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The determinants of Foreign Direct Investments attraction in Portugal and Spain: a comparative analysis.

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Abstract

This paper analyzed the determinants of the net Foreign Direct Investments inflows in Portugal and Spain; two countries chosen for their historical and geographical closeness. The study included a large set of macroeconomic, institutional and locational variables. The dataset is composed by yearly data points covering the period 1984-2012. Using regressions in first differences, the paper concluded to the significance of unit labor costs, openness to trade, political stability and socioeconomic conditions for Portugal. As for Spain, market size and European Union GDP growth played a significant role.

Keywords: Foreign Direct Investments; Attractiveness; Portugal; Spain.

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I. Introduction

With the more than five-fold increase in the inflows value between 1990 and 2012 (UNCTAD, 2013), Foreign Direct Investments (FDI) have been acknowledged as one of the drivers of the globalization process and a potential growth and development vector (Zhan, 2006). Because of the capital, knowledge, technology, skills and employments they bring, those investments became appealing for many governments. Nevertheless, in order to create positive spillovers for the recipient country, various authors have stressed out the necessity of a country strategy (Cortes et al., 2013), the need to have reached a certain level of human capital (Borensztein et al., 1995) or to have developed correct infrastructures (Gholami et al., 2005). Therefore, the link between economic growth and FDI is not so obvious anymore. Despite that, policymakers keep focusing on the attraction of FDI and set up creative measures to do so.

As a consequence of this focus, numerous researches have been conducted. Assunção et al. (2011) resumed in their paper three theories on the determinants of FDI that emerged. The most fundamental is the OLI paradigm formalized by John Dunning in 1976. According to him, the decision of a firm to undertake a FDI is the result of three elements: the presence of an ownership advantage (O) of the firm on competitors, the existence of a location advantage (L) in the foreign country and the advantage the firm has to internalize its production (I) rather than using an external supplier (Dunning, 2001). The first force refers to the ownership of specialized assets by the investing company, while the second one concerns the special conditions a firm will benefit from in the foreign country (Assunção et al., 2011). Secondly, the authors gathered under the “New theory of trade” the part of the literature that treated the macroeconomic factors

of the location advantage: market size, market growth, openness to trade, natural resources, etc. Finally, a third theory addressed the problem from the angle of institutions, claiming that institutional quality may be the most influential factor on the decision of multinationals to invest abroad.

The intensification of globalization has also modified the patterns of FDI. With the reduction of trade barriers, distances and transportation costs, “vertical” FDI have gained more importance compared to the “horizontal” ones. The latter, referred as “market-seeking”, aims to allow a company to access an attractive host market. The former, more “efficiency-seeking”, has the objective to benefit from lower production costs, natural resources, strategic assets, etc. The distinction between the two has its importance since the two types will not respond to the same determinants, as demonstrated by Neary (2009).

This study aims to identify the main determinants of Foreign Direct Investments flows in Portugal and Spain over the period 1984-2012. The analysis will investigate a large set of determinants covering the three theories mentioned above in order to compare the patterns of FDI in the two countries. With the aim to discover if the distinction between market- and efficiency-seeking investments applies to these two countries. To do so, the study will explore macroeconomic factors, institutional variables and location-specific aspects.

The paper is structured as follows: section II will review the literature on the subject, section III will explain the data and methodology, section IV will present the main results and section V will conclude.

II. Literature review

Using quarterly and yearly data on the FDI inflows in Brazil and Mexico, de Castro et al. (2013) showed that a large market is more attractive for foreign investors since it represents a potential large demand and potential economies of scale. Numerous authors acknowledged the same attraction effect (Bayraktar, 2013; Jadhav, 2012; Bellak et al., 2008; Asiedu, 2006; Bevan et al. 2004; Bajo-Rubio et al, 1994). In its multicountry empirical analysis, Billington (1999) showed that high GDP and growth were significant to attract FDI. Walsh and Yu (2010), in their sectoral approach of determinants, also concluded to the significance of growth.

A second determinant receiving attention in the literature is the openness of the country to trade. Cortes et al (2013) pointed out, in their analysis of FDI determinants for 113 countries, that the amount of FDI attracted is directly related to the trade openness of a country. Khadaroo et al. (2010) and Bevan et al. (2004) came to the same conclusion for Mauritius and Eastern Europe. Jadhav (2012) argued that the effect of openness depended on the type of investment (as described in section I).

As well as Asiedu (2006) for Africa and Bajo-Rubio et al. (1994) for Spain, Cortes et al. (2013) came to the conclusion that macroeconomic instability is a discouraging factor of attraction.

A country's budget deficit is often associated with its economic health and stability. Its effect on the attraction of FDI remains nevertheless unclear. Bose et al. (2011)'s study on the FDI flows in 15 European transition countries and India found that fiscal deficits lead to reduced investments. On the contrary, Banga (2003) estimated the effect to be insignificant in the attraction of aggregate FDI.

There is no consensus about the effect of labor costs in the literature, the results depending on the type of measure used. Indeed, high labor costs could be a sign of high productivity and consequently show a positive coefficient (Wei, 2000). That is the reason why Bellak et al. (2008) highlighted the necessity to use real unit labor costs. Unlike the divergent literature, they found a negative effect of high unit labor costs on inflows of FDI. Bevan et al. (2004) and Bajo-Rubio et al. (1994) confirmed it.

Studies about the role of taxation in the location of FDI have raised mixed evidence. In their study about the flows of FDI into emerging EU countries compared to the flows in “older” EU countries, Göndör et al. (2012) indicated that low corporate tax rates had not helped the emerging countries to attract more FDI flows. However, American researchers (Desai et al., 2004) found evidence that direct such as indirect taxes are costly and related with reduced Foreign Direct Investments.

As stressed by Ilyas et al. (2011), infrastructures have a significant impact on the FDI in Pakistan, confirming their intuition that the infrastructures of a country are determinant for the reduction of the business costs and for the efficiency. Khadaroo et al. (2010), analyzing a sample of African countries, estimated a positive and significant coefficient for the transportation and non-transportation infrastructures. Using the number of phones per capita, Cortes et al. (2013) found the same effect on FDI.

Next to the physical capital, more skilled workers are likely to provide higher quality outputs and integrate technology easily (Campos et al., 2002). In their study on 100 countries, Cortes et al. (2013) concluded that FDI were encouraged by a skilled labor force. Investigating the inflows to 36 developing countries, Noorbakhsh et al. (2001) found that human capital is an important determinant of the location advantage.

Besides strict economic factors, the quality of institutions is also an important determinant of FDI (Blonigen, 2005). Wei (2000) concluded on the important negative impact of corruption, as it increases the cost of operating in a foreign country. He also noticed that the inclusion of “political stability” gives a positive and significant relation with FDI inflows. The same effect was found for governance indicators and business climate (Bayraktar, 2013; Bénassy-Quéré et al., 2007).

III. Data and methodology

Based on the literature review, one was able to choose the variables to test. The dataset consists in yearly data points collected for Portugal and Spain over the period 1984-2012. Please find in Appendix 1 all the necessary information about the variables.

The dependent variable will be the amount of net FDI inflows, valued at current USD and provided by the UNCTAD database. Using the inflows seems to be appropriate as they will be more responsive to incentives and shocks. Moreover, the net term accounts for foreign divestments and better reflects the attractiveness of a country.

Based on the literature review, we expect a positive sign for market size, economic growth, openness to trade, infrastructures, human capital, political stability and socioeconomic conditions. A negative coefficient should appear for budget deficit, inflation, corporate income tax rates and unit labor costs.

The methodology followed will be to run multiple regressions for each country using the same explanatory variables, in order to allow a comparison of the final conclusions. As the number of observations is limited, the general specification will use only seven independent variables and will be as follows:

$$\log FDI_t = \beta_0 + \beta_1 \log Msize_t + \beta_2 def_t + \beta_3 open_t + \beta_4 growth_t + \beta_5 ulc_t + \beta_6 infra_t + \beta_7 politstab_t + \varepsilon_t \quad (1)$$

The other explanatory variables will further be included, in substitution of the non-significant ones of Equation (1).

The Breusch-Godfrey tests for autocorrelation performed on the regressions using level variables showed a systematic autocorrelation of order 1 to 4. The consequences of serial correlation are twofold: (i) it may make the coefficients imprecise and (ii) the standard errors could be wrong. Therefore, it could lead to wrong conclusions (Brooks, 2008).

The procedure to correct autocorrelation is described in Brooks (2008, p.150) and consists merely in subtracting from the basic model a lagged version of this same model with a coefficient ρ . This gives the following:

$$y_t - \rho y_{t-1} = \beta' X_t - \rho \beta' X_{t-1} + u_t, \quad \text{with } u_t = \varepsilon_t - \rho \varepsilon_{t-1} \quad (2)$$

where the y_t is the dependent variable at time t , β' the vector of coefficients, X_t the vector of independent variables, ρ a coefficient to be estimated and u_t the error term.

