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Corporate Tax Competition for Foreign Direct Investment: A Behavioural Approach

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Corporate Tax Competition for Foreign Direct Investment: A Behavioural Approach

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A thesis submitted for the degree of Doctor of Philosophy

University of Bath

Department of Economics & International Development

June 2008

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Summary

For many years tax competition models and empirical analysis have been showing taxation as a key variable in FDI location decisions. Countries reduce taxation to attract firms in order to create employment and economic development. Firms locate their investments where the net return on capital is higher due to a lower tax burden. But tax competition is not optimal because the lowering of the tax burden causes an inefficient allocation of capital and provision of public goods. Thus, it requires coordination of tax policies in an economic area such as the European Union (EU).

Despite data not showing a complete “race to the bottom” in tax rates, the predictions of the model are widely believed by businessmen and the public opinion. But tax competition has been exclusively based on neoclassical theory where imperfect decisions by managers and certain features of the decision making process such as uncertainty are assumed to be not essential. The same applies when considering incompatibility with FDI theory.

A complementary approach, based on the Heiner model, underlines the central role of uncertainty and the relevance of cognitive characteristics in managers’ FDI decisions. By applying an inductive and qualitative method through questionnaires, interviews with managers and statistical tests, the reliability of the behavioural model is confirmed. Furthermore, location decisions are shown to be significantly explained by heuristics and biases arising from the uncertainty faced by managers.

But the role of taxation in these decisions appears less significant than is usually considered. From a sample of 112 Portuguese FDI operations only 4 are explained by fiscal variables. Then, if managers do not rely on taxation to decide the location of their firms’ investments abroad, countries should not emphasize this variable when implementing policies to attract FDI and the main argument for corporate tax integration in the EU vanishes.

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“I wonder who it was defined man as a rational animal. It was the most premature definition ever given. Man is many things, but he is not rational. I am glad he is not, after all”

Lord Henry

in The Picture of Dorian Gray
by Oscar Wilde

1 - Introduction

Investment is essential for economic growth and employment. National and local governments are assumed to use fiscal policy, and within it corporate taxation, to attract foreign direct investment (FDI) so that their jurisdictions can secure economic development. FDI flows registered a huge increase in the last 20 years due to globalization of the economic activity. This is more evident in the case of the European Union where the liberalization of goods and capital flows and the implementation of a single currency strengthened the process. Statutory tax rates, on the other hand, have been decreasing in developed countries, and these two simultaneous trends explain why competition for investment has been a hot topic in the last few years both among economists and in the media (shown in the recent news about an UK firm, Shire, leaving to Ireland).

The standard tax competition model (e.g. Wilson, 1986, and Zodrow and Mierszcowsky, 1986), developed in the context of competition among local governments, predicts that jurisdictions would engage in an inefficient competition for capital that would drive down corporate tax rates. According to the model, the immediate consequence of tax competition would be a decrease in fiscal revenue and thus the inability of jurisdictions to guarantee an optimal provision of public goods. The inefficiency would therefore require tax harmonization among jurisdictions.

The focus on the role of fiscal variables in capital flows by both the economic literature and the media led to the now generally accepted conclusion that the former has a huge influence on the latter. De Mooij and Ederveen (2003, p. 673), for example, refer to a “*median value of the tax rate elasticity of -3.3, that is, a 1 percentage point reduction in the host-country tax rate raises FDI in that country by 3.3 percent*”. Indeed, a significant number of econometric studies (presented in chapter 3) show an inverse relationship between the flows of FDI and the level of taxation.

Empirical evidence, however, **does not show a “race to the bottom” in corporate tax rates** as predicted by the tax competition model (Boss, 2005, Stewart and Webb, 2006). This can be seen by the gradual variation in the level of tax rates in most OECD countries, where the

provision of public goods is not in danger, and by the continuous growth of corporate tax revenue. The reasons for this contradiction between theory and empirical evidence are not well understood. It may be that governments are too hesitant in implementing fiscal policies to attract FDI, the corporate sector is growing faster than the economy or that the level of corporate tax rates is better explained by internal (to the jurisdiction) factors, such as the level of revenue required for budgetary purposes, and not by tax competition concerns. Whatever the reason, there is a mismatch between neoclassical theory and observation that requires an explanation.

Furthermore, while **tax competition theory assumes that business taxation is a key determinant of foreign investment, FDI theory presents a handful of determinants where taxation is only one potential reason for the location of firms.** In other words, the FDI literature in itself does not give too much weight to tax variables. Thus there is a clear contrast with the assumption of tax competition literature and this “incompatibility” between both branches of neoclassical economics has yet to be resolved.

The generally accepted role of tax variables in capital flows and the consequences predicted by the standard tax competition model rely, first, on the will of jurisdictions to attract FDI and, second, on the assumed behaviour of firms to search for a maximum profitability through a lower tax burden. The economic literature has been greatly concerned with the first of these two sides of the question. This dissertation, however, aims to complement the existing literature by focusing on the second.

Firms are considered to be profit maximizers in neoclassical economics. In the tax competition literature the maximization process is modelled in a way that it directly depends on the tax burden. The lower the tax burden the higher the marginal productivity of capital and this seems to be the only decision criterion when firms choose where to locate their investments. Uncertainty has a negligible role in the decision making process. In a world of certainty it would be easy for managers to make such a decision. They just would need to calculate the difference between revenue and costs for all the available options in terms of location, to consider the different corporate tax rates and to choose the one that result in higher profitability.

However, in the real world of a manager's life things are not that simple. Capital flows vary in terms of mobility and term. FDI location decisions require a huge amount of information, are relatively immobile and focused on the long term, and may take several months or years to complete. In the meantime environmental variables are permanently changing in unpredictable ways and decision makers are themselves affected by rather different events. The process involves a lot of different people that, directly or indirectly, influence the outcome. Taxation has a different role depending on the stage of the decision process: when information on potential locations is collected; when the location decision is made; when reinvestments or tax planning activities are developed.

Furthermore, and as the behavioural finance literature has shown, comparatively simpler decisions, in the ambit of equity markets and portfolio investment, cannot be fully explained by a neoclassical approach (e.g. Shiller, 2000). In consequence, location decisions presented as just "business taxation explaining foreign direct investment" are an oversimplification and cannot fully explain what is happening in reality.

Given the "incompatibilities" between tax competition and FDI theories and given that firm behaviour is more complex than usually is assumed in economic models, it is necessary to give a prominent role to uncertainty in order to explain the behaviour of firms in FDI location decisions. It is not the purpose of this dissertation to fully understand the relevance of uncertainty in FDI location decisions but to display uncertainty in accordance with reality. That is, to enhance the relevance of factors that go beyond the standard assumptions of neoclassical theory, such as the existence of imperfect information, and to include behavioural characteristics that affect the perceptions of managers in their decision making process. Hence it is important to understand the different perceptions, of managers, economists and the general public opinion, on FDI location decisions and to understand how they impact real life decisions.

The focus on uncertainty allows the use of a behavioural framework, based on the behaviouralists (e.g. Simon) and on economic psychology (eg. Tversky and Kahneman), and thus complimentary to neoclassical economics, to improve the knowledge of the key determinants in FDI location decisions. That is, and by following a similar path to the behavioural finance literature, new evidence on the behavioural determinants of FDI is

foreseen. In this context, and central to this dissertation, is **the relevance of fiscal variables for location decisions**. The aim is to assess the role of taxation so that an explanation could be given to the mismatch existing between neoclassical theory and empirical evidence on the recent evolution of corporate tax rates and revenue.

The inefficient outcome of the standard tax competition model is also the basis of the attempts made by the European Union (EU) to harmonize national corporate tax policies (EC, 1997, 2001). The explicit reasoning is to prevent EU countries from competing for investment by using fiscal variables due to the resulting inefficiencies in the allocation of capital and in the provision of public goods. The EU is an innovative case of economic integration and, so far, important steps such as the Single Market and the Monetary Union have been taken. But the role of fiscal policy is not yet clear and it is in the centre of the debate over the economics of integration. The proposed framework in this dissertation, centered on the decision making process and the behaviour of firms, may provide new insights on fiscal policy for corporations inside an economic area. By looking at corporation decision making it may be feasible to provide a better understanding of the situations when it may be advantageous for a government to engage in tax competition. Therefore the purpose of this dissertation is also to contribute to a clarification of the type of corporate fiscal policy that is desirable at a national level and to qualify its expected effects on public policy in the European context.

To extend the analysis of an intensely studied theme such as tax competition requires a better understanding of each firm's decision¹ making process. This is obtained by using the Heiner (1983, 1985a, 1989) model, where the usual optimization assumptions of the neoclassical literature are disregarded. The proposed approach will use some inputs from psychology, namely the so called heuristics in decision making in the presence of uncertainty. This improves the understanding of the objectives and motivations of firms and managers when investing abroad. The methodology employed is mostly based on a qualitative analysis, where the empirical work is composed of interviews, questionnaires and statistical tests to confirm the hypotheses arising from the literature, so that the complimentary nature of this dissertation with the standard neoclassical approach is reinforced. Given **the novel approach** it is an exploratory study that, hopefully, will generate a diversified set of cues for future work.

¹ The meaning of decision is "the execution of a choice made in terms of objectives from among a set of alternatives on the basis of available information" (Cyert and March, 1963, p. 19). In this dissertation, the decision is in which country a firm should locate production capabilities.

Part I of the thesis deals with the theoretical background. After this introduction, Chapter 2 presents the main findings of the standard tax competition model by individually considering the various assumptions of the neoclassical foundations. Chapter 3 compares the outcome of the tax competition model with FDI theory and underlines the existing incompatibilities between both branches of neoclassical economics in this area. After exploring the weaknesses of neoclassical theory a behavioural approach, based on the Capacity-Difficulty model of Heiner, is proposed in Chapter 4 where the role of uncertainty is central to understanding how managers make FDI location decisions.

Part II develops the approach presented in Part I. Chapter 5 details the methodology. Chapter 6 aims to assess the perceptions of the general public, students and managers about the role of business taxation in FDI and includes a natural quasi-experiment based on questionnaires made to managers and students. Chapter 7 discusses the results of interviews with Portuguese firms, with a total of 112 foreign operations, concerning the influence of several intrinsic and extrinsic variables in FDI decisions. It also empirically addresses the hypothesis of the Heiner model that uncertainty is directly associated with the use of behavioural rules by managers. Chapter 8 presents evidence on the role of business taxes in FDI location decisions and addresses its consequences for public policy at national and EU levels while distinguishing between the relevance of this variable in FDI location decisions and its impact on firms' profitability. Finally, Chapter 9 ends this dissertation with the final conclusion and suggestions for future research.

Part I

Tax competition for investment – Theoretical framework

2 – Neo-classical models of tax competition

This chapter reviews the tax competition literature. It starts by considering the public finance literature where both the standard tax competition model and its main extensions, those that deal with the assumptions of the model, are presented. It proceeds by introducing the main arguments in favor and against the integration of corporation tax policy to understand changes if a group of countries moves from a situation of complete fiscal autonomy to some degree of cooperation¹. In this way it allows for the comprehension of how tax competition theory may influence corporate tax policy in an economic area such as the EU.

The chapter concludes by presenting the political economy view and the new economic geography perspective and by underlining the unaddressed assumptions of the model. The final goal is to assess the weaknesses of the dominant neoclassical view that justifies the behavioural approach proposed in this dissertation.

2.1 - The standard model of tax competition and its assumptions

This section introduces the standard tax competition model and provides a list of its assumptions. Some of them were dealt by the public finance literature and will be considered here. The remaining will be discussed further below.

2.1.1 – Tax competition and fiscal federalism

The tax competition literature was initiated within the framework of fiscal federalism (Oates, 1972). Fiscal federalism (FF) looks at the implementation of fiscal policies and

¹ A simplified definition of tax cooperation, derived from James (2004, p. 27), is followed. Tax integration means the delegation of fiscal autonomy to a supra-national institution. Countries are supposed to abide to its tax policy decisions (Robson, 1998). Tax harmonisation or tax coordination means an agreement between countries about tax policy (rules and rates) without a mandatory interference from a supranational body. Countries are free to break the agreement.

the allocation of its instruments at different levels of decision in a federation: federal, state or sub-state. It states that fiscal policy should be managed at its most efficient level given its objectives: efficiency in resource allocation, income redistribution and economic stabilization (Musgrave and Musgrave, 1973). Fiscal policies aiming at income redistribution and economic stabilization are better managed at a centralized level due to economies of scale and externalities. But resource allocation should be shared among different levels of government, depending on the type of goods and services and on the preferences revealed by the population. For example, all goods and services provided at a state level, whose only beneficiaries are in the very same region, should be paid and implemented by this region's inhabitants and its elected representatives.

Tax competition may be considered as a sub-product of fiscal federalism in the sense that it was initially presented within a federal scenario where lower levels of government raised tax revenue to finance the provision of local public goods and services. However, it is not essential that a federal scenario prevails for tax competition to occur. If there is a federation, there are two possibilities: only the states intervene in the fiscal policy decision-making or both the federal institutions and the states intervene. If there is no federation or an upper-level of decision, then only a set of countries can compete.

This is the case of the European Union (EU) where a set of countries form an economic area and both the redistribution and stabilization policies are partially defined at a decentralized level. That is, although the tax competition model is valid both to a federation and to an economic area, in the latter case concerns about redistribution and stability at a lower level are also relevant and thus countries do need to raise revenue for that end².

A different question is that of the desirability of fiscal harmonization in an economic area. In this case the similarity with fiscal federalism would be higher if the economic area had a centrally managed fiscal authority with the power to tax all individuals and firms and able to self-manage the obtained revenue. In order to have a better assessment of this possibility the starting point should be the pre-cooperation situation, where each

² The country will be the relevant jurisdiction given the focus on the EU case.

country has complete autonomy to define its fiscal policy. This “status” should then be compared with the outcome expected from fiscal cooperation in order to access the advantages and disadvantages of changing fiscal rules. Thus, consideration of a non-cooperative scenario seems a necessary way to start, where both efficiency and equity issues are considered. The stability objective demands a wider view of a country’s economic situation and is outside the scope of this dissertation.

2.1.2 –The standard model of tax competition

The effects of different tax policies adopted by local constituencies to finance the provision of local public goods was raised by Tiebout (1956) when stating that the ability of individuals to “vote with their feet” by moving across jurisdictions would result in an efficient provision of these goods. Tiebout apparently solved the difficult problem of the efficient provision of public goods given that people tend to “free-ride” on their consumption. However, the efficient outcome of the Tiebout hypothesis is explained by the use of taxes that do not distort the behaviour of private agents and by assumptions similar to those of perfect competition models representing markets for private goods. Given its simplicity the model was widely criticized both in theoretical and empirical terms³. But despite its limited applicability Tiebout’s paper is the basis of the efficiency perspective that advocates jurisdictional autonomy in the taxation of factors of production.

How tax policy affects the investment behaviour of profit-maximizing firms was demonstrated by Jorgenson (1963) by assuming that firms invest up to the point where the marginal product of the capital stock (MPK) is just sufficient to cover the real user cost of capital. Tax policy impacts on the real user cost of capital in three different ways: By affecting real interest rates and by changing both tax rates and the rules of the tax system. In the first case a fiscal stimulus raises the real interest rate and crowds out investment. The other two cases, of direct relevance to tax competition, have an immediate impact on net profits. By lowering the corporation tax rate a government is effectively reducing the user cost of capital and increasing the firm’s desired capital stock, and thus investment, given that MPK can now be smaller. By changing the tax rules governments may allow firms to reduce the corporation tax burden. The

³ For a survey of the empirical literature on Tiebout’s model see Dowding and John (1994).

liberalization of the accounting rules on the depreciation rate of capital goods allows firms to deduct a higher value in the years where profits are higher. Investment tax credits, tax holidays, tax breaks, deferrals and so on also permit a reduction in the tax burden. Therefore, it is this wider concept, rather than a simple nominal tax rate, that is implicit throughout this dissertation and represents the role of tax variables in explaining capital location decisions in tax competition models.

Tax competition was initiated by Oates (1972) where the work of Pigou about the financing of public goods with tax distortions was mixed with an implicit criticism of the Tiebout model. Oates (1972, p. 143) states that if a jurisdiction increases its tax rate on capital, a mobile factor, then this change is expected to cause an outflow of capital to other jurisdictions with lower tax rates. This is seen by the literature as a positive externality because the positive effects for third parties from the change in tax policy are not considered by decision-makers. In the same way, if a jurisdiction decreases its tax rate, it is expected to cause a negative effect by attracting capital from other places. If there is competition for capital, countries or other jurisdictions tend to set their tax rates in a level that may be too low to ensure an efficient provision of public goods. The inefficiency exists because “... *local officials may hold spending below those levels for which marginal benefits equal marginal costs...*” (Oates, 1972, p. 143).

The “Tiebout hypothesis” made a comeback in the 1980’s and, since then, the literature has focused on the welfare effects generated by tax competition for capital or labour and on different scenarios of tax cooperation. The standard tax competition model is based on the assumption that countries want to attract capital in order to enlarge their production possibility frontier and investors want to maximize the return on their investments by lowering their tax burden. Thus, tax competition exists when countries, regions or states pursue active policies in order to attract capital, or other factors of production, from other places. The critique of Oates is now the main argument against tax competition when efficiency is the perspective considered. The criticism of the Tiebout’s hypothesis gave a foundation to the formalization of the standard model of tax competition by Beck (1983), Zodrow and Mieszkowski (1986) and Wilson (1986). Wildasin (1988) and Hoyt (1991) explicitly introduced strategic interactions between jurisdictions. Given that tax competition models have two opposing forces in the determination of tax policy, a willingness to reduce tax rates to attract capital and a

willingness to increase taxation to maximize the utility of residents through the provision of public goods, they will be presented separately.

2.1.2.1 – The effect of tax changes on capital flows

An example of tax competition can be shown using the following simplifications:

- a) A Nash competitive world economy, with two symmetric countries, has a fixed stock of mobile capital and a fixed stock of immobile labour in each country;
- b) Residents in both countries are the same in number and own equal endowments of labour and capital, so they can be normalized to one representative consumer (income distribution is not relevant);
- c) Production of a homogeneous private good (X) occurs in a competitive market, is a function of capital and labour $[F(K,L)]$ and exhibits constant returns to scale. Firms sell good X to consumers and to the government as an intermediate good for the production of a public good (G);
- d) Capital has a decreasing but positive marginal product, i.e., $F'(K) > 0$ and $F''(K) < 0$;
- e) A source-based unit tax on capital is the only source of revenue for the provision of the public good (G);
- f) Benevolent governments try to maximise residents' utility, that is, the consumption of private (X) and public goods (G). Each government chooses the capital tax rate, the strategic variable, to compete for the mobile factor given the tax rate chosen by the other country

Figure 2.1.2.1: 1, built on Hindricks and Myles (2004), shows this world economy of two countries, for e.g. Germany and the UK. Each vertical axis represents a country's marginal productivity of capital ($F'(K)$, Germany left and UK right) and the horizontal axis the fixed stock of capital that is distributed between the two countries. The $[r_g, r_{uk}]$ axis represents the net rate of return to capital (r), which is assumed to be the marginal productivity of capital less a unit tax rate (T). The free movement of capital looking for a higher net rate of return determines its allocation between the countries. In the initial equilibrium (point 9) the tax rate in both economies is the same (T_{g0} and T_{uk0}) and capital is equally split between the two countries, at K_0 .

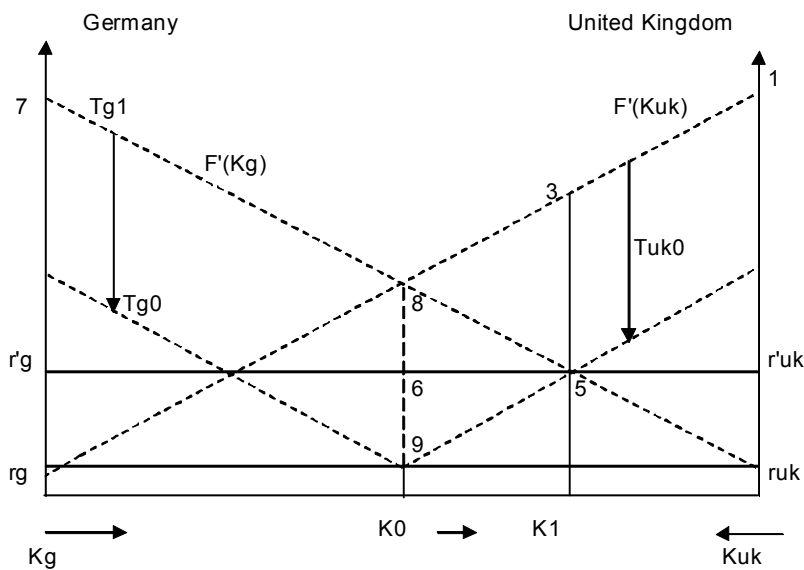


Figure 2.1.2.1: 1 - Efficiency effects of a tax change on capital flows

Now consider that Germany tries to attract capital from the UK by lowering its tax rate to $T_{g1}=0$ (the difference between the 2 countries becomes $T_{uk0} - T_{g1}$, the distance between points 8 and 9). The size of the reduction in the tax rate is defined given UK's tax policy and, ignoring for the moment the need to provide public goods, it represents Germany's maximization of the stock of capital. The economy moves to point 5 because some capital moves from the UK to Germany (from K_0 to K_1) up to the point when its rate of return is equal in both countries. Therefore, the model considers a marginal effective tax rate. After the change the UK will have a smaller stock of capital due to the decision taken by the German authorities and the world net rate of return rises due to the lower tax rate and the ability of Germany to influence the world capital market (it is now represented by the horizontal axis [$r'_g - r'_{uk}$]). **There is an inefficient allocation of capital because the additional units of capital employed in Germany have a lower marginal product.** Therefore, the world is worse-off by the inefficiency represented by the triangle [3-5-8]. In the overall, the German economy is now better off by [8-5- K_1-K_0], at the expense of the UK economy. This is true even if it is assumed that all capital moved to Germany is owned by British investors and that its returns will be repatriated to the UK. The total welfare of the German economy would, in this case, increase only by [5-6-8]. A first conclusion from tax competition is that a country, such as Germany, can benefit from lower tax rates through the attraction of investment but these gains are made at the expense of other countries. However, the gains may be only temporary if there is any type of retaliation from other countries. So,

it is not certain that a country would compete through a tax instrument without considering the consequences of its policy.

In fact, and given that this is a Nash world, the UK is expected to react to this change by choosing its best response to maximize the capital stock given the tax rate chosen by Germany (ignoring again the provision of public goods). The optimal tax choice for the UK is to lower its tax rate to $T_{uk1}=0$ and a symmetric equilibrium is reached in point 8, in Figure 2. In this case both countries have the same stock of capital, tax rate and labour income and produce the same quantity of goods and services as in the initial equilibrium in point 9 (Figure 1). But the rate of return of capital is now higher than in the initial situation, at $[r''g, r''uk]$. The only difference to the initial equilibrium is that public revenue was “transformed” in return to capital **because there was a “race to the bottom” in tax rates and both the UK and Germany ended down with a zero capital tax rate.**

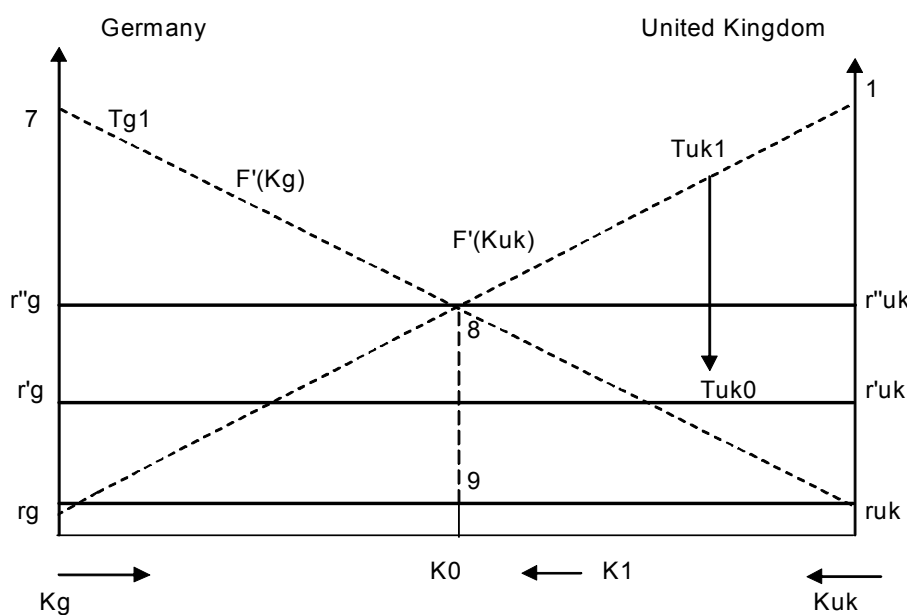


Figure 2.1.2.1: 2 – Race to the bottom

This is the expected result of tax competition frequently referred by the literature and presented in Frenkel et al (1991, p. 206)⁴. The difference with the initial situation is that both countries lost all their tax revenue in “exchange” for capital owners income (which is now $[8-r''g-K0-Kg]$ in Germany and $[8-r''uk-K0-Kuk]$ in the UK). Labour income is

⁴ The “race to the bottom” outcome depends on the existence of immobile sources of taxation when the provision of public goods is considered (2.2.1.2 below).

the same as in the initial equilibrium - $[7-8-r]^g$ in Germany and $[1-8-r]^uk$ in the UK. Therefore, only capital owners benefited from tax competition due to the increase in the rate of return. And public revenue was eliminated (or reduced when there are other sources of revenue) limiting the ability of governments to implement their policies.

2.1.2.2 – The provision of public goods

Now assume the economy at point 5 (Figure 2.1.2.1: 1), with capital in fixed supply divided between the two countries at K_1 . The initial excess burdens of taxation are $[8-5-3]$, in UK's perspective, and nil in Germany. The German authorities, willing to maximize residents' utility by increasing the provision of public goods, raise the tax rate from T_{g1} to T_{g0} (in the opposite direction of the example above) and the perceived excess burden in Germany increases to $[5-8-9]$. From a "world" perspective this change is favourable due to the disappearance of the inefficient capital allocation. The loss in the provision of private goods is compensated by the gain in the provision of public goods and the perceived excess burden is, in "world" terms, extra tax revenue for the UK. But the question is that, from a German point of view, the increase in the tax rate is perceived to cost more (the sum of revenue raised with the perceived excess burden) than the benefits (the provision of public goods from the extra revenue). In other words, the marginal cost of the increase in tax rates is perceived to be higher than the marginal benefit. It is this overstatement of the cost, in the presence of fiscal competition, that explains why countries end up with a sub-optimal level of public goods provision where, in equilibrium, the marginal cost of public funds is lower than the marginal benefit of public goods provision (Wildasin, 1989, p. 196).

A better explanation for the under provision of public goods is the fact that decision makers in each country perceive an elastic reaction of capital to a change in tax rates and, in order to avoid a reduction in capital supply, tend to set sub-optimal tax rates. The inefficiency can be shown from the optimal condition for the provision of public goods, obtained by maximizing the utility of residents of one country with respect to the tax rate and subject to the public and private budget constraints and the international capital market condition ($F'(K_i) - T_i = r$, where i is the country considered – Zodrow and Mieszkowsky, 1986). U_g / U_x are the ratio of marginal utilities of public and private goods consumption and E_k is the elasticity of the supply of capital to a country

with respect to its tax rate. Efficiency is achieved when government sets a tax rate level where the ratio of marginal utilities is one ($U_g / U_x = 1$) and equal to the marginal cost of public funds (MCPF). The MCPF is represented by the right hand side of equation (1.1) and depends both on the level of taxation and on the effect of a tax rate change in the stock of capital (dK / dT).

$$U_g / U_x = 1 / [1 + E_k] \quad (1.1)$$

with $E_k = dK / dT * T / K$

and given $dK / dT = [1 / F''(K)]$, obtained by totally differentiating the international capital market condition with respect to the tax rate,

$$E_k = T / K * [1 / F''(K)] \quad (1.2)$$

is always < 0 because $F''(K) < 0$ (capital is assumed to have a decreasing marginal product)

As long as E_k is different from zero the utilities obtained from the consumption of an additional unit of public and private goods are also different. Given that E_k is negative, the cost of provision of an additional unit of public good in terms of lost consumption of private goods is higher than 1 and, therefore, equilibrium is obtained with sub-optimal provision of public goods.

This inefficient equilibrium is implicit in Figure 2.1.2.1: 2 above, at point 8, where the “transformation” of tax revenue in return to capital prevents the utility maximization of consumers. That is, by assuming that the marginal revenue is used on the provision of public goods, the lower tax rate on capital reduces this provision. Therefore, a coordinated increase of the tax rate in the two countries would improve their welfare. Figure 1 below, taken from Wilson (1991), shows more clearly this sub-optimal and the optimal equilibriums.

In Figure 2.1.2.2: 1 X and G are, respectively, private and public goods and curves ww' and cc' represent, respectively, the production and the consumption possibility frontiers from a single country (UK or Germany) perspective. Per assumption each unit of output

from private firms can be transformed into one unit of the public good and thus the curve $w w'$ has a slope of -1 , which is the marginal rate of transformation. The curve $c c'$ has a higher slope when it crosses $w w'$, as it is shown in equation 1 above ($U_g / U_x > 1$), provoked by a consumption distortion in favour of private goods. This is due to the perceived effect of changes in taxation presented above. Therefore, when there is tax competition the equilibrium is inefficient and it is represented by $[x^* g^*]$ (equivalent to point 8 in Figure 2.1.2.1: 3). Here, there is an under provision of public goods in relation to the optimal point, O , where an indifference curve with higher utility is tangential to the production possibility frontier.

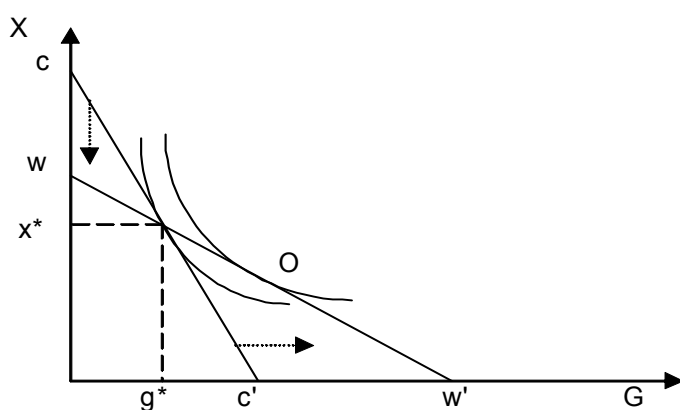


Figure 2.1.2.2: 1 - Sub-optimal and optimal equilibrium

The figure also shows that both countries would be better off if they move to O by raising its tax rates in a coordinated way and by eliminating the consumption distortion. If there is tax harmonisation capital flows are not induced, the misallocation of capital does not arise and there is no wrong perception about the effect of tax changes. The locative efficiency is achieved, given taxes available, whenever the German and the UK tax rates are equal, from zero to the maximum possible capital tax rate, because the excess tax burdens are not relevant from a world perspective given that the total tax base is fixed and the common tax is levied with no distortions. However, in order to have an efficient provision of public goods it requires a certain amount of tax revenue (dependent on population preferences), and as long as the tax rate increases there is also a reduction in the consumption of private goods (through the owners of capital given its lower after tax rate of return). So, the optimal tax rate will depend on the utility function of residents in each country and their desired quantity of public and private goods. Tax revenue should be sufficient to provide the optimal quantity of public goods and only at

that level is the equilibrium efficient. In Figure 2.1.2.2: 1 this is in point O, where both the UK and Germany would be located in a superior indifference curve.

This is, from a neo-classical perspective, the main theoretical criticism against tax competition and, simultaneously, the main argument for tax harmonization between countries in an economic area such as the EU (tax cooperation is further developed in 2.2.5). The above example of inefficient equilibrium with a finite number of regions was presented in Wildasin (1988). Zodrow and Miezowsky (1986) and Wilson (1986) have presented the same result for an infinite number of regions or countries. Hoyt (1991) showed that the bigger is the number of countries in the world economy the larger is the amount of capital attracted when one jurisdiction changes its tax rate, the greater is the under-provision of public goods and the lower is the utility in equilibrium.

2.2 - Extensions of the standard model

The standard model is very simplistic given that it relies on a large number of assumptions that are mere simplifications of the real world where firms, consumers and governments operate. Some of the extensions of the standard model and the remaining approaches, namely the political economy view (2.3) and the new economic geography perspective (2.4), are based on the assumptions of the public finance literature. Throughout these chapters the assumptions will be relaxed and the model will become more representative of the “real world”.

The first assumption is the setting of the standard model, a Nash world. The literature presents other approaches that disputes its main findings and considers that tax competition results in an efficient outcome. A Tiebout-type model of competition for firms is presented in Oates and Schwab (1991) where each jurisdiction acts like a private firm in a competitive market setting. Local jurisdictions compete by lowering tax rates while providing a public input to corporations and, in return, expect to enlarge its capital stock so that their residents may benefit from higher wages. They are “price takers” in the sense that the rate of return on capital is taken as given by the market. Jurisdictions also provide a local public good for residents and the provision of both public goods is financed by two taxes. The tax levied on corporations is equal to the

cost of the used public inputs and, in the same way, the tax on residents is equal to the cost of the public goods they consume. So, they are benefit taxes (acting like a marginal-cost price for public goods provision) and the model has an efficient outcome similar to that of a competitive market. Both firms and individuals choose their location based on the local public goods provision and the correspondent taxes, and consume the public goods up to the point where the sum of marginal benefits is equal to the marginal cost of provision to society.

The model is presented as a benchmark for local tax competition for two reasons. First, it is assumed that redistribution policies must be fulfilled at a national level, or the model loses its strength. That is, it can only be applied to tax competition between countries if redistribution policies may be settled at a supranational level. But even if this is the case, the second reason, the existence of market imperfections, rules out its applicability to countries. Oates and Schwab recognize the existence of market imperfections but consider that these are only relevant at a national level. For instance, strategic issues are considered not as relevant at a local level as at a national level and local jurisdictions are assumed not to have an effective market power. Moreover, although there is imperfect information about taxes and expenditure, corporations are expected to consider local public policies when choosing a place to locate, as happens with households. Finally, externalities may be “corrected” by matching grants from an upper administrative level and the mobility of the factors of production is not a problem as long as local governments use benefit taxation and do not try to extract extra revenue.

The assumption of the Oates and Schwab model are too restrictive. There are several reasons to consider that the findings of this model do not dispute the findings of the standard tax competition model. A first reason is benefit taxation and the commitment by governments. Local governments are supposed to keep unchanged their tax policies after firms invest in the recipient jurisdiction. But governments do change, in ideas and in representatives, and at a local level there is also a temptation for governments to pursue policies that demand extra revenue on top of benefit taxation. Another problem is the non-relevance of strategic issues. This is also questionable given that local governments may pursue active tax policies in order to increase their budget or to attract population. Therefore, these two reasons and the inapplicability to countries are sufficient to justify the prevalence of the standard model and its findings.

2.2.1 - Factors of production

2.2.1.1 - Perfect capital mobility

Capital is considered, in most of the tax competition literature, to be perfectly mobile (moving in the direction of the highest net rate of return). This means that capital does not have any obstacles to its movement but this assumption is very restrictive if it is considered that even inside an economic union, such as the European Union, capital mobility is not totally costless due to several sorts of barriers (legal, cultural, etc.).

Furthermore, the economic literature has presented signs of imperfect mobility of capital. These include the existence of real interest rate differentials across countries, the high correlation between domestic savings and investment, the fact that domestic capital ownership still prevails (Feldstein and Horioka, 1980, and Mishkin, 1984) or imperfect product substitution (Gravelle and Smetters, 2001). Gordon and Bovenberg (1996) explain the lack of perfect mobility with the existence of asymmetric information across countries.

The perfect mobility assumption was firstly relaxed by Lee (1997) but with no significant change in the main findings of the literature, namely the under provision of public goods predicted by the standard model. The main change is that **imperfect mobility reduces the effects of tax competition** given that capital does not flow so easily to other jurisdictions (Eggert and Haufler, 1998, Sorensen, 2004)

2.2.1.2 - Labour immobility and in fixed supply

These are strong assumptions on labour supply. When a labour tax is added to the model the capital tax rate goes down to zero due to tax competition and labour bears all the burden of public goods provision because it is immobile and in fixed supply (2.2.2.4 below). If these assumptions are relaxed and if residents of a country may choose between labour and leisure or if labour may move to other jurisdiction, then its supply is no longer fixed. The consequence is that the fiscal externality still exists, although its effects are felt differently, and tax competition is inefficient.

The reason, exposed by Bucovetsky and Wilson (1991), is when the labour tax is increased in a country to compensate a zero tax rate on capital and the distortion disappears from the capital market, there is still an outflow of capital and its respective fiscal effect because both the labour supply and, consequently, the demand for capital in that country are reduced. Labour supply is reduced due to the higher labour tax, meaning that some residents either choose to stay out of work or to move abroad. Given this reduction in the use of labour, the economy demands less capital in order to maintain the initial relative levels in the use of factors of production (assuming no technological or production changes in the short term). This reduction in the demand of capital maintains the fiscal externality because it provokes a flow of capital to other countries and, due to the government's perception of this outflow, the labour tax will not be sufficiently raised to allow for an optimal provision of public goods. In other words, if the marginal tax revenue is used for the provision of public goods, this provision will be inefficient.

