDI, as explained above, is to create or secure a market for the firms' products, i.e. firms invest in a market to avoid tariffs on export. For export-oriented FDI, a larger market-size increases the probability of positive external economies and spillover effects. And finally, there will characteristically be more activities in big markets than in smaller ones. This leads to more opportunities for more diverse FDI, and thus its magnitude. All these explanations are measured by gross domestic product. The market size denotation in the regression will be GDP per capita. The hypothesis here is a positive correlation between GDP per capita and the amount of FDI inflows. The market size variable will be denoted as *GDPP*.

#### **4-1-2- Environmental Regulations**

Our measure of lax environmental regulations is the increase of ores and metals exports. An increase in the ores and metals exports reflects as the measure of environmental policy in the importer country of FDI for competitive purposes and the equilibrium will be a world of little or no regulation under the pressures of international competition. The production of ores and metals merchandise is a particularly damaging local air and water pollutant with significant health implications. As a result, the increase of such production in developed country is often an early environmental objective during a country's development. A rise in the environmental stringency of the investor country is expected to cause a decrease in the

export potential due to the rising production costs and falling production. On the contrary, a decrease in the environmental stringency of the country is expected to result in a decrease in its FDI outflows, so in an increase in the FDI inflow of the country received FDI. An increase in the ores and metals exports as a variable of in less environmental stringency will be denoted as *MX*.

#### **4-1-3- Openness**

Openness has two opposite impacts. One promoting export-oriented and one discouraging market-oriented FDI. A low degree of openness will attract market-oriented FDI – as firms want to avoid tariffs and transport costs, whereas dismantling trade barriers allows TNCs (in this case, export oriented FDI) to pursue integrated international strategies and structures, driving them to acquire a range of location assets in bad times as well as good. As this category of FDI desires to reach other markets from the low cost production location, openness attracts it, without necessarily excluding market-orient FDI. A high degree of openness implies more economic linkages with other countries and international intra-firm (or intra-industrial) trade. As familiar, openness is designed to control for the nature of foreign direct investment: if FDI aims at re-export, is measured as a ratio of the sum of the two ways trade (export and import) to GDP the host countries. Thus the hypothesis is consequently such as: the higher openness is, the more FDI inflows. Openness has a positive correlation with the amount of FDI inflows. Openness will be denoted as *OPEN*. Trade openness has been used extensively in empirical research on economic development, and it is typically found to be positively related to economic growth (Sachs and Warner, 1995).

#### **4-1-4- Unemployment Total**

*UT* measures the number of unemployes in the host countries as a proxy for economies of scale. The inclusion of this variable allows us to assess whether such economies of scale attract FDI. A positive correlation is between unemployment total and the FDI inflows.

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### **4-1-5- Exchange Rate**

FDI is mainly determined by the host country's relative factor cost competitiveness, which is influenced by exchange rate volatility. The importance of exchange rate risk depends on whether the firm produces domestically or abroad, and on the share of imported inputs in production.

The impact of the level of the exchange rate on FDI is concerned, two relationships can theoretically be observed. First, if the investor aims at serving a local market where trade or non trade barriers are impediments to enter the market, FDI and trade are substitutes, and an appreciation of the local currency in real terms lifts inward FDI, because the purchasing power of consumers is increased, and also because barriers to trade usually tend to increase in such a context. Alternatively, if the output from FDI is to be re-exported, trade and FDI are complements; an appreciation of the local currency, because it brings competitiveness down (higher labor and capital costs) and lowers the relative wealth of foreign investors, reduces inward FDI. A negative correlation is between exchange rate and the amount of FDI inflows. Exchange rate will be denoted as *ER*.

### **4-1-6- Human Capital Stock**

Human capital as a factor of production and assess the accumulation of human capital as an element of the growth process. FDI has a positive overall effect on economic growth, although the magnitude of this effect depends on the stock of human capital available in the host economy. However, the nature of the interaction of FDI with human capital is such that for countries with very low levels of human capital the direct effect of FDI is negative.

### **4-1-7- Physical Capital Stock**

The accumulation of capital is an important part of the development process and government policies that promote or discourage free markets, including regulations of capital markets and interventions that affect the degree of international openness and Growth.

#### 4-2- Results

I estimate the system of simultaneous equations using fixed and/or random effects of panel data specifications. Panel data analyses offer different ways to deal with the possibility of country-specific variables. Fixed Effect (FE) model is a suitable estimation approach that treats the level effects as constants, whereas Random Effect (RE) model is suitable to capture the level effect. It should be mentioned that RE model treats the level effects as uncorrelated with other variables, while FE model does not. In this analysis we estimate both FE and RE models. Statistically, fixed effects are always a reasonable thing to do with panel data (they always give consistent results) but they may not be the most efficient model to run. Random effects will give you better P-values as they are a more efficient estimator, so you should run random effects if it is statistically justifiable to do so. The Hausman test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results.

I test the stationarity of variables in the model. Therefore, I make the unit root test of Levin, Lin & Chu and Im, Pesaran & Shin W-stat to test for it. The results show that all variables are stationary at level in the region (Table 1).