In practice, ρ should be estimated (through the Cochrane-Orcutt procedure, for example). However, in this study, we will fix $\rho = 1$. The model becomes then a model in first differences:

$$y_t - y_{t-1} = \beta' X_t - \beta' X_{t-1} + u_t \Leftrightarrow \Delta y_t = \beta' \Delta X_t + u_t \quad (3)$$

Using first differences to deal with autocorrelation is totally acceptable, according to Brooks (2008). The Augmented Dickey-Fuller tests performed on the time-

series, even though they have a low power in such a small sample, seem to support this transformation from level to first differences. Indeed, according to the results showed in appendix 2, all the series exhibit the presence of one unit root. This raises the need to differentiate the variables to achieve stationarity. Furthermore, working with first differences presents the advantage to correct the smooth variation of the artificial variables and the high multicollinearity.

To conclude this section, the starting point of the analysis will be the basic model that follows:

$$\Delta(\log FDI_t) = \beta_0 + \beta_1 \Delta(\log Msize_t) + \beta_2 \Delta def_t + \beta_3 \Delta open_t + \beta_4 \Delta growth_t + \beta_5 \Delta ulc_t + \beta_6 \Delta infra_t + \beta_7 \Delta politstab_t + \varepsilon_t \quad (4)$$

The regressions will be estimated with OLS¹. It must be noted that this study will be less demanding as for the level of significance of the independent variables. Indeed, the significance tests performed have low power in small samples, with the consequence that some variables might appear insignificant. That is why this study will allow a 15% significance level.

IV. Empirical results

The regressions were calculated with the Stata 13 program and the classical linear model assumptions were tested. Jarque-Bera (adjusted for sample size), Breusch-Pagan, VIF and Breusch-Godfrey tests were performed to verify the normality of residuals and to detect heteroscedasticity, multicollinearity and autocorrelation. The results show that the model does not violate the three first assumptions.

¹ This methodology will not allow us to find the long-run equilibrium (Brooks, 2008). It is usually desirable to use a methodology that captures it. However, seeing the low number of observations, the probability to find an equilibrium is very low in this case.

Some explanation must be provided as for the autocorrelation. The Breusch-Godfrey tests indicate that the basic model, for both Spain and Portugal, experiences autocorrelation of at least order 1. It could be solved by including a further lag of the variables but this process consumes a lot of degrees of freedom, what makes it inconsistent in this case. As for the subsequent models, there is strong evidence that the first differences corrected serial correlation at least until order 3, so that it can be neglected. Nevertheless, in order to reduce the potential negative effects, the study will use the Newey-West standard errors. This methodology produces standard errors correcting for both heteroscedasticity and autocorrelation (Brooks, 2008).

1. Portugal

The regressions results found for Portugal are displayed in table 1. The first empirical model used the basic specification indicated in equation (4). Only three variables showed significance in explaining the FDI inflows, with a surprising negative effect of growth. Note that the adjusted-R² did not have a satisfying explanatory power and that the F-statistics indicated the model to be significant at 1%.

The second specification (M2) substituted the unit labor costs (*ulc*) by human capital (*hc*), in order to test the potential effect of human capital on the attraction of FDI. The test, however, was not conclusive and growth, openness to trade and political stability remained the only significant variables. Seeing that the model quality decreased, M1 was taken as basis for our further substitutions.

Attempting to verify the hypothesis that tax rates act as a deterrent for FDI, M3 substituted the budget deficit by the level of corporate income tax rate. In the case of

Portugal, tax rates show a positive but non-significant effect and did not affect the rest of the model.

Table 1: Regression results for Portugal

	M1	M2	M3	M4	M5	M6
$\Delta \log(\text{msize})$	1.707 (8.696)	3.16 (7.206)	2.047 (8.203)			
Δdef	0.129 (6.034)	0.518 (7.12)				
Δgrowth	-9.745* (4.876)	-12.80** (5.422)	-9.76* (5.09)	-4.643 (6.509)		-6.845 (5.956)
Δopen	10.689** (4.385)	8.077** (2.99)	10.684** (4.643)	8.439** (3.327)	6.978** (2.594)	9.736*** (2.168)
Δulc	12.622 (13.317)		12.674 (13.758)	12.516* (7.172)	12.876* (7.298)	11.454° (7.025)
Δinfra	-0.01 (0.023)	-0.003 (0.025)	-0.01 (0.022)	-0.005 (0.02)	-0.006 (0.021)	
$\Delta \text{politstab}$	0.256** (0.101)	0.253** (0.114)	0.253** (0.092)	0.315*** (0.055)	0.329*** (0.06)	0.288*** (0.047)
Δhc		17.488 (21.699)				
Δinf				4.408 (5.171)	6.957 (5.022)	
Δcitr			0.716 (7.966)			
$\Delta \text{socioeco}$				-0.316** (0.124)	-0.343** (0.13)	-0.314** (0.126)
$\Delta \text{eugrowth}$					-0.052 (4.065)	
Adj-R ²	0.1382	0.1142	0.1386	0.2374	0.2217	0.2945
AIC	69.42	70.19	69.4	65.99	66.57	62.48
F-statistic	8.36	12.16	7.51	12.64	14.71	21.86

Standard errors in parentheses. Standard errors are robust to heteroscedasticity and potential correlation of errors.

°Significant at 15%; *Significant at 10%; **Significant at 5%; ***Significant at 1%.

Seeing the non-significance of the market size, this variable was dropped and replaced by the socioeconomic conditions. Moreover, the fourth regression took also into account the potential impact of the macroeconomic instability (through inflation). Socioeconomic conditions revealed a negative significant effect, meaning that a worse situation would attract FDI inflows. The inclusion of these two variables increased the quality of the model, that indicates also that higher unit labor cost attracted investors.

A last substitution of the domestic growth by the European Union real GDP growth did not bring anything to the general model (M5). As a consequence, a final regression was run with the five significant variables found during the process. All appeared significant, except the domestic GDP growth. The quality indicators of the model remain a little bit disappointing while the overall model is significant at 1% level.

Overall, the results offer interesting interpretations. The market size exhibits the expected positive sign but plays no role in the attraction of FDI in Portugal. It is an indication that foreign investors are not looking to serve the Portuguese internal market and would rather be interested in producing at lower costs for re-exportations to the whole European market. The statistical insignificance of the domestic GDP growth confirms this intuition.

As for the corporate income tax rates, if the foreign investments in Portugal are “efficiency-seeking”, one could have expected a negative sign. Higher tax rates would decrease the potential return on investment. The insignificance of the variable may be explained by the variable choice. Statutory tax rates are theoretical and do not represent what firms effectively pay, as stated in the literature.

Thirdly, openness to trade has an important and significant effect on the attraction of FDI. It confirms previous studies on Portugal (Leitão et al., 2010) and meets our expectations. The progressive liberalization of trade and foreign transactions since the end of the dictatorship and the accession to the EEC benefitted to Portugal. A further explanation of those results is given by Amador et al. (2007). According to the authors, the improvement of the communication infrastructures after the mid-eighties eased the trade with Europe, lowering the costs of exports.

In our model, unit labor costs are significant and have a positive sign. It goes against part of the literature but is not irrational. Several studies found the same sign (Bénassy-Quéré et al., 2005; Boudier-Bensebaa, 2005). Unit labor costs may exhibit a positive sign if the variable captures also skills and quality of labor. This holds for Portugal. According to the OECD statistics, the labor productivity per unit of labor input has almost doubled in 30 years while the real output per employee increased by 75% (see Appendix 3). Moreover, Amador et al. (2007) showed that, over the period 1967-2006, the share of medium-high and high technological exports increased compared to the low technological ones. Therefore, one observes an increase in quantity and quality of the Portuguese labor that supports this hypothesis. Unit labor costs in real terms were also computed and tested in the models. As they brought no changes in the results and since the nominal term is computed by an international organization, we included only the results with the nominal unit labor costs.

The regressions confirmed the expected sign for political stability. It means that foreign investors reacted positively to a more stable political and institutional framework. This stability was strengthened by the transpartisan agreement to attract FDI (Corado Simões et al., 2011), reducing the uncertainty for foreign investors.

The most unintuitive result is found for the socioeconomic conditions. The negative effect indicates that a worsening of the socioeconomic conditions lead to higher inward FDI. Although one should have expected the opposite sign, three explanations exist. Firstly, several empirical studies concluded that a larger number of unemployed job-seekers may attract foreign investors (Boudier-Bensebaa, 2005). Secondly, a bad economic situation may attract investors looking for good opportunities in anticipation of a recovery. Thirdly, governments facing tough socioeconomic

conditions may see foreign investors as a solution and set up incentives to attract them (Head et al., 1999). As stated above, Portuguese authorities are indeed very active in attracting FDI; they created the AICEP as sign of this commitment. Incentives are another tool intensively used by the government. To give only one example, Oman (2000) calculated that each job at the VW-Ford automobile plant of Setubal had been subsidized with an amount of 265 000 USD.