Thus, the “replacement” of a capital tax by a labour tax does not avoid the existence of a fiscal externality and does not change the results of the standard model. The difference, in this case, is that the fiscal effect does not arise from a change in the capital tax rate but from a distortion in the labour market arising from the labour-leisure choice and/or labour mobility (Eggert and Haufler, 1998). This conclusion is also valid for consumption taxes (Gordon, 1986) but cannot be applied to a lump sum tax on residents, where distortions are absent.

2.2.2 - Taxation⁵

2.2.2.1 – Source-based and host country taxation

The standard model uses a source-based tax on mobile capital, which means that only the income earned within a jurisdiction is taxed. However, this source-based tax distorts investment location decisions because it is an incentive for capital owners to invest

⁵ The tax competition literature seldom clarifies what capital is being taxed but it may include corporate income from short and long term flows such as profits, interest, dividends and other earnings.

abroad when income is taxed with a lower rate. This is the source of the inefficient allocation of capital predicted by the model.

There is an alternative possibility, **residence-based taxation**, where capital is taxed in the same way independently of its location. In this case single-rate taxation does not provoke misallocation of capital because there would be no incentive for capital to move abroad. **The outcome of the tax competition model becomes efficient given taxes available** (Razin and Sadka, 1991, Mintz and Tulkens, 1996). This result is derived from Diamond and Mirrlees (1971), where a residence-based tax on capital is advocated. They show that for the marginal rate of substitution between two factors of production to be equal for all firms it is required that capital taxes are the same independently of its location. Thus, from an optimal tax theory perspective a residence-based tax on capital should be adopted and not a source-based system.

However, residence based taxation is very difficult to implement because it requires close cooperation among countries in the exchange of information about the income obtained by non-residents (Giovannini, 1990, Keen, 1993). The country where a non-resident obtains income is not able to tax it and thus has an incentive to hide information or to cheat in order to keep investment within its boundaries.

Furthermore, the existing systems to avoid the double taxation of foreign profits complicate the analysis even without changing the main finding of the standard tax competition model. When a company wants to invest abroad both the tax rates of the home country (where the head office is located) and the host country (where the new investment will be located) are relevant if profits are taxed in the country where they are made (the source based system) and the parent company wants to repatriate retained profits. In this case the system of taxation of the home country may make a difference. There are two main systems, tax exemption and tax credit, and both aim to avoid double taxation of foreign profits (Keen, 1993). Tax exemption is a source based system where profits obtained abroad are not taxed in the home country. Tax credit countries, on the other hand, allow for the deduction of taxes paid abroad in the home tax bill. There is a limit to these deductions and, usually, the amount deducted can never be higher than the home tax liability. In practice, if a company does not have profits at home it is less keen to repatriate profits from abroad because the correspondent tax payments cannot be

deducted. This is permitted in some countries by the use of a tax deferral, where profits are only taxed in the home country when repatriated. So, companies tend to repatriate profits to their home country when they can totally or partially eliminate the home tax payments.

2.2.2.2 - Tax rates have the exclusive aim of attracting capital

Tax competition literature implicitly assumes that tax rates are determined with the sole aim of attracting capital in order to enlarge the production possibility frontier or, at least, to maintain a capital base. But corporate tax rates may be established for other reasons. Corporate tax revenues in developed countries were stable in the last 20 years because the effect of a decrease in tax rates was cancelled out by the broadening of the tax base, mostly through a less favorable depreciation regime (Devereux et al, 2002, p. 459). This may be a way of keeping stable or even increasing the level of revenue obtained from corporate taxation in order to assure the financing of public expenditure.

Slemrod (2004), however, considers domestic influences over the determination of capital taxes and does not find empirical evidence of a direct relationship between its tax rate and the revenue needs of governments. But there are other domestic determinants that seem to be relevant for the level of capital tax rates:

- Avoids the reclassification of labour income as capital income in search for a lower tax rate. If capital tax is lower, capital income would be transferred to shareholders as dividends or in other way in order to avoid labour income taxation. So, higher capital tax rates are usually associated with higher top individual tax rates in order to prevent income shifting (Gordon and Slemrod, 2000).
- It is a way of taxing economic profits or rents and transfer revenue from foreign owned domestic firms to domestic consumers (Mintz, 1996, Huizinga and Nielsen, 1997).
- For administrative efficiency it is thought to be better to collect taxes at the corporation level than at the shareholders'. Therefore, it is expected that corporate income taxes are higher in countries where there are more administrative difficulties in collecting taxes from individuals.
- When government activities result in cost-reduction benefits for firms, these should pay them through user charges. When these charges cannot be collected directly, the

corporation tax may be a good substitute. So, variations in corporate taxation can be associated with cost-reduction benefits from public activities.

- Capital tax should be higher in countries where the egalitarian sentiment of the population is prominent because, in voters' eyes, it is usually associated with tax progressivity. Equity in taxation between labour and capital may be an internal determinant due to pressure from voters.
- Corporation tax is a "price" to pay for the limited liability that shareholders enjoy in the event of bankruptcy.

Besley and Case (1995) present a further reason in a model of yardstick competition where jurisdictions are constrained in their tax policy options by comparisons, made by voters, with those of similar jurisdictions. Thus, a better understanding of the role of internal determinants of capital tax policy is needed because it seems that the attraction of capital in itself, as predicted by the tax competition model, does not provide a complete explanation of the level of capital taxes.

2.2.2.3 – Capital taxes finance the provision of public goods

The standard tax competition model was first presented in the context of local tax competition in the USA, where jurisdictions rely mainly on property taxation to provide public goods. But this does not happen in a country where other sources of taxation are available. Countries can rely also on several types of labour and consumption taxes and may even disregard capital taxation.

Frenkel et al (1991) added to the model a single-rate labour tax and assumed labour to be immobile and in fixed supply. The labour tax acts in a lump sum way and, therefore, has no distortions. When two jurisdictions engage in tax competition for mobile capital the outcome turns out to be different than the one presented in the standard model. Both countries end up with a zero capital tax rate, the "race to the bottom" outcome where capital flows stop, but there is an optimal provision of public goods totally financed by the labour tax. Thus, when a lump sum tax on residents is available in the model jurisdictions no longer need to tax capital to ensure an optimal provision of public goods. This result is optimal in terms of tax policy from a single country perspective. However, it is based on a strong assumption concerning the supply of labour and as

Bucovetsky and Wilson (1991) show the “replacement” of a capital tax by a labour tax does not avoid the existence of a fiscal externality.

Table 2.2.2.3: 1 - Tax competition and types of taxation

Taxes ↓ Taxes →	Source-based capital tax	Residence-based capital tax	Wage tax
Source-based capital tax	Inefficient (Oates, 1972, Zodrow and Mieszkowsky, 1986, Wilson, 1986).	Efficient given taxes available (Bucovetsky and Wilson, 1991)	Inefficient if labour is not in fixed supply (Bucovetsky and Wilson, 1991, Eggert and Haufler, 1998)
Residence-based capital tax		Efficient given taxes available (Razin and Sadka, 1991)	Efficient given taxes available (Gordon, 1986)
Wage tax			Inefficient if labour is not in fixed supply (Bucovetsky and Wilson, 1991)

Bucovetsky and Wilson (1991) also allowed governments to use together a source based and a residence based capital tax on investment and savings and found that the equilibrium of the model is efficient given the tax instruments available. This is because there is no distortion in the labour market and in the capital market given that the residence-based tax “disincentives” capital to move abroad. The same efficient result in the provision of public goods can be derived from Gordon (1986) when a residence-based capital tax and a wage tax are used. Therefore, **the existence of more than one tax source turns the model efficient if and only if residence-based taxation is used or a lump sum tax is available.** Table 2.2.2.3: 1 presents a summary of the results reported in the literature.

2.2.2.4 - Tax rates are the sole instrument to compete for capital

The literature implicitly assumes that tax rates represent the complete fiscal burden for capital. There are, however, other instruments that can be used as a way to attract mobile factors of production. These can be divided in two groups: tax related instruments (see 2.1.2.3 above) and other type of fiscal or non-fiscal variables.

In the first group there are a number of variables besides taxation that have direct influence on the tax burden. More strict depreciation rules may counterbalance the reduction in the corporation tax rate as shown by Devereux et al (2002). Tax holidays or

a temporary reduction in tax rates are used by Bond and Samuelson (1986) as a way for a government to signal the attributes of its jurisdiction.

Some of these models have a different result than the standard model due to very restrictive assumptions and the reliance on the existence of initial distortions that are reduced with tax competition. They do not dispute the main findings of the literature but give some new insights with reference to potential welfare-enhancing outcomes of tax competition. Garcia-Milá and McGuire (2001) present a model, based on Oates and Schwab (1991), where corporations are attracted with a tax break that “pays” for the benefits brought in the form of concentration economies. Black and Hoyt (1989) model two cities bidding, through a subsidy, for a large firm and its workers. The outcome of the model is efficiency enhancing in social terms when the existing distortion in the provision of public services is reduced by the bidding (through the reduction of the average cost of providing public services). Finally, Janeba and Wilson (1999) and Janeba (1998) model tax competition in an international trade setting. In both cases the efficiency enhancing outcome of tax competition is obtained through the elimination of wasteful subsidies.

A second type of instrument includes the provision of public goods, especially public inputs. When a country has a higher level of public expenditure (and this higher level means better public inputs or favorable conditions for the development of economic activity - like better roads and infrastructures), it may have a comparative advantage over other countries in attracting corporations or foreign direct investment (Oates, 1995).

Wildasin (1988) shows that fiscal competition among a small number of jurisdictions obtains different Nash-equilibriums depending on the chosen strategic variable: tax rates or public expenditure levels. However, results are not qualitatively different from the literature and for a sufficient large number of jurisdictions the two Nash-equilibriums are the same. Keen and Marchand (1997) show that competition for capital with public expenditure results in an overprovision of business related public inputs and an under provision of non-business related public outputs. Finally, a different way of competing addressed by the literature was presented by Oates and Schwab (1988), where

inefficiently lax environmental policies are used as a strategic variable to attract investment.

2.2.3 – Countries, firms and consumers

2.2.3.1 – Country symmetry

The symmetry of countries is a clear simplification of the real world. Different country size means asymmetric tax competition where decisions have different economic impacts. A large country is characterized by a higher number of residents, the ability to change the international rate of return on capital, to engage in strategic competition or by facing a finite elastic supply of capital with respect to its capital tax rate. A small country, on the other hand, does not have these characteristics because it takes the international rate of return as given and faces a much more elastic supply of capital. Theoretically, the smaller the country in relation to the rest of the world the higher the elasticity it faces. In an extreme case, it faces an infinite elastic supply of capital.

The symmetry assumption was firstly relaxed in the literature by considering that a large country has more residents than a small one and thus by using the capital-labour ratio as a determinant variable in tax competition (Wilson, 1991, and Bucovetsky, 1991). To see this consider the standard model with two countries where, for example, the UK is a large country with a share of total population S_{UK} higher than the share S_P of, say Portugal, a small country. These economies have the same characteristics of the standard model (see 2.1.2 above) except that K_{UK} and K_P are now capital-labour ratios for both countries and $F(K_{UK})$ and $F(K_P)$ represent the output produced per worker when the capital-labour ratio is K_{UK} and K_P , respectively for the UK and Portugal. Consider also that residents use private income only to buy private goods and that public income from the tax on capital is exclusively used to provide public goods.

The difference in size translates into the fact that decision makers in the UK have a perception of capital being less elastic in reaction to a change in tax rates in comparison with the Portuguese perception. This can be seen from the expression of the variation in the capital-labour ratio with respect to a tax rate change (Bucovetsky, 1991):

$$dK_i / dT_i = S_j / [S_p * F''(K_{uk}) + S_{uk} * F''(K_p)] \quad (2.1)$$

where i is one country and j the other. The elasticity of the supply of capital per capita with respect to the tax rate for both countries is $E_k(p)$ and $E_k(uk)$ for Portugal and the UK, respectively⁶:

$$\begin{aligned} E_k(p) &= dK_p / dT_p * T_p / K_p = \\ &= S_{uk} * T_p / \{ K_p * [S_p * F''(K_{uk}) + S_{uk} * F''(K_p)] \} \end{aligned} \quad (2.2)$$

$$\begin{aligned} E_k(uk) &= dK_{uk} / dT_{uk} * T_{uk} / K_{uk} = \\ &= S_p * T_{uk} / \{ K_{uk} * [S_p * F''(K_{uk}) + S_{uk} * F''(K_p)] \} \end{aligned} \quad (2.3)$$

If $K_p = K_{uk}$ and $T_p = T_{uk}$ then, $E_k(p) > E_k(uk)$ given that $S_{uk} > S_p$

Therefore, due to differences in size countries have a different elasticity of capital to its rate of return, and indirectly to tax rates, being the elasticity in the Portuguese economy higher than in the UK. Due to this difference in the elasticity countries are expected to have different tax rates in equilibrium in a tax competition scenario, or a different level of public goods provision. Portugal ends up, in equilibrium, with a lower tax rate because for a similar change in taxation more capital, in relation to the size of its economy, is suppose to flow than in the case of the UK, but with a lesser impact on the international rate of return on capital.

A first difference between the asymmetric and symmetric cases is that given the lower tax rate in Portugal, its capital-labour ratio becomes higher than it would be in the symmetric case presented above due to the more than proportional attraction of capital. In a neo-classical economy this may be translated into a higher productivity of labour or, in other words, a better remuneration of this factor of production than in the symmetric case. But the reduction in the tax rate also means a reduction in tax revenue and, therefore, in the provision of public goods. So, as in the symmetric case presented above, not only is there a misallocation of capital but the provision of public goods in

⁶ The elasticity for the UK is obtained by totally differentiating the international capital market condition $F'(K_{uk}) - T_{uk} = F'([K^a - S_{uk} * K_{uk}] / S_p) - T_p$ with respect to T_{uk} where $K^a = S_{uk} * K_{uk} + S_p * K_p$ is the world capital-labour ratio. The same applies to Portugal.

the small country is inefficient in equilibrium. In this sense, the consequences of the asymmetric equilibrium are not qualitatively different to the symmetric example given above. The remaining gains and losses of the small country case are similar: capital owners are benefited and the state loses revenue⁷.

But although the standard model is still inefficient with the introduction of asymmetry, there is a difference if the outcome is compared with the results presented in 2.1.2. The advantage of being small is further extended to the fact that residents in the small country may be better off even when in comparison with the situation of efficient tax integration. Considering the private (X_p) and public (G_p) budget constraints for the small country (Bucovetsky, 1991) it is seen that the level of public goods provision depends both on the tax rate and on the stock of capital. The smaller (less units of labour) is the country competing for capital the smaller is the tax rate T_p in equilibrium but the larger is the attraction of capital per unit of labour. A reduction in the tax rate in a very small country attracts a very small amount of K_p in absolute terms but a proportionally higher amount is needed in order to equalize its rate of return with the world's due to the higher elasticity of capital to its tax rate. It can be seen from equation (4) that an increase in the stock of K_p increases the provision of private goods as long as its marginal productivity is positive. Therefore, **a sufficiently small country has a proportionally higher provision of both private and public goods and their residents may be better-off in a tax competition situation** if the difference in size or in the elasticity between the small and the large country is big enough⁸.

$$G_p = T_p * K_p \tag{3}$$

$$X_p = [F(K_p) - F'(K_p) * K_p] + r * K^a \tag{4}$$

The questions, then, are how small should be a country and how much can it benefit from tax competition. Eggert and Haufler (1998) conclude that in a simple world of two countries the small one has a potentially large gain. Depending on the size of the country and on the elasticity of substitution between public and private goods, it varies

⁷ For a large country tax competition is never advantageous in efficiency terms (Wilson, 1991) given that it is always better off with tax cooperation.

⁸ The advantage may disappear with increasing returns to scale (Burbidge and Cuff, 2005).

between 1.3% and 8.1% of an utility increase (which stems from an higher capital-labour ratio and is equivalent to per capita income changes – p. 347) when tax competition is compared with tax harmonization. These gains may be undervalued because the size of the small country considered is in the range of 25% to 5% of the world population, a quite large value if it is compared, for example, to 2% of Portugal in the EU population. But they may also be reduced when the existence of transaction costs or imperfect capital mobility, a world of multiple countries and multiple tax instruments are considered (Eggert and Haufler, 1998, Table 2, p. 346).

2.2.3.2 – Countries attract capital by lowering tax rates

Bruckner and Saavedra (2001) and Carlsen et al (2005) derive reaction functions and present empirical evidence of competition with average effective tax rates between local jurisdictions. But at a country level this is more difficult. Devereux et al (2008) tried, since 2000, to find evidence of tax competition by estimating reaction functions for EU countries. The study has had many versions and was able to present evidence for statutory and marginal effective tax rates, but not for average effective tax rates, those that are regarded as relevant for location decisions (chapter 3, section 3.3.2).

Even ignoring reaction functions, it is not certain that countries are pursuing tax policies with the exclusive aim of capital attraction, as shown in 2.2.2.2 above, and this is not a guarantee of an inefficient provision of public goods.

2.2.3.3 – Markets, firms and consumers

The standard model does not consider any type of inefficiencies in markets within countries. Agglomeration externalities will be considered below, in 2.4.2. But Mintz (1996) and Huizinga and Nielsen (1997) show the source-based tax regime to be an optimal way to tax capital in the case of foreign-owned rents. The tax is not only non-distortive but the burden falls on non-residents and allows a transfer of revenue to domestic consumers.

Firm heterogeneity (only some firms receive fiscal incentives) is included in Han and Leach (2008) where lower mobility, due to assumed significant productivity losses, may

prevent the misallocation of capital in a tax competition setting. Frenkel et al (1991) considered the case of consumer heterogeneity without any change in the results presented, that is, tax competition is efficient if there is an immobile tax source.

2.2.4 – Tax cooperation

The results obtained by the public finance literature on tax competition consider the disadvantages to the real world versus the “optimal world” of tax integration, where all countries, independently of their size, would have the same tax rates and capital would bear the same tax burden. Tax integration in the entire world would avoid efficiency losses in the allocation of capital or other factors of production and in the provision of public goods and all countries participating, except very small ones, would benefit from it.

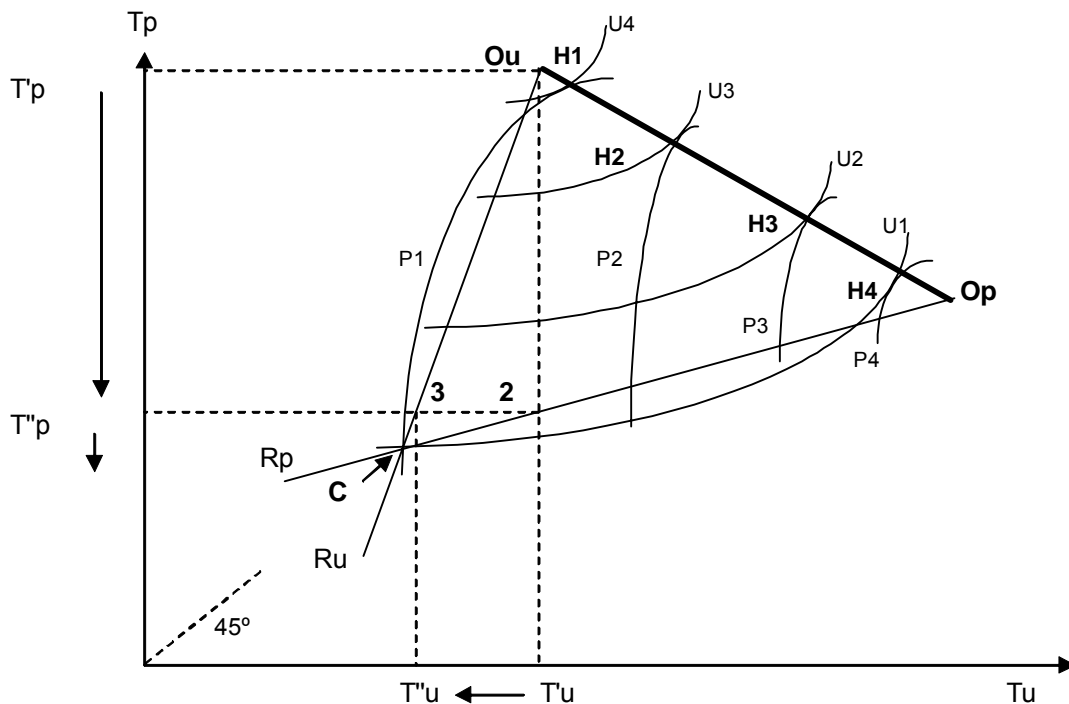


Figure 2.2.4: 1 - Tax cooperation versus tax competition in the world economy

The “world” perspective is shown in Figure 2.2.4: 1 where Portugal and the United Kingdom are assumed to be symmetric and are represented in a Hamada diagram. In the axis, T_p and T_u represent the tax policy of both countries. Their objective is to maximize the welfare of its residents and this depends on the level of tax rates. R_p and R_u represent their reaction functions, that is, the level of each country’s tax rate that

allow to maximize welfare given the other country's policy. U and P are, respectively, the indifference curves for the UK and Portugal and U_4 represents a higher welfare to the UK than U_1 (the same applies to Portugal). Suppose that the initial policies of both countries are represented by O_u . It represents a determined level of tax rates in Portugal (T'_p) and in the UK (T'_u), and is located on UK's reaction function. That is, given the Portugal's tax rate the UK cannot improve its welfare. But policy makers in Portugal may decide to lower the tax rate to T''_p and, given the new outcome (point 2) in a higher utility curve, to increase its residents' welfare. UK residents are now in a lower curve and thus worst-off. But now the UK can improve its situation given Portugal's tax policy (point 3) and further changes in the tax policies of the two countries would end in a Nash equilibrium represented by C .

A cooperative solution would improve the welfare of both countries in comparison with this non-cooperative outcome. This is represented by the contract curve O_p-O_u , where all solutions between points H_1 and H_4 are simultaneously preferable for both countries because they would be located in a higher indifference curve. That is, in theory **all countries in the world, except very small ones, could benefit by increasing their capital tax rates in a coordinated way**. The outcome on the contract curve would depend mainly on the bargaining power of each party and the result can be generalized for a world of many countries (Sorensen 2000, 2004).

The final outcome depends also on close cooperation in tax-related policies because national authorities may relax its audit commitments against tax evasion providing scope for businesses and individuals to lower their real tax rate. Cramer and Gahvari (2000) consider a tax competition model with tax evasion and conclude that tax coordination is only effective if there is also a coordination of audit strategies. Otherwise it may be a bad policy because it can make all of them worse-off and it may cause "honest" countries to become "evading" ones.

But two further questions need to be addressed when assessing the effects of tax cooperation. First, in spite of the advantages of coordinating taxes all over the world it is very difficult to reach an agreement on tax policy among almost two hundred different countries. Therefore, tax coordination is more feasible for a smaller and closer group of countries such as the EU given the level of economic integration already

achieved by its members. A question, then, is how important are the gains from tax cooperation, that is, what is the size of the inefficiency provoked by tax competition, and how would these gains or losses change with a reduced number of countries participating in the process. The size of the gains was considered in some studies and their values are presented in Table 1.

Table 2.2.4: 1 – Simulation studies: gains from tax cooperation

Study	Key parameter / location	Gains from coordination
Wildasin (1989 - Table 1, p.204)	Demand elasticity for capital (USA)	0.07% - 1.44% of GNP
Parry (2003 - Fig. 4, p.47, 48)	Capital supply elasticity (USA)	0% - 1.65% of GDP
Sorensen (2004 - Table 4, p.1209)	Regional coordination (Europe)	0.03% of GDP
Sorensen (2004 - Table 5, p.1211)	Global coordination (World)	1.42% of GDP

Wildasin (1989) worked on the Zodrow-Miezkowsky tax competition model and presented a welfare loss from the under provision of public goods depending mainly on the demand elasticity for capital with respect to its gross return and on the demand elasticity for public goods. Using parameter values in line with empirical estimations the size of the welfare loss is about 0.2% of GNP. Parry (2003) further developed Wildasin’s estimates by looking at the inefficiency effects in a bloc of regions where the supply of capital is no longer fixed. He found that only under some circumstances the size of the fiscal externality may be significant. But with more reasonable values for the parameters the “welfare losses can be modest or quite small” (Parry, 2003, p. 49)⁹. Sorensen (2000, 2004) uses an elaborated model and an egalitarian welfare function to estimate the gains from tax cooperation when marginal public revenue is spent either in public goods provision or in income redistribution. If there is world coordination of tax policy among symmetric countries the benefit exceeds 1% of GDP. But in the case of regional tax cooperation in an economic space such as the EU the gains would be negligible. In the end, only in an idealistic integrated world would the gains from tax cooperation be meaningful. **The benefits in the EU seem to be very small.**

A second question arises because countries have different tax rates before cooperation is implemented. When harmonization is made with a level of taxes near the average of the countries involved, the general conclusion is that **countries with higher initial tax**

⁹ If Leviathan behaviour (see 2.3) or a “large” region is included in the model, the size of the externality becomes unimportant.

rates would benefit (in terms of a rise in its income) **while countries with lower ones would lose** (e.g., Fuente and Gardner, 1990). Small open economies, facing a higher supply elasticity of capital, are expected to benefit or lose more than the remaining countries. Regional tax cooperation is beneficial as a whole if the average value of the effective tax rate of the countries participating decreased after the coordination because they would benefit from the attraction of capital at the expense of the rest of the world. Table 2 present some simulation results for the EU. The fact that tax cooperation implies gainers and losers makes it only conceivable if there is some type of compensation or transfer from the first group to the second. If there is an overall gain for all countries those that are benefited may transfer part of the benefit to those who lose by harmonisation. But the snag is that it may be very difficult to get an agreement among the parties on the amounts to be transferred.

Table 2.2.4: 2 – Simulation studies on tax cooperation in the EU

Study	Measuring	Main beneficiaries		Main losers or gaining less	
		Country	Value	Country	Value
Bénassy-Quéré et al (2000 - Table 10)*	Change in FDI inflows	Spain	29% FDI inflow	Ireland	-45% FDI inflow
Bénassy-Quéré et al (2000 - Table 12)**	Change in FDI inflows	Denmark	63% FDI inflow	Spain	-88% FDI inflow
Sorensen (2000 - Table 5)***	Change in welfare	Nordic countries	0.53% GDP	Continental Europe	0.07% GDP
Gropp and Kostial (2001 - Table 5)*	Net change in FDI flows	Italy	0.87% GDP	Ireland	-1.33% GDP
Sorensen (2004 - Table 4)***	Change in welfare	Nordic countries	0.95% GDP	Continental Europe	0.03% GDP

* Harmonization equal to the average of statutory tax rates.

** Harmonization equal to the average of effective rates.

*** Coordination as a minimum capital tax rate endogenously determined by the model.

2.3 – The political economy of tax competition

The political economy literature addresses tax competition mainly via the Public Choice view.

2.3.1 – The Leviathan hypothesis

The Leviathan hypothesis, states that tax competition is beneficial because it acts as an opposite force to the rational temptation of elected representatives to increase its budget in order to assure re-election. It is focused on the political mechanisms through which fiscal decisions are determined. They are the result of choices on the part of both demanders (taxpayers/electors) and suppliers (elected representatives) of public goods

(e.g. the components of a public budget). In this scenario tax competition is advantageous because it drives down tax rates while elected officials wish to increase them in order to finance a higher level of public expenditure. The reason is that higher levels of public good provision tend to be associated with a more entrepreneur government and that usually fits well with voters' aims. While in most of the tax competition literature benevolent decision-makers try to implement fiscal policies with the aim of maximizing people's welfare, in Leviathan models the government acts like a non-benevolent "dictator" where its officials are supposed to maximize revenue or its own utility.

The first defenders of this argument were Brennan and Buchanan (1980) by proposing tax competition among jurisdictions as a substitute for constitutional rules to limit the ability of the "despot" (the elected representative when acting in the periods between elections) to use public funds from taxpayers in order to seek re-election. This competition would prevent each level of government from setting tax rates above those strictly necessary to guarantee public goods and services required by citizens. The central feature is that the costs of tax competition are lower than benefits obtained when the ability of elected representatives to raise taxes for electoral purposes is limited. Thus, Leviathan models regard tax competition as a problem of government size and do not dispute its inefficient outcome. In this context, Rauscher (1998) shows that, under benefit taxation, tax competition improves the efficiency of the public sector by taming Leviathan governments.

An example of the Leviathan hypothesis applied to tax competition can be shown by using the setting of the standard model. Assume the optimal equilibrium in a world of two countries, UK and Germany, is at point C, in Figure 2.3.1: 1, with tax rates T_{uk0} and T_{g0} , respectively. In point C the level of provision of public goods in both countries matches the preferences of the respective populations. In a Nash economy all *equilibrium* will be symmetrical so the problem of misallocation of capital disappears if countries are also symmetric as long as tax rates are equal. Thus, any unilateral change in tax rates would be Pareto worsening because individuals would not have their utility maximized. Now consider the elected representatives that seek reelection in the UK and in Germany. Without any constitutional limits the elected representatives can freely decide what is best to get reelected. If this is to maximize government revenue in order

to increase public spending, as predicted by the Leviathan hypothesis, taxes would be raised to T_{uk1} and T_{g1} and the equilibrium would be at point L, where all capital income is transferred from private investors to the public budget. This new equilibrium is, given the initial situation of optimality, achieved with an overprovision of public goods, and so it is inefficient.

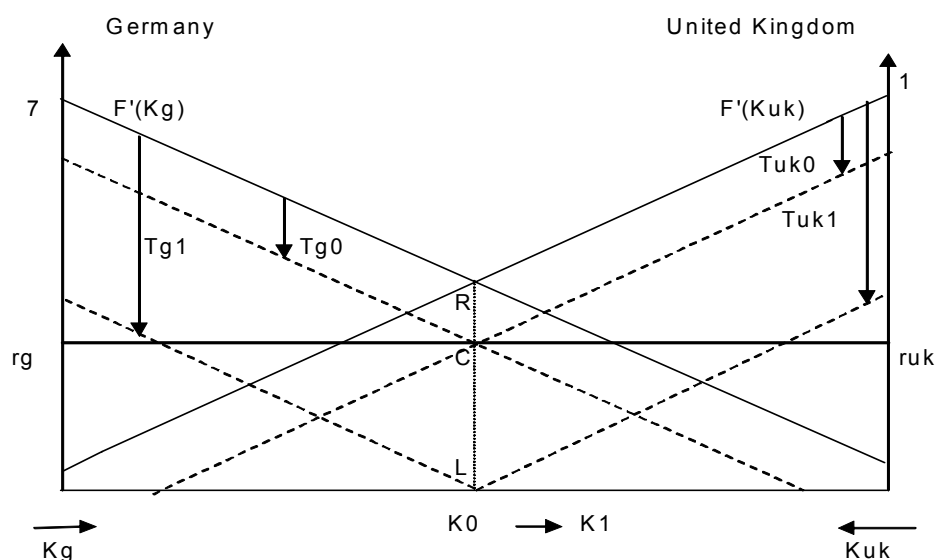


Figure 2.3.1: 1 - The Leviathan model

Consider now the new *equilibrium*, at point L. Given this situation, the public choice school argues that the existence of tax competition is Pareto improving. Suppose that the two countries cannot engage in collusion. They have to diminish tax rates in order to be competitive in the attraction of capital while considering their aim of reelection. The outcome can be anywhere from L to R, where, in an extreme case, a zero tax is levied in both countries (the “race to the bottom”). Even in this extreme situation there would be an improvement over L, given the population preferences, but with an under provision of public goods. The inefficiency is smaller in the Leviathan case, as can be seen in the graph by the distance between point C and points L and R. Thus, tax competition is positive in the sense that it is a brake to representatives’ temptation to maximize their own utility at the expense of country’s populations’ utility.

Edwards and Keen (1996) present a model with a double objective function for the government: The maximization of its own consumption (Leviathan term) and that of the representative citizen, which utility is derived from the consumption of public and private goods (benevolent term). If there is tax competition and capital is mobile, the

fall in tax revenue may be offset by a decrease in wasteful consumption by the government or by lower spending on public goods. In the first case the representative citizen gains because there is lower waste of funds by government and more private goods may be bought. But in the second loses because the loss in utility from lower public goods consumption is bigger than the gain obtained from the additional consumption of private goods. Therefore, the outcome depends on which objective is more important for policymakers.

However, Cullis and Jones (1987) provide a detailed analysis of the Leviathan hypothesis and conclude that there is a tendency to overemphasize the “bad” procedures of government activity. This is explained by, among other things, deficiencies in measuring the size of the public sector, different views on what are an excessive government intervention and a tendency to exaggerate bureaucratic inefficiencies. Furthermore, the public choice approach also gives too much weight to the idea that government officials act like “despots” in the periods between elections, when they are mainly interested in assuring reelection and tend to underestimate individuals’ wishes by avoiding their benevolent role. That is, all kinds of pressures governments suffer throughout the period in office and coming from newspapers, strikes or other, are ignored. It also assumes that an increase in public spending is mostly welcomed by voters, who suffer a fiscal illusion when outweighing its benefits against its costs. Therefore, the potential advantage of tax competition presented by the Leviathan hypothesis may be exaggerated and in reality governments have diminished powers to collect taxes from mobile capital (Swank, 1998, calls it “diminished democracy”).

The empirical evidence on the Leviathan hypothesis is not conclusive. The public choice school expects a more centralized government to spend a higher proportion of public money and several studies using US state or local data reach this conclusion (Giertz, 1981, Wallis and Oates, 1988, or Zax, 1989). But others reject it (Oates, 1985, Nelson, 1987, Forbes and Zampelli, 1989, Anderson and Van den Berg, 1998). However, as Oates (1989) noticed, all empirical studies using country data do not find evidence of Leviathan. Therefore, it is unlikely that fiscal competition acts as brake to revenue-maximizing governments at a country level. This **questions the existence of a relationship between fiscal competition and the size of national governments.**

2.3.2 - Other contributions

Frey and Eichenberger (1996) present an original system of Functional, Overlapping, Competing Jurisdictions (FOCJ) where the advantages of competition (for capital or any other factor or goods and services) arise from the reduction of economic and political distortions by popular referenda and competitive federalism. Wilson (2001) presents a model where tax competition is not only welfare improving but it also increases government size. Tax rates are used to finance public inputs whose provision raises the productivity of capital and, thereby, attracts further units of capital. This not only may increase tax revenue but may also reduce the cost of public input provision from the perspective of government officials. Given the lower effective marginal cost of productive public expenditures residents increase their demand for them leading to a larger government.

2.4 - The new economic geography viewpoint

A third approach to tax competition, new economic geography (NEG), uses the framework of international trade models where production has increasing returns to scale and there are positive transaction costs. These models were developed by considering agglomeration economies (concentration of a mobile factor in one region) and their outcome present a different argument against tax integration between countries with different levels of development.

2.4.1 - The standard model

The aim of the NEG literature is to explain the spatial distribution of economic activity, namely why is it more agglomerated in some areas than in others. It has evolved from trade models with imperfect competition, developed in the 1980's to explain intra-industry trade (Krugman, 1980, Helpman and Krugman, 1985), to formal representations of spatial economic agglomeration (Krugman, 1991, Fujita et al, 1999). These differ from the public finance approach in the sense that primarily tries to understand the effects of economic integration on the location of the sources of taxation

and, after this, on tax competition. In this sense it is a complement rather than a competing view to the tax competition model.

Given the different framework it is useful to present a brief explanation of the NEG model. There are two opposite effects: An agglomeration force that attracts the mobile factor and a dispersion force that repels it. The first, a home market effect, is usually associated with a country with more residents where the market size is larger and, due to scale economies and the reduction of transaction costs, it better remunerates factors of production. In this case a domestic firm has an advantage over foreign firms because its domestic sales generate more revenue on average. A mobile factor of production is attracted by this higher level of remuneration. The dispersion force is a competition effect where the accumulation of a mobile factor of production in one country increases not only its supply but also the competition among firms. Therefore, prices of goods and remuneration of factors go down and the mobile factor is dispersed.

Which of these two opposite effects prevails depends on the level of economic integration, that is, on transaction costs (i.e. trade costs plus other costs such as cultural barriers and legal differences) and factor mobility. In the case of high transaction costs there is no trade between countries and production occurs everywhere. Below this critical level trade exists and the effects start to operate conducting to two types of equilibrium: Concentrated, where the home market effect prevails and all production based on the mobile factor is mostly located in the core; Diversified equilibrium, where the competition effect prevails and production occurs in all countries. These outcomes are common to the new economic geography literature, although the models widely differ in its details and the order of the equilibrium when transaction costs are decreasing is not always the same¹⁰. Therefore, the general example presented below is representative of the literature in its two possible results.