**Table 1: Variables Stationarity Tests**

Variables	Levin, Lin & Chu- Test		Im, Pesaran and Shin W-stat -Test	
	Statistic	Prob	Statistic	Prob
Inflow FDI <sub>it</sub>	-27.2713	0.0000	-21.3123	0.0000
GDPP <sub>it</sub>	-26.5574	0.0000	-15.1513	0.0001
MX <sub>it</sub>	-3.55804	0.0002	-5.49820	0.0000
OPEN <sub>it</sub>	-3.98131	0.0000	-3.87846	0.0001
UT <sub>it</sub>	-6.57092	0.0000	-8.45390	0.0000
ER <sub>it</sub>	-4.01643	0.0000	-2.63468	0.0042
K <sub>it</sub>	-23.6445	0.0000	-25.5313	0.0000
L <sub>it</sub>	-13.0859	0.0000	-28.7767	0.0000

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I employ different panel data procedures to avoid estimation problems, namely, autocorrelation and heteroskedasticity. Heteroskedasticity and autocorrelation arises from different countries characteristics. Therefore, I employ GLS for panel data to avert autocorrelation and heteroskedasticity. The different tests show that we have autocorrelation and heteroskedasticity in the region (Table 2).

**Table 2: The Determinants of FDI Inflow to the euro-Mediterranean Countries**

Explanatory Variables	Fixed Effect		Random Effect(1)	
C	-3.36e+09	(-0.35)	-1.34e+10	(-1.37)
GDPPit	363727.3*	(2.27)	361936.4**	(2.50)
MXit	4.80e+09*	(-3.92)	2.03e+09**	(-2.68)
OPENit	5.66e+10*	(4.14)	5.46e+10*	(3.77)
UTit	-593.0016	(-0.30)	951.4088	(0.60)
ERit	-2818619	(-1.15)	-8501162*	(-4.93)
R2 (overall)	0.4128		0.5858	
Groups	4		4	
Number of observation	186		186	
Wald Test	256.94		137.17	
Prob > chi2	0.0000		0.0000	
Breusch and Pagan LM test			101.08	
Prob > chi2			0.0000	
Modified Wald Test for group-wise heteroskedasticity(3)	148.80			
Prob > chi2	0.0000			
Test of Hausman(2)	$\chi^2(4) = 127.58$			
Prob > chi2	0.0000			
Wooldridge test for autocorrelation in panel data	20.492			
Prob > F	0.0062			

Note: T-statistics are shown in parentheses. Significance at the 99%, 95% and 90% confidence levels are indicated by \*, \*\* and \*\*\*, respectively.

The robust standard errors are White's heteroskedasticity-corrected standard errors

(1) The acceptance of model by the Hausman test.

(2) The hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If they are (insignificant P-value, Prob>chi2 larger than .05) then it is safe to use random effects. If you get a significant P-value, however, you should use fixed effects.

(3) For FE regression model, the modified Wald test for groupwise heteroskedasticity is used while the Wooldridge test for autocorrelation in panel data (Ho: no autocorrelation) is applied.

The results show market size has accepted as a significant determinant of FDI flows. The market size hypothesis upholds that larger countries should receive more flows than smaller countries and a large market is necessary

for efficient utilization of resources and exploitation of economies of scale has been accepted.

Also, a positive relationship expected between the increase of ores and metals exports and FDI inflows in the FDI received country. Therefore, a decrease in the environmental stringency increases FDI inflows in the region.

The statistically significant positive coefficient of openness indicates that most investment projects are directed towards the tradable sector, a country's degree of openness to international trade should be a relevant factor in the decision.

Also, the negative coefficient of exchange rate shows the weaker the currency of a country the less likely it is that foreign firms will invest in that location because an income stream from a country with a weak currency is associated with an exchange rate risks.

## **5- Conclusions**

FDI is an important means for development, whereas bad developmental policies lead to environmental problems. A common fear is that FDI erodes the environment. More FDI means more production and the pollution that comes along with these causes the environment to degenerate. Moreover, it is argued that the FDI inflow gives governments an incentive to impose laxer environmental regulation, so as to establish a cost advantage for domestic firms. FDI may therefore lead to a 'race to the bottom' of taxes on pollution and of emission standards. To counter the competitive introduction of lenient policies and to avoid the decay of the environment, it is often claimed that governments should cooperate in implementing environmental policies.

Therefore, further research on the interaction between FDI and environmental regulation is needed. Also, how the environmental regulations will affect competitiveness and location decisions in these conditions needs theoretical and quantitative analysis.

With this in mind, this paper has examined the environmental policy effect on FDI inflow to 4 euro-Mediterranean countries, in the system of simultaneous equations and panel data specifications. Whereas the theoretical and empirical literature investigates the effects of variations in the stringency of local environmental policies on foreign direct investment, the effects of environmental policy on foreign investment have largely been

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ignored. In this paper we take a first step toward remedying these deficiencies.

We know that the policy of the ores and metals exports increase is an environmental regulation for competitive purposes and the equilibrium will be a world of little regulation under the pressures of international competition. The results suggest that this policy have positive and statistically significant effect on the FDI inflow to this region. That is, the policy of the ores and metals exports and production increase for competitive purposes increase the FDI inflow to this region. Thus, a decrease in the degree of environmental regulation (i.e., an increase in the ores and metals exports) represents an increase in the FDI inflow.

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