The level of infrastructures development was insignificant for FDI inflows. One may think that Portugal has reached a sufficient level of development so that the value of additional infrastructures is very low. The same will be worth for Spain.

To summarize, the results corroborate the intuition that the FDI in Portugal were mainly efficiency-seeking. Foreign investors were looking for stable institutions, a proactive government behavior, ease of re-exporting goods and a better quality of labor at a reasonable price. A hypothesis already expressed in Corado Simões et al. (2011).

2. Spain.

Using the same method as for Portugal, equation (4) was the first model tested. Table 2 summarizes the results obtained for the successive regressions performed. The adjusted- R^2 is low and the F-statistic concludes to a joint significance of the variables. Nevertheless, the market size was the only variable to be statistically significant.

The second model (M2) substituted the *ulc* by *hc*, in order to test the potential effect of human capital on the attraction of FDI. Human capital presented a negative but not significant effect. Under this specification, the significance of the market size improved such as the adjusted R^2 and the AIC value. It will be the basis for the following regressions.

Table 2: Regression results for Spain

	M1	M2	M3	M4	M5	M6
$\Delta \log(\text{msize})$	7.913 [°] (4.954)	10.053* (5.427)	9.411*** (2.852)	8.942*** (2.336)	8.682*** (2.46)	7.954*** (2.181)
Δdef	1.79 (7.235)	0.081 (8.677)				
Δgrowth	7.467 (11.593)	5.547 (11.74)	6.113 (8.47)			
Δopen	5.155 (4.483)	5.762 (4.496)	2.553 (2.69)	0.543 (2.167)		
Δulc	5.437 (6.168)					
Δinfra	-0.009 (0.012)	-0.008 (0.011)	-0.014 [°] (0.009)	-0.015 (0.012)	-0.016 (0.012)	
$\Delta \text{politstab}$	0.03 (0.076)	0.033 (0.074)	0.063 (0.047)			
Δhc		-2.847 (2.8)	-1.434 (2.541)	-1.5 (2.546)		
Δinf			16.736*** (5.686)	12.039** (4.974)	12.296** (5.097)	12.304** (5.444)
$\Delta \text{socioeco}$				0.085 (0.082)	0.095 (0.087)	
$\Delta \text{eugrowth}$				10.97* (5.325)	11.129** (4.016)	12.388*** (3.773)
$\Delta \text{ulcdiff}$					-1.853 (7.05)	
Adj-R ²	0.2851	0.2883	0.5018	0.5552	0.5939	0.6025
AIC	45.005	44.87	34.89	31.73	28.54	25.68
F-statistic	5.92	4.87	6.55	6.75	13.25	11.4

Standard errors in parentheses. Standard errors are robust to heteroscedasticity and potential correlation of errors.

[°]Significant at 15%; *Significant at 10%; **Significant at 5%; ***Significant at 1%.

As a third step, the deficit variable was replaced by inflation. On that way, the regression controlled for macroeconomic instability. While the market size and the inflation were highly positive and significant, the domestic growth and openness to trade remained not relevant and with a positive sign. The infrastructures development kept its negative effect and became significant at a 15% level.

In M4, political stability was removed for the socioeconomic conditions and the domestic growth was replaced by the EU growth. The latter would help to determine if, in the case of Spain, the economic dynamism of the regional bloc mattered more than

the domestic situation. The results were conclusive and the variable of EU growth exhibited a positive significant effect, together with market size and inflation. However, socioeconomic conditions were not relevant, such as openness and infrastructures.

The fifth model tested the possible effect of the difference in unit labor costs between Spain and the average of the 18 countries of the Euro area. Human capital and openness to trade were not included in the regression because of their insignificance. The unit labor costs difference played no significant role in the attraction of FDI.

Finally, a last regression was run with the significant variables identified; the market size, the EU growth and the inflation. The three have a positive effect on the dependent variable and the model has a good explanatory power.

Overall, the Spanish determinants of FDI inflows show a clear difference with Portugal. The first is the significance of the domestic market size. It appears that the domestic GDP has a positive attraction effect on FDI. This is in agreement with most of the studies (Bajo-Rubio et al., 1994; Rodriguez, 2008) and is the result one had expected. Clifton et al. (2011) give different elements to corroborate this hypothesis: the privatization of network companies and the liberalization of industries serving the local market (electricity, gas, transports and telecoms). Furthermore, Chislett (2007) described how FDI flew in after the accession to the EEC, attracted by the market potential and large economies of scale. More recently, FDI have been more prominent in the service sector (in banking and real estate services), focused on the local market.

The second significant variable is the European Union GDP growth rate, which has a positive impact on the FDI inflows in Spain. This result seems to indicate that the economic growth of the regional integrated bloc drives more foreign investments in one

of its member states, namely Spain. Several studies, as reported in Blomström et al. (1997), concluded that dynamic effects of regional integration led to higher intraregional FDI. The result confirms this mechanism for Spain, a fortiori when the regional bloc is growing. Moreover, as most of the investments flows come from the EU members, it is normal that economic dynamism in these countries drove foreign financial means into Spain. This outcome shows as well that the lights shed on Spain – presented as the good performer in Europe – in a period where the EU was growing and gaining importance participated to the attractiveness of the country of Cervantes.

The two countries distinguish themselves also concerning the socioeconomic conditions. In Spain, they have a positive sign, even if they are not significant. Higher consumer confidence and less poverty are not disadvantageous for market-seekers. As opposed to Portugal also, the openness to trade was not significant. The openness of a country is not fundamental when FDI are interested in the domestic market.

The human capital has a negative but insignificant impact. It is unexpected since the index level is comparable to France, Italy and Germany. However, recent research (Dutta et al., forthcoming) concluded to the non-linearity of the human capital impact. According to them, after a certain threshold, the association between skills and FDI becomes negative. The same effect might be at work in Spain.

It must be noted that corporate income tax rates were not taken into account to avoid spurious results. The rate changed only two times on the considered period and it fortuitously corresponded with several foreign acquisitions (ENEL acquiring Endesa and Industrial Tobacco acquiring Altadis SA). Hence, the increase in FDI had no relation with the decrease of tax rate and this variable would have biased the results.

Very surprisingly, the analysis concluded to a positive and significant influence of inflation. As it contradicts all the preceding studies, this fact is difficult to explain. Assuming that there might be another association “hidden” behind it, inflation has been controlled with related variables and variables linked to economic stability. Hence, domestic growth, nominal effective exchange rate, public debt and total tax revenues were added to the model M3 and M6. These controls gave no satisfaction; none of them was significant nor mitigated the effect of inflation. It indicates that macroeconomic instability is not a concern for investors in the European institutional framework anymore. As a consequence, this result without economic meaning may be neglected.

To summarize, it comes out from this study that the FDI flowing into Spain were mainly conducted for market-seeking motivations. The size of the internal market attracted investors willing to serve a huge demand and to make large economies of scale. The positive coefficient of EU economic growth supports this hypothesis.

3. Limitations of the study

Given the aim of the study, that is to compare the specific determinants of FDI attraction in Spain and Portugal, the sample of observations was quite limited in size. Too few observations may decrease the robustness of the results and forced us to use our unorthodox methodology of model selection. Having more data points would have strengthened the analysis and its conclusions. A second weakness of this study is the use of the statutory tax rate. The effective tax rate would have better represented the fiscal burden of corporations. However, no data was found for the period considered. As third, despite additional controls, no explanation was found for the positive and significant effect of inflation on the inflows of FDI in Spain. Hence, it was neglected. Finally, agglomeration effects, the cultural proximity, links with former colonies, several tax

regulations and the countries' perception are absent of the study. It would have been interesting to find a way to include them.

V. Conclusion

Building upon the three main theories of Foreign Direct Investments attraction, this study gathers together macroeconomic, institutional and locational determinants of FDI in order to identify and compare the patterns of FDI in Portugal and Spain. This paper explains the net FDI inflows in each country with the above mentioned variables.

After the literature review, regressions were conducted using yearly aggregated data over the period 1984-2012. The reported F-statistics allow to conclude to the significance of the overall models. The adjusted-R² indicate a good explanatory power for Spain and a low power for Portugal.

The results reveal, at the Iberian level, the dichotomy theorized by previous researches between market-seeking and efficiency-seeking investments. The model shows evidence that higher unit labor costs, more openness to international trade, better political stability and the effects of worse socioeconomic conditions acted as attracting factors for FDI in Portugal. On the contrary, a larger market size and economic dynamism at the regional level motivated foreign investments in Spain. At the exception of the inflation, these results confirm the hypothesis of Neary (2009). Furthermore, infrastructures, human capital and budget deficit showed statistical insignificance.

To conclude, even if globalization and regional integration are irreversible, a country cannot simply replicate the policies of neighbors to attract FDI. Local specificities must always be taken into account.