2.4.2 – Tax competition

In the NEG literature the possibility of (source-based) tax competition is only

¹⁰ The new economic geography literature usually has an initial diversified equilibrium with higher transaction costs, a core-periphery one with middle-size transaction costs and a second diversified equilibrium when transaction costs are low (Krugman, 1991). A simpler example where only a diversified and a concentrated equilibrium are possible is presented here (Ottaviano and van Ypersele, 2002).

introduced when the free market outcome is determined. The tax game occurs on a concentration or a diversified equilibrium but there are differences between the symmetric and asymmetric cases.

Figure 2.4.2: 1a, adapted from Ludema and Wooton (2000), shows a diversified equilibrium (at point E), where the two effects are equal and the population and capital endowments are evenly split between the two countries. The figure presents the differential in the agglomeration effect between the two countries, the UK and Germany, and the dispersion effect increasing with the share of capital in the UK (while simultaneously decreasing in Germany). The dispersion effect is steeper than the differential of the agglomeration effect because the transaction costs are not sufficiently low to allow for the full benefit of scale economies when supplying both markets and a diversified equilibrium arises. To the left of E, the agglomeration force is favourable to Germany but the dispersion effect is unfavourable and dominates. To the right, the agglomeration differential is favourable to the UK but the dispersion effect is not, and is stronger. So, the equilibrium is stable. When the UK lowers its tax rate on capital more firms move from Germany changing the differential in the agglomeration force (the curve moves upward by D, the difference between the tax rates in the two countries). A new equilibrium is reached at E', where the stock of capital is more than proportional to UK's size. If the tax differential is big enough all capital can move to the UK because the difference is sufficient to compensate for the transaction costs when the German market is supplied. If the two countries engage in a Nash-type game for capital the equilibrium will end at E with the same tax rates in both countries given the symmetric setting (Ludema and Wooton, 2000). The level of tax rates in equilibrium has a U relationship with the level of integration, that is, initially tax rates decrease with integration but when the agglomeration force is strong enough (due to sufficiently low transaction costs) tax rates rise again because tax competition is weaker.

In the asymmetric case (Ottaviano and van Ypersele, 2002) a country, the UK, has more than half of the population and owns more than half of the stock of capital. The equilibrium tax rates are determined given each government's welfare maximizing functions subject to a budget constraint. Both the UK and Portugal, the small country, have an upward sloping marginal productivity of capital (up to a certain limit) because of the existence of scale economies in production ($F'(K) > 0$ and $F''(K) > 0$, where K is

capital per unit of labour). In other words, the rate of return on capital in both countries increases with capital. Because the UK is a larger country, with higher returns to scale, it has a steeper curve than Portugal.

Initially, when transaction costs are high, the rate of return of capital ($r = F(K) / K$, given the zero profit condition) is the same in both countries. When transaction costs become sufficiently low, profit maximizing firms located in its domestic market consider a move to the other country. Given the differences in the slopes of the r 's, the first Portuguese firm to move to the UK will get a higher return than the first UK firm to move to Portugal. This will lead more Portuguese firms to move to the UK than the other way around¹¹. However, Portuguese firms only move to the UK up to the point where the additional benefit obtained from being located in the larger market and taking advantage of greater economies of scale compensates the additional transactions costs needed to supply the Portuguese market. This means that some firms do move. The number depends on the competition effect and on the level of transaction costs (as in the symmetric case) and also on the relative size of the markets. Then, with high transaction costs (but sufficiently low to allow for trade) the outcome would be a diversified equilibrium. The difference with the symmetric case is that the equilibrium is achieved with **the larger country hosting a more than proportional** (to the size of its population and capital holdings) **share of firms due to the home market effect** (Ottaviano and van Ypersele, 2002, p. 20). Its equilibrium tax rate is inefficiently high while that of the smaller country is inefficiently low. This is explained by a fiscal externality arising from the attraction of capital by the large country and motivated by the agglomeration effect. This outcome can be improved if coordination between countries reduces the tax rate differential, resulting in the allocation of capital that maximizes welfare where the after-tax return on capital is the same in both countries.

Figure 2.4.2: 1b presents a concentration of production in the core, where the differential in the agglomeration effect dominates the competition effect and the equilibrium can be at point G, where the UK does not have capital, so it is all concentrated in Germany, or at point UK, as now the UK is the core. In this case the agglomeration effect is steeper, indicating that transaction costs are sufficiently low for firms to take full advantage of scale economies when supplying the UK and Germany.

¹¹ It assumes that firms react simultaneously in both countries.

If initially capital is evenly split, the outcome depends on the first change in the share of K in both countries. The equilibrium might exist with a 50-50 capital split, but it is unstable. If, for any reason, a unit of capital moves from the UK to Germany, all capital in the UK will follow the same direction because the agglomeration force in Germany is now stronger, due to the increasing return on capital, and becomes even stronger with the progressive influx of firms. The new equilibrium would be in G.

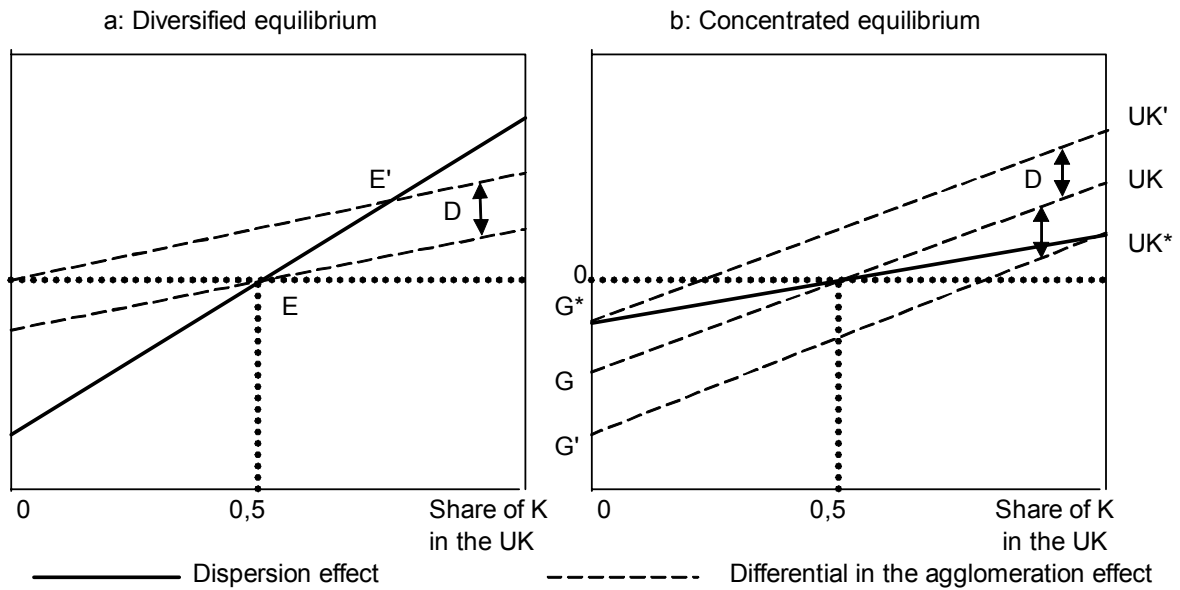


Figure 2.4.2: 1 - Symmetric fiscal competition with increasing returns to scale

Nevertheless, once the core is defined tax competition becomes an attempt from the periphery to attract all capital. Suppose the equilibrium is in point G and the UK lowers its tax rate (by D), then the agglomeration force in Germany is opposed by the difference in tax rates and the differential of agglomeration curve moves upward, to [G*,UK']. The core will still be located in Germany, but now at point G* (where both effects are equal), and D represents the maximum difference in tax rates between the two countries that does not change the location of capital. In other words, the German tax rate can be higher than the UK's by D, because the difference in the gross return of capital between the two countries (favourable to Germany and exactly equal to D) creates a taxable rent. If the difference in tax rates is larger than D, the core changes to the UK because the dispersion effect becomes dominant in Germany. The difference in the rates of return to capital no longer compensates the differences in tax rates. The equilibrium tax rates are obtained based on the above tax differential and on a tax rate

level at which the UK is indifferent to be the core or the periphery, that is, it becomes worst-off if tax rates are reduced to attract the core (Ludema and Wooton, 2000).

The asymmetric case is similar to the symmetric. Ottaviano and van Ypersele (2002) find a concentrated equilibrium when transaction costs are sufficiently low so that firms are able to take full advantage of higher economies of scale in the large country and export to the smaller one. This is because benefits outweigh the transaction costs and a “cluster” occurs in the large country, allowing for a higher tax rate without the danger of capital changing its location to the small country. The equilibrium tax rates are determined given the governments’ welfare maximizing functions and tax coordination allow for a Pareto-improvement similar to the diversified-asymmetric case.

Table 2.4.2: 1 - Tax competition with increasing returns to scale
Equilibrium tax rates (T) in countries A and B

Equilibrium / Country size	Symmetric (A = B)	Asymmetric (A > B)
Diversified	TA = TB (Ludema and Wooton, 2000)	TA > TB (1) (2) (Baldwin and Krugman, 2004, Ottaviano and van Ypersele, 2002)
Core-Periphery (core in A)	TA > TB (Ludema and Wooton, 2000, Kind et al, 2000, Andersson and Forslid, 1999)	TA > TB (Baldwin and Krugman, 2004, Ottaviano and van Ypersele, 2002)

(1) Both TA and TB may be < 0 if an immobile source of taxation is available

(2) Country A hosts a more than proportional share of firms

These extreme cases where capital is entirely located in one of the countries may be attenuated by cost differences when an immobile factor is used in production (Baldwin and Krugman, 2004) or different location preferences by workers if labour is the mobile factor (Ludema and Wooton, 2000). But they are useful for the purpose of illustrating the main contributions of the literature. First, the effects of tax competition, from an efficiency perspective, depend on the level of economic integration. Second, when integration “promotes” **the agglomeration of economic activity** it also **limits the effects of tax competition**. Third, **efficiency is not achieved by tax rate harmonization**. The existence of different tax rates in equilibrium (except for a diversified equilibrium between symmetric countries) is a direct consequence of increasing returns to scale and transaction costs and complements the findings of the public finance literature.

Finally, NEG models do not establish absolute levels of taxation but relative ones (differentials) and thus most of the studies fail to address the provision of public goods. However, the welfare in each country depends on the level of taxation and not on its differential. So, a coordinated increase of tax rates in both core and periphery, with the tax differential constant, would mean, in practice, a transfer of resources from the core to the periphery (less firms would move to the core given its low return to capital) and could achieve a Pareto-improvement if tax competition provoked an under provision of public goods in the small country.

2.4.3 – Equity considerations

Baldwin and Krugman (2004) use a slightly different approach when developing a core-periphery model for the integration between high developed and less developed countries in the EU. Mobile and immobile factors of production are taxed by the same amount, which means that the immobile factor cannot be used to “finance” tax competition. Tax competition is modelled as a three-stage game where developed countries act as Stackelberg monopolists using a price-limit strategy to set tax rates at the highest level where less developed countries have no advantage by competing for capital. In other words, where there is no incentive for poorer countries to choose lower tax rates because developed ones may react by lowering their tax rates. Therefore, less developed countries are expected to act rationally by implementing a tax policy that provides answers to its inhabitant's preferences (assumed to be lower public expenditure levels than in developed countries), while developed countries may have higher tax rates given the existence of agglomeration economies. But they have also a limit to raise its taxes due to the danger of seeing mobile factors moving away to less developed countries. The model suggests that, contrary to the “race to the bottom” prediction, **economic integration with tax competition is consistent with the maintenance of large welfare states.**

Under this scenario they also show that tax harmonization between two countries with different levels of development always harms at least one nation in welfare terms, and if a common rate is set at a level between the un-harmonized rates it may harm both nations. The reason is that, if there is a common tax rate, less developed countries (with

weaker agglomeration effects) would lose the tax advantage for attracting companies and industry would tend to concentrate even more in the core. In this case harmonisation may induce negative welfare effects for less developed countries. On the other hand, developed countries would have less revenue if harmonisation is at a lower level than the initial level of tax rates and, most probably, a worst quality in their public services. The authors conclude that tax competition is not inconsistent with a higher level of public expenditure and that different tax rates are needed to avoid an overconcentration of capital in richer countries.

2.5 – Conclusions

The public finance literature shows that tax competition is inefficient given the misallocation of capital and the under provision of public goods (due to the perception of an elastic supply of capital with respect to the tax rate). The Leviathan hypothesis relaxes the assumption of benevolent governments and states that tax competition may be Pareto-improving if it reduces the temptation of elected representatives to maximize tax revenue and engage in wasteful expenditures in order to assure re-election. NEG stresses that the effects of tax competition are limited by economic integration and it justifies, through increasing returns to scale and transaction costs, different tax rates between countries with unequal levels of economic agglomeration. Table 1 (Annex 1.1) summarizes the assumptions of the standard model and its extensions.

Economic evidence, on the other hand, shows the eventual benefits of tax integration to be small and its implementation to imply a loss for very small countries with lower tax rates and eventually for high tax countries. Furthermore, NEG demands some tax coordination between countries but shows that it is preferable to maintain different tax levels. These are key findings for corporate tax policy in an economic area such as the EU. Nevertheless, the European Commission seems to keep on wanting to achieve the long pursued objective of corporate tax integration¹² and, as the Ruding Report (1991) advised, “...the adoption by all Member States of a common system of corporation tax is a desirable long-term objective”.

¹² EC (1997, 2001). For a listing of previous attempts see Devereux and Pearson (1989).

There are still some unaddressed assumptions that may eventually not confirm the above presented outcome in all situations. Capital is seldom differentiated between portfolio and foreign direct investment flows despite their different nature. FDI has a larger and direct impact in economic growth and employment. Therefore, chapter 3 will address FDI theory to assess whether it is compatible with these conclusions. Moreover, most of the literature emphasizes the role of jurisdictions attracting capital while assuming that firms search for profit maximization by locating their investments in low tax countries. Firms and managers are thus thought to have perfect information about the variables affecting the profit and loss account, including tax burdens, and to act as rational decision makers even in the presence of uncertainty. These assumptions will be dealt with by the alternative behavioural approach presented in chapter 4.

3 – FDI theory and empirics: A brief overview and the role of taxation

The widely acknowledged results presented by the tax competition model are based on some restrictive assumptions such as the perfect mobility of capital and their unique nature. The distinction between portfolio and foreign direct investment (FDI) is crucial because capital flows are usually considered independently of their characteristics. In this dissertation capital is restricted to FDI due to its nature and potential impact on economic development. FDI includes a diversified number of determinants while tax competition heavily relies on the role of taxation, within the risk-adjusted profitability goal, as an explanatory variable. These differences may impact on the outcome of the tax competition model as presented in chapter 2. This is even more relevant for countries within an economic area such as the EU where the effects of tax competition are potentially stronger.

The chapter focus on the choice a firm makes to invest in some location and the respective role of taxation. The aim is to confront both tax competition and FDI theories in order to show that, despite the formal incompatibilities, these two fields have been developing side by side without any adequate attempt by economists to reconcile their differences. The emphasis on the decision making process is a first step to address the assumptions of the model.

3.1 - Concepts

A small number of concepts are introduced to complement those presented in chapter 2.

3.1.1 – Foreign Direct Investment

“Direct investment refers to investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investor, the investor’s purpose being to have an effective voice in the management of the enterprise” (IMF, 1977, p.136). Thus FDI implies an investment made in another country, a long term commitment and a role in managing the investment. The definition of FDI includes control over the investment

abroad, both an ownership control (at least 10% of ownership or voting power, according to the IMF, although it varies across countries) and/or a managerial control over affiliates.

The ownership control may be obtained through three different ways (i) Greenfield investment, when a company starts from scratch, (ii) merger or acquisition of a controlling share in an existent firm or (iii) a joint venture with other partners. In all three cases financing can be obtained through debt, own capital or reinvested earnings. From the perspective of the investor all three alternatives represent an increase in productive capacity. However, from the perspective of the host country only Greenfield investment (be it from one firm or from a joint venture of several firms) is certain to lead to new productive capacity. This difference is important because countries competing through taxation are thought to be more willing to attract FDI that increases their gross fixed capital formation and, consequently, impacts in a positive way on their economies.

Furthermore, direct investment does not necessarily involve movements of capital given the possibility of financing it in the host country, through borrowing or retained earnings, or by payments in kind (technology, machinery, patents, etc.). However, this dissertation is mostly focused on FDI originating capital movements because that is what tax competition is all about, capital flows searching for a lower tax rate.

FDI may be divided in flows, which refer to the amount of capital moved in a determined period of time, and stocks, which is the total amount on inward FDI existing in a country or outward FDI made by firms located in the same country (UNCTAD, 1999, p. 351). A further division in the FDI literature is between “horizontal”, which refers to producing (and marketing) abroad similar products to those made and sold in the home market, and “vertical” FDI, which is focused on cost reduction and refers to investments made to produce abroad intermediate goods. These are to be exported back home (or to a different country) where they are assembled as part of a final product.

Firms with direct investments abroad and controlled affiliates are multinational or transnational (TNC) companies. They have assets in more than one country and are able to centrally organize, coordinate and control them under common objectives and strategies (Ietto-Gillies, 2005, p. 10).

3.1.2 – FDI and Portfolio investment

Although FDI relates to movements of capital it is different from portfolio investment. Portfolio investment is a purely financial flow, usually of a short term nature, where different types of securities are bought but the establishment of an ownership or managerial control is not necessarily included (Hymer, 1960, cited by Ietto-Gillies, 2005). FDI is typically a long-run investment, where profits are often expected only after five or even ten years after the initial date of investment. As Dunning (1979, p. 272) puts it, FDI “...involves the transfer of other resources than capital (technology, management, organizational and marketing skills, etc.) and it is the expected return on these, rather than on capital per se, which prompts enterprises...” to invest abroad. This transfer of resources under direct control of the parent firm does not happen with portfolio investment.

The difference can also be seen in the liquidity of both types of capital. FDI refers to physical assets such as buildings, property and machinery, with rather less liquidity than portfolio investments. These, on the other hand, are composed of applications in financial markets, represented by paper or electronically registered assets, and are very liquid and easily movable from one market to another. FDI is also recognized to have larger information costs and thus to be more sensitive to geographic variables than portfolio (Guerin, 2006).

FDI is often associated with an agreement between the investor and the host country where the former promises to keep the investment for a determined period of time. Thus, when the investment is made it is more difficult to sell these assets and capital becomes more immobile (at least during the implementation of the investment or the period agreed). FDI is not mobile, at least in the short to medium term (given that it has “sunk” costs and specific barriers to its movements) thereby impeding FDI stocks to move even when fiscal conditions are worsened. In the tax competition literature, on the other hand, capital is usually assumed to be perfectly mobile by reacting immediately to a change in the tax rate (while moving in direction of the highest net rate of return). Therefore, one should expect that tax competition theory better applies to short term financial flows. However, the theory was initially developed in the context of competition between local jurisdictions (Oates, 1972, Beck, 1983), where financial markets are not very active.

Furthermore, section 2.2.1.1 above presented several reasons to explain the lack of perfect capital mobility. Those reasons apply to both types of capital but surely, given its nature, they are more relevant for FDI. Not only is it difficult to accept the perfect mobility of capital assumed by the tax competition model, but both the motives and the consequences of portfolio investment are of a different nature. The theoretical effects of tax competition for FDI (given this imperfect mobility) are slower and smaller than with short-term flows¹.

3.2 – FDI location decisions

Consider a firm deciding whether to invest abroad and where to locate its investment. A rational decision-maker attempts to maximize the present value of the difference between revenue and costs when answering these questions. For this end it must collect substantial information and by assuming a discount rate from the expected inflation, the desired rate of return and the presumed associated risk, it can calculate a net present value for the investment.

The decision to invest abroad and where to locate the investment depends on the decision-maker's expectations about the value of these variables for the various available alternatives. If the decision to invest abroad is already made, the location of the investment, and its expected revenue and costs, becomes the relevant issue. Thus, the two key variables for rational location decisions are revenue and costs.

3.2.1 – Revenue-based decisions

Increasing revenue is a permanent concern of firms and managers. FDI theory has explained the “internationalization” of this goal by considering that TNC's have specific advantages over local competitors in the host market that dominate the additional costs of investing abroad. These may originate in the increased power of a few large firms operating in oligopolistic markets, with significant barriers to entry, in the home country (Hymer, 1960,

¹ Lee (1997).

cited by Ietto-Gillies, 2005)². This reduction in competition allows these firms to have extra gains and thus specific advantages abroad that would drive investment and be sufficient to outperform FDI-related costs and local competitors. Several advantages are noted: product differentiation, managerial and marketing skills, technology, scale economies, better and cheaper access to capital and government induced distortions (Kindleberger, 1969). These advantages allow firms to search for new markets in order to grow and have more revenue.

However, they only explain why firms invest abroad without presenting reasons for the exact location of the investment. The same happens with other explanations of FDI, such as spreading risks through diversification of locations (Hymer, 1960, cited by Ietto-Gillies, 2005) and the possibility to offer after-sales services and to adapt the product to local tastes (Knickerbocker, 1973).

Vernon (1966) was able to explain the location of international production by using the technological gap (Posner, 1961) and the product life cycle theory (Hirsch, 1965). The cumulative advantages of product innovation in the initial stages of the product cycle (the innovative and growth phases) where intensive capital, managerial ability and skilled labour are needed, would explain the location of production in developed countries. In the last phase, where products are standardized, imitation is easier and unskilled labour is required, location might move to countries with lower costs. In this context, Gruber et al (1967) also point to the fact that exporting firms have a lower marginal cost when deciding to produce abroad (because they already have information about foreign markets). The location of production abroad may also be a source of exports to nearby markets, mainly when transportation costs are significant.

Vernon (1979) shows proximity and familiarity to play a role in location decisions of US firms before World War II. However, this role has been reduced in more recent years when TNC's started to globally plan their activities. Furthermore, the lag between the introduction of a new product in the home market and in other locations decreased significantly and the product life cycle theory also became less relevant as an explanation of location decisions.

² Before Hymer, the neo-classical explanation of capital flows relied on the perfect competition setting and included loans, gifts, war reparations, the search for higher interest rates up to the point of equalization of capital returns and risk differences between sectors (Ietto-Gillies, 2005).

Knickerbocker (1973) also relies on the above mentioned specific advantages to explain why firms in the same industry tend to invest in the same countries. Given the oligopolistic structure of the market, a first move by one of the few sellers to invest in a different country (aggressive investment) would be followed by rivals (defensive investment), so that an eventual significant advantage from cost reductions and scale economies of the “aggressor” could not be used against the competition. For “defensive” firms, the cost of this matching is more predictable than the costs of its absence. Despite evidence provided by Altomonte and Pennings (2008), to explain firms’ defensive investment behaviour only with risk mitigation concerns seems to be too simple because there are a wide range of possible answers for rivals in terms of products, technologies, horizontal or vertical integration, joint ventures and including firms acting themselves as first movers in other countries.

Cantwell (1989) explains international production as an outcome of the competitive process between firms belonging to common industries. Firms are able to actively create their own competitive advantages from the cumulative use of innovation and technology in processes and products. The leaders in each area are those TNC’s that, through successive ownership advantages, become more successful both in domestic and international markets. The author relates it to location advantages by considering that innovative firms tend to invest in different centres and countries and thus generate spill over effects to the location and the industry that attracts even more firms, investment and innovation in a wealth creating cumulative process. Consequently, the location advantages are endogenous to the process and arise from agglomeration economies (in a similar way to the new economic geography theory developed by Krugman). Each firm located in a determined centre/country benefits, not only from the transfer of knowledge and innovation within the network of its economic group, but also from the external economies of agglomeration arising from the location of other innovative firms. In this way it compensates for an economic group to be simultaneously present in different locations.

In the context of imperfect markets, the proximity-concentration model explains multi-plant TNC’s and two-way horizontal FDI when it becomes relatively less expensive in comparison with exporting (Horstmann and Markusen, 1992, Brainard, 1993). This model originates with the new trade theory and the motivation for FDI is essentially access to markets.

A final approach, focused on how firms behave during the decision-making process of internationalization, was developed by the Scandinavian school. Firms are seen as learning organizations (characterized by bounded rationality and limited knowledge) where resources, competence and influence are dispersed by a complex structure (Bjorkman and Forsgren, 1997). The idea of going abroad starts when the domestic market is no longer sufficiently large to provide profit opportunities and allow the growth of the firm. The resulting internationalization is divided in four stages - that depend on the performance of current activities of the firm, the accumulated experience abroad and the decision to commit further resources – which develop in a linear pattern (Johanson and Wiedersheim-Paul, 1975): (1) Exporting for one country at a lower psychic distance and by using local agents; (2) Opening a sales subsidiary in the same country; (3) Establishing production abroad; (4) Moving to third markets at a lower psychic distance from the chosen foreign country. The relevant factor for the location decision is psychic distance, that is, “... *the sum of factors preventing the flow of information from and to the market. Examples are differences in language, education, business practices, culture and industrial development*” (Johanson and Vahlne, 1977, p. 24). This process may be simplified after a critical point in terms of knowledge of international markets (Welch and Luostarinen, 1988).

To sum up, it can be seen that a significant part of FDI theories assume firms to have higher (not lower) costs when investing abroad. That is, the concern with tax expenses is not deemed relevant. Firms, when making location decisions within imperfect markets, seek to improve their revenue stream by using specific advantages, aggressive or defensive behaviour, or by benefiting from agglomeration economies. To pay lower taxes is not an important reason for FDI.

3.2.2 – Cost-efficiency objectives

Efficiency concerns by firms and managers are usually focused on cost cutting. The FDI literature presents several explanations of location decisions based on the will to avoid (or minimize) transactional costs. The expected gains are a better allocation of resources (from the perspective of the firm), and an efficiency-enhancing outcome (for the society as a whole).

Aliber (1970) explains FDI by considering the existence of additional advantages, originated in the value of the patents owned by each firm, to compensate the costs of doing business abroad. The managerial or technological advantage materializes through “...*the capitalized value of the difference between production costs before and after the patent is used*” (Aliber, 1970, p.22). The capitalized value depends on exchange rates and on interest rates in the financing country (where the source of financing is located) and varies with the three possible ways of internationalization by the firm (exporting, licensing and investing abroad) and with the type of economic area countries belong to (currency area, customs area or both). Aliber uses these variables to introduce a set of different scenarios that will predict the behaviour of firms in terms of cost minimization.

The theory connects FDI decisions with currency and trade regimes and gives useful insights for the EU, where there is a customs area and a partial currency area. He explains FDI location decisions with reference to the situation of each country, weighing simultaneously the dispersion of capitalization rates (interest and exchange rates), the size of the host country’s market, the height of tariffs, the cost of doing business abroad and the value of patents. While the first three explain FDI locations, the remaining two are an explanation for FDI (without a specification about its location).

A second approach to explain FDI flows originates in Coase (1937). Coase noted that the allocation of resources and production in the market are defined by the price mechanism but within a firm this is done through planning and managerial direction. This difference leads to a cost comparison between market transactions and the internal allocation of resources. A firm will expand until the internal costs of organizing production become equal to market transaction costs (deriving from asymmetric information, legal costs, etc.). McManus (1972) concludes that resources within a firm will be allocated, in a coordinated way, between two or more countries if the sum of its values – depending on transaction costs - is greater than it would be if activities in each country were independent. Williamson (1975, 1981) considers that firm’s activities and organization are driven by the aim of achieving economies of transaction costs from: (i) a better prevention of opportunistic behaviour by managers, employees and external parts through the access to more and better information; (ii) asset specificity, where resources used together within a firm are more productive than in alternative uses; (iii) bounded rationality, where better information and less complexity inside

the firm allows for more rational decisions. Therefore, the better and cheaper the legal framework and existing information channels, the lower the potential advantages of internalization (both domestic and international) and the higher the incentive to operate within the market. The bigger the firm and the level of internalization the more complex and inflexible becomes its organization and the closer the limit for internalization gains (Penrose, 1959). Although these economies can be achieved both at a domestic or international level they are not significantly dependent on taxation.

Buckley and Casson (1976), Hennart (1989) and Caves (1996) further developed this approach by stating that imperfect markets, and the resulting market power, are an incentive for internalization. Firms operating in industries where these incentives are stronger and where the benefits of internalization outweigh the costs are more likely to become TNC's. These imperfections (of the transactional type) arise from the nature of "research and development" (R&D), and the resulting knowledge, and from intangible assets (such as brands) which are assumed to have low costs of transmission within a firm and across boundaries. Buckley and Casson (1976) present the difficulty to organize markets for these goods and the increasing demand for knowledge-based products as an incentive for firms to invest in other countries to exploit the expertise they own and benefit from discriminatory prices (horizontal integration). On the other hand, given the asymmetry of information in these markets, buyers may want to internalize these intermediary products (vertical integration - Caves, 1996).

Besides the ownership of technology, the reasons for specific location decisions presented by this theory are mainly related with government induced costs on cross border transactions (capital mobility and exchange rates) and tax policies. In this sense differences in tax rates may explain internalization. Buckley and Casson (1996) give it a specific role when underlining the possibility of transfer pricing manipulations. But they are not mandatory within the theory.

Other models of TNC's behaviour (using a perfect competition setting) explain location decisions in single-plant firms that fragment their production process into different stages based on different relative factor endowments and thus prices across countries (e.g. the factor proportion model, Helpman and Krugman, 1985). In this case, vertical FDI is unidirectional

(from richly endowed countries to cheaper labour endowed locations). Again, taxation is not significant.

The last contribution gives a more prominent role to taxation, although within a set of different variables. TNC's are assumed to have various degrees of market power and competitive advantage. These are specific advantages of being transnational and in order to maintain or increase them firms act strategically towards national regulatory regimes. In other words, the existence of borders has not only some costs for firms, as exposed above, but it may also provide an opportunity for TNC's to gain specific advantages in order to reduce costs (Ietto-Gillies, 2002). They arise from different currency and tax regimes, risk-spreading, and negotiations with governments and unions. There are potential gains for TNC's from a stronger bargaining position (e.g. the threat of reallocation) towards governments, such as the access to higher financial incentives for inward FDI (Oman, 2000, Phelps and Raines, 2002), or towards unions, to achieve a reduction in wages and other labour costs.

In brief, **taxation may have a role in terms of cost-cutting objectives** by firms (given that it has a direct impact on final profitability). **However, the presented set of theories only gives it a complementary role.** Theories are mainly focused on transactional costs either within the firm or induced by government intervention. This is completely different from the mandatory role played by taxation in tax competition models.

3.2.3 – FDI and the role of taxation

The above set of FDI theories shows that firms have a diversified range of concerns in terms of location decisions. These include many variables that have a direct effect on costs and revenue, on one hand, and a second group where the role of governments and other institutions indirectly impact the financial analysis of an investment. Dunning (1979) explains FDI decisions by considering advantages in terms of Ownership, Location and Internalization, and presents an extensive list of 47 determinants. A country trying to attract FDI must offer location advantages to be used together with those of ownership and internalization. Therefore, location decisions are also influenced by the two remaining parts of the OLI paradigm because they are also considered by firms when making these decisions.

Managers make decisions within the firm strategy and have an active role in forming competitive advantages in order to benefit from market imperfections. The aim is to increase revenue and to minimize transaction costs. Each of the mentioned theories was developed in a specific context and time period and tried to explain the latest observed trends in FDI flows. They all try to explain why firms want to expand their activity abroad and why they locate production facilities in foreign countries and markets. But **they give a very limited role to taxation** in these decisions. Markusen (1995, p. 171) explains: “*Apparently, most firms first choose foreign production location, and then instruct their tax departments to minimize taxes*”.

Therefore, the first thing to note is that the role of the tax rate, or the tax burden, is limited by just being one more variable with impact on profitability. This may be easily understandable in a simple example where a firm investing 10,000 has to choose between two different countries where to locate its investment (Table 3.2.3: 1).

Table 3.2.3: 1 - The role of taxation in FDI location decisions

Country	Profits before taxes	Corporate tax rate	Profit after taxes
A – Invest: 10,000	1,000	30 %	700
B – Invest: 10,000	700	20 %	560

In the example, the rational choice of the firm is to invest in country A, where the profitability is higher despite the corporate tax rate being also higher. In the tax competition model the firm would choose country B simply because everything else is assumed to be equal. Referring to the net present value not only the inflation rate, the cost of capital or labour costs but all the remaining tens of variables that directly or indirectly impact on revenue and costs would be exactly the same so that taxation can be the only variable affecting the marginal product of capital. But although the tax competition model assumes that everything else, besides tax rates, is equal, one can be sure that that is never the case.

The second thing to note then is that firms have widespread concerns when engaging in FDI but taxation seems to be only a complementary variable. In other words, and contrary to what is assumed in the standard tax competition model, firm’s behaviour in FDI location decisions are not mainly determined by tax-related concerns. Firms have different types of behaviours,

such as strategic and efficiency oriented, and consider a large number of variables in their analysis.

In the standard tax competition model it is the difference in tax rates between the competing jurisdictions that is the key variable in determining capital flows. While this may be a reasonable assumption in highly price competitive markets such as those for financial assets, where short term financial flows occur, it is less so for international markets of goods and services where FDI is the vehicle of capital. As we have seen above, these markets are better explained by imperfect competition theory, where rents, agglomeration of economic activity or other externalities occur very frequently, and where taxation may have a role, but a limited one. To conclude, there are a large number of reasons that may explain FDI. To rely on just one possibility, as in the case of tax competition, is to allow too much distance from the real world.

A description of the decision making process in FDI operations strengthens the above statements. 'FDI location decision' refers to the set of decisions, made by firms, about the place (other than the home country) to establish direct production, sales or distribution activities. It includes both new country locations and new important investments in an existing location. FDI locations comprise different steps where a large number of small sequential decisions are made during several months or years (Aharoni, 1999, p. 4). The final location is a one-off discrete decision and not, as tax competition assumes, a marginal type to where all capital with a rate of return above a pre-determined minimum is supposed to flow (Devereux and Griffith, 2003).

A first phase in the decision-making process is to decide to invest abroad. This is supposedly within the firm's overall strategy. A firm or an individual investor wants, for several reasons, to diversify the location of its investments. For that end firms have to assess their internal capacity in terms of financing, human resources, inputs, etc. Then there is a second phase, which is the location of the investment. It includes many small and big decisions related to information collection, so that several alternatives may be established, and a risk and financial analysis provided to understand the possible impact of an FDI operation on the value of the firm. It finishes with the choice of the country and, afterwards, the choice of the exact location within the country.

Figure 3.2.3: 1 – FDI location decisions

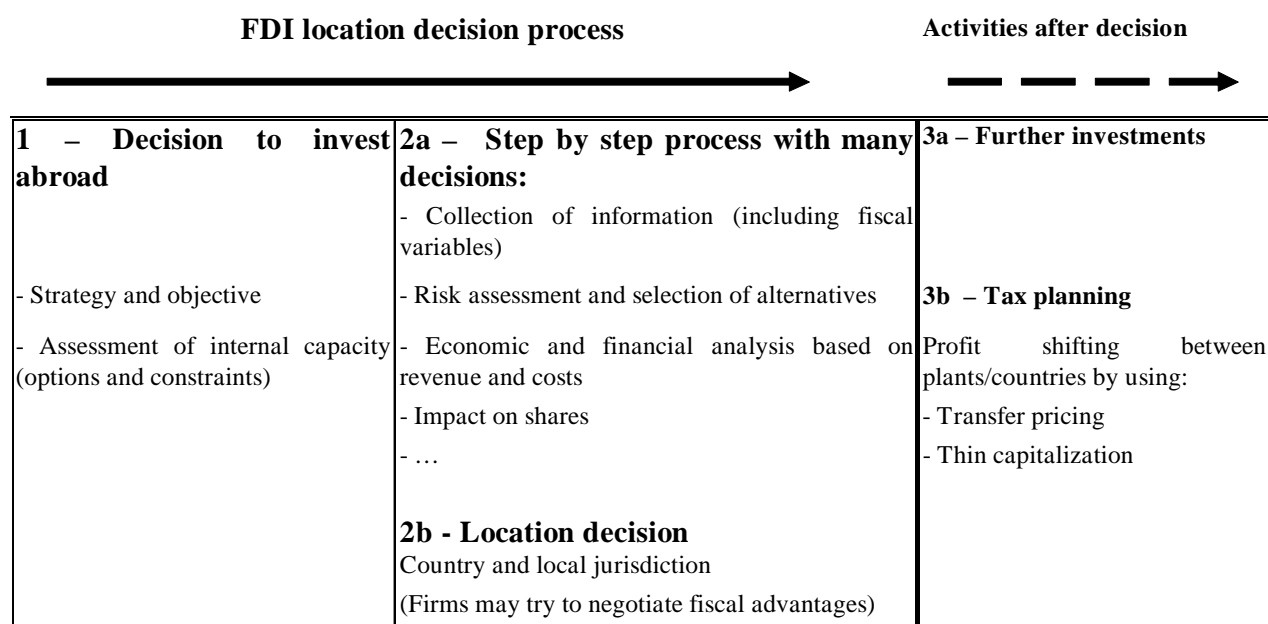


Figure 3.2.3: 1 presents these two phases and allows for a better delimitation of the object of this dissertation. These phases are confirmed by interviewed firms (Chapter 5) and **this dissertation is focused on phase 2, the location decision in itself**, and not on the decision to invest abroad or the entry mode. Its aim is to understand why a specific location was chosen because this is central to the tax competition literature.

The FDI decision making process is usually ignored by the literature. As it is shown in chapters 2 and 3 it is not considered by the several presented approaches except in the so-called behavioural approach of the Uppsala model, where firms engage in internationalization by following a pre-determined course of action and locate their investments based on a “psychic” distance. But these approaches are not able to explain how exactly FDI location decisions are made. This is important because the process may be helpful in understanding the location choices of firms.

Moreover, FDI contains various elements of organizational and managerial behaviour. When making an FDI decision managers are affected by their perceptions about past decisions and present and future conditions (Aharoni, 1999, p. 13). Their perceptions have both intrinsic and environmental origin, that is, it includes the personal cognitive characteristics of each manager and its different perceptions about the firm and the environment. However, they are

usually not explicitly considered by neoclassical literature and thus only a partial understanding of FDI operations is possible.

A further and important distinctive characteristic of the behaviour approach is the role given to the uncertainty faced by decision makers. Neoclassical economics often mixes risk and uncertainty and considers that investors assign a probability of zero to ambiguous or uncertain events. However, despite being not measurable, uncertainty impacts on decisions as it derives from ambiguity surrounding decision-making where it is not possible to apply any criteria based on probabilities or “degrees of belief” (Ellsberg, 1961, p. 657). Moreover, as the FDI location is a mutually exclusive decision it makes no sense to add up the probabilities of rival outcomes to get an overall expected utility (Earl, 1995, p. 113).

Figure 3.2.3: 1 also presents an important **distinction between FDI location decisions and tax planning activities**. It shows that fiscal variables are always present in the decision process. First, when information is collected about tax and incentive policies and second when the exact location decision is made. In this latter case firms may try to obtain fiscal advantages both from the choice of the country and from the local jurisdiction. But the role of fiscal variables is not finished. Phase 3 shows that, besides making further investments in the same location, where the marginal tax rate has a role in the total stock of FDI (Devereux et al, 2008), tax planning activities also arise after the location decision. Firms shift across countries costs and revenue in order to minimize their tax liabilities (Harris et al, 1993). These include transfer pricing, when a TNC manipulates internal prices (in transactions among affiliates and the parent company) so that profits are “placed” in low tax jurisdictions. And thin capitalization, that is, the process of placing debt related financial costs in higher tax countries. The profit shifting only happens after the location decision is made.

The differentiation is relevant because this dissertation assumes that tax planning activities are not included in FDI location decisions. The standard tax competition model usually does not differentiate between capital flows nor fiscal variables or tax burdens. By using those techniques firms can pay taxes in jurisdictions with a lower tax burden. But this does not necessarily mean that firms are further investing in these jurisdictions. Thin capitalization, for example, may represent a flow of capital without an investment purpose. That is why a specification of both capital flows and tax burdens is necessary. **In this dissertation only**

FDI locations are considered and other capital flows, related or not with tax planning activities, are disregarded.

Moreover, different levels of enforceability of the tax system in each country, the level of tax evasion or the role of employers' contributions to social security increases the difficulty of comparing potential target countries and thus it reinforces the option to study location decisions. Companies operating in a determined country pay taxes other than taxes on profits and these may also be significant to the decision of investment in that country. Labour costs are one of the variables that determine FDI and include both wages and other associated costs such as social security.

3.3 – Empirical evidence

FDI is a very complex subject where many variables are interdependent. The relevance of each of these variables tends to change with time and with firms and sector of activity. The empirical evidence on FDI determinants reflects this wide complexity. First, there are a large number of possible explanations of FDI flows and location decisions. Second, the empirical literature on the role of taxation has two main groups sharing a wide diversity of concepts (i.e. data sources and variables). One is specifically focused on the explanation of foreign direct investment. The other is concerned with the effects of capital movements in the context of economic globalization.

3.3.1 – FDI locations

There is a wide empirical literature on FDI locations. Results have been presented in surveys, e.g. Blonigen (2005), Chakrabarty (2001), Caves (1996) or Agarwal (1980). Different methodologies (micro and macro econometric analysis and surveys), data sources, perspectives and analytical tools used by researchers lead to different (sometimes opposite) outcomes. Furthermore, and as Chakrabarty (2001) puts it, “...*these empirical studies ..., form measurement without theory...*”. Ex-post explanations are given to empirical results without a strong theoretical basis. Given the complexity of the relationship between FDI and the remaining economic variables such as trade, factors of production or strategic actions by

firms, the FDI literature is mostly based on partial-equilibrium models (Blonigen, 2005). The attempt to have a general equilibrium framework for FDI flows is made in Caves (1996, p. 37). But it is not able to include all the complexity of FDI decisions and to explain the contradictory results obtained in empirical studies.

There is no single FDI determinant that can explain where investments are located. Besides profitability and risk, a number of different factors impact on location decisions (see 3.2 above). All the determinants are interrelated and influence FDI decision making. For instance, there are determinants that only explain why firms invest abroad – e.g. monopolistic advantages such as proprietary assets or the will to mitigate risk or improve the bargaining position towards other economic agents. Although these interact with location determinants they do not provide a cue to where FDI will be located. Empirical studies show a huge number of different correlations between variables but the problem is that these cannot fully explain the reasons behind FDI because it is not easy to assess which determinants are more relevant in each situation. Nevertheless, national policies and economic determinants are generally regarded as being important to attract FDI (see Annex 2.1).

National policies have become more liberal since the 1980's in order to create the necessary conditions for foreign firms to invest. Interest rate differentials, tariffs and other trade barriers are often shown to influence positively FDI flows (Horst, 1971, Brainard, 1993, and Millington and Bayliss, 1991). However these results are not always consistent. Culem (1988), for example, does not find significant results for tariffs. Political instability and other risk factors are thought to be inversely correlated with incoming FDI (Schneider and Frey, 1985, p. 167) but this is also not empirically observable in all studies (Wheeler and Mody, 1992). Model misspecifications or different data sources may partially explain these differences but the absence of the relevant variables may also be a reason.

Business facilitation measures such as fiscal incentives are also included in this group and gained relevance during the 1990's, especially in the context of regional integration agreements (UNCTAD, 1999, p. 90). When intra-regional transaction costs are reduced and national policies have some degree of coordination in order to form a level playing field for businesses, national and local jurisdictions tend to rely more heavily on these measures to differentiate from each other when competing for FDI (UNCTAD, 1999, p. 124).

Most of the studies on location choices within markets are focused on the USA where government promotion has a positive impact on FDI inflows (Caves, 1996, p. 54). Local taxes (see 3.3.2 below) and union membership, on the other hand, are negatively correlated with FDI (Coughlin et al, 1991, Woodward, 1992 and Ondrich and Wasylenko, 1993). The result for taxation is also confirmed for the EU as a single market (Devereux and Griffith, 1998, and Head et al, 1999). This view is supported by the evidence found on tax competition at a local level. Other variables such as unemployment and population density seem to be also relevant but positively correlated (Billington, 1999, p. 72).

Although proactive facilitation measures are necessary they are not sufficient conditions to attract FDI. They have mainly a supportive role and become ineffective if the remaining national policies and economic variables are not business friendly. Therefore, they usually do not have a decisive role in attracting FDI and tend to become similar with increasing competition between countries thus reducing their effectiveness. Foreign firms are increasingly considering even more diversified FDI related economic policies to assess the business climate of a country. Nevertheless tax policy may make a huge difference in a specific investment or for some location trying to attract FDI. This means that **the role of taxation may be significant for some operations while irrelevant for others**³.

Economic determinants are also relevant for FDI. But while small and medium enterprises (SME) may locate their investments in countries that have some of the location advantages herein referred, large TNC's that follow complex strategies to manage their resources in different countries tend to look at a combination of several determinants when making FDI location decisions. FDI national policies and the main economic determinants must be right and the freedom to operate internationally should be guaranteed. Chosen locations should be transparent, stable, "predictable" and connected to the global economy. Therefore, countries wanting to attract FDI have not only to provide the basic location determinants but they must also match them with ownership and internalization advantages of TNC's. Ireland is a good example (UNCTAD, 1999, p. 105).

³ It should be noted that fiscal incentives are limited by EU law (Raines and Brown, 1999, p. 86 and chapter 5).

Among the economic determinants, the existence of natural resources was the most important explanation of FDI location decisions before World War II. Recently, however, this relevance decreased (partially due to the lesser importance of the primary sector) although it remains a determinant of FDI in several countries. Unskilled and low labour costs are other possible reasons for FDI, but mainly in labour intensive industries. The empirical relevance of low wages as a FDI determinant is not totally satisfactory as Wheeler and Mody (1992) have shown. This is partially explained because most FDI flows occur between developed countries. High-skilled labour and other indicators of human capital thus seem to be more relevant (Schneider and Frey, 1985, Culem, 1988 and Brainard, 1993). The same is true of openness to FDI (Brainard, 1993) and good economic infrastructures (Wheeler and Mody, 1992). But physical infrastructures are more relevant for developing countries than for developed ones while the opposite seems to happen with R&D and its support infrastructures.

Determinants such as market size and the similarity in terms of skills and human capital between the characteristics of home and host countries are usually accepted as explanatory of one-way FDI flows (Billington, 1999, p. 71, Buch et al, 2005, p.75) or two-way flows in the context of models of monopolistic competition (Brainard, 1993). Larger markets can accommodate more firms and allow for bigger scale economies. However, it is surely a main location determinant for horizontal FDI, where market access is essential, but not for vertical FDI, where costs seem to be more important. Furthermore, while size is relevant for countries with large markets or with a large economic potential it does not explain FDI in small countries.

Proprietary assets such as patents are also able to explain two-way flows of FDI (Cantwell and Sanna-Randaccio, 1992), although they cannot predict the exact location of investments. Purchasing power also seems to be a main determinant of FDI flows although it is more relevant in developed than in developing countries (UNCTAD, 1999, p. 135).

Cultural and other affinities between countries also explain FDI flows due to the reduction of uncertainty and transaction costs. These include, for example, political alliances and former colonial ties (Schneider and Frey, 1985, Davidson, 1980, and Kravis and Lipsey, 1982). In the same sense, geographical proximity is also an important explanation although the size of

affiliates seems to increase with distance while the number decreases (Buch et al, 2005, for German TNC's).

Regional integration agreements are also relevant because they affect mostly market size and growth while creating the conditions for the agglomeration of economic activity. The evidence for the EU and for the USA shows that agglomeration economies, infrastructures, unit labour costs and human capital resources have a positive impact on FDI inflows and stocks (Wheeler and Mody, 1992, Devereux and Griffith, 1998, Caves, 1996, p. 54, or Billington, 1999). Depending on firms and sectors, some differences are relevant. First, for large firms market size is no longer considered from an individual country basis but is assessed from a regional perspective. The same applies to resources given that (with liberalization and the reduction in transaction costs) it is easier to access them from any point in the region. Therefore, country-specific location factors such as market size and growth become more important for small and medium size firms and non-tradable services due to new market opportunities. But for tradable goods and services it is important that countries trying to attract FDI are able to guarantee good access to the wider regional market by having physical accessibility or good policy coordination. In the same sense regional economic growth also becomes relevant.

In summary, although these location variables are now better understood their ability to predict FDI flows and stocks still varies from country to country, especially with the level of development, and by sector of activity (Wheeler and Mody, 1992, Buch et al, 2005, Azémar and Delios, 2008, p. 96). Location decisions can also vary with other characteristics such as the motive and the type of FDI (horizontal or vertical and new or sequential), the size of the investor, large firms or SME, home countries FDI policies and, as predicted by theory, they can also change as the economic environment evolves over the years.

The large number of relevant variables in FDI decisions is a difficulty for empirical studies. Chakrabarti (2001) executes a robustness analysis of the coefficient estimates for several FDI determinants when the conditioning information set is changed. That is, when there are modifications in the variables that are assumed to be constant when statistical tests are performed. **He concludes that, with only one exception (market size), all variables are dependent on the conditioning information set.** In other words, by manipulating the set of

variables when statistical regressions are performed it is almost possible to choose the desired outcome. In the end, it is clear that **empirical evidence (just like theory) cannot provide full and definitive conclusions regarding the explanation of investment flows** given the large number of determinants impacting location decisions.

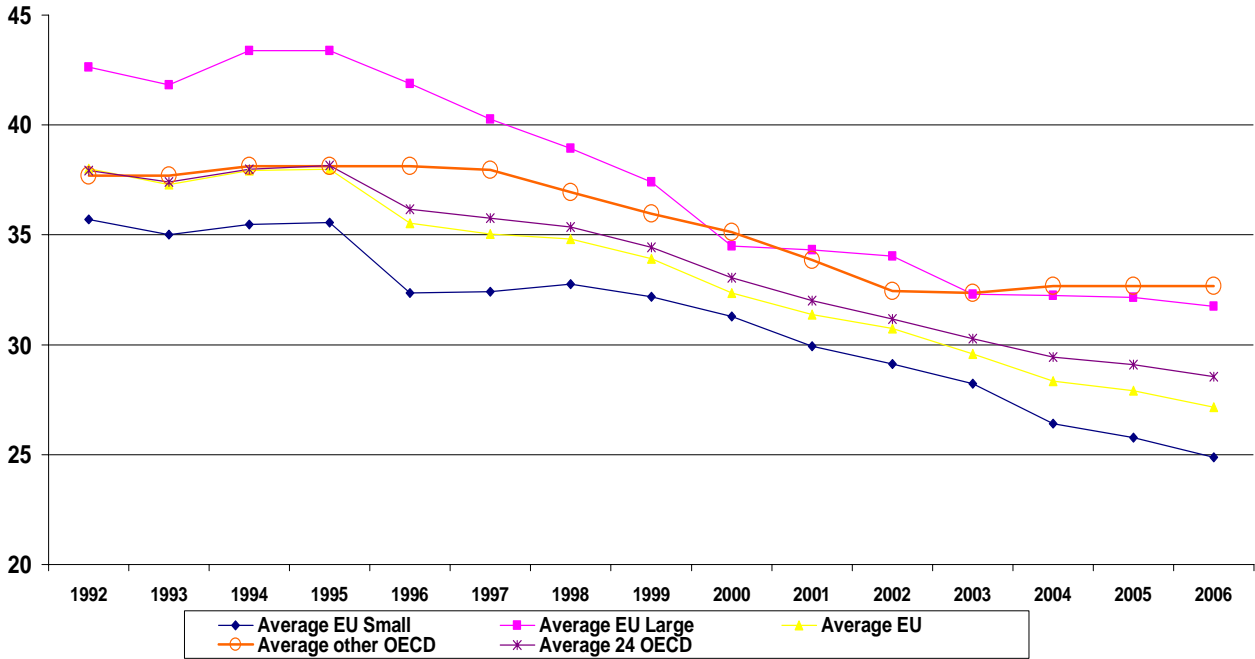
3.3.2 – The role of taxation

The tax competition model predicts that, *et ceteris paribus*, tax rates on investment flows would decrease with competition between countries. In a dynamic setting, and although the model does not refer to the period of time necessary for a “race to the bottom” to occur, countries would end up with zero tax rates. Statutory corporate tax rates have indeed been decreasing in the last 15 years in OECD countries but no “race to the bottom” has been observed (Boss, 2005). Figure 3.3.2: 1 present corporate tax rates for 18 EU and 6 other OECD countries after 1992 (KPMG, 2007, p. 5⁴). This trend is confirmed by data presented in several studies and using different measures of the tax burden besides statutory rates - average, average effective and marginal effective (Mendoza et al, 1994, Bénassy-Quéré et al, 2000, Gropp and Kostial, 2000, Carey and Tchilinguirian, 2000, Devereux et al, 2002, and Sorensen, 2004). It can be seen that small EU countries have lower tax rates than larger ones, as predicted by theory, and the decrease was larger in the EU than in the rest of the OECD, indicating the stronger effects of tax competition in a single market.

A second prediction from the model is that capital always searches for the lower tax rate because it is assumed that investors know perfectly well where to get the higher return and this exclusively depends on the level of tax rates. If this is interpreted in a strict way, it would mean that high rate countries, such as Germany, Italy or Belgium, would never have inward investment. But even without such a “draconian” view, it would certainly mean that these countries were losing FDI because firms were moving their business activities. According to the tax competition model, this loss of investment would result in a tax revenue decrease. However, corporate tax revenue has been increasing in the last 35 years in the EU (figure 3.3.2: 2 based on OECD statistics). That is, despite the reduction in statutory tax rates the corporate tax burden is not diminishing. On the contrary, it is increasing even for countries with high tax rates such as France and Italy (Cnossen, 2003, Devereux et al, 2002).

This might explain why there is no strong empirical evidence of tax competition at a country level despite the existing trend of increasing FDI flows and decreasing tax rates. There are several possible explanations. First, changes in corporate profitability (due to economic growth, lower interest costs, higher productivity or more concentrated market structures) might explain the increase in revenue. Second, the growing FDI flows within the EU and from outside enlarged countries' tax base (UNCTAD, 2004). Third, some governments have been broadening the tax base by adjusting depreciation rules so that lower tax rates were compensated (Devereux et al, 2002). These reasons do not contradict the model but the same does not happen with other reasons explaining the level of corporate taxation (see 2.2.2.2).

Figure 3.3.2: 1 - Corporate tax rates (%)

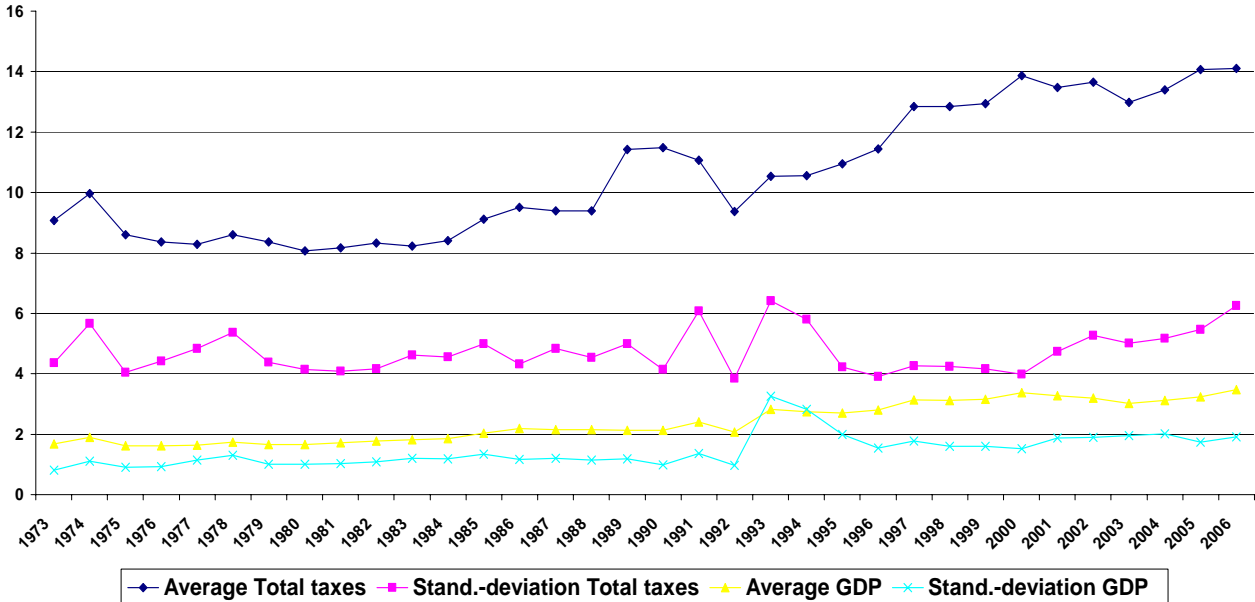


A final issue is the results arising from empirical studies on the existence of a correlation between increasing capital mobility and a lower corporate tax burden. De Mooij and Ederveen (2003) do a Meta regression analysis of 25 studies, since 1984, on the impact of taxation on FDI where a median tax rate semi-elasticity to FDI of -3.3 is found. However, the results presented varied substantially, from -84.5 to 17.8, and while all of them include a negative elasticity almost half (12) also include an elasticity with positive values. This wide variation

⁴ The 15 “old” EU countries and Poland, Czech Republic and Hungary. OECD includes also Australia, Canada, Norway, Japan, Switzerland and the USA.

of results has several possible explanations: model specifications, the origin of funds, the different systems of taxation in each country, the proxies on capital and tax burden, the use of control variables and the time period and space covered:

Figure 3.3.2: 2 - Corporate taxes as % of Total taxes and GDP
 Unweighted average for 18 EU countries



A) There have been **four different model specifications** to study the relationship between taxation and FDI flows: Time series, cross sectional studies, discrete choice models and panel data. De Mooij and Ederveen (2006) develop the precedent Meta analysis by including a total of 33 studies where the median and mean values of all semi-elasticity considered are negative in the four cases⁵. But these values are hugely influenced by a small number of publications with a large number of elasticity (the 5 larger studies represent 51% of the observations). Moreover, 48% of the observations are not significantly different from zero. The number of studies with positive semi-elasticity between FDI and taxation may be underestimated because the authors do not include information about unpublished results (De Mooij and Ederveen, 2006, p. 5). As De Mooij and Ederveen (2006, p. 34) acknowledge, there is no account of quality differences among studies. Finally, there are other studies reporting a non-significant or a positive elasticity that are absent from the Meta analysis (Wheeler and Mody, 1992, Swank, 1998, Garrett and Mitchell, 2001, and other studies on globalization).

⁵ In one study they are positive.

B) Early studies made the distinction between **financing of FDI through retained earnings and transfer of funds** and concluded that only the use of retained earnings was responsive to tax rates (Hartman, 1985). Later, Slemrod (1990) looked at FDI flows to the US and did not find a significant relation between retained earnings and tax rates while concluding that taxation affects FDI flows of funds. However, most of the studies, and the more recent ones, do not distinguish the source of finance of FDI and thus it is hard to reach a definitive conclusion about the relevance of the source of finance (De Mooij and Ederveen, 2003).

C) Studies also reach different conclusions in terms of **the relevance of home country system of taxation (credit or exemption)** in order to avoid double taxation. Slemrod (1990) and Auerbach and Hassett (1993) found no significant differences between the two systems of taxation in the determination of FDI flows. Devereux and Freeman (1995) do not find significant results in terms of the tax wedge as an explanation of the allocation of total investment between the domestic market and FDI. But Swenson (1994) and Hines (1996), looking respectively at FDI inflows to the US in 18 industries and across states, found that higher effective tax rates were positively associated with FDI levels from investors in countries with a tax credit scheme. Gropp and Kostial (2000), by looking at several OECD countries, also found that FDI outflows are inversely affected by fiscal policies in the home country. In the end, the possibility of deduction of taxes paid abroad and of deferrals in tax payments in the credit system makes it, in practical terms, quite similar to the exemption situation and prevents a definitive conclusion (Bird and Wilkie, 2000, and empirically De Mooij and Ederveen, 2006).

D) The use of control variables is usually restricted despite the existence of a large number of FDI determinants. These variables not only affect FDI but may also be correlated with taxation and, if they are not included in the regressions, an important bias is ignored in the empirical studies. Hajkova et al (2006, p. 25) show that the inclusion of policy variables in regressions more than halves tax elasticity estimates, turning taxation an unimportant determinant. This is related with a further problem affecting empirical studies, which is their robustness. Chakrabarti (2001) considers 14 studies that include taxes as an explanatory variable of foreign investment. From these, in 9 there appears to be a significant negative correlation between the two variables, while the remaining 5 were not significant or, in one case, had a positive relation. He also executes a robustness analysis of the coefficient

estimates for taxation when the conditioning information set is changed and concludes that the statistically significant negative correlation between FDI and taxation does not stand for all changes in the control variables. In other words, the manipulation of the set of variables when statistical regressions are performed allows for different outcomes.

De Mooij and Ederveen (2005, p. 25) also show that the inclusion of control variables for openness and agglomeration effects reduces the effect of taxation in FDI flows, thereby weakening the importance of the results presented by the empirical literature. However, empirical studies seldom try to include all FDI determinants, not even those directly related with location decisions. Wheeler and Mody (1992, p. 67) is an exception where the corporate tax rate is not found to play a significant role. Therefore, the impact of these determinants is needed in order to allow for a more reliable assessment of the role of taxation.

E) When considering the time and spatial dimensions De Mooij and Ederveen (2003, p. 689, 2006, p. 19) are not able to empirically confirm that capital has become more mobile during recent years and do not find significant differences between investors located in several groups of countries (EU, US, small countries and peripheral countries). This is the opposite of what one should expect given the increasing globalization of economic activity worldwide and the process of economic integration in the EU since the 1980's.

F) Finally, many different proxies were used for capital and the tax burden. FDI studies focus on real long-term investments while globalization research also includes other types such as short-term inter-bank movements and portfolio applications. In total, we were able to identify 9 different proxies on capital and 8 on the tax burden (Table 3.3.2: 1).

The outcome of the studies was not the same. Garrett (1995), Hallerberg and Basinger (1998) and Garrett and Mitchell (2001) were unable to find evidence of the expected effect of capital mobility pushing down statutory or average tax rates. Garrett and Mitchell (2001) use three measures of capital mobility: the Quinn index on financial openness, covered interest parity differentials for three months interbank deposits and FDI flows in percentage of GDP. Contrary to what the theory predicts, they find a positive relationship between FDI flows and the average capital tax rate. The same unexpected result is presented in Quinn (1997) and Swank (1998). Swank also finds that tax policies were less responsive to domestic investment

and profits as capital movements became more liberalized. Therefore, these findings point to the opposite of what theory predicts because taxation tends to increase and not decrease with international capital mobility.

Table 3.3.2: 1 - Proxies of capital and tax burden

Capital mobility or flows	Tax burdens
Quinn index on financial openness	Statutory corporate tax rate
Covered interest parity differentials	Cost of capital or pre-tax rate of return
FDI flows (total and in % of GDP)	Micro average tax rate (firm level data)
Short-term inter-bank movements	Differential of corporate tax rate
FDI stocks	Average effective tax rate
Plants, equipment and property	Average marginal tax rate
Number of locations	Macro average tax rate (%GDP or total taxes)
Number of investment projects	Average rate based on national accounts
Number of capital controls	

Grubert and Mutti (2000), Cummins and Hubbard (1995) and Devereux and Griffith (1998) find that tax rates are important for the decision on how to locate firms' production, but in the latter cases conditional on the decision to produce abroad. This is confirmed in a business survey presented in the Ruding Report (1992). However, they do not find significant evidence about the role of taxes in the choice between producing abroad, exporting or to be absent of external markets. Moreover, Devereux et al (2007) show the effect of governmental grants in the location of new plants to be weak in the presence of agglomeration economies. This raises further doubts about the role of taxes in explaining FDI location decisions.

The tax competition model predicts that investment is to be located where the net rate of return on capital is higher. However, Devereux and Freeman (1995, p. 98) test if corporations equate post-tax rates of return when deciding the location of investments and do not find significant results in terms of the tax wedge as an explanation of the allocation of total investment between the domestic market and FDI.

There are also many studies that present results more in line with theoretical predictions. Devereux and Freeman (1995, p. 96) also find a significant inverse relation with FDI inflows in some OECD countries. Rodrik (1997, p. 64) finds an inverse relation between the liberalization of capital restrictions and average tax rates on capital at high levels of trade openness. Gropp and Kostial (2000) use firm data for the tax burdens and IMF data for FDI flows and report a significant negative elasticity in several OECD countries. Most, but not all, of the published studies using US data also find a negative correlation between FDI flows and taxation (Hines, 1999). The same applies to Bénassy-Quéré et al (2000) when using the differential of the corporate tax in percentage of operating surplus as a proxy for the tax burden. Finally, Kroegstrup (2003) finds empirical evidence of a partial race-to-the-bottom by using covered interest parity differentials.

Moreover, there are some studies that show an inverse correlation between taxation and FDI flows to be stronger and more significant at a local level, within a market, than at a market or country level (Devereux and Griffith, 1998, and Head et al, 1999). This is more in line with the existing empirical evidence of jurisdictions competing for capital.

Besides the variety of proxies, there are other problems with the measurement of both variables. FDI flows do not include all investments made by foreign parent firms. Investments financed by debt in the host country are not included in FDI statistics and FDI does not comprise only real capital investments. FDI participations may be made through the exchange of shares where there are no real flows of money. Moreover, the problem with aggregate data is that it contains different components that may have different responses to changes in tax rates (Auerbach and Hassett, 1993). FDI can be divided by plants and equipment, joint ventures, mergers and acquisitions and equity increases. From this set, mergers and acquisitions (M&A) are not necessarily related with real investments in property, machinery and so on. This is quite relevant because OECD (2002) estimates that 80% of FDI flows between developed countries are of this nature and are usually associated with ownership or internalization advantages where the value of the elasticity to tax rates tends to be lower (De Mooij and Ederveen, 2006). Given these differences, some empirical studies tend to favour investment in plants, equipment and property as a better approximation to real capital investment. Swenson (2001) uses this definition for inward FDI to the USA together with the number of state locations or the number of investment projects (as a proxy to capital mobility)

and finds a negative elasticity to tax rates but in the case of mergers and acquisitions the elasticity is positive. Altshuler et al (2001, p. 14) use a measure of real capital and find that the host country average tax rates affects FDI location decisions. But the possibility to differentiate between types of FDI depends on data availability, which limits the studies to a few countries such as the USA.

The measure of the tax burden on capital depends on what type of income is considered. The main interest of this study is about taxes paid by companies that are investing on a long-term basis. Therefore, profits made by companies seem to be the relevant tax base. Interest and dividends may also be a part of the sources of revenue of a company but all of it is, in one way or another, included in pre-tax profits. However, the tax competition model includes a source-based tax in the return to all capital, independent of its term, which differs from a corporate tax on profits.

The empirical literature presents four different types of tax rates. The average tax rate is the ratio of the corporate tax receipts over total taxes or GDP and it is used in most of the studies on globalization where there is weak, or no, evidence of a correlation between taxation and capital flows (e.g. Hallerberg and Basinger, 1998, and Garrett and Mitchell, 2001). The remaining three types are expected to answer to three different firm's decisions (Devereux and Griffith, 1998). Decisions on profit shifting to lower tax countries rely on the statutory tax rate. The decision on how much is invested depends on the effective marginal tax rate, which is the difference between the pre and post-tax rates of return on a marginal investment project⁶. These are the source-based tax rates implicit in tax competition models where capital flows to a country up to the point where its marginal return (assumed to be decreasing with the amount of investment) is equal to the cost of capital, that is, the impact of the corporate tax in the level of invested capital is measured at the margin (OECD, 1991).

Finally, location decisions, as mentioned in 3.2.3, are discrete and depend on the effective average tax rate (EATR), which is the net present value of tax payments related with an investment project as a proportion of the net present value of capital income generated by the same project (the pre-tax return of the investment project). In other words, it is the proportion

⁶ The effective marginal tax rate is $(p - r) / p$, where p is the pre-tax rate of return on an investment and r is the post-tax rate of return on the same project (King and Fullerton, 1984, p. 9).

of profits taken by taxes. Rational firms choose the location that provides the highest post-tax profit or, in other words, firms consider taxes by measuring the reduction in profits predicted for each possible location. Then, the EATR is a measure that includes both the tax rate and the tax base and it is useful when a corporation does a lumpy investment or chooses between two locations (Devereux and Griffith, 2003).

EATR are forward looking and not based in the past tax rates, and so they are thought to be more precise and better in covering all the details of tax regulations that a potential investor faces when making a location decision. However, they are harder to obtain and to apply to empirical studies due to the dependence on several assumptions - interest rates, source of financing, depreciation rates, assets, life of the investment, fiscal incentives and so on (Devereux and Griffith, 2003) - concerning a so-called typical investment project. Therefore, they may have significant different values for different firms and economic sectors.

De Mooij and Ederveen (2005, p. 28) show that **discrete choice models usually present a lower elasticity than other estimation procedures, that is, the impact of tax competition is considered to be less relevant.** This is confirmed by the inexistence of evidence on tax competition based on estimation of reaction functions to changes in AETR at a country level. Even more important, it was only after effective tax rates were included in empirical studies on location decisions that the FDI elasticity became consistently negative (De Mooij and Ederveen, 2006, p. 30). Then, EATR seems to be the key to the inverse relationship between FDI and taxation in location decisions despite the existence of other studies with similar results using different model specifications and proxies on the tax burden (Bartik, 1985, Hines, 1996, Swenson, 2001).

Furthermore, one cannot be sure that firms, mainly those of small and medium size, really know the tax code in a detailed way and apply it through the use of EATR. Bachus et al (2007) do not find a relation between capital and EATR in the OECD for the period 1980-2004, indicating that this may be true. As Devereux and Griffith (2002, p. 488) acknowledge, the effect of tax reforms in developed countries has been in the sense of a larger reduction of the tax burden to investments with higher profitability (or a larger economic rent) and mobility. This means that different investment projects in the same location may face different tax burdens.

To conclude, although there is a role for taxation in explaining FDI flows it is not certain how relevant it is. Both empirical evidence and econometric studies present contradictory facts. What is certain is that the number of variables affecting FDI is too large to allow for a simpler explanation where only one factor says it all. Moreover, each location determinant of FDI may explain capital flows in certain circumstances while being irrelevant for other situations (developed and developing countries, financial and non-financial activity, “Greenfield” and mergers & acquisitions, large and small firms). Some may be empirically inconclusive when explaining FDI flows for certain countries but not for others. They are not universal explanations of FDI. This is due to the different characteristics affecting both the direction and the amount of FDI and it surely can be applied to fiscal variables.

3.4 - The mismatch between tax competition and FDI theories

FDI and tax competition literatures are two different fields that have been developing separately. Although both are part of the neo-classical paradigm, their theories and their findings were seldom related by economists. That explains why formal incompatibilities between these two areas of research have not yet been tackled. Chapters 2 and 3 together allow the identification of these “incompatibilities”:

- a) FDI is less mobile than short term flows
- b) Taxation has a very limited role in the FDI literature
- c) Tax rates are not the only variable that impacts on profitability
- d) Firms’ behaviour is not uniquely determined by tax-related concerns
- e) The tax competition model is not able to explain different characteristics of FDI decisions such as the type of FDI, the sector where firms operate, the size of the investor or changes occurring as economic environment evolve over the years.
- f) FDI location decisions are of a discrete nature and thought to be made by considering both the tax rate and the tax base (AETR) while tax competition models implicitly consider a marginal effective tax rate when explaining the stock of FDI

Besides these “incompatibilities” there are two further problems not properly addressed by both the tax competition and FDI literatures:

g) Taxation is not determined with the sole objective of attracting capital

Tax competition theory assumes countries to have active tax policies to attract FDI regardless of other objectives in tax-setting policies. This is an incompatibility with the theory of taxation that goes beyond the above described logic of tax burdens as an exclusive explanation of capital flows and looks at domestic influences over the determination of corporate taxation (Slemrod, 2004).

h) Investors do not know perfectly well where to get the higher return

A premise of the assumption that capital moves without barriers following the highest rate of return is that investors know perfectly well where they can get the higher return for their investments. In other words, they have perfect information about the conditions and the variables that affect their investments because they know the tax burdens on capital in each location. The FDI literature assumes investors are rational beings but recognizes the limits of information collection and is more concerned with how to explain the decision to invest abroad than with the outcome of the investment (Dunning, 1979, p. 272).

To sum up, the assumptions of the standard model of tax competition do not match with the literature on FDI. From the point of view of FDI theory it seems too simplistic to use tax rates as a key determinant of investment flows. These two literatures do not match in the sense that while tax competition gives a disproportional high weight to the role of taxation in explaining capital movements, the literature on FDI considers taxation as just one among many possible explanatory variables. Moreover, the tax competition model is not empirically valid at a national level when considering location decisions. Similarly, the economic literature shows that taxes are more relevant after the choice of the market, when the investor is in the final stage of negotiations with recipient local jurisdictions (Devereux and Griffith, 1998), in profit allocation or in further investments in the same location (Devereux et al, 2008).

3.5 - Conclusions

For more than 30 years a significant amount of financial and human resources have been allocated to research tax competition and fiscal variables have been considered to play a role in influencing capital flows and location decisions. But the standard tax competition model is too general in its assumptions and is a reinstatement of the view presented in the 1930's by Nurkse (cited by Ietto-Gillies, 2005, p. 53) where capital arbitrage would move investments from low-return to high-return countries (supposedly least well endowed with capital). This view was severely criticized by Hymer and others by showing that firms operate in imperfectly competitive markets where there are two-way flows, FDI has to absorb additional costs in comparison with local investors (Caves, 1996, after p. 25) and profits earned by TNC's are not in line with the supposedly national marginal product of capital. Given the need to be accurate, **the object of this dissertation is limited to FDI location decisions because they are relevant for jurisdictions wanting to attract capital to improve economic conditions.** The findings of tax competition theory may differ according to the different natures of capital flows. A consequence of this delimitation is thus the need to address the existing "incompatibilities" between tax competition and FDI theory so that a better assessment of those findings can be achieved.