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Appendix 1: Description of the variables

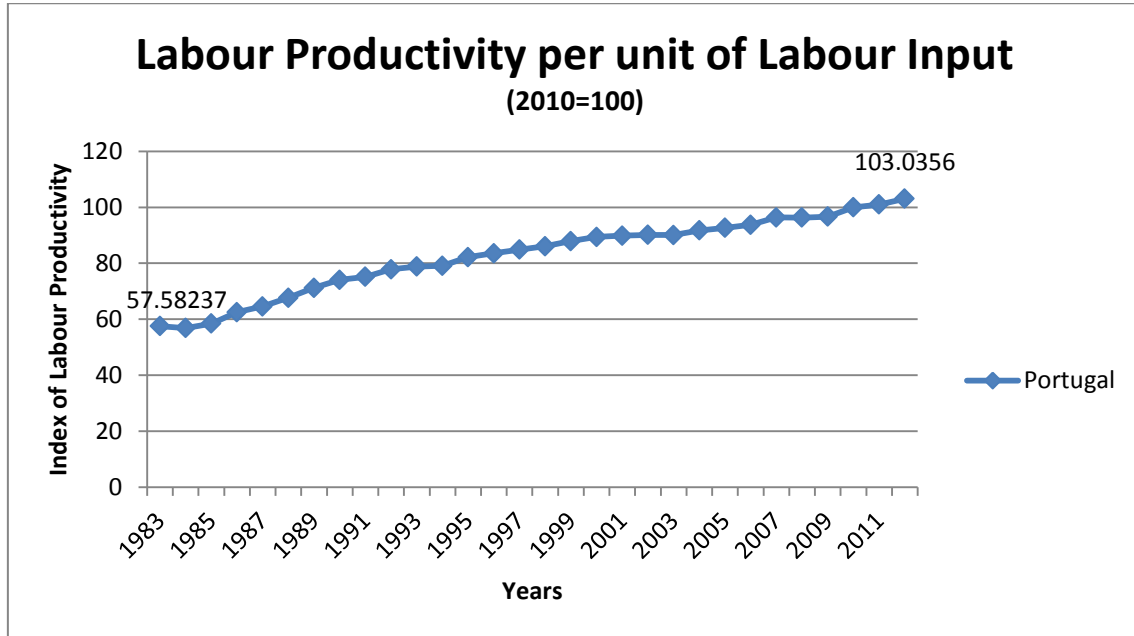
Variable	Proxy	Source
FDI	Annual net FDI inflows, in billions of (current) USD	UNCTAD Stat
Market size (<i>msize</i>)	Real GDP (2005 USD), in billions	World Bank (WDI)
Public deficit (<i>def</i>)	Budget deficit (% of GDP)	IMF WEO database
GDP growth (<i>growth</i>)	Real GDP growth, in %	World Bank (WDI)
Openness to trade (<i>open</i>)	Trade-to-GDP ratio, in % (current prices)	UNCTAD Stat
Inflation (<i>inf</i>)	Consumer Price Index, annual growth in %	IMF WEO database
Unit labor costs (<i>ulc</i>)	Annual nominal unit labor costs, in %	OECD Stat
Corporate income tax rate (<i>citr</i>)	Combined corporate income tax rate, in %	OECD Stat
Infrastructures (<i>infra</i>)	Fixed and mobile phone subscriptions per 100 persons, #	World Bank (WDI)
Human capital (<i>hc</i>)	Index of human capital, #	Penn World Tables
Political stability (<i>politstab</i>)	Index of political stability, /12	ICRG -CountryData
Socioeconomic conditions (<i>socioeco</i>)	Index of socioeconomic conditions, /12	ICRG -CountryData
European Union GDP growth (<i>eugrowth</i>)	Real European Union GDP growth, in %	World Bank (WDI)
Unit labor costs difference (<i>ulcdiff</i>)	Difference in unit labor costs between the 18 countries of the Euro area and Spain, in %	OECD Stat
Nominal effective exchange rate (<i>neer</i>)	Nominal Effective Exchange Rate, Index (2010=100)	Bank of International Settlements
Public debt (<i>debt</i>)	Public debt to GDP ratio, in %	HPDD
Total tax revenues (<i>taxrev</i>)	Total tax revenues to GDP ratio, in %	OECD Stat
Real unit labor costs (<i>rulc</i>)	Nominal unit labor costs deflated with the Consumer Price Index, Index (2010=100)	OECD Stat

Appendix 2: Results of the Dickey-Fuller tests

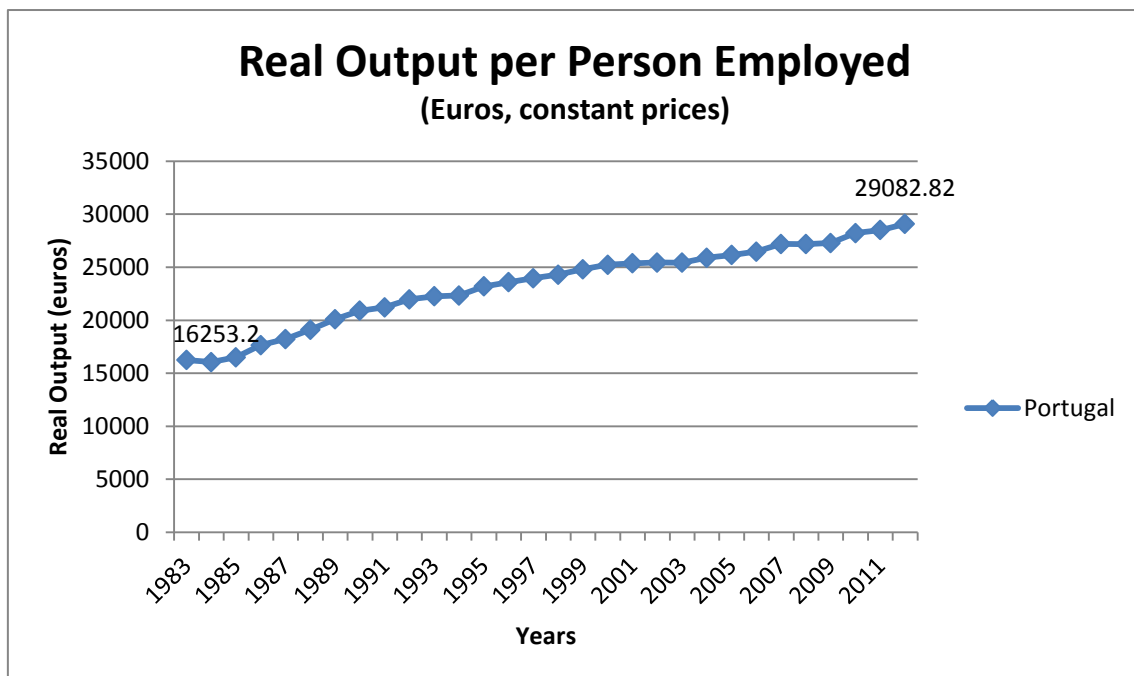
Portugal				Spain			
Variables	Lag selection	Augmented Dickey-Fuller (time trend (t))	Critical value	Variables	Lag selection	Augmented Dickey-Fuller (time trend (t))	Critical value
log(FDI)	2	-3,0	-3,238	log(FDI)	2	-2,534	-3,238
log(msize)	2	-0,634	-3,238	log(msize)	2	-1,04	-3,238
def	2	-1,812	-3,238	def	2	-0,929	-3,238
growth	2	-3,066	-3,238	growth	2	-1,917	-3,238
open	2	-2,981	-3,238	open	2	-1,802	-3,238
inf	2	-1,858	-3,238	inf	2	-3,063	-3,238
ulc	2	0,6	-3,238	ulc	2	-1,094	-3,238
citr	2	-1,496	-3,238	citr	2	-0,956	-3,238
infra	2	-1,86	-3,238	infra	2	-1,803	-3,238
hc*	2	-3,798	-3,238	hc	2	-1,455	-3,238
politstab	2	-2,297	-3,238	politstab	2	-2,253	-3,238
socioeco	2	-1,761	-3,238	socioeco	2	-2,345	-3,238
eugrowth	2	-2,85	-3,238	eugrowth	2	-2,85	-3,238

*Reject the hypothesis of a unit root.