The delimitation of the object allows for a new look on the role of taxation in FDI flows. FDI is not just a question of looking to a screen and finding out where the higher return is in order to put the capital there, as is often the case in financial markets. It is a far longer and complex process where location decisions are based on many factors that vary with the type of firm, the characteristics of the host country and with costs or strategic concerns. Theoretically FDI locations can be determined by the AETR. But taxation is just one of its determinants that impact on profitability. Moreover, location decisions are not like reinvestments or tax planning activities because decisions are made by investors with less information about selected alternatives and about those markets who are disregarded at the outset.

The use of a behavioural approach does not affect the focus of neo-classical tax competition theory. However, **it is not clear how important taxation is in determining FDI locations,** as Markusen (1995, p. 171) recognizes. Many studies show an inverse relationship between FDI flows and tax burdens. This result is, in some cases, stronger for investment flows within

a market than for FDI and, thus, is in line with the empirical evidence of tax competition. However, model specifications, data problems, insufficient control variables, robustness analysis, the continuous growth of corporate tax revenue and the existence of agglomeration economies prevent a definitive conclusion about how relevant are taxes in determining investment location decisions. Furthermore, empirical studies are not able to determine if taxation is causing FDI flows to occur or vice-versa and simulation studies show that the size of the inefficiencies is not large but it tends to augment with an increase in capital mobility.

From the above it can be seen that the neoclassical approach of FDI and tax competition literatures are not able to explain the complete picture. Both fields are usually based in partial-equilibrium models that do not consider behavioural issues and the complexity of economic decisions made by firms. The perceptions of firms' decision makers are usually absent from both literatures. But given that there are a large number of variables affecting these decisions and firms are seldom directly asked about their decision making process, it cannot be clear how relevant are tax variables for location decisions. Therefore, instead of trying to explain why firms invest abroad, the behavioural approach may permit a better assessment of the role of taxation through the understanding of how the decision making process develops and how uncertainty affects firms' behaviour. In this way the "incompatibilities" of both FDI and tax competition literatures can be dealt with.

Chapter 4 – A behavioural approach to tax competition for FDI

Economic literature did not address some assumptions of the standard tax competition model and thus its results are not able to explain everything that is empirically observable (Annex 1.1). Moreover, its results are not totally compatible with FDI theory (chapter 3.4). The purpose of this chapter is to present a complementary approach to address these assumptions so that the predictive capabilities of the tax competition model are strengthened, including its implications for tax policy at national and EU levels, and to improve the compatibility between tax competition and FDI theories by gaining a better understanding of firm's location decisions.

The approach is based on behavioural economics and starts from the decision-making process in FDI operations by giving a central role to uncertainty when location decisions are made and by considering the perceptions of managers. The following chapter complements this one by applying the methodology outlined below to provide an empirical application of the behavioural approach.

4.1 – An interdisciplinary approach

The limitations of the neoclassical paradigm require an interdisciplinary approach, through the use of other social sciences such as psychology¹, so that a richer and more complete approach to economic problems is achieved. This is done by, as Albanese (1991, p. 20) states, going “... *beyond the boundaries of economics to make ‘bona fide’ contributions to economics. But go beyond economics we must, if we are to broaden the behavioural foundations of economic analysis and expand the limits of applicability of economic theory*”.

The behavioural view aims to address some of the usual assumptions of neoclassical literature such as rational behaviour, the aim to maximize profits and the access to perfect information about revenue, costs and the marginal productivity of capital. Moreover, it deals with the

incompatibility existing between tax competition and FDI theories, namely capital mobility, the role of taxation in capital movements and its impact on firms' profitability.

It is based on two main sources of literature. First, the findings on firm behaviour and the related decision-making processes that are the cornerstone of behavioural theories of the firm since the 1950's. In brief, economic agents, managers included, are not fully rational in their decisions, even if they pretend to be, because they cannot collect, correctly perceive and process all of the relevant information. This is what Simon (1955, p. 114, and 1959, p. 277) termed as "*approximate rationality*", a characteristic of most of the decision-making processes, where individuals are "*satisficing*", or choosing among a restricted set of alternatives, their utility. Second, the more recent application of experimental cognitive psychology to economic decisions. These are based on behavioural anomalies and human motivation and their impact on the decisions of economic agents (behavioural finance is one of its finest examples). The developments of this behavioural approach have shown that individuals use judgemental heuristics or simplifying strategies in their decisions and that these lead to systematic errors and biases, that is, deviations from rationality that may be large and, thus, have huge social costs².

The two sources will be used together to understand if, despite all the time and effort dedicated by academics to the research of tax competition and the current visibility that it enjoys, this subject has the corresponding degree of interest in the world of corporations and investment decisions. The final aim is **to understand the role of manager's perceptions and other behavioural characteristics in FDI location decisions so that the impact of taxation can be better understood**. In other words, the interdisciplinary approach is also focused on processes and not only, as neoclassical theory, on outcomes.

4.1.1 – A behavioural perspective on FDI location decisions

The neoclassical theory of the firm states that market optimization demands maximization from firms, that is, investing up to the point where its marginal benefits equal its marginal costs. This means that firms have both the objective and the ability to maximize and are

¹ As proposed by Lewis (1982, ch. 2) or Frey and Eichenberger (2001, p. 12).

² This is important because the failure of agents to maximize – even small deviations from rationality - may correspond to a significant welfare cost for society as Akerlof and Yellen (1985) have shown.

supposed to deal in an optimal way with uncertainty. Furthermore, they have access to perfect information about the conditions and the variables that affect their investments, i.e., they know perfectly well where they can get the highest return for their investments. Even if this is not achievable in the short term, learning processes and external incentives should enhance the ability of firms to reach optimal decisions in the long term.

The behavioural approach, on the other hand, fully considers the FDI decision-making process by giving uncertainty a central role in each step. This is very important for three reasons: First, the emphasis on rules of behaviour in this dissertation arises from the fact that most situations faced by decision makers are related to “nonreplicable uncertainty or even ignorance” (Heijdra, 1988, p. 83); Second because individuals usually deal with each event in a separate way before combining the outcomes³ (Kahneman and Tversky, 1979, p. 279) and, therefore, this is also applicable to each different step in FDI decisions; Third, as Alchian (1950, p. 213) proposes, because it seems more sensible to develop a model from an initial situation of uncertainty and only then to add elements of foresight, and not to start it on a certain goal such as profit maximization and afterwards abandon it by considering uncertainty and different motives for agents’ behaviour.

Uncertainty is a feature of most decision making situations and it may be described as “*the absence of ability to decipher all of the complexity of the environment; especially one whose very structure itself evolves over time*” (Heiner, 1983, p. 569). It includes, besides risk, the known unknowns and unknown unknowns. Contrary to risk, the remaining part of uncertainty cannot be mitigated and it is not possible to assign probabilities for each alternative (Knight, 1921, Ch. VII.). However, the behaviour of all types of agents is thought to be highly influenced by uncertainty (Heiner, 1983, p. 562) and while neoclassical economics play down the outcomes to which they are not able to assign a probability the behavioural approach emphasizes it. That is, it differs from expected utility theory where risk and uncertainty are often faced as being the same thing while acting as a constraint to maximization (Hirshleifer and Riley, 1992, p. 10).

It is the ambiguity arising from the considerable ignorance about the likelihood of an event that provokes uncertainty. An example of this ambiguity is scanty and unreliable information

about the reaction of potential competitors when the firm invests abroad. This may lead to conflicting views among members of the board and to patterns of decision that systematically violate rational behaviour (Ellsberg, 1961, p. 669) such as inconsistency in the various steps of the decision making process. Thus, inconsistency also justifies a central and separated role for uncertainty in explaining FDI location decisions.

Furthermore, as exposed in 3.2.3 each FDI location decision comprises not only the “economically rational” part but also the “behavioural” part, where perceptions and other cognitive features of managers are included (Katona, 1975, p. 328). Therefore, this approach concerns the way the behavioural component influences a FDI location decision by recognizing the relevance of managers’ cognitive characteristics⁴.

The behavioural perspective considers that managers, like any individual, when facing uncertainty are subject to errors and anomalous behaviour in decision making due to cognitive dissonance⁵. Both may be corrected. But while errors may be a one time deviation from economic rationality explained by the limited capabilities of human beings, heuristics are sequential deviations, where intuition has a role and its own rationality, and are represented by systematic and predictable biases arising from behavioural rules (Conlisk, 1996, p. 676; Frey and Eichenberger, 2001, p. 12).

Generally speaking, these behavioural rules are usual choices typified in accordance with their place in the time span, that is, related with past or present events or concerning expectations about future developments, and by its intrinsic or extrinsic origin (Alchian, 1950, p. 213; Simon, 1959, p. 274; Aharoni, 1999, p.13; Frey and Eichenberger, 2001, p. 14).

In a dynamic perspective, when agents are finally able to correct their anomalous behaviour the environment has changed in a significant way and, because a changing context impacts the perceptions of managers, agents have to permanently re-start their personal learning process to cope with the new environmental conditions. Therefore, the behavioural approach

³ For example, the collection of information in FDI operations is done without previous knowledge of the location decision.

⁴ By cognition is meant the psychological result of perception and learning and reasoning.

⁵ Cognitive dissonance refers to conflicting thoughts between what one holds to be true and what one knows to be true and it may lead a person to actively avoid information which would increase this conflict (Earl, 1995, p. 92).

aims to identify the relevant durable patterns of firms' behaviour, as proposed by Winter (1986). This is relevant because FDI locations may take months to be completed and include a large number of decisions.

The behavioural rules originated by the use of simplifying strategies to reduce complexity may provide explanations for FDI decision making that go beyond the traditional ones. Many have been applied to financial markets and, although the actions and the outcomes of these markets are much more easily observable than in the case of foreign investment, some may be extrapolated to FDI decisions and complement the current literature. They are valid both to explain information collection, selection of alternatives and for the final FDI location decision based on the information available. Thus, even without forming a unified model (Machina, 1987, p. 149), they **complement both the neoclassical and the traditional behavioural theories of the firm in the explanation of FDI.**

4.1.2 – The basic model

The present approach attempts to predict the decision behaviour of firms by considering several optimization barriers while including optimization as a special case. This is in accordance with the Competence-Difficulty (C-D) model, proposed by Heiner (1983, 1985a, 1989), where the “competence” of an agent is confronted with the “difficulty” in selecting most preferred alternatives. **The Heiner model explains constrained behaviour or behavioural regularities from the existence of uncertainty** (the C-D gap). Therefore, the unaddressed assumptions of tax competition theory, such as rational behaviour, profit maximization and perfect information, can be relaxed and the existing incompatibilities between tax competition and FDI theories can be addressed by focusing on the uncertainty surrounding decision making processes.

An existing gap between competence and difficulty means that agents face uncertainty about how to use information in selecting an option from several potential alternatives when a decision has to be made. Therefore, uncertainty exposes the limits of any agent in any selection process. This is a different approach from neoclassical economics where it is assumed “...for the purpose of theoretical explanation that there is no gap between an

agent's competence and the difficulty of the decision problem to be solved ..." (Heiner, 1983, p. 562).

The Heiner model presents two types of variables, environmental (e) and perceptual (p). The first represents environmental (complexity-stability) influences from the past, present and future, in economic, legal, political or cultural terms, surrounding the decisions made by firms while the second refers to how managers perceive the connection between their behaviour and the environment, that is, how they react to information. The second variable includes both the intrinsic and extrinsic characteristics of individuals. The two together determine the gap between capacity and difficulty, that is, the degree of uncertainty (U). The more complex is the environment or the less reliable are the perceptions of managers the greater is the C-D gap and the uncertainty in the decision making process.

$$D - C = U, \text{ with } C \leq D \quad (\text{neoclassical theory usually assumes } D = C) \quad (1)$$

Where U is uncertainty or the difference between D (Difficulty) and C (Competence) in selecting most preferred alternatives when making a decision.

$$U = U(e,p) \text{ and} \quad (2)$$

$$U'(p) < 0 \text{ and } U'(e) > 0$$

Now consider a firm that, after an assessment of its internal capabilities and strategy, decides to invest abroad. To that end information is collected about several alternatives. The investor has now a determined repertoire of options and flexibility to consider an additional action in the decision making process. This new action may be access to new information on the existing alternatives or on how much to invest, or collecting information about a new possible location. It may include hiring a specialized firm to help the decision making process in terms of plant installation, financing or risk, for example, or the creation of an internal task force to develop the process. In all cases, however, because it is directly related with the FDI it influences all future decisions.

The flexibility of the investor to select a new action may improve their performance if, under the right perceptual and environmental conditions, this new action is preferred to the alternatives in their repertoire. That is, if it represents an improvement given the imperfect information and imperfect response to information but without necessarily reaching the maximum potentially achievable performance (Heiner, 1985b, pp 579 and 583). Otherwise, under the wrong conditions, the new action is less preferred than the alternatives in the repertoire and the investor has no advantage in having the flexibility to select it. Therefore, it all depends on how the agent perceives the likelihood of different conditions produced by the environment and this can be represented as the probability of the right or wrong times (conditions) to select an action, respectively $q(U)$ and $1-q(U)$ ⁶.

Given uncertainty the investor cannot distinguish the right from the wrong conditions to select an option and thus they may not select the new action when it is the right time or may select the new action when it is the wrong time. For example, the investor does not know when it is the right time to start collecting information on a new location alternative. Then, the key issue is how the investor perceives their relationship with the environment, that is, his imperfect response to information. It is the degree of his sensitivity to new information and the way that he deals with it that influences the selection, or not, of a new action. Therefore, both the conditional probabilities of selecting the new action when it is the right $\{r(U)\}$ and the wrong $\{w(U)\}$ times depend on uncertainty and as uncertainty increases r will decrease and w will increase⁷:

$$r'(U) < 0 \text{ and } w'(U) > 0$$

When there is no uncertainty, $r=1$ and $w=0$, the new action will always be selected at the right time and thus it is reliable. In other words each new decision is on the right path towards maximization and agents behave as predicted by the neoclassical model (Heiner, 1983, p. 565). This is the usual assumption of neoclassical models where agents use information perfectly by selecting actions that maximize the expected utility based on available information. However, in general there is uncertainty about how to use information or when

⁶ The formalization of Heiner only considers the environmental (“e”) variable but the inclusion of the perceptual variable does not change the outcome of the model (Heiner, 1985b, p. 583).

⁷ It should be noted that these “behavioural” probabilities are not known by agents. Therefore, this is not similar to expected utility theory where investors are able to assign subjective probabilities to outcomes.

to select particular actions and $r < 1$ and $w > 0$. An extemporaneous decision to collect further information about risk characteristics of a country, for example, may be useless and may have a negative influence on a future location decision.

The reliability of using new information or selecting a new action is $r(U) / w(U)$, which represents the chance of “correctly” responding under the right circumstances relative to the chance of “mistakenly” responding under the wrong ones. Greater uncertainty reduces the reliability of the selection given that it reduces r and increases w .

The gain or loss in performance from the selection of a new action, in comparison with the initial set of options, depends on how the environment affects the consequences from different actions and is presented as $g(U)$ and $l(U)$. For example, if a firm locates its investment in a chosen country when it is the right time to do so it will have an average gain of $g(U)$. Otherwise, like investments located in Argentina before the currency crisis, it will have an expected loss of $l(U)$. Schematically:

<u>Conditions</u>		<u>Firms' option</u>		<u>Change in performance</u>
Right	→	Selecting a new action	→	$g(U)$
Wrong	→	Not selecting	→	-
Right	→	Not selecting	→	-
Wrong	→	Selecting	→	$l(U)$

It is possible now to determine when the use of new information or the selection of a new action is sufficiently reliable for a firm to benefit from having the flexibility to gain further information or alternatives affecting an FDI location decision. It happens when the expected gains to select the option when it is the right time cumulate faster or are superior to the expected losses of selecting the option when it is the wrong time:

$$g(U) q(U) r(U) > |l(U)| (1-q)(U) w(U) \tag{3}$$

Dividing both sides of equation 3 by $g(U) q(U) w(U)$:

$$r(U) / w(U) > |l(U)| / g(U) \times (1-q)(U) / q(U) = T \tag{4}$$

On the left side it is the reliability ratio, that is, the actual reliability of using information or selecting an action. On the right side it is a tolerance limit T which the reliability ratio must satisfy. T specifies a minimum requirement in terms of reliability for which there is a benefit for an investor from having the flexibility to decide what information they will allow to influence a FDI location decision. Equation 4 presents the relationship between the possible set of options of an agent and the structure of their relationship with the environment. When there is greater uncertainty, the reliability ratio is reduced and the selection of a new action has a smaller chance of improving the performance of the decision maker. With lesser uncertainty the opposite happens. Due to uncertainty the agent can never know when the reliability ratio is higher than the tolerance limit.

Thus the C-D model implies that the access to a wider set of options is not necessarily advantageous for an agent in terms of performance. That is, and contrary to neoclassical economics, it may be advantageous for an agent to simplify their behaviour to less complex patterns by restricting the flexibility to use further information or to choose further particular actions. The restricted use of information by decision makers found in Simon (1955, p. 106) is an example. In this way uncertainty becomes the source of the regularities observed in agents' behaviour while in neoclassical economics predictable behaviour arises from the will to maximize when choosing most preferred actions.

This is explained by the inverse relationship existing between the likelihood of choosing an action in the right time, $q(U)$, and the tolerance limit T . The reliability condition, for a given $l(U) / g(U)$ ratio, accelerates to infinity as $q(U)$ drops to zero (Figure 4.1.2: 1). That is, to satisfy the minimum requirement in terms of reliability (T) an agent tends to ignore actions which are appropriate only in unusual circumstances by relying on behavioural rules. This means that agents disregard actions that improve their performance with a positive probability $q(U) > 0$ and it shows a behavioural rigidity in adjusting to new situations. In other words, an agent must rely on actions which are adaptable to relatively recurrent situations. These rules of behaviour or patterns, such as norms, routines, administrative procedures or rules of thumb, systematically reduce the flexibility of behaviour. Given that these rules prevent the selection of preferred actions under certain circumstances and at any point in time, one can never say that agents are behaving "as if" they could attain maximization.

The model predicts behaviour from uncertainty in a way where optimality is an exception. In the neoclassical world, if time, learning and the right incentives are introduced agents would improve their performance and behave “as if” maximizing (Horowitz, 1970, p. 317). But here this is not necessarily so given that uncertainty does not disappear and thus time and learning do not necessarily continuously improve the performance of agents⁸. Uncertainty is agent specific and is present, in different degrees, in all periods of the model given that its structure (environment and perception) also evolves with time. The access to new information or to a larger set of options may or may not reduce uncertainty (depending on the reliability of the selection) but it also increases behavioural entropy and thus can hardly eliminate it (Heiner, 1985b, p. 580; Heiner, 1988b, after p. 38). This is confirmed by dynamic models showing that optimality may imply non regular and unstable behaviour leading to errors in agents’ decision making (Heiner, 1989, p. 234).

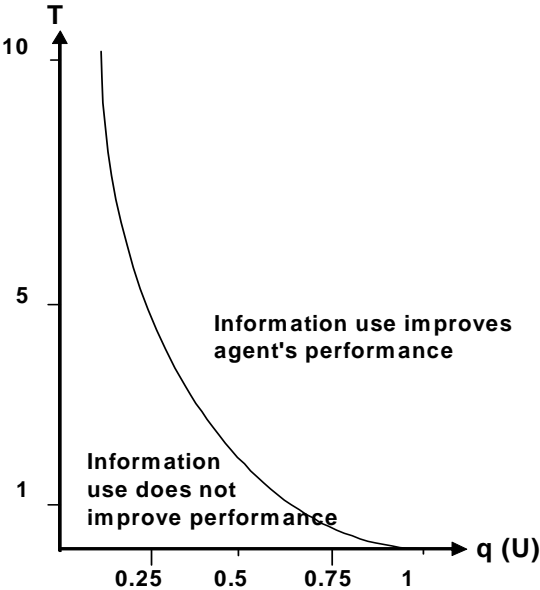


Figure 4.1.2: 1 - Reliability condition

Furthermore, the existence of dynamic learning processes does not guarantee that agents with an inferior performance will disappear. That is, the evolution of the behavioural rules to structure and limit the flexibility of agents in an appropriate way (that is, exactly coincident with the wrong conditions to select a new action) cannot be assured. Given the existence of

⁸ Uncertainty is the “main conditioning factor of evolutionary processes” (Heiner, 1983, p. 585).

uncertainty one can never know when the environment would produce situations that severely punish agents with an inferior performance. Appropriate and inappropriate behaviour may co-exist when weak selection (of competing agents) processes occur. An example is a firm choosing the wrong place to locate its investment but proceeding with it despite the losses. Given that the firm may have investments in other places, the gains obtained there may be used to finance the losses.

4.1.3 – Development of the model

Two related developments can be included in this model of behaviour prediction and its application to FDI decisions made in Hosseini (2005). The first is to explicitly emphasize the intrinsic and extrinsic component of perception in the model in order to complement the relevance given to environmental variables⁹. The second is to consider the several steps of FDI operations by seeing it a “non-programmed” decision making process in the sense of Cyert et al (1956, p. 276).

Each FDI related decision is supposed to be in accordance with the strategy of the firm and deals with potential sources of information on costs, revenue and risk. But the access to these sources has also a component of uncertainty. Due to uncertainty investors do not know if the selection of a new action improves their performance (if its reliability is above the required tolerance limit). The response to potential information depends both on the environment and on managers’ perceptions. Perceptions on information may lead to bounded rationality, where costs, management time and abilities are constraints, or to the use of simplifying strategies in recurrent situations. Therefore, competence is affected by bounded behaviour (B) and the use of behavioural rules (A). From equation (1):

$$\begin{array}{l} \text{If } D = C \quad \Rightarrow \quad U = 0 \\ \text{If } D > C \quad \Rightarrow \quad U > 0 \end{array}$$

Considering that uncertainty provokes bounded behaviour and the use of behavioural rules

⁹ Heiner refers it (e.g. 1983, p. 575; 1985b, p. 580) but not in a testable way. But others such as Frey and Eichenberger (2001, p. 14) or Simon (1955, p. 274) regard it as essential to explain behaviour.

$$U = B + Ae + Ai \quad (5)$$

where A is divided into the extrinsic (Ae) and intrinsic (Ai) components of behavioural rules. As long as

$$C < D \quad \Rightarrow \quad U = B + Ae + Ai > 0 \quad (6)$$

Therefore, if there is bounded rationality or “anomalous” behaviour in FDI location decisions maximization cannot be achieved. The farther from zero they are the larger is the gap between the competence in a FDI location decision and the difficulty to implement it.

In the case of bounded rationality it may be that firms are behaving “as if” maximizing even if they are not able to maximize due to imperfect information or any other reason. But if behavioural “anomalies” are repeated in recurrent situations, in order to minimize the number of decisions where performance may be reduced, firms are surely not behaving “as if” maximizing.

After each decision or response to potential information the process re-starts until a final location decision is made. Thus, the model also applies to all the internal decisions related with a FDI operation made by the employees of the firm (Heiner, 1988a, p. 31,32). The model for FDI location decisions is shown in figure 1 and all the included “behavioural” steps are separately discussed below.

Finally, the central hypothesis of the Heiner model results from equation (6): Assuming a fixed B, **the higher the uncertainty the higher is the reliance of investors** (or any other agents) **on behavioural rules**¹⁰. Higher uncertainty results in a higher probability of the wrong time to select an action $\{1-q(U)\}$ and in a lower probability of the right time to select an action $\{q(U)\}$. This, on the other hand, represents an increase in the tolerance limit and, consequently, an increase on the needed reliability condition to select an action in the right time. The requested higher reliability constraints flexibility in adopting new options and leads to a higher use of rules of behaviour.

¹⁰ Heiner (1983, p. 570) concludes: “*greater uncertainty will cause rule-governed behaviour to exhibit increasingly predictable regularities, so that uncertainty becomes the basic source of predictable behavior*”.

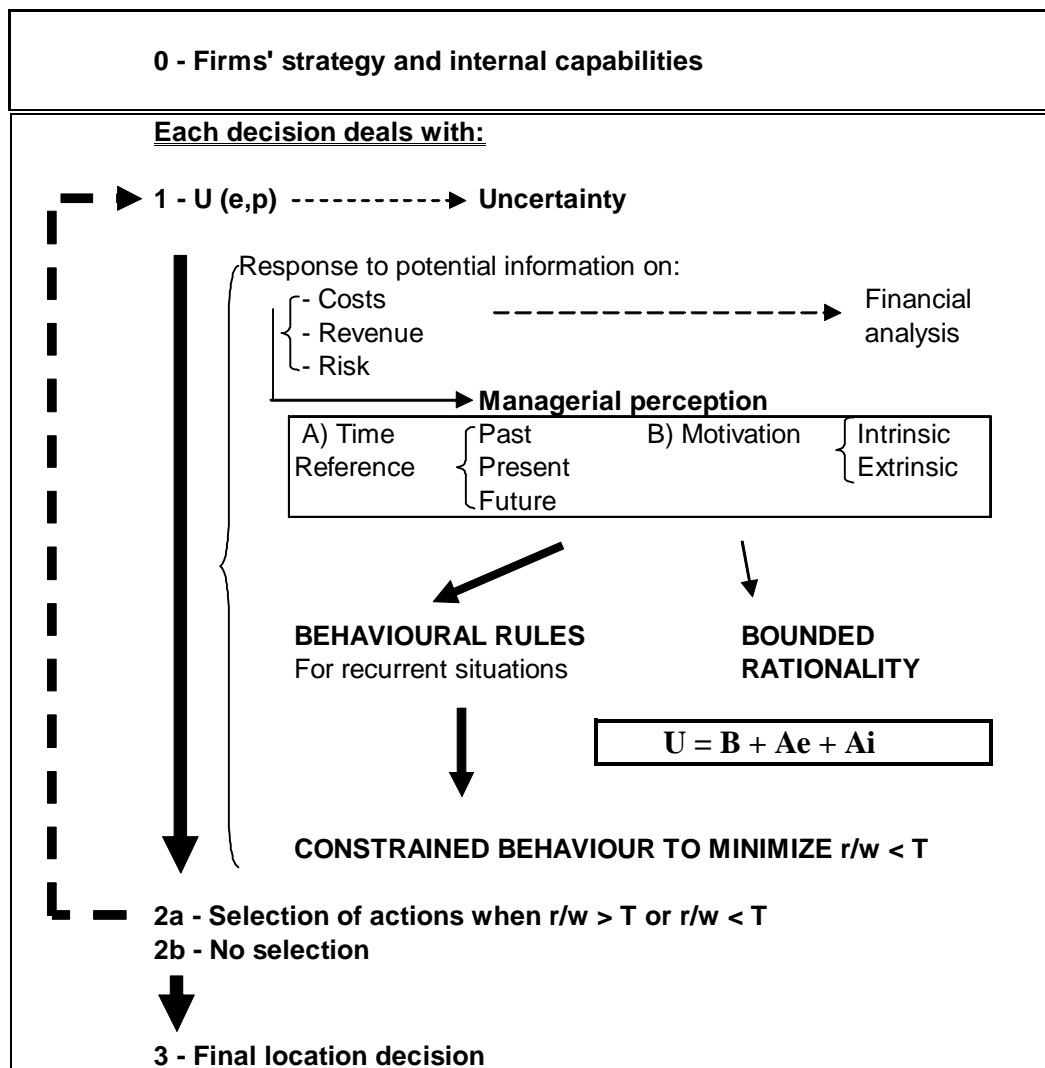


Figure 4.1.3: 1 – FDI Locations: Decision-making process in a C-D Model

A prediction of the model is that firms tend to invest in countries with lower uncertainty. If a Portuguese investor has two alternatives, investing in an EU country or in Africa, and considering that uncertainty is higher in the latter case

$U(a) > U(ue)$, where (a) is for Africa and (ue) for European Union, then

$r(a) < r(ue)$ and $w(a) > w(ue) \Rightarrow r(ue) / w(ue) > r(a) / w(a)$ and

$q(ue) > q(a) \Rightarrow l(ue) / g(ue) \times (1-q)(ue) / q(ue) < l(a) / g(a) \times (1-q)(a) / q(a)$

and

$$T(ue) < T(a)$$

According to the model decision makers should opt for investments in the EU given the lesser uncertainty, i.e. the smaller C-D gap, and the higher relative probability of selecting the right action at the right time. As noted in Hosseini (2005, p. 538), this is confirmed by the empirically observed predominance of FDI flows among developed countries.

4.1.3.1 – Maximization and long term strategies

Neoclassical theory states that a firm is maximizing when the cost of producing the last additional unit of a good is exactly the same of the additional revenue obtained with its sale. This marginalism approach is a clear method for decision-making. However, given that this is essentially a mathematical definition, it is not an easy-to-use procedure for a firm. Nevertheless, decision-makers are thought to employ marginal analysis with respect to what they believe to be the appropriate decision-making parameters (a subjective assessment of marginal costs and revenue). They may even not do it in a conscious way, but it is believed that through a series of errors and trials managers will end up “as if” maximizing (Horowitz, 1970, p. 317).

The Heiner model, on the other hand, considers maximizing behaviour as a special and theoretical case and is not explicitly concerned about the maximizing behaviour of agents. It follows Alchian (1950, p. 212) by stating that maximization is achievable if there is no uncertainty. Therefore, the existence of situations where maximization is not happening shows that the maximizing assumption is not needed in the behavioural approach.

First, to achieve maximization managers need to follow long term strategies designed both from the environment and the internal capabilities of firms. Without a clear strategy to guide all the departments and workers of a firm in the allocation of its resources, where consistent decisions are consecutively made, profit maximization becomes impossible to attain (Simon, 1991, p. 37). Thus, in FDI locations all the decisions should be consistent with maximization

requirements and defined within the broader strategy of the firm. A FDI is one more operation for a firm and, therefore, maximization is attainable only if rational managers align all their efforts in the same direction. However, empirical studies show that even firms claiming a maximization objective do follow guidelines to make certain decisions, where strategic planning is ignored, that are inconsistent with optimization (Schwartz, 1998, p. 145).

Second, other objectives for the firm than profit maximization have been suggested in an imperfect competition scenario: Growth in order to survive in the market or to be less fragile to hostile takeovers, following competitors, risk diversification or sales maximization (Simon, 1959, p. 262, and Cyert and March, 1963, p. 9 and 10). There are also firms that have qualitative objectives such as social responsibility or to be environmentally friendly. These objectives are usually seen by neoclassical economists as necessary steps towards maximization in the long term. For example, growth in size may be just a first step for a firm to become more capable of competing in international markets and, through the integration of suppliers or distribution networks, to avoid some transactional costs in order to maximize its expected returns in the long run. As Penrose (1959, p. 30) underlines when justifying the profit motive of the firm, «...*growth (of the firm) and profits become equivalent as the criteria for the selection of investment programmes*». But firms may have more than one objective and these could change over time.

Third, the objective of having a minimum, predetermined, level of return on equity or of profits may act as a barrier to maximization. This goal is very common among firms and, in this case, there is not the explicit aim to maximize (Simon, 1955, p. 110). Suppose that a firm has the objective of achieving a 15% return on equity in 5 years. If the firm achieves its profitability objective before the predicted date the concern immediately becomes to assure that profits are kept within the objective and not to keep on trying to increase them without limit. It may be argued that in the long run firms will improve the definition of their goals and the maximization aim will then be established (Horowitz, 1970, p. 317). However, this is not necessarily the case if firms keep on presenting a minimum profitability as an objective, even if this objective is continuously reconsidered, because market conditions are also not stable and managers have to learn how to understand and to deal with them in a continuous way. Thus, in an unstable scenario, such as competitive markets, managers are firstly concerned with achieving and maintaining their goals and the setting of an objective may work both as a

reference for a firm but also as a limit to further improvements. This objective may be related with an industry benchmark and managers may avoid innovative alternatives for fear of doing comparatively worse and thus earning a low ability reputation (Zwiebel, 1995, p. 17). The C-D model includes this view in its dynamic proposition by stating that not only maximization is prevented but less efficient firms remain in operation (Heiner, 1983, p. 569).

Fourth, market contestability may operate as a limit to profit maximization when firms achieve too high a level of profitability because the attention of potential competitors, regulators, tax authorities or employees is attracted (Katona, 1975, p. 296). This should not be interpreted as managers making business decisions specifically with the aim of limiting the profitability of their firms but exerting some discretion over profits by relaxing their decision-making and eventually behaving in an altruistic¹¹ way when expecting profitability to be above the objective (Williamson, 1963, p. 1053). This can also happen for a middle manager with a determined sales goal in one year. If the manager reaches the objective in October, for instance, he can have a very relaxed November and a comfortable Christmas shopping with his expected bonuses. The incentive is not to further improve their sales because in the next year their goal will be determined by using as a basis the level achieved in the previous year. Thus, the objective of a minimum level of profitability may work as a limit to maximization when there are conflicting objectives among managers and the firm (Schwartz, 1998, p. 53). A different situation arises in monopolistic structures when a “relaxation policy” is included in strategic behaviour in the context of discretion by owner-managers about their preferences between leisure and work. Given the comfortable position of the monopolist (lack of tough competition), the owner-manager can relax and not try to attain maximization. As Hicks (1935) puts it “*The best of all monopoly profits is a quite life*”. This can similarly be applied to state owned firms.

Finally, the maximization aim should also consider how managers’ expectations are formed by confronting firm’s and manager’s objectives and confirm if they are compatible¹². Managers have other concerns such as their own personal objectives, not necessarily coincident with those of the firm and its owners, and these may eventually prevent

¹¹ By giving away money for charities, NGO’s, environmental associations or cultural and sports events.

¹² Simon (1991) refers four organizational phenomena – authority, rewards, identification and coordination - to explain people’s motivation to contribute to the goals of a firm and, therefore, to limit discrepancies between managers’ and firm’s objectives.

maximization. This can happen when a manager is too focused on short-term rises of share values, and consequently on higher bonuses that affect their personal wealth, and the relationship with customers and the firm's reputation may be jeopardized. This is in contradiction with the firms' long-term objectives (Simon, 1991, p. 30). When firms are "destroyed" by managers through the sale of their "juicy" assets, regardless of the interests of their owners (Sweezy, 1938, cited in Horowitz, 1970). Or, in the same principal-agent context, when objectives such as a minimum level of profitability are established by the same manager or group of managers that have the responsibility of achieving them. If these objectives are linked with some type of success bonuses for managers, as happens in many firms nowadays, then they are tempted to avoid the setting of ambitious objectives and to establish a level of profitability more easily achievable, as long as it is sufficiently reassuring for shareholders, but short from maximization. They can even use an industry benchmark for that end despite the average firm in the industry being no closer to maximization¹³.

In the case of FDI, whether firm's and manager's objectives are compatible or not may depend on the consequences of the location decision for managers involved. For example, if they believe that their job is at risk because the operation is not being successful or if there is a potential increase in their own benefits from a too quick successful FDI, they may opt to "place" costs further in the future and to anticipate revenue. Or if they opt to locate the investment near a more pleasant but expensive place.

It can be argued, in the presence of different goals for managers and the firm, that managers would want to maximize profits anyway but, instead of distributing it to owners, they would prefer to reinvest it in order to gain personal prestige via the successful growth of the firm (Penrose, 1959, p. 28). This is easily understandable if it is considered that managers, through a feeling of group behaviour, tend to identify themselves with the firm they manage (Katona, 1975, p. 292). However, this is only one possibility which does not avoid selfish (personal wealth of the manager), altruistic or relaxed behaviours.

How important are minimum profitability and the private goals of managers as constraints for maximization is not certain and it may depend on the context in which the decision-maker is located. Simon's idea that firms aim to reach satisfactory profits, that is, profits sufficiently

¹³ This can also be explained by reputation-based herding (see 4.1.3.4.2)

superior to a reference point such as last years' seems more realistic than maximization given that it does not require consistent preference orderings or estimates of probability distributions in decision making. Therefore, **one cannot take for granted that all firms, or any firm, follow the maximization objective.** Other concerns – environmental, social responsibility - are nowadays present in firms' annual reports.

4.1.3.2 – Imperfect information

The use of information is essential in decision making and thus it is necessary to understand what motivates the search for it by a firm (Cyert and March, 1963, ch. 4). FDI decisions are assumed to be based on expectations about outcomes in terms of revenue, costs and risk, and potential and actual competitor's threats, and the information sought should be in accordance with these expectations. Furthermore, the ways in which information is obtained and processed through the organization should also be considered.

Neoclassical theory assumes that new information decreases the complexity of FDI decisions and thus leads decision makers towards optimization. Hosseini¹⁴, in his FDI behavioural approach, also assumes the same but fails to acknowledge that this happens only temporarily for two reasons. First, as new information allows a more accurate description of the environment its entropy increases reducing the reliability of an agent in decision making (Heiner, 1985a, p. 394). Second, the environment permanently evolves changing uncertainty in unpredictable ways (Heiner, 1989, p. 234). Thus, due to uncertainty agents respond imperfectly to information and information is not perfectly available in FDI decision making and no assumption on this regard is necessary.

This is better understood by considering that rational managers should locate their investments in an alternative where the marginal return is equal to the higher opportunity cost to achieve maximization. Given that each firm faces a large number of alternatives, it is necessary to collect all the relevant information on costs and revenue (including tax rates), on all the potential places to invest, and to process that information in a way that allows for a rational decision. Tax competition theory sees it as possible when considering the higher rate of return to be determined by the lower tax rate on FDI given that investors are assumed to have perfect information on costs and revenue for each potential location. But to collect all

the information and to have it updated and available at the moment of the decision may be a “Herculean” task. Thus, some choices have to be made about which alternatives to select and the amount of information to collect.

This has several problems. First, it is difficult to define an optimal search process for selection of alternatives and collection of information given the costs and the scarce resources of managers in terms of attention and cognition. As regards the amount of information to collect, an optimal decision requires that managers use marginal reasoning and stop collecting further information when its costs are equal to the benefits provided at the margin. But it is hard for a manager to know when that point has arrived. Gabaix and Laibson (2003) discuss and test how deeply should individuals approach complex decision problems given their constraints. The objective is to find near-optimal decision making processes through the use of simplifying procedures where the option value of continued analysis is determined by the new insight yielded by cognitive analysis (the smaller the new insight the lower the value of continuing with the analysis) and by the existence of a particular choice that gains a large edge over the available alternatives (the larger the edge the lower the value of continuing with the analysis).

This approach may be understood in terms of the sensitivity of managers to potential information in the Heiner model. But, although useful, it does not pretend to reach optimal decision making and is not applicable to all complex problems. For example, alternatives in information collection are often examined sequentially and not simultaneously and a selection may be based on a group of the first x alternatives that satisfy a determined set of conditions. Given the sequential process, the best alternative may be excluded. Moreover, alternatives are not always “*conspicuous*” and the more difficult it is for a manager to find satisfactory options the more they accept less satisfactory alternatives (Simon, 1955, p. 111; Schwartz, 1998, p. 63).

Second, wrong choices due to biased perceptions about the available information may also prevent an optimal FDI decision (Weber, 2004, p. 163, 164). Perceptions are thought to be both subjective and relative to a standard of reference. Different presentations of the same information may lead to different individual responses or decisions. Moreover, FDI decisions

¹⁴ Hosseini (2005, p. 536) formalizes “ n ” as “new information” and “ e ” a decreasing function of n $\{e'(n) < 0\}$.

are often made with the help of external consultants but these can have a different perception on information or on the problem faced by the firm. Thus if information is not correctly perceived, a manager can end up by trying to find a solution for a problem that is not the one he really faces.

A related problem questions if managers are able to handle all the relevant information. Even with the huge advances in information technology, that allow for the processing of an enormous quantity of data, it is unlikely that they are. Either because a lot of information is needed in the decision making process and managers are not able to obtain it or because this excessive amount of information may overload managers. To collect information on all potential markets for a FDI decision is almost impossible. But even if possible, the quantity of information would be an excessive burden. Furthermore, each firm handles information in a different way. Therefore, firms tend to choose only from a limited number of alternatives based on available information (Cyert and March, 1963, ch. 5).

Information is also key in dealing with risk. Economic theory states that managers are aware that their decisions have risk as a constraint. This means that the decision maker is able to deal in an optimal way with the probabilities assigned to each alternative choice by considering its own attitude towards risk. This is addressed by Von Neumann and Morgenstern in their model of decision making under risk. The model relies on four basic axioms and presents the conditions of a preference ordering among different alternatives for a decision maker (Horowitz, 1970, after p. 342). A rational investor faces several alternatives where to locate its investments and the optimal choice should be based on (objective or subjective) probabilistic distributions of outcomes for all alternatives. By using this model, the decision maker is able to make consistent decisions, according to their own risk preferences, and to maximize the expected utility. This is supposed to be valid for several types of decisions including investments abroad.

The assumption that managers have their objectives (and implicit values) ranked and very well defined, in a way that allows, in consecutive decisions, for a consistent preference ordering and choices from among several options available, has been severely criticized (Miljkovic, 2005). Several authors have shown that not all of Von Neumann-Morgenstern axioms are valid in all situations. Allais (1953, p. 529) and Kahnemann and Tversky (1979, p.

285) show the independence or substitution axiom (if A is preferred to B, then an even chance to get A or C is preferred to an even chance to get B or C) to be not always valid. Ellsberg (1961, p. 663) discovered that individuals may have a strict preference between two alternatives that are normatively equivalent. This is explained by the preference for a less ambiguous option and shows that uncertainty cannot be discarded from decision theory as neoclassical economics often assumes. Furthermore, experiments have shown that individual choices are sensitive to how the options are presented and thus violate the invariance principle (the framing effect) and have also presented evidence of violations of the dominance principle, that is, if option A is better than option B in every respect, then A is preferred to B (Tversky and Kahneman, 1981, p. 454).

Nevertheless, although risk is a component of uncertainty it should be considered autonomously given the possibility, based on collected information, of establishing a probability for each possible outcome. That is, risk is the part of uncertainty that can be predicted and, in some situations (e.g. exchange rate), eliminated by the appropriated measures and firms very often do that when making risk policy decisions within FDI operations. Investors, according to their preferences, may have the option to mitigate it or to opt, in a conscious way, for higher risk when coverage costs are deemed too high. The advantage of making risk autonomous in a model that pretends to predict firm behaviour is the possibility to consider risk policies. This has several implications for empirical analysis.

In neoclassical terms an immediate implication is the possibility to consider investment projects in terms of risk-adjusted value. If an investor is not risk averse and is only concerned with maximizing profits, the optimization rule precludes the use of diversification strategies because investors would put all the money where the return is highest (Horowitz, 1970, p. 302). Even considering that FDI has, after a certain point, negative marginal returns, this is also valid and the tendency would be always to concentrate it in just a small number of locations up to the point when marginal returns are equalized. On the other hand, if the investor is risk averse it can be mitigated through diversification while following an optimal rule of investment with the maximization of expected returns (Markovitz, 1952, p. 79¹⁵). This rule presents a typical neoclassical problem of maximization subject to a maximum

¹⁵ Despite its age the Markowitz model is still accepted as a benchmark for portfolio investments in risky assets when short-selling and riskless assets and borrowing are not possible.

acceptable risk constraint. It assumes that investors want to choose the optimal solution but it does not consider if the investor is ever able to access all the required information to establish this optimal solution.

Given that there is no consensus on diversification as a determinant of FDI (e.g., Markusen, 1995, p. 171), it can be said that the presence of a firm in a wide number of locations is many times not due to risk diversification concerns but may be a sign that it is not maximizing its expected returns. In some situations, there may be reasons, such as servicing clients abroad, for a widespread location of FDI. But this is not necessarily always the case.

Moreover, a rational or unbiased attitude by firms towards risk is to mitigate it while considering the costs of the process. In other words, a firm should cover as much risk as possible if it does not have a significant impact on profits so that among different alternatives with the same expected return the less risky one can be chosen. These include several types of risk that need mitigation, namely those of the operational type (exchange rate, interest rate or the fiscal risk). The failure to do so may imply that there are other less risky investments with the same expected return and, thus, the choice of the firm is located in the interior of the curve that represents the set of combinations of optimal solutions in the Markovitz model and thus optimization is prevented. Given that to achieve an optimal choice in this setting it is necessary that managers are able to correctly perceive and evaluate risk within the decision making process and that this implies access to all the relevant information, it is difficult for a group of managers in a firm to correctly assess and weight the importance of these constraints. Therefore, if the necessary information is not available managers are not able to deal with risk in an unbiased way and this means that just an approximation of the optimal is possible.

Given the above problems **it seems unreasonable to rely on the perfect information assumption** as the standard tax competition model still does because managers, when deciding complex FDI operations, do not have access to all the relevant information. This assumption has been widely criticized even by neoclassical economists (Ross, 1973, or Stiglitz and Grossman, 1980) and Gordon and Bovenberg (1996) present the existence of asymmetric information as an explanation for the imperfect mobility of capital, as it is the case of FDI.

The access to further information may be precluded by the lack of an optimal search process, cognitive limits or costs. Thus managerial behaviour is at best characterized by bounded rationality (Simon, 1955, p. 114). At worst, however, heuristics may also determine FDI location decisions and the economic literature presents several examples of rules of thumb arising from the perceptions of managers that play a role when choices in the collection and processing of information have to be made. Some are presented now.

4.1.3.3 – Competitiveness and bounded behaviour

There are different reasons for bounded rationality to occur and, as shown above, in some cases it is due to some unacceptable decisions in a firm that supposedly aims to maximize its expected returns. In other situations the incorrect processing of information, collection and handling procedures or risk policy failures explain the failure to maximize. There are further examples which will be addressed below (4.1.3.4) due to their different nature.

Neoclassical theory predicts that firms operating in more competitive environments tend to become more efficient and thus to make more rational decisions. When firms also operate beyond their domestic borders and in more developed markets they tend to feel more strongly the level of competitiveness. In this sense, the higher the degree of competition faced by a firm the less should be the number of bounded situations. But only up to a certain point determined by the limited ability of managers to deal with information (Simon, 1955, p. 111). From this point on the number of bounded situations does not necessarily diminish. This is because a more competitive environment may also increase complexity and uncertainty limiting the ability of managers to decide. Thus, contrary to what neoclassical economics predicts **the level of competitiveness is not necessarily always inversely associated with bounded behaviour** (Heiner, 1985b, p. 580, 1989, p. 234; Guth, 2007, p. 521).

4.1.3.4 – Managerial rules of behaviour

Psychologists recognize that managers, as human beings in general, have several motivational factors that are either intrinsic to their personality or shaped by their environment and may have multiple and changing objectives that are often contradictory (Frey and Eichenberger,

2001, p. 14)¹⁶. Furthermore, values are subject to choices and change with personal experiences of individuals. This change in values modifies the objectives that individuals attempt to attain (Akerlof, 1983, p. 54 and 62). It is within this complexity that economic behaviour must be considered. A simple example of intrinsic motivation is altruistic behaviour. The extrinsic type includes all environmental incentives to behaviour where the response of managers, as individuals, to incentives is conditioned by the degree to which stimulus, such as the present globalization of economic activity where the level of competition was substantially increased and technological change was accelerated, influence their motivations (Scitovsky, 1976, cited by Schwartz, 1998). Given that managers have checks on their performance (from competition, shareholders, customers and employees) they often do make their choices more carefully than as if they acted as individuals. But managers are not immune to moral, cultural and other social influences usually disregarded in the economic literature.

In both situations perceptions may generate different types of heuristics and biases that systematically deviate from the predictions of unbounded procedural rationality (Frey and Eichenberger, 2001, p. 12). Behavioural rules are thus simplifying strategies to reduce complexity that are explained by uncertainty and initiate anomalies or biases from expected rational behaviour.

In this sense all anomalies that are recurrent may be considered as behavioural rules. This includes both FDI location decisions not consistent with the strategy and others that are also inconsistent with optimization. In the first case consistent decisions imply FDI operations to be in accordance with the aim of maximization if they are within the broader strategy of the firm.

The role of behavioural rules is not consensual, however. Hirshleifer and Riley (1992, p. 34, 35), for example, consider that experimental evidence on heuristics only translate certain limitations of the human mind and give an incorrect idea of how individuals behave in real situations when making really important decisions. Therefore, the authors say, heuristics do not affect the findings of the neoclassical approach when dealing with uncertainty because

¹⁶ Schwartz (1998, p. 48) lists eight different motivational factors that affect the economic behaviour of individuals: Need for achievement; locus of control; sensation seeking and risk taking; altruism; time preference; cognitive system; life style and a preference for preference change.

they can be avoided through learning and the right incentives. The issue, then, is if there are behavioural rules, representing deviations of rational economic behaviour, which are systematically followed by decision-makers even considering both learning and incentives.

The neo-classical approach deals with uncertainty by transforming it into subjective choices based on individuals' expectations. The behavioural approach also recognizes this but highlights uncertainty as an evolving phenomenon by focusing on the cognitive characteristics of individuals as key to the decision-making process and, thus, as the basis of the changing expectations considered by the neoclassical theory. That is, the problems faced by decision makers change with uncertainty and thus the same happen with behavioural rules. Therefore, these **cognitive characteristics initiate systematic behavioural deviations from rationality that economic literature has shown to exist in rather different situations and that are not immediately corrected through learning or incentives due to the limits of the human being** (Heiner, 1983, p. 564; 1989, p. 234; Arrow, 1996, p. xvii).

4.1.3.4.1 – Intrinsic cognitive behavioural rules

There are several examples of heuristics arising from intrinsic motivational factors. **Learning** processes are thought to induce managers to become more successful in optimizing by reducing the impact of limits to rationality through improvements in the way they deal with information and decision making (Cyert and March, 1963, p. 123). That is, prior and imperfect procedures should be corrected and the way to avoid the errors of the past is to change behaviour in investment decision making through learning.

However, the role of learning is valid in optimizing when uncertainty is absent. Otherwise, and because both the environment and perceptual abilities of managers keep on changing, learning becomes a continuous process and optimal learning procedures cannot be implemented. Firms continue to follow imperfect procedures even if their specific nature changes both in terms of managerial behaviour or information collection and processing. A first explanation for it is that individuals change procedures by relying on past decisions (that act as a precedent for future decisions) subject to the constraint of imperfect recall, i.e., where individuals are not able to remember, in all situations, the contingencies that led to their past decisions (Gilboa and Gilboa-Schechtman, 2003, cited by Brocas and Carrillo, 2003, p. xxii).

But this may also be explained by the tendency of individuals to minimize the importance of past negative events through the use of ex-post explanations that make them seem inevitable in retrospect. This is **hindsight bias**, where the world seems more predictable than it is in reality (Fischhoff, 1982, cited by Hilton, 2003, p. 281).

Mental accounting is a different heuristic but it may also lead, in some situations, to systematic deviations from rationality. Economic research has shown that risk taking behaviour is affected differently by prior gains and losses. Expected utility theory only considers incremental outcomes from current wealth when decisions are being made. That is, past experiences of decision makers, be it gains or losses, are not considered and choices must be invariant across problem descriptions. Thaler and Johnson (1990, p. 658) find that under some circumstances investors find attractive opportunities to **break-even** after prior losses. This is consistent with what is called *loss aversion* in prospect theory (Kahneman and Tversky, 1979, p. 287). People are more cautious when they are investing to earn money and more adventurous when they have the prospect of losing because they fail to adapt to recoverable losses. Thus, a loss that is recoverable may induce risk behaviour. This may indicate a tendency for managers to further invest in a non-profitable business if they believe it is possible to recover current losses. Staw (1976, cited by Thaler and Johnson, 1990, p. 659) discusses the effect of **sunk costs** on choice behaviour and finds that investors seem more willing to put additional money in a faltering venture when they have previously committed funds to it.

Thaler and Johnson (1990, p. 657) also show that investors with prior gains (such as successful FDI decisions) may be more willing to accept a higher risk (or to have a more positive attitude towards risk, the **house money effect**) as long as the prior outcome is not totally cancelled, that is, as long as the potential loss is lower than the prior gain. This is a situation where investors have a feeling of control or the ability to limit loss, as shown by Olsen (1997, p. 64) in an empirical study with investment managers, and it is a type of mental accounting that explains how previous good experiences by managers affect current decisions. On the other hand, investors with prior losses (seen as non-recoverable) may be less willing to take risks because they are not able to integrate the subsequent losses with the prior outcome. The difference between loss aversion and the house money effect is due to the perception investors have about risks from potential decisions, that is, if a loss is recoverable or not, and

it helps explaining how previous experiences by managers in FDI decisions may affect current decisions.

There are also examples of anomalies related with the present. The lack of “conspicuousness” between alternative options is shown when managers base similar types of decisions on different evidence. Slovic (1969, 1972) found that experts in financial markets use few clues to decide and have little insight as to which ones influence their decisions. Furthermore, they all seem to use different evidence than those used by other experts, which implicitly uncovers the existence of **inter-expert inconsistency**. This can be transposed to FDI by considering that location decisions can be made based on a few variables, such as production costs or size of the market, and for each firm the variables may not be the same. Therefore, at least some firms seem to under use information.

The **framing** effect happens when different presentations of the same information or situation may lead to different individual responses or decisions (Tversky and Kahneman, 1981, p. 454). In the context of selecting and collecting relevant information, for example, there may be biases towards the higher attractiveness of “vivid” over abstract information and also due to the relative visibility given to the information presented (such as relative order). This violation of the invariance principle is a serious obstacle to rationality if one thinks that inconsistency occurs in very simple experiments, where the decision-maker has only two options. Given that each FDI location decision is more complex and has a lot more options than simple experiments it should be more vulnerable to inconsistent choices. The existence of framing effects may alter the perceptions of decision-makers and, therefore, lead to non-optimal decisions in two situations: when the relevant information for FDI location decisions is selected and when these decisions are made. A possible example of non optimal decisions due to inefficient information is the influence of internal recommendations or external advisers to managers when they do not have access to all the information. The more “convincing” and biased to the judgement of the proponent are these proposals the more they can “wrongly” influence decision makers.

Representativeness is the tendency for an individual to view events as typical or representative of some specific class and to ignore the laws of probability – about the outcome, for example - in the process (Tversky et al, 1982, p 4). In other words, it is a

possible way of explaining how investors form beliefs or misinterprets information and, by reasoning by analogy and relying on small samples, how can they prevent optimal decisions by ignoring contradictory probability data that may be available. An example is weak competition in a foreign market to be thought to lead to higher profits.

Rules of behaviour may also originate in **feelings** affecting individuals when making decisions under conditions of uncertainty. Lucey and Dowling (2005) review this literature regarding equity pricing decisions and present several situations where the mood state at the time of making an investment decision may affect the judgement of investors (Slovic, 2002, cited by Lucey and Dowling, 2005, p. 226). For example, when an investor chooses equity based on whether they like or dislike the firm. This can be similarly applied to a country location.

Finally, expectations about the future may lead to **overconfidence** when the disregard of relevant information by managers leads to non-optimal FDI location decisions. Illusion of control or the tendency of managers to overestimate control over outcomes due to perceived better skills and abilities are examples of overconfidence (Hilton, 2003, p. 275). Other potential explanations include the situation when managers have more information than they can handle and thus tend to be overconfident, and the fact that people tend to think they know observable facts better than is actually the case. A further reason is the existence of mistaken beliefs, illusory correlations, such as “*less developed markets means higher and easier profitability*”. Overconfidence may also be explained by a tendency of individuals to interpret information to confirm their pre-judgements or initial information (**confirmatory bias** – Rabin, 1998, p. 26).

All these reasons explain managerial overconfidence and there is empirical evidence of this problem. Russo and Shoemaker (1991) compared predictions made by experts in several domains (medicine, psychology and financial analysis) with simple linear regressions ran on half of the information available for experts, and found that the latter was, on average, better in predicting events. Malmendier and Tate (2005) also present empirical evidence of overconfidence in the context of corporate investment.

4.1.3.4.2 – Extrinsic cognitive behavioural rules

The uncertainty arising from the influence of the environment over the perception of managers also helps to explain “anomalous” behaviour. An example is **anchoring** where traditional values and common historical and cultural practices condition present behaviour (Guiso et al, 2005). Anchoring happens when social states are evaluated from a particular starting point and the choice of this point influences behavioural outcomes (Frey and Eichenberger, 2001, p. 26). Grinblatt and Keloharju (2001, p. 1064) and Beckmann et al (2008) provide examples in investors’ decisions through the identification of a reference point for decision-makers based on a common tongue and cultural background. This cultural influence can also originate from the specific historical practices of each firm that determine the concept of psychic distance (Johanson and Wiedersheim-Paul, 1975, p. 308). Therefore, cultural variables should not be ignored given that they can influence decisions and play a significant role in determining FDI locations.

Referring to the present, the **availability** of recent, dramatic or well publicized events is usually overestimated by individuals. And the opposite characteristics, such as normality and regularity, leads to an underestimation of the relevance of events. This bias may alter judgements by managers in FDI location decisions. These are situations in which the frequency of an event is judged by the facility with which its occurrence is remembered (Tversky et al, 1982, p. 11). When there is a huge stream of news about the attractiveness of some markets, managers’ attention is immediately transferred from other potential targets. China, for instance, is an example of a recent and well publicized opportunity that may induce a firm to ignore other potential markets. It is composed both of a *signal*, relevant information about the Chinese market for a potential investor, but also by *noise*, that is, non relevant information that also impacts on the reaction of managers¹⁷. This heuristic is explained by the privilege given by individuals to the “strength of evidence”, that is information immediately evident, over the “weight of evidence”, which individuals only consider at a later stage in a secondary way (Griffin and Tversky, 1992).

¹⁷ *Noise* helps to explain the existence of “bubbles” in financial markets through feedback between investors (Shiller, 2003, p. 91).

There are also models of social learning and information externalities, widely used for financial markets, which may be applied to FDI location decisions. They are an example of how maximization may be prevented due to misleading social influences. **Herding** refers to any behaviour similarity brought about by social influences on an individual's thoughts, feelings and actions, and transmitted through words or direct communication, observation of actions or of outcomes (Scharfstein and Stein, 1990; Banerjee, 1992; Shiller, 1995). It means that the behaviour of individuals is based on both private information and the influence of others but that the later prevails over the first leading to similarity of decisions. When an individual's selected action does not depend on their private information signals but is based only upon their observation of others, then they are said to be in an **informational cascade** where their action is uninformative for third observers (Bickshandani et al, 1992; Hirshleifer and Teoh, 2003). The role of social influence has been also analysed in the context of (financial) market stability and aggregated group information. In this situation, investors tend to think independently when markets are stable because people feel surer of themselves (Crutchfield, 1955, cited by Hilton, 2003, p. 285) but pay more attention to the opinions of others when there is market instability (Schachter et al, 1985, cited by Hilton, 2003, p. 285).

Strang and Macy (2001, p. 157) model fads in management methods, meaning that managers learn by observing the actions and outcomes of other managers and suggesting the existence of herding behaviour and informational cascading. Other papers present evidence of both herd behaviour and cascades in investment decisions in different markets (Jain and Gupta, 1987, p. 84; D'Arcy and Oh, 1997, p. 475; Foresi et al, 1998, p. 404). In FDI, Kinoshita and Mody (2001, p. 456) show that Japanese firms are encouraged to engage in investment in other Asian countries when other (Japanese) rival firms do it. This suggests that managers have the perception that rival firms have useful private information about the desirability of such investment (in accordance with herding). Gilbert and Lieberman (1987, p. 26) study investments on 24 chemical products and find that larger firms tend to invest where the others do not while smaller firms tend to follow the larger ones, free-riding informationally the supposed «fashion leaders». The reason might be that large firms have scale economies in acquiring information or greater absolute benefit from acquiring precise information. Finally, in the context of agglomeration economies, Barry et al (2001, p. 12) show evidence of **signalling**, that is, managers perceiving the presence of rival firms as an indication of useful private information about the attractiveness of a market. Given that social pressure may alter

the care, consistency or criteria with which people select information and make decisions, affecting an individual's confidence in their own judgements, herd behaviour and cascades may lead, through a **false consensus bias**¹⁸, to non-optimal decisions by investors. This bias can be applied to FDI decisions when there seems to be unanimity towards the attractiveness of some markets, even with a less than required knowledge. China, India, or Eastern Europe is currently the most referred market opportunities but in the past other markets such as Latin America were among the preferences.

A specific aspect happens when herding occurs due to reputational concerns of managers (**reputation-based herding**). Scharfstein and Stein (1990) present a model where it is better, in reputational terms, to fail by following the herd than to succeed by being a deviant, and Zwiebel (1995, p. 17) present another where it is always better to succeed but managers tend to follow the industry benchmark and avoid innovative alternatives for fear of doing poorly in relation to the industry and earning a low ability reputation. There are other reasons for non-optimal behaviour by managers such as pleasing investors or clients and subordinate managers pleasing superiors by giving recommendations consistent with their (of superiors) expectations (Rajan, 1994, p. 427). Baumeister (2003) explains this individual self-defeating behaviour by emotional distress, social considerations such as reputation and the pressure of making too many important decisions in a short period of time that may alter the capacity to think correctly.

Finally, there are moral constraints, from family, friends, institutions, religion and everything that helps or influences individuals by shaping preferences that affect the behaviour of managers. These have a role in economic decisions (Etzioni, 1988) and the actual concern with social responsibility confirms it. A studied example is **fairness**, when managers act in conformity with informal but socially accepted rules or standards (Kahneman et al, 1986).

4.1.4 – Final remarks

The behavioural approach brings a new set of variables to both FDI and tax competition literatures. First, all the questions concerned with the existence of the objective to maximize

¹⁸ A tendency to overestimate the number of firms who share the investment preferences of another firm – Thaler, 2000, p. 133)

and the problems that prevent this maximization have been deeply considered by “*behaviour lists*” such as Henry Simon. Bounded rationality means that economic agents, managers included, are not fully rational in their decisions, even if they pretend to be, because they face several constraints such as the mixing of personal and firm objectives, uncertainty and cultural influences, and they cannot collect, correctly perceive and process all of the relevant information (Conlisk, 1996, after p. 686).

Second, the Heiner model presents behavioural rules as evidence of the relative rigidity faced by decision-makers and the impossibility of achieving optimization. These rules need to be considered so that the behaviour of economic agents in FDI location decisions can be understood. They are organized according to the taxonomy presented in Table 4.1.4: 1. The columns are divided according to its source of motivation, the intrinsic or the extrinsic dimension of cognitive characteristics. The rows are divided according to the time reference that originates them. However, this is not an exhaustive study of all behavioural rules but of those that could apply to FDI operations. Given the theory it is expected that FDI location decisions are explained by behaviour rules and are not dependent of maximization objectives.

Table 4.1.4: 1 – Taxonomy of behavioural rules in FDI location decisions

Time	Type	Intrinsic	Extrinsic
Past		Learning, hindsight bias, Sunk costs, Mental accounting, Break-even effect, house money effect	Historical anchoring, Cultural anchoring
Present		Framing, Representativeness	Availability, Feelings, Fairness, Herding, Cascading, Signalling, False consensus bias, reputation-based herding, Inter-expert inconsistency
		Strategic inconsistencies	
Future		Overconfidence, confirmatory bias	

Third, FDI flows are differentiated from short term capital flows and, in this context, perfect capital mobility is no longer relevant for the tax competition model.

Fourth, managers are able to choose the highest net rate of return only if they correctly deal with uncertainty, avoid all types of biases and have access to all of the relevant information. This is valid for both tax competition and FDI literatures where the perfect information assumption is needed not only to know business tax rates but also the remaining variables that determine the tax burden of a company. Given that this is impossible, there are justifiable doubts about the role of the tax burden in explaining FDI flows. The same is true for the implicit assumption that taxation is the only variable to affect profitability.

Both rationality in decision making and perfect information are the basis of the results obtained by the tax competition literature. But given that they are very strong assumptions there is a gap that can be filled in by using the behavioural approach. In this way it is possible to address the assumptions that the neoclassical literature failed to consider and to extend its application.

4.2 – Small group decision making

So far, no explicit consideration has been given to who is making FDI location decisions. The terms “firms” and “managers” have been used interchangeably without a clear definition of who is the decision maker. The behavioural approach builds its findings partially on psychology and, therefore, it is mostly focused on the individual. Then, an important question is if it can be used for firms’ decisions.

A firm employs a lot of people, from simple assistants through middle managers to top managers. It is well understood in the theory of the firm that all levels or units within a company have at least some participation in the decision making process (for example, through the information collected and/or transmitted to the board, Cyert and March, 1963, ch. 5). But the final say in important decisions, such as investing abroad, are taken by one or a small group of individuals. Thus, is it a collective or an individual process?

First, it may depend on the structure of the company. Individual decisions are more likely in family owned firms where the owner is the manager than in public or state owned firms. Nevertheless, in most firms decisions are usually discussed within a group such as the

executive committee and thus it seems that small group decision-making fits better in the case of FDI location decisions, even if one of the members of the executive board is the leader and a large number of other individuals participate in the process by giving information and advising.

It is widely believed that group decision-making is generally better than individual decision-making as long as there is a pooling of information and knowledge and a complete analysis of the different options (Einhorn et al, 1977, p. 168; Hinsz et al, 1997, p. 52, 53). Furthermore, decision makers, when aggregated in a group, tend to overvalue private information and undervalue information obtainable by observing others. Thus, people tend to underestimate the impact of situational influences on their judgement when these are part of a group, relying on their own perceptions and thinking.

However, there still remains individual thinking and objectives for each member of the group. The psychological literature presents two phenomena that balance the pooling of information and knowledge inside a group. First, ‘groupthink’, where a group of individuals mutually reinforce each other into believing that their collective point of view is right, although it can be wrong (Janis, 1982, p. 174). The underestimation of external influences by groups does not prevent individuals from being influenced prior to the group formation and the same applies for the group as a whole; Second, ‘risky shift’, where there is a trend, after group discussion, for the group to prefer riskier options (Stoner, 1968). The last one is a very robust result and may be explained by group polarization, where there is an intensification of shared attitude positions due to information sharing (when individuals participating in a group discussion find new reasons that support their initial position), and diffusion of responsibility (if anything goes wrong it is a group, not an individual, responsibility).

Moreover, it should be noted that even in financial markets where managers are considered by the behavioural literature to make decisions on their own, there is usually a formal or informal pool of information and knowledge between individuals belonging to a fund management team or a dealing room (Hilton, 2003, p. 287). A significant difference between FDI and financial markets is that, in the second case, decisions are made, most of the times, on a daily basis despite using a lot of research, while a firm’s decision to invest abroad is much more discussed and it takes longer to be reached. But the same happens with corporate finance

decisions and the behaviour finance literature has been widely used to explain them (Scharfstein and Stein, 1990, p. 476).

Therefore, despite the focus on small group decisions in the present work, individual behaviour should also be considered given that groups are made of individuals. Moreover, as Katona (1975, p. 287 and 289) puts it, *“in line with the contention that the business firm represents an organization with a life of its own, we shall speak of the firm as a singular rather than a plural actor”* and *“it is not at all certain that genuine decisions play a larger role in business than in consumer behaviour. Nor is it certain that goal setting and decision making are more deliberate in large than in small firms”*. That is, it can be assumed that **group decision-making is not sufficient, in itself, to avoid the same type of heuristics and biases in decision making found by psychologists**. Thus, the findings of psychology applied to behaviour finance are also valid to the specific case of foreign direct investment decisions.

4.3 – Hypotheses

Based on the approach discussed above it is now possible to define the main hypotheses of this dissertation. They are based on the assumptions not addressed by the neoclassical literature and, besides a confirmation of the Heiner model, are focused on two main areas. First, on the imperfect rationality of decision making within the FDI context, and second, on its impact on tax competition and on the formal incompatibilities with FDI theory.

Hypothesis A – The Heiner model

H1 - The higher the uncertainty the more frequent is the use of rules of behaviour

H1a – Firms invest more where there is less uncertainty (Heiner, 1983)

Hypothesis B – Firms are not fully optimizing agents because their managers are not ‘neoclassical’ decision makers

H2 - Firms are not able to follow a maximizing behaviour in all situations

H2a: Maximization is not an achievable objective

H2a1: Firms do not have a clear permanent strategy, focused in the long term, as maximization requires (Simon, 1991, p. 37).

H2a2: Most firms have different objectives, both quantitative and qualitative, and aim to reach a minimum level of profitability that is a barrier to maximization (Simon, 1955, p. 110; 1959, p. 262; Cyert and March, 1963, p. 9,10)

H2a3: Firms in a monopolistic position, that are not in public hands or where one of the managers owns a significant share and makes the decisions themselves are further away from maximization (Hinsz et al, 1997, p. 52, 53; Hicks, 1935).

H2a4: The personal goals of managers are often contradictory, and thus not compatible, with firms’ goals (Simon, 1991).

H2b: There is imperfect information in FDI decision making

H2b1: All of the relevant information is not perfectly available (Simon, 1955, p. 111)

H2b2: Agents imperfectly perceive available information (Weber, 2004, p. 163, 164)

H2b3: Information is handled in different ways by different firms (Cyert and March, 1963, Ch. 5)

H2b4: Managers deal in a biased way with risk by failing to implement optimal risk mitigation policies (Weber, 2004, p. 164)

H2b5: Market diversification is not necessarily used as a risk coverage policy (Weber, 2004; Markusen, 1995, p. 171)

H2c: The degree of competitiveness is not always inversely associated with the number of bounded procedures (Heiner, 1985b, p. 580, 1989, p. 234; Guth, 2007, p. 521).

H3 – FDI location decisions are explained by rules of behaviour and are not dependent on maximization objectives

H3a: Intrinsic

H3a1: Firms are not always able to learn from experience in FDI operations (Cyert and March, 1963, p. 123)

H3a2: Managers are less risk averse when believing that previous losses are recoverable (Thaler and Johnson, 1990, p. 658)

H3a3: Managers are willing to accept a higher risk after a previous gain as long as they perceive the ability to limit losses (Thaler and Johnson, 1990, p. 657).

H3a4: FDI decisions are not always consistent with the defined strategy (Intrinsic nature - Schwartz, 1998, p. 145).

H3a5: FDI location decisions are influenced by managerial overconfidence (Hilton, 2003, p. 275)

H3b: Extrinsic

H3b1: FDI location decisions are influenced by cultural variables (Grinblatt and Keloharju, 2001, Guiso et al, 2005, Beckmann et al, 2008)

H3b2: FDI location decisions are influenced by the history of the firm that is investing

H3b3: FDI decisions may be systematically inconsistent with rationality (Extrinsic nature - Schwartz, 1998, p. 145).

H3b4: FDI location decisions are based on a widespread set of determinants and, therefore, there is no inter-expert consistency (Slovic, 1969,1972)

H3b5: Managers make FDI location decisions based on the availability of publicized information and by observing and copying other firms and managers' behaviour (Banerjee, 1992)

H3b6: Managers make FDI location decisions based on the assumed private information held by other firms (Bickshandani et al, 1992)

H3b7: FDI location decisions are influenced by moral variables (Kahneman et al, 1986)

Hypothesis C – FDI and Tax competition theories are not fully compatible

H4: Tax rates have no key role in FDI location decisions

H4a: Taxation is not the only variable that affects profitability (Devereux et al, 2002)

H4a1: Firms do not equalize the marginal productivity of their investments (Devereux and Griffith, 1998)

H4b: Taxation is not a main driving force of FDI location decisions

H4b1: The role of taxation in FDI location decisions is of minor importance (Hajkova et al, 2006, p. 25)

H4b2: The use of governmental incentives is not decisive for FDI location decisions (Devereux et al, 2007)

H5: The perfect capital mobility assumption is not applicable to FDI flows

These hypotheses will be tested in Part II. In light of the results, the consequences will be considered for FDI and tax competition theories and in the context of tax policy developments in the European Union.

4.4 - Conclusions

The standard model of tax competition is a very simplistic one, where a significant number of assumptions lead to simple and clear results. Three of these assumptions were highlighted and discussed in the previous chapters: tax rates as the explanation for FDI flows, perfect mobility of capital and perfect information about the several alternatives where to locate the

investment. The first is a simplification of the FDI literature, meaning that these two branches of economics are not entirely compatible. The remaining two are only understandable in a neoclassical world, where rational decision-makers operate. The rational approach is useful because it explains a significant part of the behaviour of individuals and firms, but it does not explain all of it. Given that our world is more complex than that, the discussion of rationality assumptions in this chapter was made with the help of behavioural economics.

Individuals and firms, where individuals operate as a group, are thought not to be perfect but to exhibit an “anomalous” behaviour. By trying to understand these heuristics and biases the inclusion of behavioural economics allows a better and more complete understanding of how firms make their decisions, namely those that represent a geographical diversification of its activity. This is important given that the “anomalies” represent a deviation from the maximizing behaviour of firms traditionally assumed by the economic literature, i.e., a welfare loss for society.

Given that there are doubts about the will of firms and managers to optimize and if they are able to do it, several hypotheses were considered to explain FDI decision making and why these decisions, at least in most cases, are not optimal. Only a few of them have been empirically confirmed so far, but all the remaining has had confirmation in other fields of economics, most notably in the behavioural finance literature. Therefore, it is likely that at least some of them will also be valid for FDI.

If this is the case, then **FDI literature would have a new set of determinants of capital flows**. This also means that the neoclassical explanation of capital flows by the tax competition model would be even less compatible with the FDI literature. Tax competition would be even less relevant as an explanation for investment flows than it was shown to be above by comparing it with FDI theory. This complementary explanation of FDI, if confirmed, impacts on tax competition in two main ways. First, by turning its **relevance mainly to short-run capital flows and investment flows after the location decision**. Second, **by significantly diminishing its negative influence to the allocation of capital and to the optimal provision of public goods**. Table 4.4: 1 compares the presented economic theories with the behavioural approach to be used in Part II of this research.