Appendix 3: Data on the Portuguese labor productivity and real output



Source: OECD Stat



Source: OECD Stat



UNIVERSITE CATHOLIQUE DE LOUVAIN
LOUVAIN SCHOOL OF MANAGEMENT
and
NOVA SCHOOL OF BUSINESS AND
ECONOMICS



The determinants of Foreign Direct Investments attraction in Portugal and Spain: a comparative analysis

-

Appendix to the Thesis

Supervisor at LSM: Dr. Marcel Gérard

Supervisor at NOVASBE: Dr. Luís Campos e Cunha

Research Master's Thesis

Submitted by Guillaume Wenseleers (No.1842)

With a view of getting the degrees

Master in Management

Master in Business Engineering

ACADEMIC YEAR 2013 – 2014

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I. Literature review: complete version

1. Market size and potential

At a first sight, one might consider the economic situation of a host country very likely to affect the incoming flows of FDI. Using quarterly and yearly data on the FDI inflows in Brazil and Mexico, de Castro et al. (2013) found a stronger positive relationship between the host country GDP and the investments flows for Brazil than for Mexico. This confirms that a large market is more attractive for foreigners since it represents a potential large demand and potential economies of scale. Numerous authors acknowledged the same attraction effect (Bayraktar, 2013; Jadhav, 2012; Bellak et al., 2008; Asiedu, 2006; Bevan et al. 2004; Bajo-Rubio et al, 1994). In its multicountry and multiregion empirical analysis, Billington (1999) showed that high GDP and growth were significant to attract FDI. Walsh and Yu (2010), in their sectoral approach of determinants, also concluded to the significance of growth. However, Billington also cited authors stating an insignificant effect of growth (Scaperlanda and Mauer, 1969). The same insignificance of growth was found by Bayraktar (2013) using correlations.

2. Openness to trade

A second determinant receiving attention in the literature is the openness of the country to trade. Cortes et al (2013) pointed out, in their analysis of FDI determinants for 113 countries, that the amount of FDI attracted is directly related to the trade openness of a country. They even showed that this variable gained in importance in the last years as a consequence of the globalization. Jadhav (2012) argued that the effect of openness depended on the type of investments (as described in section I), while de Castro et al. (2013) concluded that the opening to trade helped both Mexico and Brazil to attract FDI even though the type of investments was different among the two

countries. Khadaroo et al. (2010), investigating the attractiveness of Mauritius, concluded that trade openness was one of the main motivators of investments. This impression was confirmed by Bevan et al. (2004) in their study of FDI flows to European transition economies.

3. Macroeconomic stability

Following the work of Altomonte, Cortes et al. (2013) came to the conclusion that macroeconomic instability is a discouraging factor of attraction. Using the inflation rate as a proxy for macroeconomic instability in 22 Sub-Saharan countries, Asiedu (2006) found a deterring effect of the inflation on incoming investments. Bajo-Rubio et al. (1994) discovered the same negative and significant relation as for Spain.

4. Budget deficit

A country's budget deficit is often associated with its economic health and stability. Indeed, one could expect from a country with continuous deficits to increase the tax burden or to take difficult adjustment measures likely to affect the macroeconomic environment or the profitability of the investors. Its effect on the attraction of FDI remains nevertheless unclear. Bose et al. (2011)'s study on the FDI flows in 15 European transition countries and India found that fiscal deficits lead to reduced investments. On the contrary, Banga (2003) estimated the effect of FDI policies on the incoming flows to 15 developing countries. He concluded that the budget deficit was not significant in the attraction of aggregate FDI.

5. Labor costs

There is no consensus about the effect of labor costs in the literature, the results depending on the type of measure used. Intuitively, one would expect a negative effect of labor costs. However, high labor costs could be a sign of high productivity and

consequently show a positive coefficient. This assumption was raised by Wei (2000). That is the reason why Bellak et al. (2008) highlighted the necessity to use real unit labor costs, defined as the total nominal labor costs over nominal output per employment. Unlike the divergent literature, they found a negative effect of high unit labor costs on inflows of FDI. Bevan et al. (2004) and Bajo-Rubio et al. (1994) confirmed it.

6. Taxation level

Studies about the role of taxation in the location of FDI have raised mixed evidence. In their study about the flows of FDI into emerging EU countries compared to the flows in “older” EU countries, Göndör et al. (2012) indicated that low corporate tax rates had not helped the emerging countries to attract more FDI flows. And multiple authors pointed out that the firm leaders do not consider a favorable tax policy as the most important factor when investing abroad (Simmons, 2003). However, American researchers (Desai et al., 2004) found evidence that direct such as indirect taxes are costly and related with reduced Foreign Direct Investments. Wei (2000) reported a negative and significant effect of tax rates on the attraction of FDI. Bellak et al. (2009) concluded that taxes are almost as relevant as labor costs but less than the market size.

7. Level of infrastructures

As stressed by Ilyas et al. (2011), infrastructures have a significant impact on the FDI in Pakistan, confirming their intuition that the infrastructures of a country are determinant for the reduction of the business costs and for the efficiency. Khadaroo et al. (2010), analyzing a sample of African countries, estimated a positive and significant coefficient for the transportation and non-transportation infrastructures. Using the number of phones per capita, Cortes et al. (2013) found the same effect on FDI.

Although most of the studies confirm the crucial contribution of infrastructures (Billington, 1999), Quazi (2005) did not find anything significant (according to Khadaroo et al., 2010).

8. *Level of human capital*

Next to the physical capital, the level of human capital is also a matter of concern for foreign investors. Indeed, more skilled workers are likely to provide higher quality outputs and integrate technology easily (Campos et al., 2002). In their study on a sample of 100 countries, Cortes et al. (2013) concluded that FDI were encouraged by a skilled labor force. Khadaroo et al. (2010) confirmed previous results of Asiedu (2006), stating the labor force quality as enhancing the attractiveness of a country. Investigating the FDI flows to 36 developing countries from 1980 to 1994, Noorbakhsh et al. (2001) found that human capital is an important determinant of the locational advantage.

9. *Institutional factors*

Besides strict economic factors, the quality of institutions is also an important determinant of FDI (Blonigen, 2005). Jadhav (2012), taking corruption and enforcement of contracts as proxies, concluded that inefficient institutions act as a deterrent to FDI in the BRICS. Asiedu (2006) drew the same conclusion about African countries. Wei (2000) concluded on the important negative impact of corruption, as it increases the cost of operating in a foreign country. He also noticed that the inclusion of “political stability” gives a positive and significant relation with FDI inflows. In his study on the ease of doing business, Bayraktar (2013) found strong evidence that a favorable business climate was very attractive for foreign investors. Bénassy-Quéré et al. (2007) examined the influence of recipient country institutions by including governance indicators in the analysis of FDI bilateral stocks. They came to the same conclusion.

II. Explanation of the variables

The dataset consists in yearly data points collected for Portugal and Spain over the period 1984-2012.

The dependent variable will be the amount of net FDI inflows, valued at current USD and provided by the UNCTAD database. Although several studies focus on FDI stocks, using the inflows seems to be appropriate as they will be more responsive to incentives and shocks. Moreover, the net term accounts for foreign divestments and better reflects the attractiveness of a country.

The macroeconomic independent variables of the model are the country's real GDP (for the market size), the real GDP growth rate, the budget deficit over GDP, the sum of exports and imports over GDP (as a proxy for openness to trade flows) and the inflation rate (proxying macroeconomic instability). The data was collected from the World Development Indicators, the IMF World Economic Outlook database and the UNCTAD database. Market size, GDP growth and openness to trade should have a positive effect. Budget deficit and inflation are expected to have a negative coefficient.

The locational independent variables are the unit labor costs, the number of mobile and fixed phone subscriptions per 100 people (a proxy for infrastructures), the combined statutory corporate income tax rate and the level of human capital. The combined statutory corporate income tax rate is a measure accounting for the taxes to pay to the local and national governments. Hence, it better reflects the total fiscal burden borne by firms. The level of human capital is an index computed in the Penn World Tables, based on the average years of schooling of the 15-64 years old

population¹. The data for the tax rates and unit labor costs come from the OECD databases and the infrastructures data were found in the World Development Indicators database. All of their coefficients should show a positive sign, except for the corporate income tax rates and unit labor costs.

The institutional variables are the political stability and the socioeconomic conditions of the country. The former reflects the government and legislative strengths. The latter represents the forces present in a country that could generate social dissatisfaction (poverty, unemployment and consumer confidence) (PRS Group, 2014). The data are based on monthly assessments made for the International Country Risk Guide database. The assessments allow the database provider to give a grade (out of 12) to the country for each of the two variables considered. Because a high score represents a low risk, the variables should affect the FDI positively.

¹It must be noted that the level for 2012 was fixed as equal to 2011. Indeed, according to the United Nations Development Program, the average years of schooling of the 25-64 remained constant since 2010 and there was no reason to assume the situation to be different for the 15-64.

III. Historical description of the FDI in Portugal

FDI have been a component of Portuguese economy since the 16th century – when Portugal dominated the international trade – and under the era of the Pombal Marquis (Barros Castro, 2000).

The dictatorship period and several dramatic policies deterred foreign investors and cut Portugal from international capital flows until the 1960's. The membership to the European Free Trade Association in 1960 changed the economic evolution of Portugal (Casqueira, 2010). From that period on until 1973, the country knew a huge increase in FDI inflows, particularly in low-technological activities (textiles and wood products) where Portugal had a comparative advantage (as shown in Amador et al., 2007).

During the following decade, the Portuguese open economy suffered from the two oil shocks, from national policies (nationalizations, new labor regulation, reduction of economic efficiency) consecutive to the 1974 revolution and from the loss of colonies that finally led the IMF to intervene in 1983 (Barros Castro, 2000). Simultaneously, FDI inflows suffered from the situation.

The recovery came during the second half of the 1980's. The perspective of the accession to the EEC, the proactive behavior of the successive governments and lower oil prices gave a push to the foreign investments (Barros Castro, 2000). They were mainly looking for lowering production costs in a country that was converging to the European average.

The decade of the 1990's saw the growth of FDI flows to Portugal slowing down as a result of several factors. Portugal continued to attract industrial projects

(AutoEuropa being the most illustrative) but the European economy decelerated and Eastern European and Asian countries started to compete (Corado Simões, 2011). However, almost at the same time, the Portuguese industrial complex acknowledged a structural shift from low-technology and labor-intensive products to higher value added and technology-intensive products (Casqueira, 2010) that attracted another type of investors and further diversified the economy.

In the first decade of 2000, the FDI trend observed at the end of the 1990's seemed to have persisted. Figures of the AICEP show that the low-tech manufacturing industry is losing ground compared to the automotive and financial sectors, supporting the “sophistication” change operated in the Portuguese economy.

IV. Origin of the FDI in Portugal

When it comes to the geographical breakdown of the gross FDI inflows, one notices that the large majority of the capital comes from 6 European countries. Over the considered period, they have accounted for 65 to 87% of the gross flows. The Figures 1 and 2 display the necessary data.

The presence of UK among the main investors is not a surprise. Links between the two countries are strong since the Middle Ages. Following several alliances against Spain or France, the countries have a long tradition of bilateral trade that favored the English investments in Portugal (The Anglo-Portuguese Society, 2007).

Figures 1 and 2 show that Spain represents the main gross investor. Except in 1999 and 2010, net FDI have always been positive, even during the recent crisis affecting both countries. Their geographical closeness and the relative distance from the

core of Europe explains part of this relationship. The other reason, described by Barros Castro (2000), is that Spain serves as an intermediate step for non-EU multinationals willing to invest in Portugal. They then do it through their regular affiliate operating in Spain or through a holding company, an ETVE (“Entidad de Tenencia de Valores Extranjeros”).

It is almost the same mechanism applying for the Netherlands and the BeLux, which also have special tax regimes for holding companies. These practices are behind the volatility of their net FDI into Portugal.

At last, the decreasing role of Germany must be pointed out. Although it is a historical investor in Portugal, Germany has been divesting during the last decade. It is the consequence of the German firms turning their focus to Eastern Europe (the German FDI stock more than tripled in countries like Hungary, Czech Republic and Poland during the last decade) (Hirdina et al., 2010).

One may notice that the majority of FDI has its origins in the biggest European economies. It exemplifies the intuition raised by Galego et al. (2004): firms operating in large market have more possibilities to enjoy economies of scale and build up the efficient structure/scale that will allow them to invest abroad. Firms operating in smaller markets do not have this opportunity.

Figure 1: Gross FDI inflows by country of origin

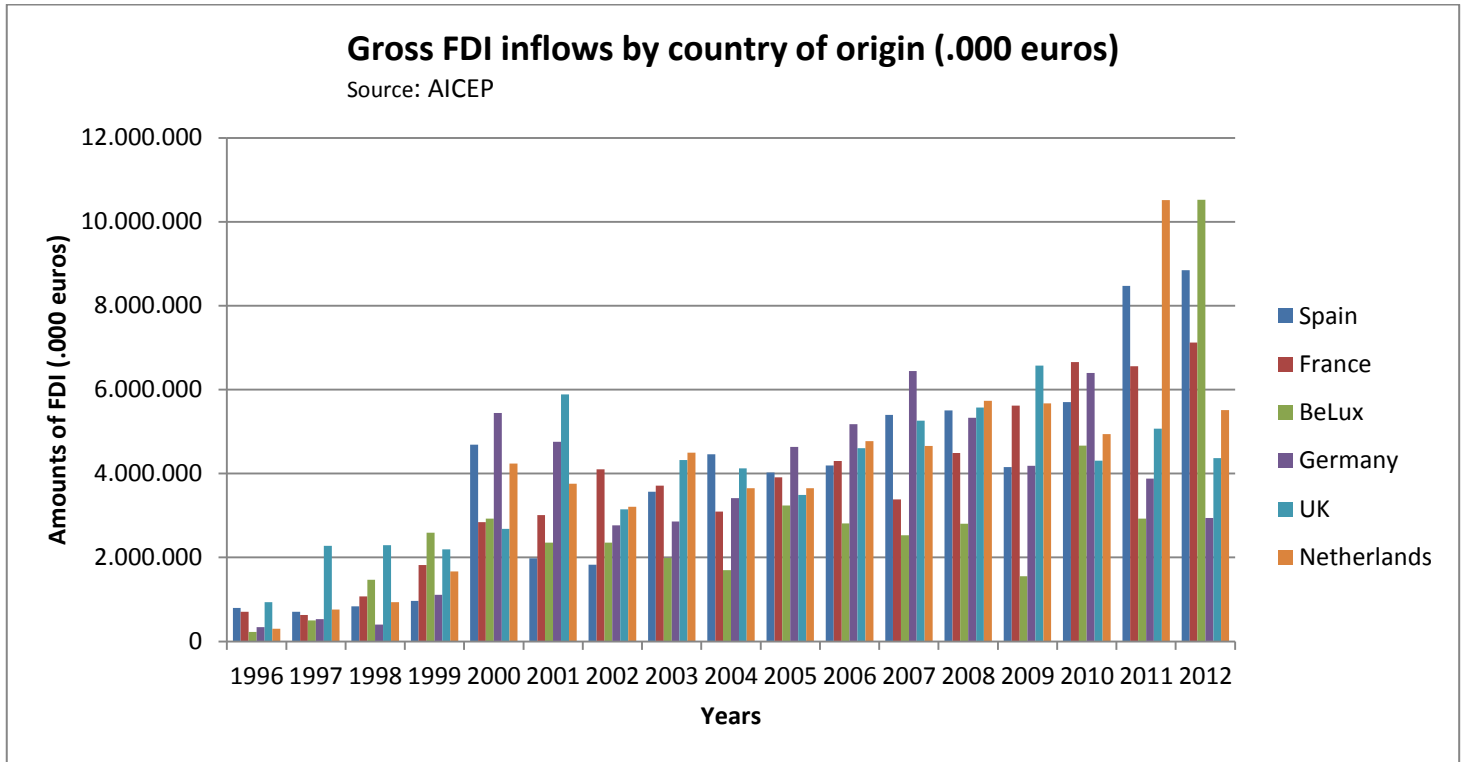
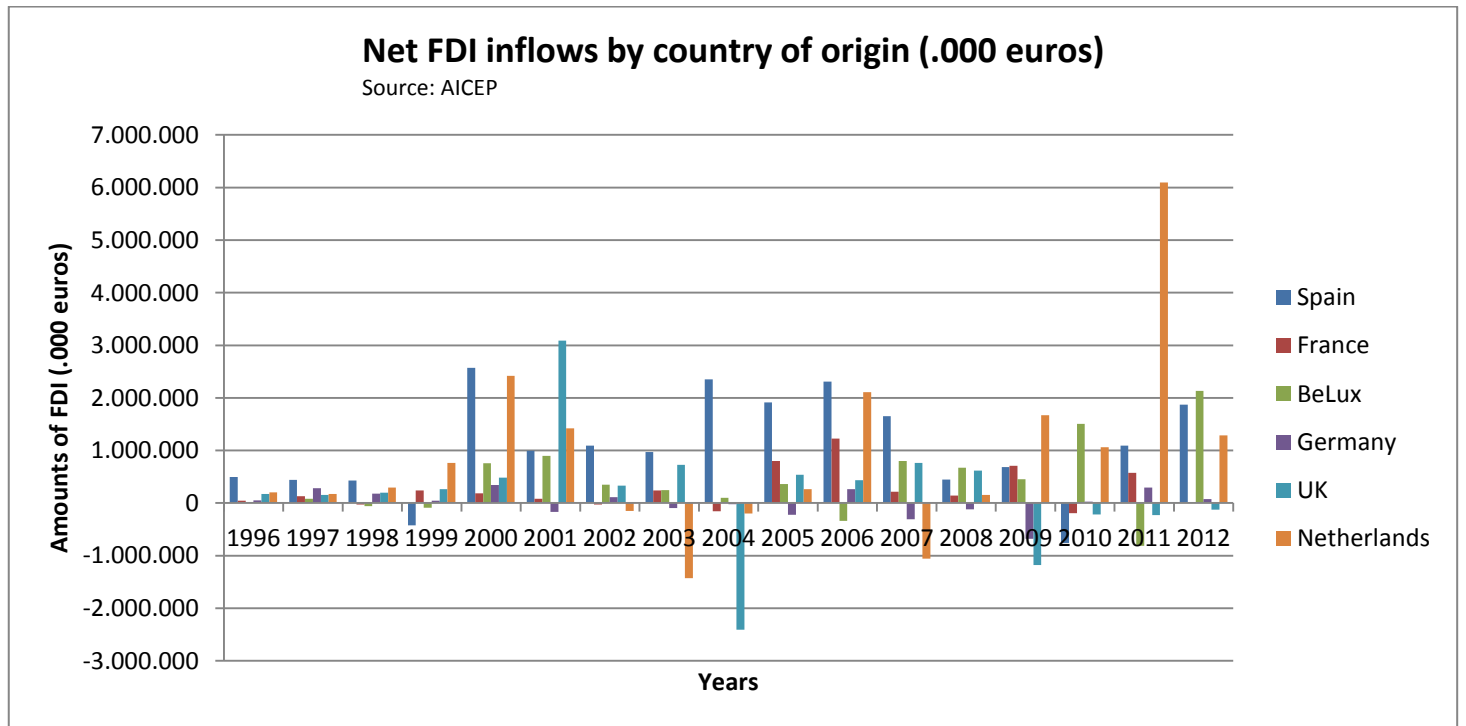