Table 4.4: 1 - Economic approaches to competition for investment

	Standard Tax Competition theory	Foreign Direct Investment theory	Behavioural Economics approach
Paradigm	Neoclassical	Partially Neoclassical	No unified framework.
Object	FDI location decisions and the role of taxation	FDI location decisions and the role of taxation	FDI location decisions and the role of taxation
Method	Deductive – Quantitative	Deductive – Quantitative	Inductive – Experimental and Qualitative
Objective	Why do firms invest abroad?	Why do firms invest abroad?	What is the role of managers' cognitive characteristics in FDI decisions?
Main Assumptions and ideas	<ul style="list-style-type: none"> - Rationality of agents - Optimal decision making - Perfect information - Perfect capital mobility - Investment follows the lower tax rate 	<ul style="list-style-type: none"> - Rationality of agents - Optimal decision making - Perfect information - Investment location dependent on many variables 	<ul style="list-style-type: none"> - Non fully rationality of agents - Non optimal decision making - Imperfect information - Decisions with uncertainty and judgemental heuristics

Part II

**Tax competition for investment –
Methodology and empirical work**

Chapter 5 – Methodology

Part II of this dissertation consists on an exploratory study based on a behavioural approach to address tax competition for investment together with an attempt to enlarge the understanding of FDI location decisions. The present chapter introduces the methodological approach. It uses four empirical sources of information (questionnaires, natural quasi-experiment, interviews and documentation analysis) to better understand how FDI location decisions are made and to check the tax competition hypotheses (chapters 6 to 8). These are initially presented and subsequently complemented by the inclusion of statistical tests. The chapter explains how firms were chosen, how interviews were scheduled and made, and the way the data obtained was handled.

5.1 – Methodological approach

The methodology considers a mostly interpretative research philosophy where the two methods, deduction and induction, are included (Carson et al, 2001, p. 6). First, the hypotheses about FDI decision making are deduced based on the existing economic literature. This includes not only tax competition and FDI theory, but also psychology and behavioural economics¹. Second, the hypotheses are tested through induction by using qualitative research and focusing on the decision making process of companies. The choice of qualitative research allows for a better understanding of the determinants of FDI location decisions from the perspective of a firm or its managers. **The use of a natural quasi-experiment and interviews and the interpretation of information through content analysis** act as a complement to the enormous amount of quantitative work found in the literature and **are a different, and original, approach to the subject of this research**. This is complemented by an analysis of several publications and a survey questionnaire on students and professionals about FDI determinants allowing a comparison of the perceptions of students, the general

¹ Previous literature on taxation with behavioural economics and psychology include Lewis (1982, 1986) and Cullis and Lewis (1997). Previous use of questionnaires and interviews in a behavioural approach include Winnett and Lewis (1995) and several references mentioned by James (2006, p. 593).

public and managers. Finally, statistical tests are performed, in order to assess the results obtained from the qualitative work, and the EU case is considered. Table 1 shows these steps.

Table 5.1: 1 – Methodological approach to research

Deduction		Evaluation per induction	
→		→	
Economic literature - Tax competition - FDI - Psychology - Behavioural economics	Initial hypotheses - Uncertainty leads to rules of behaviour - FDI locations are explained by rules of behaviour - Business taxes have no major role in FDI locations	Empirical application - Qualitative research .Questionnaires .Natural quasi-experiment .In-depth interviews .Documentation	Testing - Quantitative analysis .Statistical tests - The EU case

The choice of qualitative research is closely related with the focus of the study, namely the attempt to better understand the determinants of FDI from a managerial perspective. It considers all the FDI decision-making process and is better suited for an understanding of the contextual variables surrounding a manager (Marshall and Rossman, 1995, p. 44). Furthermore, it is more efficient to collect information through this process given the difficulties in obtaining detailed information on investments from companies due to the perceived danger of strategic information falling into the hands of competitors.

But qualitative research has some problems of its own (Carson et al, 2001, p. 13). First, because it is based on an interpretive methodology, different from the positivistic approach of the theoretical and quantitative methods previously followed by economic literature, difficulties arise. The researcher is directly involved in data collection, despite not being independent from the subject of the research and, to gain a better understand, relies on the perceptions of the actors.

Second, it depends on the ability of the researcher to interpret the data collected. Therefore, it is much more relativistic than quantitative research and the danger of drawing wrong conclusions is larger. But this risk can be minimized through actions to validate the information. Third, it relies on small samples, which makes it more difficult to generalize any conclusions. However, generalization is not an issue here because the objective is to have a

better understanding of how the cognitive characteristics of managers may impact on FDI location decisions.

5.2 – Questionnaires and a natural quasi-experiment

A questionnaire is a simple, cheap and practical way of understanding how respondents consider taxation in foreign investment decisions. Those presented in this dissertation were designed to be as simple as possible and follow Berdie and Anderson (1974), Fink (1995, 2003) and Fowler (2002). There were two questionnaires made by or for the European Union with a similar aim although their design and sample of respondents are considerably different to the ones presented here (Ruding Report, 1992, and the European Tax Survey, European Commission, 2004).

The first questionnaire² has a specific target, managers and students, and it was designed both as a general survey and as a quasi-natural experiment³. In the first case the aim is, together with a documentation analysis of newspapers and other publications, to get an indication of the public's perception of FDI determinants and to confirm if the results are in accordance with foreign investment theory.

The natural quasi-experiment⁴ works by comparing the perceptions of FDI determinants of two groups of managers where the relevant difference is the existence, or not, of FDI related working experience. Although both groups are expected to be influenced by the public perception of FDI determinants the aim is to take advantage of this natural quasi-experiment to try to infer how important business taxation is. FDI decision-makers are expected to be more aware of the importance of business taxes even if public perceptions and FDI theory influence their views.

² Annex 4.2. There is also a second questionnaire, presented in chapter 8.4.

³ An attempt to ask economists, with published papers on tax competition, about their perceptions on FDI determinants was made. The aim was to understand how they regarded the role of taxation. For that end 50 emails were sent but only six got a reply, and from these only two with an answer. Unfortunately economists were less keen than managers to cooperate in this research.

⁴ It is a natural quasi-experiment because it is based on different managerial experiences, it is not in a laboratory and it searches for behaviour regularities (Marshall and Rossman, 1995, p. 41; Davis and Holt, 1993, p. 516).

The samples are not representative of both “public opinion” and corporate professionals with or without FDI related working experience. The quasi-experiment was nonrandomly assigned to respondents in the 100 largest Portuguese companies and in some British firms, in both cases dependent on availability. There was, however, a concern in terms of equivalence between both groups of managers given the risk of a selection bias (Fink, 2003, p. 38). Other variables such as social background or geographical location of the respondents were not considered relevant given the aim of the experiment. Given that managers have different perceptions of FDI it hopefully helps to elucidate differences between FDI theory and practice.

One of the main problems with questionnaire surveys is to establish whether the findings are valid and reliable. But they have an advantage inasmuch as a quasi-experiment they are easily replicable and their findings confirmed or refuted (Davis and Holt, 1993, p. 4).

In terms of validity, the answers should correspond to that which they are intended to measure (Fowler, 2002, p.76). This survey deals with some of the possible risks of invalid responses:

- A pilot test was carried out with 10 students on the Masters in European Studies at the Portuguese Catholic University, in Lisbon. All these students had working experience but with very different backgrounds (law, economics, management, journalism, etc.). This test allowed improvements in the questionnaire design to be made in order to adapt it to the target respondents. The number of questions was reduced to lower expected answering time to 20 minutes. Some questions were changed in order to become equally perceptible by respondents given the need for the questionnaire to be self-explanatory.

- Answers from Portuguese and British respondents are mixed. This is done, in both cases, after looking separately for the two groups of respondents (working or non-working students in both countries) and confirming the country as an ineffective variable in triggering differences in answers.

- The use of different participants, from British and Portuguese universities, reduces the risk of the findings being specific to one location and not applicable to other locations. This is important even without ‘representativeness’ concerns.

- It is implicitly assumed that all universities (in management and economic courses) teach the same thing in terms of FDI theory. The prevailing theories explaining FDI flows (where Dunning's eclectic Ownership-Location-Internalization paradigm is a synthesis) have been around almost 30 years and the main later changes, namely the role of multinationals, do not change the validity of the OLI paradigm. Therefore this assumption is not as strong as it may look initially.

- The environment used for data collection tends to be neutral. In the classroom (group administration) the researcher was accompanied by the lecturer, assuring that the respondents were in standard conditions and helping by giving the questionnaire a similar "status" to the lecture. The danger of students providing uncharacteristic answers is reduced in this way. These questionnaires were only used for the general survey. The remaining questionnaires were answered without the presence of the researcher (they were either received by email or by mail) and voluntary respondents were free to choose if and when to answer them. Therefore, the risk of a respondent, for some reason, giving misleading answer is also small although not controllable.

- In the quasi-experiment there was a concern about matching the two groups in order to avoid a selection bias. To avoid this problem both groups are similar in terms of years of working experience, sector of activity and studies at the baccalaureate level. The first group, called the "Yes group", is made of managers with FDI working experience, while the comparison group, called the "No group", includes managers with relevant working experience but not related to FDI. Given that both groups have individuals with similar working experience, they should also have similar ages. Non working students are younger and less experienced and would not match the first group thereby increasing the risk of influence of non-detected or unknown variables. Thus, the matching reduces the risk of potential bias arising from the differences between the groups.

- Several statistical tests are performed to confirm the reasoning developed in the chapters above.

However, other problems with experiments such as the comparative simplicity of questionnaires compared to complex real life FDI decisions and the absence of any type of incentives for participants were not dealt with directly (Davis and Holt, 1993, Section 1.4, after p. 14).

A study needs also to be valid in order to produce accurate findings. To that end the questions need to be reliable and to provide *consistent measures in comparable situations* (Fowler, 2002, p. 76):

- Given the use of self-administered questionnaires, the questions are essentially closed. The advantages of a self-administered questionnaire are that it allows for batteries of similar questions, as it is used in question 5, and respondents maintain anonymity (in the case of questionnaires answered in the classroom), without having to share their answers with someone else. The questions need to be closed in order to ensure that all answers can be interpreted in the same way so that those with unclear and/or double meanings can be avoided (Fowler, 2002, p. 91).

- The fact that respondents have theoretical knowledge is a bias in itself because the answers are influenced by it. In the survey the aim is to discover the perceptions of respondents and theory is a component of these perceptions. The only respondents that do not necessarily have theoretical knowledge of FDI are managers in the quasi-experiment. But it is not important if they do or do not know the theory given that the questionnaire tries to assess precisely the differences between the perceptions of those with and without practical knowledge of FDI decisions. Therefore, the bias is not relevant in this case.

- There was also no concern for the geographical distribution of universities given that British and Portuguese students usually study in a place different from home. But given that the general survey is more concerned with the perception of respondents than with their full representativity this seems not to be an essential issue. It is not relevant for the quasi-experiment.

- Despite all the efforts it can never be one hundred percent certain that the findings are accurate because the instrument used to collect data, self-administered questionnaires, is not

dependable. This means that it is difficult to check the reliability of some answers. The first four questions are objective and ask about respondents' personal information. They are assumed to provide accurate information because an independent check is difficult to do. The last four are subjective, that is, they are about the perceptions of respondents. Given that it is impossible to objectively confirm subjective answers, the only way to validate them is by checking with other answers. Thus, questions 5 and 7 can be used to check each other in terms of its reliability although question 5 is divided between developed and less developed countries and question 7 is focused on the former type. Questions 7 and 8 can also be used to check one another for reliability on differences in corporate tax rates (Annex 5.2).

5.3 – Interviews and documentation analysis

The inductive nature of the investigation explains why in-depth interviewing is one of the chosen methodologies. First, the broad and often contradictory literature that currently exists (chapters 2 and 3). Second, because the use of direct observation is not possible. Decisions may take several months and firms are usually not happy with an outsider seeing what is going on and how things work, namely at a higher level where FDI decisions are made. Thus, only by a direct contact with those involved in the decision process it is possible to have a deep understanding of the motivations and rationale behind the decisions or, in Patton's words (1990, p. 278), to "...enter into the other person's perspective". This was done by interviewing business managers that had taken part in FDI decisions.

The research questions were designed based on the literature and on exploratory interviews. The interviews were made to Portuguese firms with FDI operations from different sectors of activity: agriculture, industrial, financial and services. The common denominator is that all of them have part of their production capabilities installed abroad. The number of operations abroad for this group represents 11.8% of the total Portuguese FDI. Overall, there were a total of 20 interviews with managers with the following three objectives:

- To understand FDI decisions and its determinants
- To detect non maximizing behaviour by firms in FDI decisions
- To elicit the role of taxation in FDI

Their final aim is, together with the remaining empirical work, to support or reject the research hypotheses of this dissertation.

The choice was to use in depth or elite interviewing, a type of semi-directive or open-ended interview where respondents, in the course of an informal conversation, freely present, in their own words, all their thoughts, feelings, perceptions and experiences about a set of pre-determined issues. This was done using the general interview guide approach (Patton, 1990), where a set of topics are outlined before being explored with each respondent through an interview. These topics served as a guide for all the themes covered in the interview and as a grid for the content analysis of the information collected (Quivy and Campenhoudt, 1998, p. 192, and Patton, 1990, p. 280). Previous use of interviews with managers to apply behavioural economics theory include Schwartz (1994) and Bewley (1999, 2002).

The necessary steps were divided into four phases and are summarized in table 5.3: 1 below.

Table 5.3: 1 – Interviews: *modus operandi*

<p>1- Evaluation Research questions Theoretical concepts Exploratory interviews</p> <p>2- Data collection Interviews Documentation</p> <p>3- Organization of information Case description</p> <p>4- Content analysis Coding using pre-determined themes from research questions Cross-case analysis for each theme Interpretation of results based on: - Research hypotheses - Other insights that emerged during data collection</p>

5.3.1 - Research questions and themes

The research hypotheses were defined from two main sources: economic theory relating to tax competition and foreign direct investment and the behavioural approach. Exploratory

interviews were also helpful for this end and included two professionals working in state institutions directly related with attracting FDI, one specific to the industrial sector and the other, more general, for all types of investment. It also included two professionals of the same firm working directly with FDI decisions where one deals with information collection in the country where there is a potential investment, while the other handles these and other sources of information in the office. The work of the two, and their respective teams, is the basis of the FDI proposals presented to the Executive Committee of the firm (the body with the final say about these decisions). These exploratory interviews allowed a better definition of the issues to be addressed and it was a way to minimize irrelevant information.

Building on the above theory and information and considering the objectives of the thesis and its research questions, the following themes for the interviews were identified:

Table 5.3.1: 1 – Themes

1 – Objectives of the firm
2 - Decision maker
3 – Rationale behind FDI investment
4 – Collection of information
5 - Market choice: key variables
6 – Timing
7 – Type of investment
8 – Productivity
9 – Performance
10 – Risk
11 - Governmental support

5.3.2 - Data collection

Data collection focused on two sources of information. First, interviews⁵ with business managers where the above set of issues were addressed. The second source is documentation directly supplied by interviewees and other available information in firms’ internet sites, such as annual reports, or national newspapers. Documentation analysis was used as a complement and as a source of validity for some of the information collected in the interviews.

⁵ List of interviewees in Annex 3.1

Although there are two sources of information, interviews are the main one. These were one-to-one conversations (on one occasion there were two persons representing the firm) where the interviewed were not informed in advance of the real objectives of the study but vaguely about the issues to be addressed. The interviews were scheduled with a statement that referred to the study of the process and the determinants of FDI decisions in each firm. The role of business taxes was never explicitly mentioned. The idea was to avoid the respondents concentrating on the tax topic and not to influence their views of the importance of business taxation. As Marshall and Rossman (1995, p. 80) put it, “*the participant’s perspective on the phenomenon of interest should unfold as the participant views it, not as the researcher views it*”.

The first contact, requesting an interview with the Chief Executive Officer, was made by email. The messages were sent either directly to the CEO or, when the information was not available, to the Public Relations office. When the answer was positive, there was a second contact by phone or by email to schedule the date and time of the interview. Most of the interviews were scheduled for July and beginning of August, a quiet period when firms usually have less activity in comparison with the rest of the year. All the interviews were made by the same person, the researcher, so there was no need to pre-define a set of precise questions and to conduct the interview in accordance with a pre-determined sequence. But given the need to cover several themes, the use of an outline of issues was useful in order to guarantee that all respondents addressed the same subjects.

The sample was based on the top 100 Portuguese parent firms. From these fifty (on a total of 464, or 10.8%, of Portuguese owned firms with FDI) were contacted and an interview was requested. Seventeen answered positively. The choice of firms to contact and request an interview was based on the following criteria:

- The decision centre, that is, the executive managers of the firm and the main shareholders should be located in Portugal. Therefore, subsidiaries of multinational companies are not included in the target.
- To have, at least, part of their production capabilities abroad. This means that FDI was not made only to promote exports. FDI should represent either a significant part of the investment or of sales of the firm. Apart from the production process it may also include warehouses and

other distribution structures⁶. The reason is that the decision to invest abroad has to be very well thought and the risk associated significantly greater than, for example, the opening of a mere representative office (in most cases these are only a support for exports).

- Large Portuguese companies, although these are of medium or small size in international terms. These firms are more relevant in the sense that they are better known in the press and, thus, their activity has more influence on the perceptions of the general public. This may be relevant to the role of business taxes in attracting FDI. Small Portuguese companies, on the other hand, are very small in international terms and their investment is totally focused in small market niches. Furthermore, the amount of investment is usually not very significant. This does not mean that small firms are not worthy of study but rather that large firms represent a significant share of the total of Portuguese FDI (Banco de Portugal, 2005).

- Firms should be from different sectors of activity and levels of internationalization to increase their representativeness. The variety is justified by the fact that there may be significant differences between these cases. For example, different sectors of activity - agricultural, industry and services – can have different processes of internationalization. In the services industry, the firm often has to be geographically near the customer to provide a service. But that is not necessarily the case when a firm wants to sell goods.

The focus on Portuguese corporations is justified by:

- Personal interest in studying the Portuguese case given the phase of internationalization of the economy, different from more developed countries such as the UK or the USA where most economic studies are usually focused.

- Easier to get managers to be interviewed due to the nationality and the personal contacts of the researcher. The choice of managers located in Portugal is directly related with the location of the decision centre of the firm.

- In the same way it was easier for the researcher to assess data credibility and quality.

- Finally, they are small and medium sized companies in the global market that sometimes are starting the process of internationalization. Global companies are already located in many places and were already much studied.

The position in the firm of the interviewees is presented in table 5.3.2: 1. All of them are directly related with FDI decisions within their firms, that is, all participate in the internal

⁶ In the services industry it is considered that the production process is the service the firm provides.

decision process. In four cases the interviewed member of the executive board had, together with the international area, also the responsibility of the financial area (being the Chief Financial Officer). All the interviewed middle managers report directly to the board or the executive committee.

These interviewees were directly responsible for or participated in 76% of the total number of decisions to locate in a determined country considered in this dissertation, including the expansion investments made by these firms. Moreover, the actual management of the firms is the same or follows a similar internationalization strategy in 88% of operations.

Table 5.3.2: 1 - Interviewees

Job	Number
Chief Executive Officer	2
Other members of the executive board	9
Middle managers	6

The profile of the firms is shown in table 5.3.2: 4 below. The information uses data for 2004 and includes the FDI subsidiaries that consolidate with the parent company in Portugal. These are participations where the parent company has an effective control of the subsidiary. In total and per sector:

Table 5.3.2: 2 – Firms per sector

Sector	Number
Financial	4
Manufacturing	4
Energy	1
Services	5
Construction	2
Agriculture	1

The interviews followed a guideline composed by a set of issues. These issues have a correspondence to the pre-defined themes (table 5.3.1: 1 above) and are coded and compared during the content analysis (Annex 3.2). The idea was to acknowledge the participant’s perspectives on FDI decisions and to analyze together both their objective and subjective views. Each respondent was also asked to explain the strategy of the firm, supposedly the basis for FDI decisions, in addition to the issues listed below. In case the firm had a multi-

business FDI operation, the interview focused on the core (more important in historical and/or volume terms) business of each firm. Table 5.3.2: 3 show the issues addressed or the structure of each interview. There were a total of 24 issues, where only two were not directly related with the activity of each firm. These requested the opinion of respondents on if and how should the government support FDI activities and if (and why) the EU should harmonize corporate tax rates.

Table 5.3.2: 3 – The pre-determined issues of an interview

I - Objectives of the firm	
II – FDI decisions – Decision maker	
A - Rational behind the FDI investment - Comparative advantages/disadvantages in the foreign market - Learning experience	C - Market choice: key variables - Cultural variables - Historical (of the firm) variables - Tax rates
B – Collection of information - Perception of information - Handling of information - External advisers	D – Timing - Exchange of information with managers from other firms - Other firms actions
III – FDI outcomes	
A – Type of investment	D – Performance
B - Optimal size	E – Risk
C – Productivity	
IV – Governmental support	
A - Support from local authorities	B - Support from the EU or other institutions
V – Should the EU harmonize corporate tax rates?	

There were no significant incidents during the interviews, meaning that the impact of the questions and of the context on the answers was negligible. The request for interview was made explaining the general themes to be addressed and there were no surprises for the interviewees. Some of them asked for the firm not to be named or for a copy of any document where its name is mentioned to be previously sent for their agreement about the included information. On two occasions middle manager interviewees were careful about the information due to its sensitivity internally and with the market. This was explained by fear of not complying with stock exchange regulations, namely the need to inform stock exchange authorities about all relevant information that may affect the market value of the firm, and by the concern not to comment on areas within the firm where the interviewee had no responsibility. Overall the researcher was well accepted by interviewees and the information provided was valuable and useful.

Table 5.3.2 : 4 – Firms’ profile *

Nr.	Firm	Sector	Ownership (type)	Countries with FDI	Total Sales *	Rank in Portugal	First year abroad	% sales in FDI *	% assets in FDI	% employee s in FDI	% profits in FDI
1	Corticeira Amorim	Cork	Family	9	429.5	1	1972	90.0%	n.a.	26.0%	n.a.
2	Banco Espírito Santo	Banking *	Family	12	1427.4	3	1972	12.0%	n.a.	< 20%	n.a.
3	Laboratórios Bial	Pharmaceuticals	Family	1	88.2	9	1998	19.0%	20.0%	30.0%	0.0%
4	Banco BPI	Banking *	Public	5	809.8	5	1996	14.8%	5.1%	10.6%	20.0%
5	Caixa Geral Depósitos	Banking *	State	15	1941.0	1	1924	20.7%	35.5%	19.9%	1.5%
6	Energias de Portugal	Energy	Public **	5	7221.7	1	1997	24.8%	32.1%	29.8%	14.1%
7	Inapa	Paper distribution	Public	8	1062.1	1	1990	95.0%	90.3%	89.2%	90.7%
8	Jerónimo Martins	Retail	Family	3	3494.6	2	1995	30.3%	14.0%	41.0%	7.0%
9	Mota Engil	Construction	Family	8	1168.6	1	1975	21.8%	n.a.	23.2%	n.a.
10	Portugal Telecom	Telecommunications	Public **	17	6023.3	1	1989	24.9%	n.a.	48.7%	n.a.
11	Salvador Caetano	Automobile	Family	6	500.9	2	1984	22.1%	8.0%	46.4%	-49.1%
12	Secil	Cement	Family	4	445.6	2	2001	14.7%	n.a.	28.9%	n.a.
13	Sogrape	Wine	Family	2	161.2	1	1997	11.5%	17.7%	26.1%	3.1%***
14	Vicaima	Wood products	Family	2	100.0	3	1988	40.0%	n.a.	8.0%	n.a.
15	Modelo Continente	Retail	Family	2	3600.0	1	1989	27.1%	24.5%	53.4%	14.4%****
16	Brisa	Highway operator	Family	1	559.0	1	2001	< 20%	n.a.	< 20%	14.3%
17	Millennium BCP	Banking *	Public	12	2811.0	2	1995	18.7%	10.0%	36.0%	11.1%

* All values for 2004 and in Million Euros. Total sales are also represented by the banking product (interest + commissions + other net revenue)

** The Portuguese state has a golden share for strategic purposes

*** Profits in Argentina only

**** EBITDA or operational cash flow

Finally, the following steps were taken to deal with potential disadvantages of the use of interviews:

- Preparation was undertaken via the form of four exploratory interviews.
- The interviews were also preceded by the collection of general information about each firm's activity including the knowledge of the different business areas of each firm, the countries and places where firms had productive activity, some data about FDI operations and their results in terms of sales and profitability. This was a way of facilitating the interview by having a better understanding of the information provided by the respondents and also to help focus the interview on the pre-determined issues.
- Managers that agreed to be interviewed were implicitly cooperating and accepting the researcher's questions. Some of the respondents also mentioned that they were always open to collaborate in research studies and showed willingness to help with required information. Furthermore, an outline of the main issues to be addressed was sent in advance to the respondents when requested.
- The researcher was used to dealing with CEOs and business managers from his previous working experience as a business journalist and as a sales manager in a banking institution. Although the type of meetings and questioning was different from what was required here, it helped by preventing the interviewees dominating the conversation and not allowing the coverage of the complete range of pre-determined issues. This experience was also useful to deal with less talkative interviewees, when it was more difficult to get information and frequent questioning was required.
- A second contact with the interviewees was made and eight of them answered further questions or requests for clarification. In one case, the respondent did not allow the use of a tape recorder but agreed to review the notes taken by the researcher. After the interview, a "*transcript*" of the notes was sent to the respondent for confirmation of the information collected. Sending out transcriptions or the researcher's interpretation of the interview to respondents was a way to validate the data.
- Further ways to validate the information collected was documentation provided by interviewees, annual reports of the firms, information available at firm's internet sites and informal talks with market experts (mainly in the banking sector).

5.3.3 - Organizing information and case description

The third step was to do the transcription of interviews and complement it with other data, mainly from the annual reports of the firms. This was based on the issues addressed during the interviews and allowed for the gathered information to be prepared for content analysis (coding and cross case analysis). Other types of information such as the strategy and quantitative data for each firm were also included in each case description.

5.3.3.1 - Content analysis

Content analysis focus on the FDI practical experience of respondents, transmitted through interview, and, together with the theoretical support and the research hypotheses, are the basis for the analysis of the obtained information. It is done by applying appropriated quantitative and qualitative techniques. In simple words, content analysis is «... *the process of identifying, coding, and categorizing the primary patterns in the data.*» (Patton, 1990, p. 381).

The in-depth interview can be considered a complementary method of content analysis. The interviews and all the documentation obtained are the process of information collection where a qualitative examination helps to attain the final coding scheme, a first stage, while the content analysis works, in a second stage, this information with the objective of building knowledge about the perceptions and motivations of interviewees.

The analysis is structured by themes (Quivy and Campenhoudt, 1998, p. 228), which, as mentioned above, arise from the research hypotheses. This is how the judgements and perceptions of the interviewees are highlighted⁷. Thematic content analysis allows the assessment of interviewees' experience in FDI operations by scoring transcripts for content, that is, by measuring pre-defined variables (Neuendorf, 2002, p. 192).

Content analysis follows the collection and organization of information and is divided into three main tasks, as per the diagram below.

⁷ Annex 3.2.

Phase 0 – Collection and organization of information (interviews and documentation)



Phase 1 – Coding



Phase 2 – Cross-case analysis (based on each theme)



Phase 3 – Interpretation of results

Phase 1 – Coding

The coding was defined *a priori* from the issues addressed during the interviews and further “calibrated” after a first qualitative examination of the information collected. The initial definitions arose from the literature and research hypotheses and allowed the establishment of indicators such as the number of bounded procedures or rules of behaviour used.

The content of the data is also classified according to the several themes and “improved” after a first assessment of the information. Several other indicators, such as the level of internationalization and uncertainty, were then established.

The goal was to simplify the enormous amount of information in a way that was easy to handle but appropriate to be used in similar studies. To that end, both the validity of the information, important as a guarantee that what is being measured really corresponds to the concepts used in the study (Neuendorf, 2002, p. 12), and the reliability of the measures were checked as far as possible by following the procedures described above (5.3.2).

Phase 2 – Cross-case analysis

There are two main ways of assessing each theme: By using quantitative and qualitative methods. The theme analysis has the goal of searching for patterns or comparing the different issues implicit or explicit in the interviews by using as a reference the research hypotheses. For each theme, the judgements and perceptions of the respondents are registered and compared. This is done by looking at their frequency, intensity and direction and by

considering the reasoning, and its construction and development, in the discourse of interviewees. The analysis also includes the validity of the gathered information as explained above.

The frequency, direction and intensity found in the answers related with each theme and the corresponding judgements are evaluated in the context of a behavioural approach of FDI theory, namely within the research hypotheses concerning the rationality of FDI decisions by managers and the role of taxation as a determinant of foreign investment.

To that end both categorical and evaluation analyses are used here. The frequency is an important indicator of the “trends” within the Portuguese corporations with investments abroad. This is complemented by a qualitative analysis of the perceptions and judgements of the respondents. This evaluation analysis allows for a confirmation of the detected “trends” in the frequency analysis.

Phase 3 - Interpretation of results

After the execution of these two tasks the results were ready to be interpreted (the explanation of the analysis and how the results were obtained are further developed in the following chapters). The results obtained were interpreted in the context of the behavioural approach by using as a reference the research questions and other insights that emerged during the process of data collection.

5.4 – Statistical tests

Non-parametric statistical tests are performed for some of the hypothesis where data is available so that the results of the inductive phase can be confirmed. Tests are performed in the SPSS software, version 12 (Norusis, 2003, ch. 19), and based on data collected during the interviews and related preparatory work, and during the documentation analysis based on the

information provided by each firm in their annual reports of 2004 and previous years. The sample and the universe of Portuguese FDI operations in 2004 are presented in table 5.4: 1⁸.

The data for the universe (Table 5.4: 1) is based on the information provided by Banco de Portugal and originates in the 2004 (yearly) questionnaire on foreign direct investment completed by Portuguese firms⁹. These include information for all types of firms (financial, real estate, industrial, etc) and all types of investments (equity, loans, etc). Statistical tests include a total of 112 Portuguese FDI operations abroad with a productive component (Annex 3.3), that is, 11.8% of the total number where it is included representative offices and other locations without a productive component, and affiliates of foreign-owned Portuguese firms. Therefore, this value is surely higher if only Portuguese owned “productive” affiliates were considered as the universe. Each operation corresponds to a country location by a Portuguese investor. The sample is skewed for large firms in Portugal although these are, at best, medium size firms in international terms.

Table 5.4: 1 - Universe and sample of Portuguese outward FDI - 2004

Type of Countries	Universe	%	Sample	Sample / Universe
Developed	500	53	58	11.6 %
Portuguese Speaking	268	28	27	10.0 %
Other countries	180	19	27	15.0 %
Total	948	100	112	11.8 %

It is implicitly assumed here that the available information for each case with detected rules of behaviour or bounded procedures was collected. The remaining observations are either assumed to have zero “irrationalities” (situations 1 and 2 in chapter 7) or to be not valid if it is assumed that interviewees focused on some specific cases and did not cover all FDI operations made by their firms (situation 3). Therefore, in situation 3 only 72 observations will be used for statistical tests. These assumptions are justified by the exploratory nature of this study and allow a better understanding of the collected data. It should be noted that a

⁸ There were 8 divestments (Brazil 3, Spain 2, UK 1, Botswana 1, and Poland 1) that are in the sample but no longer appearing in the universe.

⁹ “Questionário ao Investimento Directo de Portugal no Exterior” where by direct investment is meant all resident firms or individuals with 10% or more of equity share or voting rights in firms abroad, any connection in terms of economic group together with the existence of financial transactions (such as loans or cash management flows) or a significant and stable influence on the management of firms abroad (Banco de Portugal, 2006).

large number of the total observations where “irrationalities” are absent, 31 in 40, are in developed countries.

The use of nonparametric tests is explained by the characteristics of the available information. The variables are mostly nominal or ranks, the size of the sample is not very large and the assumption of a normal distribution in the population is prevented by the one sample Kolgomorov-Smirnov and other normality tests (Siegel and Castellan, 1995, p. 35). Therefore, stronger parametric tests were not possible and measures of association and non-parametric tests are used in the following chapters (Norusis, 2003, p. 453). Table 5.4: 2 presents them.

Table 5.4: 2 – Statistical tests

	Symmetric	Asymmetric
Nominal	Cramer’s V Contingency coefficient	Coefficient Lambda Goodman and Kruskal’s Tau
Ordinal	Gamma Kendall’s Tau	Somer’s d Eta

These tests reveal how strong is the relationship between two different variables and its direction, that is, of a negative or positive nature. They will also be used to check the applicability of the model developed above in chapter 4.

5.5 – Conclusions

The behavioural perspective and the empirical application followed in this dissertation are a novel way to address the tax competition literature. By following qualitative research and using questionnaires, a quasi-experiment, interviews and documentation analysis, a complementary perspective to mainstream economics, and thus an enrichment of the model, may be obtained (James, 2006, p. 598). The qualitative nature and the emphasis on uncertainty of the Heiner model also allow to research the role of behavioural characteristics in FDI location decisions and to address the existing mismatches with tax competition theory. The resulting findings are strengthened by statistical tests and applied to the EU, where tax integration is currently the focus of public finance policy.

6 – FDI: Theory, public perception and professional experience

Neoclassical theory states that business taxation is important in explaining foreign direct investment. The tax competition model assumes that business taxation is the major determinant of FDI. The behavioural approach aims to provide detailed information on how important taxation is in FDI so that a more complete understanding of location decisions is achieved. This chapter is a first empirical attempt in that direction by implementing the questionnaire presented in chapter 5 to students and corporate professionals. The aim is to have an indication of the perceptions of people in general as to the importance of business taxation in FDI decisions and to assess if managers are influenced by this public perception of FDI determinants.

Is there a perception from respondents that foreign corporate investment is explained by business tax rates? How does business taxation compares with other determinants of FDI? Is there a difference in these perceptions between students and managers with or without FDI related work experience? The questionnaire aims to find an answer to these questions.

The chapter starts by establishing the public perception concerning the role of taxation in FDI decisions by using a brief documentation analysis based on newspapers and on the world wide web. Then the general questionnaire is implemented to economics and management students to assess the relevance of a set of 23 different variables to investments abroad. Its outcome is compared with the answers of two groups of corporation managers, one with professional experience in dealing with FDI operations and the other without it. The chapter ends with a brief conclusion.

6.1 – The general public perception

A brief documentation analysis provides an understanding of the general public perception about the relevance of business taxes in investment decisions. The objective was to count the number of articles that associated the words “foreign investment” with a list of words that

represent both the determinants recognized by FDI theory from the host country perspective and the variables used for the questionnaire. The higher the number of articles the more important tends to be the variable associated with FDI in terms of the general public perception. This is so despite the fact that the appearance of the words in the same article does not necessarily mean that the text associates the two subjects. But the frequency may be considered as a relevant sign of the importance given by the media to each of the determinants included in the search.

It is focused on two types of mass media, the press and the world wide web. In the case of the press the analysis was done through two internet searches of newspapers for the general public: The Economist (2005, <http://www.economist.com/search/search.cfm?qr>) and the International Herald Tribune (2007, <http://www.iht.com/cgi-bin/search.cgi?query>). The third was similar but it was done by using the search engine Google and focused on all texts that are on the World Wide Web.

The Google search was made on the 23rd October 2005 and re-confirmed on the 20th November 2007. The search in the International Herald Tribune includes all articles published between 1991 and 15th November 2007 (around 6,130 editions) while The Economist considers only the print edition for the period between January 1997 and June 2005 (around 390 editions). The period of the searches is not exactly coincident but the aim is to have an approximate idea of the public perception.

A few remarks need to be made about the counting of the articles. First, in order to avoid duplication of the articles counted the procedure included an individual search for each word and one complementary search with all the words included for each determinant. For example, for the “legal” determinant there was a search for the words “legal system” and “foreign investment” and another for the words “law” and “foreign investment” and both numbers were added. Then, there was a second search with the words “law”, “legal system” and “foreign investment” that allowed the identification of articles with the three words and the previous total was reduced by this number.

Second, there are several specifications related to table 6.1: 1 below. The words “foreign investment” are the only ones to be used because they are the most common. Foreign Direct

Investment and FDI also appear but less frequently. A similar criterion was applied to the Google search. The word “tax” alone was not considered because it is not necessarily related with business taxes. If it was considered the number of articles would have been much higher. The word “union” includes the European Union and similar expressions with the word union or unions. Therefore, the value presented in the table is substantially inflated. For example in The Economist European Union appears 108 times. Moreover, the market size can sometimes be referred as value of Gross Domestic Product. For example, the association of “GDP” with “foreign investment”, although not included, was found 231 times in the case of The Economist. Finally, “Capital movements” were considered without the word restriction.