Figure 2: Net FDI inflows by country of origin



V. Historical description of the FDI in Spain

The first significant FDI surge occurred in the 1850's after the adoption of accommodating regulation for foreign investors by Queen Isabel II. According to data gathered by Castro et al. (2009), the main investing countries were France, the UK and Belgium, mainly in the transportation sector. This industry as well as mining, wineries and banking drove the majority of capital flows into Spain during the early 20th century (Campa et al., 1994).

The above described movement slowed down in the late 1920's. The Great Depression strongly affected the international investments. On the top of that, the country knew a civil war from 1936 until 1939 that brought an authoritarian regime to power. The Franco regime built up economic barriers around the country with trade-detering measures, reinforced by a "post-WWII" embargo (Campa et al., 1994). Those events reduced considerably the amounts of FDI to Spain.

The period of economic isolation came to an end in the 1950's with Spain joining the IMF and the OECD and the adoption of the 1959 Stabilization Plan (Chislett, 2014). The Plan aimed at controlling inflation, stimulating growth and "*liberalizing foreign trade and encouraging foreign investment*" (Meditz et al., 1988). This policy played its role by attracting plenty of foreign investors interested in the "virgin" significant domestic market.

Foreign investments grew sharply until 1973. Then, two oil shocks, the uncertainty linked to the democratic process (Alguacil et al., 2001) and a world economic crisis smoothed the upward trend. Nevertheless, the perspective of the EU-membership and the resulting liberalization, privatizations and convergence to the EU economic standards opened the country for a lot of EU investors.

In the 1990's, a trade reform, policy changes (in terms of exchange control and foreign capital discrimination) and the devaluations of 1992 and 1993 (Chislett, 2014) sustained the attractiveness of Spain despite the European economic deceleration. Most of the investments were takeovers of Spanish firms in food, manufacturing and chemicals (Campa et al., 1994).

The last decade saw the inflows continuously growing and the services gaining more and more importance. According to Clifton et al. (2011), services accounted for almost the double or the triple of the FDI in the two other sectors between 2005 and 2008. Moreover, services to local market (construction and retail industry) were significant vectors of investment. Recently, Spain has defined six sectors particularly attractive for FDI: the automotive sector, biotechnologies, food and agriculture, ICT and audiovisual, aerospace and machine-tooling (Chislett, 2014).

VI. Origin of the FDI in Spain

As in the case of Portugal, the overwhelming majority of the FDI comes from Europe (almost 89% in 2009, according to Clifton et al., 2011). Over the period 1993-2013, one will consider only 5 European countries and include the US seeing the importance of the inflows generated by this country. Figures 3 and 4 display the necessary data.

The US represent the larger non-European investor in Spain. Three mechanisms are involved: US firms establishing their EU headquarters in Spain, building productive plants (in the automotive industry with Ford and GM) or using a Spanish affiliate as an intermediary to invest in other EU countries (as described above).

Spain and France have a long investment history starting with infrastructure investments by French firms. As opposed to other countries, French investments remained relatively steady, attracted by the significant neighbor market.

The Figures 3 and 4 show that Germany keeps investing in Spain. The amounts are not as important as from other countries, but there is no “divesting trend” as in Portugal. Probably because these are not the same type of FDI involved.

As for the UK, growing investments in Spain are recorded, with peaks corresponding to punctual acquisitions (Altadis by Imperial Tobacco in 2008 for example). This interest in Spain led to a six-fold increase in the FDI stock between 2000 and 2010 (Driffield et al., 2012). Investments concerned many different sectors (energy, banking, real estate) and different types (M&A, greenfield projects, etc.).

As stated previously, the substantial amount of capital coming from modest EU-economies (BeLux and the Netherlands) is to be explained more by tax incentives and special holding regimes rather than by historical or productive reasons. According to Chislett (2014) a certain share of this capital even comes from subsidiaries of Spanish companies established in those countries.

It is interesting to note that lastly, Spain has seen several investors coming from the Gulf region, Latin America and Asia (mainly China and Singapore). Investments in Iberdrola and CEPSA by Arab sovereign wealth funds represent the tip of the iceberg of this new trend. Those investments are motivated by opportunities created by the crisis and the networks of Spanish companies in Latin America (ESADE, 2013).

Figure 3: Gross FDI inflows by country of origin

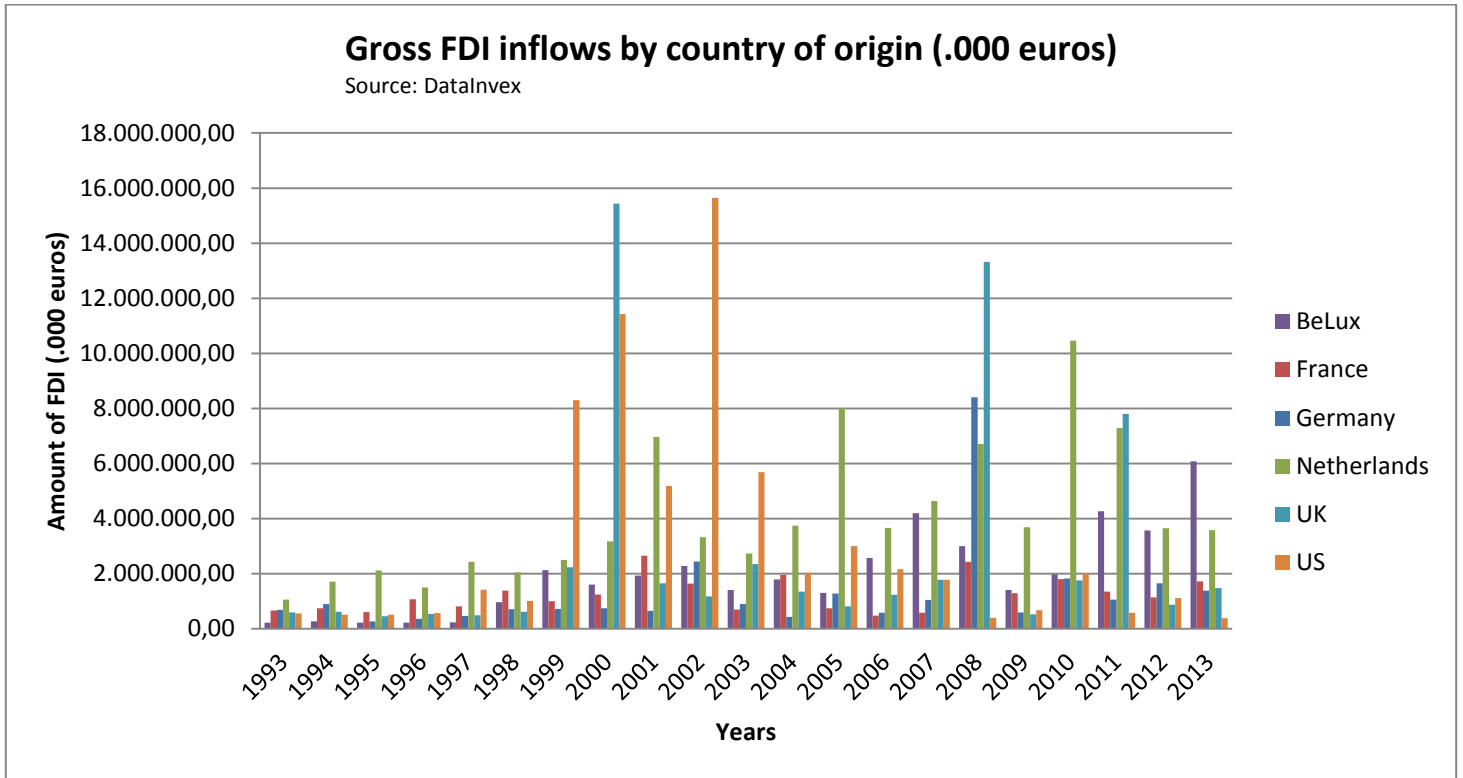
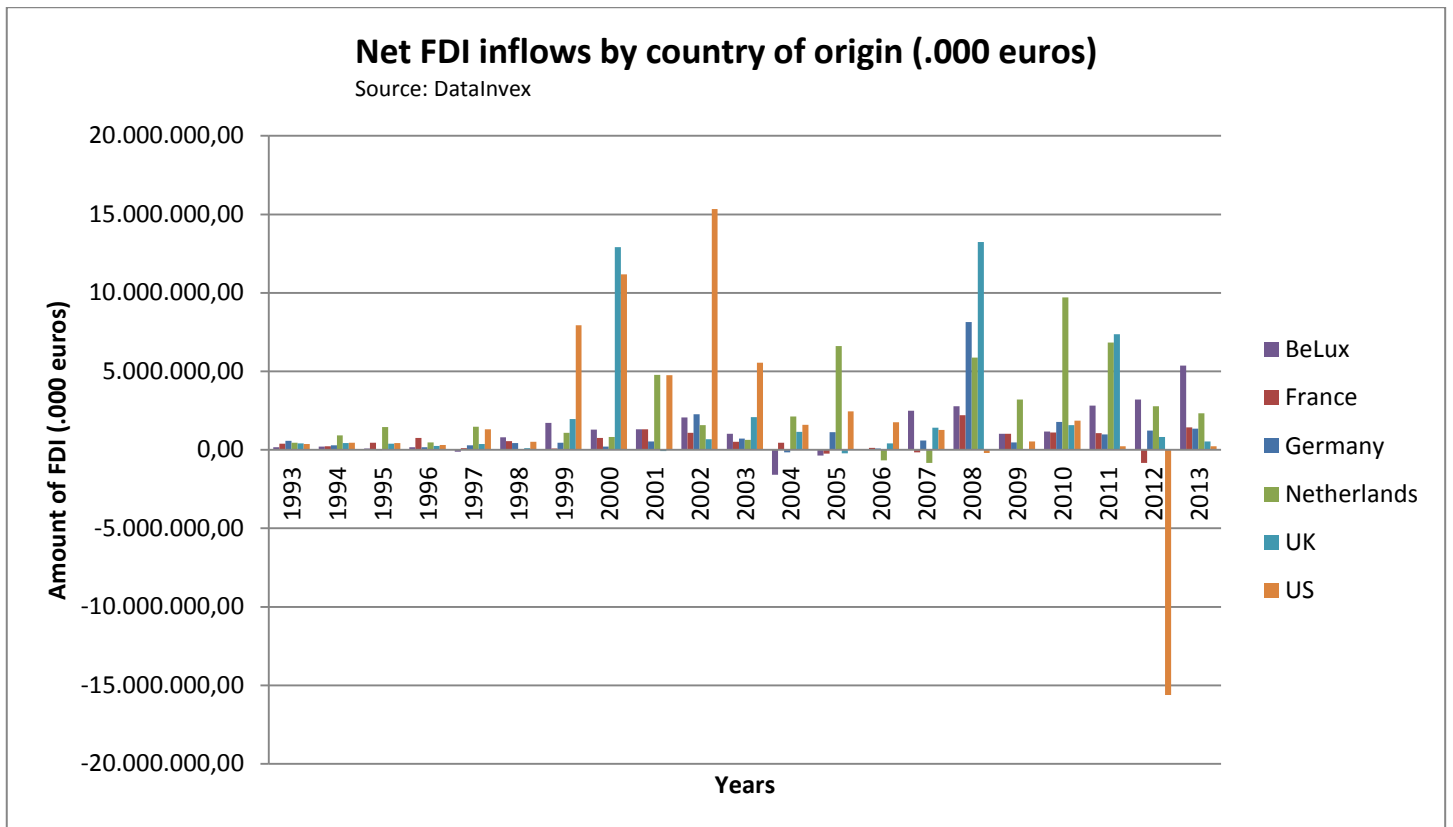


Figure 4: Net FDI inflows by country of origin



VII. Specialization of the Portuguese exports

The figures displayed in Table 1 acknowledge the steady decline of low-technological products in the Portuguese exports. Their share went down from 76% in 1967 to 34% in 2006. This trend concerned all activities, with a particular emphasis in the food and textile industries. As for the latter, one sees the consequence of the loss of competitiveness of Portugal compared to Asian countries (described in Barros Castro, 2000).

As opposed to the low-tech exports, the medium-low-tech doubled between 1967 and 2006. Not much can be said about it, except to highlight the close disappearance of shipyard activities in Portugal, under the competition of East-Asian countries.

The evolution of the medium-high-tech products is the most significant over the last four decades. Representing 10% of exports in 1967, it counted in 2006 for almost 31% of exported manufactured goods. This tremendous change marks the decline of the traditional industries in which Portugal used to specialize and the raise of a dynamic sector, the automobile (Amador et al., 2007). The roots of it have to be found in several investments of multinational groups (Renault, VW-Ford, PSA, GM) looking for a more educated labor force, governments incentives and proper infrastructures (Cabral, 2008). They constitute the core of this “cluster” that drove the creation of complementary activities (car components with Delphi for example).

Finally, the high-tech exports weighted 14% of the total in 2006. Half of it is to be attributed to multimedia equipment. It is another indicator of this shift of the Portuguese manufacturing sector to more specialized products. It was necessary to face

the competition coming for the East and has been made possible by a more educated labor force, able to absorb new technologies to produce goods with higher added-value.

Table 1: Structure of Portuguese manufacturing exports, by technological intensity

	1967-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2006
As a percentage of total exports									
High-technology products	4	7,7	7,9	8,5	6,1	6	7,7	10,8	14,6
Aircraft and spacecraft	0,2	0,1	0,2	0,5	0,3	0,3	0,4	0,7	n.a
Pharmaceuticals	1,5	1,3	1	0,9	0,7	0,5	0,8	1,2	2,2
Office and computing machinery	0,3	1,2	1,2	1,6	0,8	0,5	0,4	1,8	3,8
Radio, TV and communications	1,9	4,3	4,5	4,6	3,6	3,9	5,2	6,1	7,8
Medical, precision and optical instruments	0,2	0,7	1,1	0,9	0,6	0,8	1,1	1	0,7
Medium-high-technology products	9,7	12,5	13,5	16	18,2	20,9	30	31,2	30,7
Other electrical machinery	1,5	2,3	2,3	1,7	2,9	5,2	7	5,7	3,5
Motor vehicles, trailers and semi-trailers	0,4	0,5	1,6	3,5	6,1	7	14,2	15	15
Chemicals, excl. Pharmaceuticals	5,3	6,3	5,1	6,6	5,3	4,2	3,8	4,5	6,3
Railroad equipment	0,3	0,6	0,3	0,3	0,2	0,2	0,4	0,4	0,5
Other machinery and equipment	2,2	2,9	4,2	3,9	3,8	4,3	4,5	5,8	5,4
Medium-low-technology products	10,2	10,7	11,5	14,4	12,7	13,7	13,1	15,6	20,4
Coke, refined petroleum and nuclear fuel	1,3	2,2	1,5	5,3	2,9	3,2	2,1	2,1	2,6
Rubber and plastic products	1,2	1	0,6	0,7	1,2	1,6	2,2	3,3	4,2
Other non-metallic mineral products	3	2,7	2,7	3	3,7	4,7	4,1	3,8	5,1
Building and repairing of ships	0,1	0,8	1,4	0,7	0,9	0,5	0,3	0,2	0,2
Basic metals	2,1	1,4	2,8	2,2	1,8	1,3	1,5	2,9	4,4
Fabricated metal products, excl. Machinery	2,5	2,5	2,6	2,5	2,2	2,4	2,8	3,3	3,8
Low-technology products	76	69,2	67	61,1	63,1	59,3	49,2	42,4	34,2
Other manufacturing and recycling	7,6	6,1	2,4	2,6	2,1	2,4	2,2	2,7	2,9
Wood, pulp, paper and printed products	14,2	14,7	16,9	14,9	14,1	11,1	10	9,7	6,7
Food, beverages and tobacco	23,5	17,3	14,9	10,9	7,6	6,7	6,5	6,5	8,2
Textile, leather and footwear	30,7	31	32,9	32,7	39,4	39,2	30,5	23,4	16,4

Source: Amador et al. (2007) and Cabral (2008)

VIII. Additional references

This section gathers together the references used in this Appendix document and which were not mentioned in the thesis document.

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