Table 6.1: 1 – N° of articles with words appearing together with “foreign investment”

Words associated	Economist	IH Tribune	Google *
Business tax, taxes or taxation	263	1,632	34,580
Unions **	237	267	22,900
Local competition or competition	211	1,176	20,500
Legal system or Law	198	1,441	36,900
Raw materials or minerals or oil	189	1,964	18,940
Corruption	182	612	5,410
Technology	144	1,873	34,500
Democracy	138	644	9,620
Schools or hospitals	125	296	12,600
Infrastructure or roads	124	1,170	26,170
Culture or language	119	1,046	17,100
Energy	107	1,328	23,200
Exchange rate	90	1,017	23,300
Skills	90	275	12,500
Environment	77	817	29,200
Growth rate or rate of growth (market)	62	1,442	28,300
Labour costs or labor costs	23	386	17,380
Purchasing power or GDP per capita	18	165	5,602
Cost of capital or capital costs	9	682	24,000
Stable government	9	395	15,900
(Restrictions on) capital movements **	4	95	11,800
Market or country, size or dimension **	2	2,112	30,590
Labour or labor supply, availability	1	147	14,000

* In thousands, approximately. ** See text

The results shown in the table seem to confirm that foreign investment is indeed more frequently associated with business taxes than with most of the other variables. In the case of

The Economist it is the first while in the Google “business taxes” is only outpaced by the legal determinant¹ and in the IHT it is the fourth frequent determinant.

Table 6.1: 2 – Ranking of “business taxes”

Search	The Economist	Int. Herald Tribune	Google
Rank	1	4	2

A combined analysis of the three searches show some outcome similarity between the Tribune and Google. Scatter plots and correlation coefficients show that there is a quasi-linear relationship between these two searches but not with The Economist (also not-significant in non-parametric tests – Annex 4.1). This means that IHT and Google must have some common explaining factor for their ordering and thus they seem to be better suited to serve as a proxy of what is called here the general public perception than The Economist. The Economist may present a different outcome because it is a specialized magazine for economists and the business community.

Therefore, **in the so-called “public perception” there seems to be a bias towards taxation as a determinant of FDI, although most of the remaining determinants are also significant as predicted by FDI theory.** The outcome of tax competition theory, and its dissemination through the economic community, and this public perception may have reinforced each other towards an overvaluation of the role of taxation in FDI location decisions.

6.2 – Investing abroad : Questionnaire description

The questionnaire is both a general survey on the public perception of FDI determinants and a quasi-natural experiment by comparing the perceptions of FDI determinants of two groups of managers with or without FDI working experience. The general survey was answered by 115 economy and management students, in Britain and in Portugal, with no real-life knowledge of FDI decisions where both FDI theory and “public opinion” may influence the outcome.

¹ In the second search of November 20, 2007, “business taxes” was the 4th determinant.

The quasi-experiment was conducted using two groups of managers with relevant working experience (not less than 3 years). The data used for this experiment comes from 59 questionnaires made to managers in Portugal (30) and in the UK (29). Half of them (29) do not have FDI related working experience – the so called No group - and half (30) have - the Yes group. All the questions presented herein refer to an investment in a developed country. By FDI working experience is meant the participation of the respondent in a firm's decision to invest abroad. This participation may vary from a say in the final decision to elaboration of recommendations or some technical work related with this decision. The respondents were asked to make a brief description of their participation in FDI decisions in order to check if they are eligible for this experiment.

In both cases respondents were asked to rank 23 host country variables according to their importance in FDI location decisions from the perspective of the investor and from the perspective of a country having an active policy to attract investors. Behavioural determinants as those presented in chapter 5 (e.g. mental accounting, herding, overconfidence, etc.) are not included because they are not easily perceived by respondents and the main goal is to assess the role of tax variables. The exception is “cultural affinity” which is also accepted by FDI theory (e.g. Kravis and Lipsey, 1982).

The characteristics of the questionnaire are:

a) Subject: FDI location determinants. The first survey aims to describe the perceptions of economic and management students about FDI determinants. Although they are not statistically representative of the public sentiment they may provide an indication of it. The second, a natural quasi-experiment, aims to compare the views about FDI determinants of managers with and without FDI experience. In both cases the questionnaire only considers host country determinants.

b) Objective: to assess the perception of respondents about the determinants of foreign investment decisions and to understand the role of business taxation in these decisions. The aim is to answer the following questions: Is there a perception from respondents that foreign corporate investment is explained by business tax rates? If yes, how important is business taxation and how does it compares with other determinants of FDI? Is there a difference in

these perceptions between students and managers with or without FDI related working experience? How different is the perspective of the country and of the firm? And how different is the perspective when the target is a developed or a less developed country?

c) Hypotheses: There is a public perception that business taxation has an important role in explaining foreign investment decisions. This is in accordance with tax competition theory and also with the perception created by different publications. But this perception may in reality be a bias towards taxation when FDI location decisions are the subject. According to FDI theory, business taxation is just one more variable in explaining FDI flows. Under the behavioural approach business taxes are expected to have a minor relevance in FDI location decisions (H4b in 4.3). In other words, the public perception may “hide” the fact that managers are not that rational, in the tax competition sense, with respect to the role of business taxation in FDI location decisions.

Given these considerations the expected results are:

I - In the survey, where respondents are students, there should be a public perception that business taxation has a relevant role in explaining foreign investment decisions. This is in accordance with tax competition literature and it does not necessarily contradict FDI theory given that other variables should also be considered relevant. Business taxation is expected to be superior to most of the remaining FDI determinants if the tax competition view holds. Otherwise, if business taxes are found to be irrelevant the behavioural approach is vindicated.

II – In the natural quasi-experiment general conclusions cannot be fully reached but only inferred from comparison or association of results between the variables. Nevertheless, in accordance with the behavioural approach taxation is expected to be less relevant for the group where there is experience in FDI location decisions. The reason for this difference is that FDI decision-makers should be more aware of the relative importance of business taxes. However, taxation may be regarded as very important because the public perception and FDI theory are also expected to influence the answers of both groups.

There are two further outcomes to be considered:

III – It is not entirely clear what to expect about the relative results of business taxes when the country is trying to attract investment or when a firm is searching for a place to invest. At a first sight the results should be the same when the interests of firms and governments coincide. According to tax competition theory both governments want to attract investment by using a fiscal variable and firms will locate where business taxes are lower. But it is not clear if the interests of firms and governments are totally coincident because the government perspective may be like a coin with two opposite faces. First, to lower taxes in order to attract investment, and this is credible when governments have active policies to attract FDI (e.g. Ireland). Second, to increase taxation in order to be able to provide a higher level of public goods so that it can be re-elected (the Leviathan perspective). Thus, in the neo-classical view it should be expected the results for this variable to be the same if the first perspective predominates.

Otherwise, if the second is the dominant the rank of this variable is expected to be lower in question 6 given that the government's option is to have an higher corporate tax rate and, thus, to disincentive FDI. The same outcome is expected if the behavioural approach is confirmed and tax rates are not significant for FDI location decisions because the level of taxation is a tool in the hands of jurisdictions which firms can, at best, try to influence. This is in accordance with preparatory interviews where business taxation is mainly seen as a selling point for a jurisdiction by government officials (chapter 8) and in the information search process of firms where business taxation is just one among many variables analysed (chapter 7).

IV – Economic theory does not suggest a clear relationship between the role of business taxes in FDI location decisions and the level of development of target jurisdictions. Nevertheless, an expected outcome is business taxes to be more relevant for developed countries (Azémar and Delios, 2008). These are more open economies and, in many situations such as the EU, economically integrated. A firm choosing to invest in an economic area with internal open borders may choose any jurisdiction inside this area (Devereux and Griffith, 1998). Thus in this case business taxes should be more relevant than when jurisdictions have higher barriers to trade as it happens with less developed economies.

6.3 – General survey

It is a one-off descriptive general survey of students to assess their perception about FDI determinants. The audience was composed of economics and management students with or without (less than 3 years) significant working experience but not related with FDI. These two groups of respondents comprised undergraduate (final year) and master students in economics and management in British and Portuguese universities. These were the eligibility criteria.

A more detailed questionnaire, fully representative of the general public perception of FDI determinants, would require a rather larger and more representative sample. This would be almost impossible and very costly to implement in the ambit of a PhD dissertation, and it is not essential for the overall purpose of this research. Therefore, the option was to carry out a small questionnaire without representativity concerns.

The expected outcome is for business taxation to have a very relevant role in explaining foreign investment decisions and to compare well with other FDI determinants if the public perception acts as a bias towards taxation when FDI decisions are the subject. This is because the questionnaire is answered by students without professional knowledge of FDI decisions.

The questionnaire had eight questions and was divided in two slightly different versions (A and B). It was answered by individuals randomly selected within the eligibility criteria. The survey was carried out in two different ways. In the first, where undergraduate and post-graduate students in economics at the University of Bath are included, the questionnaire was answered in the presence of the researcher in a classroom. In each classroom the lecturer was also present and helped in getting the questionnaires done. This allowed for a high response rate and for respondents to be more willing to answer the questions. In the second, for the remaining answers, the questionnaire was sent and received by email or by mail. In this case the response rate was lower. Only one answer was invalid.

The first four questions refer to the characteristics of respondents and most of them (97) have or were completing a BSc in economics while the remainder studied management or other courses. The number of obtained answers divided as follows:

Table 6.3: 1 – Respondents

General Survey	Number of Answers
BSc Economics (final year) – U. Bath	62
Master in Economics – U. Bath	36
Master in Economics – U. Porto	11
Master in European Economics – ISEG	6
Total	115

The objective of question 5² was to explain the perception of respondents regarding FDI determinants when a firm is making a decision to invest abroad. Given that all of them had studied economics or management, FDI theory was expected to have a big influence on the outcome. As expected the results show that all variables have a significant role in explaining FDI flows. The mean value given by respondents is always above 5 on a 0-10 scale. And the difference between the ‘most valued’ and the ‘less valued’ variables is only 2.4 regarding determinants of FDI to developed economies and 2.54 to less developed economies. That is, **respondents**, on average, and **in accordance with FDI theory** (e.g. Dunning, 1979), **think that all variables are relevant**.

Also as with FDI theory, variables associated with a higher level of development, such as “highly-skilled labour”, “High purchasing power” or “Good schools and hospitals for employees”, receive a higher classification in developed countries. The opposite happens for variables associated with a lower level of development: “Low levels of corruption”, “Democratic political system”, “Low labour costs” or “Plentiful raw materials”.

The answers also show that, according to the perception of respondents, **“Low business taxes” is not one of the most important variables in explaining FDI decisions, although it is a relevant variable**. This is in accordance with FDI theory, where fiscal variables are just one among many relevant variables, but it does not confirm the implicit assumption of high relevance as predicted by tax competition theory (e.g. Zodrow and Mieszcowsky, 1986). Moreover, it does not confirm the behavioural approach. The variance of business taxes is not significantly higher or lower in comparison with the remaining variables and thus it can be concluded that respondents roughly agree on its relevance (Annex 4.3). Finally, the hypothesis that **business taxes are more important for FDI location decisions in developed countries** is confirmed.

² Annex 4.2 presents each question and its aim in a detailed way.

**Table 6.3: 2 - Determinants of a Firm's Decisions to Invest Abroad
Question 5: Mean Value and Rank**

Determinants (averages*)	Rank	Developed	Rank	Less developed
Highly-skilled labour	1	7,5455	17	6,1641
Efficient legal system	2	7,4217	10	7,2846
Stable government	3	7,2679	1	7,8923
High growth rate of the market	4	7,2432	4	7,6308
Large market size	5	7,1205	8	7,3826
Good infrastructure (roads, etc.)	6	7,0625	7	7,4231
Exchange rate stability	7	7,0309	3	7,6384
High purchasing power (GDP per capita)	8	7,0088	20	5,6769
Few restrictions on capital movements	9	6,9636	9	7,3594
Low business taxes	10	6,8897	14	6,5674
Appropriate technology	11	6,8135	15	6,4927
Low levels of corruption	12	6,7611	6	7,4615
Available supply of labour	13	6,5982	5	7,5538
Low cost of capital	14	6,5808	12	6,7749
Good schools and hospitals for employees	15	6,5664	18	5,9923
Weak trade union influence	16	6,3824	21	5,6041
Democratic political system	17	6,3523	11	7,1541
Weak local competition	18	6,1651	19	5,8659
Low energy costs	19	5,8794	16	6,2771
Low labour costs	20	5,5982	2	7,6489
Low levels of environmental regulation	21	5,5273	23	5,3566
Plentiful raw materials (minerals, etc.)	22	5,3750	13	6,6231
Cultural affinity (e.g. Same language)	23	5,1027	22	5,4891

* When the same determinant appears more than once in the questionnaire

The role of the public perception, as assumed here via the IHT and Google searches, seems not to be relevant regarding taxation because it appears in a significantly lower rank than in those searches. Furthermore, scatter plots do not show a linear relationship between the findings of these searches and the answers of respondents. Statistical tests confirm this result (Annex 4.4).

In question 6 the setting was not an investment decision by a firm but a government having an active policy of attracting FDI to their country. That is, question 5 shows the firm's perspective and question 6 the government's. The results of question 6 refer to the number of times each variable was ranked in the top 5 positions by respondents.

Question 6 requires respondents to focus on the way to attract investment and, thus, in the neoclassical view the expected ranking should be very similar for both questions. However "Low business Taxes" was the 6th. determinant in question 6, a higher ranking than in

question 5 (10th. and 14th.)³. It confirms the information collected during exploratory interviews that business taxes are better suited to act as a signal to foreign investors than as a variable for firms' decisions.

Table 6.3: 3 – Determinants of a government's attempt to attract investment (Q.6)

Ranking - Category label	Code	Count	Pct of Responses	Pct of Cases
Large market size	2	47	8,5	42,3
Low labour costs	3	46	8,3	41,4
Good infrastructure	5	46	8,3	41,4
High growth rate of the market	12	44	7,9	39,6
Exchange rate stability	23	42	7,6	37,8
Low business taxes	14	39	7,0	35,1
Stable government	18	39	7,0	35,1
Highly-skilled workers	1	34	6,1	30,6
Efficient legal system	11	32	5,8	28,8
Few restrictions on capital movements	13	27	4,9	24,3
Appropriate technology	7	21	3,8	18,9
High purchasing power	6	20	3,6	18,0
Low cost of capital	8	19	3,4	17,1
Available supply of labour	17	18	3,2	16,2
Low levels of corruption	20	18	3,2	16,2
Plentiful raw materials	9	14	2,5	12,6
Low energy costs	10	13	2,3	11,7
Democratic political system	22	13	2,3	11,7
Weak local competition	4	12	2,2	10,8
Weak trade union influence	16	5	,9	4,5
Good schools and hospitals for employees	15	2	,4	1,8
Cultural affinity	19	2	,4	1,8
Low levels of environmental regulation	21	1	,2	,9
		-----	-----	-----
	Total responses	554	100,0	499,1

3 missing cases; 111 valid cases

Given the outcome what explains the greater importance of business taxation from a government perspective? A possibility is that respondents tend to perceive a greater association of business taxes with effective governmental policies because they are determined by public officials, and the level of taxation is not immediately (after a location decision) relevant for firms but only in the medium to the long-term, when profits are expected to arise. Moreover, it may be due to the visibility of this variable in newspapers and other vehicles of what is usually called “*public opinion*” (which has a direct impact on elected officials and their policies). In other words, respondents are not only influenced by FDI theory, as question 5 has shown, but also by the so-called “*public opinion*”. This is partially confirmed in statistical testing for one of the searches, Google (Table 6.3: 4).

³ When the ranking is made for the top 3 positions “Low Business Taxes” is the 5th ‘ex-aequo’ and for the top 7 position is the 1st.

Table 6.3: 4 – Symmetric measures between Google and Question 6

		Value	Approx. T(a)	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	,200	1,800	,072
	Kendall's tau-c	,200	1,800	,072
	Gamma	,202	1,800	,072
N of Valid Cases		23		

a Using the asymptotic standard error assuming the null hypothesis.

However, both the public perception and FDI theory may “hide” the fact that managers are not that rational in what concerns the role of business taxation when corporations make their FDI decisions and thus taxation is not necessarily a key determinant in FDI location decisions.

Finally, in both questions the only behavioural variable that is included, “cultural affinity”, presents a very low rank, in line with idea that both neoclassical FDI theory and the public perception have a great influence in these answers (in the Google search it ranks 15).

Table 6.3: 5 - Question 7.1

	A – Frequency	A – Percent	B – Frequency	B – Percent
Country X	12	19.7 %	14	29.2 %
Country Y	28	45.9 %	25	52.1 %
Country Z	21	34.4 %	9	18.7 %
Total	61	100.0 %	48	100.0 %

Table 6.3: 6 - Main variables indicated as reason for choice - question 7.2

		Frequency Quest. A	Percent	Frequency Quest. B	Percent
1	Appropriate technology	8	7.3	16	20.5
2	Legal system	21	19.1	13	16.7
3	Quality of infrastructures	15	13.6	7	9.0
4	Corporate tax rate	26	23.6	25	32.1
5	Hospitals and schools	4	3.6	4	5.1
6	Highly-skilled workers	22	20.0	10	12.8
7	Labour days lost due to strike	14	12.8	3	3.8
Total		110	100.0	78	100.0

Question 7 re-considers the firm’s perspective. The goal is also to have an understanding of the perceptions of respondents in terms of the choice of a country where to locate an investment. However, the context is now more precise, that of an economic area where the

firm can locate the investment in one of the countries in order to supply the entire market. This makes more sense to the goods sector (manufacturing or agricultural firms) given that in part of the services industry the firm needs to be geographically near the client. The different scenario (that of an economic union) is expected to alter the perceptions of respondents about FDI determinants if the decision is perceived as being made inside a single market (Bruckner and Saavedra, 2001).

The question asks respondents to choose a country (X, Y or Z) where to invest given the restricted set of variables. It is divided in two different questionnaires where, in questionnaire A, country Y, the most attractive of the three in terms of corporate tax rate, has a lower corporate tax rate of 5% and 10% than countries X and Z while in B it is lower by 15% and 20%. Both questionnaires present an overall more attractive country Z and equivalent countries X and Y if all the variables have the same weight in the perception of respondents. The answers for question 7.1 are shown in Table 6.3: 5 and the choice of the determinants that justified the choice of the country is presented in Table 6.3: 6.

The first thing to note is that despite the overall advantage of country Z, country Y was preferred by more respondents in both questionnaires. This means that the variables are not perceived to have equal weight. Country Y tops in two variables when compared with the other countries: “Corporate tax rate” and “Legal system”. But given that “Legal system” has the same level of efficiency in countries Y and Z the corporate tax rate seems to be the main reason for the choice of country Y as a place for the firm to invest. This is also seen by the variables indicated as reasons for the choice. The perception of respondents thus confirms the higher relevance of taxation for FDI location decision inside a market as empirically confirmed by Devereux and Griffith (1998).

The second thing is that the answer to question 7 contradicts that of questions 5 and 6 where “Good infrastructures” received a higher ranking than “Low business taxes”. If the ordering was the same in question 7, country Z would have to be the chosen one. Some possible explanations for this difference can be suggested.

The first is the different context, possibly associated with the European Union, which may give a disproportional weight to the corporate tax rate due to the eventual perceived idea that

the 15 countries (at the time of the questionnaire) are similarly developed regarding the remaining variables. The second is the existing qualification of the variables in question 7. Instead of having only the variables, as in questions 5 and 6, they are qualified (e.g. reasonable, good, and very good). In the case of taxation, which seems to be the more relevant variable in question 7, its value is explicitly stated. Thus, it seems that the difference of 10% and 20% in taxation is the main reason why more respondents chose Y instead of Z.

A further explanation for the change in the perceptions of respondents is that of a higher association of business taxes with firm’s FDI decisions due to the “*public opinion*” context. In question 7, the perspective is that of the firm investing abroad where the number of variables was reduced to seven and a “*real*” context and “*real*” values were given to them. Given that this context can also be favourable to a “*bias*” towards business taxation, if these variables are assumed to be more relevant within a market, the influence of the so-called public perception should not be disregarded.

Table 6.3: 7 - Chance of changing FDI decision – question 8

Answers	Questionnaire A (5%-10%)		Questionnaire B (15%-20%)	
	8.1	8.2	8.1	8.2
Mean	51.0588	66.556	55.3846	62.6786
Standard deviation	23.69	23.42	18.90	19.36
Minimum	7	8	10	15
Maximum	100	100	90	100
Valid	51 (58,6%)	36 (41,4%)	39 (58,2%)	28 (41,8%)

Finally, question 8 aims to understand how changes in corporate tax rates would affect investment decisions in the perception of respondents. This is an attempt for respondents to value the corporate tax rate in a FDI decision context by considering the chance of changing the location from the actual place to a different country with a lower level of taxation. In a similar magnitude to question 7 questionnaire A presents a change of 5% (question 8.1) and 10% (question 8.2) from an initial rate of 20% while questionnaire B presents a change of 15% and 20% from an initial rate of 40%. Table 6.3: 7 shows the results in both questionnaires.

It can be observed that the chance stated by respondents is very high in all four cases, always above 50%. Given that the values of the tax rates are roughly equivalent to the actual

differences between EU countries with higher and lower corporate tax rates, that would mean that, according to respondents, more than half of the FDI destined to countries with higher tax rates inside the EU would be about to be changed to lower tax countries such as the new members from Eastern Europe.

This is consistent with question 7 when indicating that respondents give a high value to the corporate tax rate in FDI decisions, and it contradicts the results of the previous questions, especially of question 5. However, and contrary to question 7, in question 8 the larger difference from questionnaire A to B in the corporate tax rate between the actual location and the potential new location does not alter the outcome. But the fact that **the importance of business taxation seems to be overvalued in comparison to the previous questions reinforces the idea that external influences such as newspapers**, where neoclassical literature surely is an input, **have a significant weight**.

6.4 – A natural quasi-experiment

The natural quasi-experiment is essentially based on a comparison between the answers of a group of managers without professional knowledge of FDI determinants (No group) with another group with knowledge on FDI decisions (Yes group). The aim is to understand the effective role of business taxes in FDI decisions. The respondents have the following characteristics (Annex 4.5 presents a characterization of the two groups):

Table 6.4: 1 – Origin of respondents

Respondents – Quasi-experiment	Yes group	No group
Portugal	17	13
Other countries	13	16
Total	30	29

The results of question 5 are shown below, in Table 6.4: 2. The two groups were requested to rank 23 determinants of FDI in a developed country. The answer to question 5 shows that, according to the perception of respondents, “Low business taxes” is not one of the main variables explaining FDI decisions. It is in the second half, of 23 variables considered. Moreover, its ranking is below the one presented in the general survey. In absolute terms the

“Yes” group valued this variable, on average, at 6.6 and the “No” group at 6.19. Despite the higher value given by managers with FDI experience both groups are below the general survey result of 6.88.

Table 6.4: 2 – Ranking of the determinants of FDI in a developed country

Rank Yes	Mean value of the answers – Question 5	Rank No
1	Large market size	2
2	Efficient legal system	3
3	High growth rate of the market	4
5	Few restrictions on capital movements	12
5	Low cost of capital	13
6	High purchasing power (GDP per capita)	1
7	Highly-skilled labour	5
8	Exchange rate stability	12
9	Low levels of corruption	7
10	Weak local competition	17
11	Available supply of labour	8
12	Low business taxes	15
13	Appropriate technology	9
14	Good infrastructure (roads, etc.)	10
16	Stable government	6
16	Good schools and hospitals for employees	14
17	Democratic political system	16
18	Weak trade union influence	18
19	Low labour costs	20
20	Low energy costs	23
21	Low levels of environmental regulation	21
22	Cultural affinity (e.g. Same language)	19
23	Plentiful raw materials (minerals, etc.)	22

Given the small difference existing between both groups (“Yes” and “No”) the behavioural hypothesis that FDI knowledge would mean a lower relevance for business taxes fails to be confirmed. In the same sense the lower rank of taxation does not vindicate the simplified approach of tax competition theory.

A comparison between the answers of the three groups (students and managers) confirms that the perceptions are not very different (Table 6.4: 3). However, as it happened with students, there is no clear relationship with the outcome of the searches presented in 6.1.

Question 6 (Annex 4.6, table 1) confirms the general survey outcome regarding the relative importance of business taxation. The Yes group ranked “Low business taxes” in 5th place while the no group ranked it in 3rd, that is significantly lower than in question 5, and thus both consider that it is more relevant from the perspective of a government attracting FDI than from a firm investing abroad. The same occurred with students.

Table 6.4: 3 – Comparison of answers to question 5⁴

Pairs of ranks	Pearson’s R	Approx T	Sig.	Spearman	Approx T	Sig.
Yes group – No gr.	0.909	10.012	.000	0.811	6.355	.000
Yes gr. – Students	0.865	7.914	.000	0.762	5.388	.000
No group - Students	0.884	8.677	.000	0.879	8.434	.000

Nr. of cases: 23

Therefore with respect to the government’s view all the respondents seem to share the public perception of FDI determinants where, according to the three searches, there is a bias towards taxation. This is shown by comparing the answers of question 5 to those of question 6. **Both students and managers think that governments should give a disproportional (to the interest of firms) weight to business taxes in their policies to attract investment.** From question 5 to question 6 the rank of “Low business taxes” moves from 10^o to 6^o in the answers of students and from 12^o to 6^o and 15^o to 3^o, respectively in the answers of the “Yes” and the “No” groups. Moreover, the same does not happen with other variables manageable by governments (e.g. “Good infrastructures”, “Exchange rate stability”, “Efficient legal system” or “Few Restrictions on capital Movements”). This is in line with the notion that business taxation has a lot of “newspaper” appeal and thus it is more associated with governmental policy.

However, despite the close relationship existing between the values of the 3 groups of respondents (Yes, No and Students) in questions 5 and 6, confirmed by correlation coefficients, there is no connection between the answers of managers and the searches presented in 6.1 (Annex 4.6, Tables 2 and 3, and Figure 1).

On the other hand, the outcome clearly shows the influence of FDI theory in the answers. In the case of theoretical knowledge, the expected answers would indicate the importance of a

⁴ Scatter plots show an almost linear relationship in each pair of ranks.

large number of determinants when a firm is deciding to invest abroad. Theory does not state any specific ranking for the determinants, and given that all of them were related with the host country conditions, the answers would depend on the perceptions of each respondent. But given that students and managers gave a similar ranking to taxation the experience-based view of professionals seems to be not relevant, in questionnaires, for a better understanding of investment decisions.

In question 7 the firm’s perspective is reconsidered for a restricted set of variables within an economic area. Contrary to the survey, in this case only questionnaire B, where a more attractive country Z and equivalent countries X and Y (if the variables are perceived to have the same weight) are presented, was applied. Country Y has a lower corporate tax rate by 15% and 20% in comparison with countries X and Z, respectively.

Table 6.4: 4 – Country location in an economic area: Question 7.1

	Yes – Frequency	Yes – %	No - Frequency	No – %
Country X	9	30.0	5	17.2
Country Y	12	40.0	15	51.8
Country Z	9	30.0	9	31.0
Total	30	100.0	29	100.0

The answers show that the No group is more sensitive to business taxation than the Yes group but the later also chose Country Y. The determinants that justified the choice of the country, according to the perception of respondents, are reported in annex 4.6, table 4, and confirms the higher relevance of “Low business taxes”. Although this clearly contradicts questions 5 and 6, where “Efficient legal system” was considered more important for a FDI decision than taxation, it confirms the importance of taxation within a single market.

Finally, question 8 reveals how changes in corporate tax rates would affect firm’s investment decisions in the perception of respondents. Table 6.4: 5 below shows the results of answers to question 8.1 for both questionnaires.

It can be observed that when the difference in the tax rate is higher (questionnaire B) the average chance of changing FDI decision is higher only for the Yes group which gives a much greater importance to corporate tax rates when the difference is 15%. In both cases the mean is greater than 40% although the standard deviation is high. This seems to indicate that

most of respondents give a high value to the corporate tax rate in FDI decisions. These results are confirmed in question 8.2 although the Yes group reduces the difference between the means to 53 and 59 in questionnaires A and B, respectively, when the difference is 10% and 20%. But the outcome may be affected by the low number of responses in each situation.

Table 6.4: 5 - Chance of changing FDI decisions – question 8.1

Answers	Yes group		No group	
	Quest. A (5%)	Quest. B (15%)	Quest. A (5%)	Quest. B (15%)
Mean	43.92	65.00	44.64	40.66
St. deviation	20.58	24.35	25.53	27.50
Minimum	5	25	20	5
Maximum	80	100	100	100
Valid	14	16	14	15

The main conclusions of the quasi-experiment are the greater importance of business taxes from the perspective of jurisdictions, those that are able to change them, in comparison with firms and in a context of an economic union between developed countries. These results confirm those of the general survey. But the outcome is clearly affected by FDI theory while the role of the public perception about the impact of taxation in FDI decisions is not conclusive.

It is not clear, however, if this is a sufficient explanation for the relevance given to taxation by the three groups of respondents. Managers were expected to be less sensitive to the media than students due to higher maturity in terms of working experience. But the results of the experiment are not totally conclusive not only on this but also regarding the difference between those with and without FDI related experience. In question 5 the Yes group gives a higher (although marginal) mark to “Low business taxes”, contradicting the initial hypothesis. Given that these respondents have a better knowledge of FDI decisions a lower mark was expected. In question 6 the mark is similar, although the ranking is now higher in the No group. Question 7, on the other hand, shows that the No group is more sensitive to taxation while question 8 shows the opposite. Therefore, given that the corporate tax rate has no lower relevance in the answers of managers with FDI experience in comparison with those without it, **the behavioural approach is not confirmed in the questionnaire.**

6.5 - Conclusions

The objective of this chapter was to assess the perception of respondents about the determinants of foreign investment decisions and to understand the role of business taxation in these decisions. First, newspapers and the world wide web showed that there is a public perception that tends to overvalue the importance of taxation in FDI decisions. Therefore, the initial hypothesis was this overvaluation would have an effect on the answers to questionnaires about this subject. The results presented in this chapter seem to confirm that **taxation is one among many variables important to FDI** (questions 5 and 6 in the questionnaire) and **there is weak evidence of the “public perception” bias towards taxation when FDI is the subject** (questions 7 and 8).

It is found that, according to respondents' perceptions, business taxes help to explain FDI decisions although it is not a very important variable (in a group of 23). This is in line with FDI theory and it confirms that the tax competition model is too simplistic. It is also seen that FDI theory has an impact in the public perception despite the supposedly exaggerated relevance of business taxes in the latter.

A different confirmation is that **business taxes are perceived to be better able to act as a governmental tool to attract foreign investment than as a key variable for firms in FDI decisions**. Both groups, students and managers, agreed on it. Although this is expected given that taxation is a tool in the hands of public officials, its relevance is more clear when other variables managed by governments are not perceived in the same way and when the difference in tax rates between the possible locations is higher (question 7). Thus, it indicates an overvaluation of taxation in governmental policies when compared with the perspective of firms. The public perception “bias” may explain this overvaluation.

Moreover, taxes seem to be more relevant when firms have to make FDI location decisions within a single market than between different countries/markets as theory predicts (Devereux and Griffith, 1998). The higher ranking given by students to the relevance of “business taxes” when the decision to invest abroad is between developed countries agrees with this if one thinks of the EU. But the hypothesis that a bias in favour of taxation as a FDI determinant may be relevant should be considered in this case.

An unexpected outcome is the small difference between the ranks of taxation generated by the answers of students and managers with or without FDI experience. **The behavioural hypothesis that managers with FDI experience would consider taxation as less relevant is not supported.** This is also seen by the very low rank given to the only behavioural variable included in the questionnaire, “cultural affinity”, and it signals that managers are affected by the public opinion independently of their working experience.

Therefore, the questions about the rationality of FDI decisions and the real importance of business taxes remain to be confirmed. Because it is not possible to know the level of both the public perception’s and FDI theory’s impact on the answers, further work is needed to provide a better understanding of the role of taxation and to secure support for the validity of the behavioural approach adopted in this dissertation.

Chapter 7 – Findings from the FDI activity of firms

The aim of this chapter is to better understand how FDI location decisions are made and if they are consistent with the assumptions and results of the bulk of the literature on foreign investment. Consideration of behavioural rules (as FDI determinants) adds to the literature presented in chapter 3 where two main issues (revenue increase and cost efficiency) were presented as the explanation for firms to invest abroad.

This chapter starts with the main hypotheses to be tested about the existence of bounded behaviour and the role of behavioural rules as an explanation of FDI decisions. The analysis is focused on the rationality of decision makers and on how the C-D (Heiner) model is able to explain their behaviour in FDI operations. Evidence is then considered within the proposed approach. A test of the behavioural model is presented in order to assess its usefulness for this dissertation. The chapter concludes with a review of the explanations of FDI location decisions.

7.1 - Hypotheses

This chapter uses the above presented methodology to understand how FDI location decisions are made and to check the correspondent hypotheses. These are based on the behavioural approach. The general idea is that maximization and economic rationality is prevented by bounded behaviour and by the use of behavioural rules.

Behavioural and experimental economics have established that managers use several rules of thumb when making decisions and thus systematically repeat errors that prevent maximization. This happens irrespective of the degree of competitiveness faced by firms. In other words, managers are not able to learn from past experiences in all situations and so the wedge between their behaviour and the optimality conditions of neoclassical models may be even larger than what Simon and others have predicted. The use of rules of behaviour is explained in the Heiner model by the level of uncertainty faced by decision makers. That is:

H1 - The higher the uncertainty the more frequent is the use of rules of behaviour

This is the main prediction of the Heiner model and it will be tested by using country ratings and the level of internationalization as proxies to uncertainty.

Furthermore, firms are not fully optimizing agents because their managers are not totally rational decision makers and thus make decisions inconsistent with maximization. Therefore, they are at best able to “*satisfies*” (i.e., to achieve a bounded rationality). The behavioural approach acknowledges the capacity of agents to improve their behaviour but only up to a point. The point setting the capacity of firms to make economically rational decisions is explained in terms of the existence of a limit in the abilities of their managers to deal with information (Simon, 1955). Thus the second main hypothesis is

H2 - Firms are not able to follow a maximizing behaviour in all situations

A consequence of H2 is that bounded behaviour in FDI decisions is not in accordance with maximization objectives as generally assumed by the tax competition and FDI literatures.

Furthermore, and because the behavioural approach predicts that decisions are closely influenced by the use of rules of behaviour, these rules are also expected to explain investments abroad. This leads to

H3 – FDI location decisions are explained by rules of behaviour and not dependent on maximization objectives

That is, behavioural variables are able to explain the exact location chosen by each firm to invest.

7.2 - Results

Chapter 4 considers three main hypotheses related to firms’ behaviour in FDI operations. These are now divided per sub-items and considered individually starting with the rationality

(H2 and H3) assumption and finishing with a test of the Heiner model (H1). This inversion of the order allows for a detailed presentation of behavioural rules before testing the model.

7.2.1 – Bounded procedures and needless assumptions

The neo-classical literature assumes that economic agents have the will to maximize even if they are not able to do so. In this sense, firms and managers are supposed to make rational decisions so that profit maximization is achieved sooner or later by surviving firms. This is also what is supposed to happen in FDI location decisions partially explained by tax variables. Managers are expected to choose the location where the marginal productivity of capital is higher due to a lower tax burden. Even if it does not happen in the beginning of the internationalization process, the pressure from competition and the ability to learn would make it happen afterwards for the survival firms because the number of bounded procedures would be reduced to a minimum.

Given the insights provided by behavioural economics it can be inferred that the neoclassical theory does not tell us the whole story. As Simon proposed, decision makers are only able to achieve a bounded rationality. This is due to the incapacity of the human brain to aggregate all the knowledge and information needed to make a purely rational decision even with the support of modern technologies. Three possible hypotheses are going to be checked so that the existence of bounded rationality and the prevention of maximization in FDI operations are confirmed.

7.2.1.1 – The ability to maximize

Contrary to the assumption of neoclassical theory, firms and managers may not be able to maximize or do not have maximization as an objective. Chapter 4 presents four sub-hypotheses (H2a1 to H2a4) that are now considered.

The behavioural approach sees managers as users of simplification strategies in their decision making due to uncertainty. That is, managers are, many times, inconsistent in their FDI decisions. A first question, then, is whether firms have a clear strategy, focused on the long term (as maximization implicitly requires for surviving firms in an open market - H2a1). A

clear strategy is essential for all levels in a firm to know in which direction they should move. Without it, employees more easily embrace their own goals and forget those of the firm (Simon, 1991, p. 37). **Given that all firms have presented evidence of a strategic focus in the long term, considered by respondents from 3 to 5 years, H2a1 is not confirmed.**

The second sub-hypothesis concerns the will of managers and firms towards maximization. The goal is to understand if managers are rational and search for maximization of the actual net value of expected returns, as stated by neoclassical theory, or, if FDI is located where corporate tax rates are lower, as tax competition predicts. Otherwise, managers are not fully rational maximizers and behavioural theories are needed to explain firms' activities.

Firms often have several objectives including some that are not publicly stated and do not coincide with those known by the market. Therefore, it is assumed here that the most important goals are those underlined by interviewees. These are valid for the firm as a whole and not only for FDI. But given that FDI is included in firms' activities, one should expect that a rational manager sets its objectives in line with those of the firm.

The stated objectives of the firm were coded within the following possible options (Cyert and March, 1963, p. 9, 10):

- 1 - To maximize expected returns.
- 2 - To have a minimum level of profitability to remunerate shareholders or to create shareholder value.
- 3 - There is more than one important quantitative objective or the main goal is different than 1 and 2: market share, market diversification, size, etc.
- 4 - There are also important qualitative objectives.
- 5 - Both 2, 3, and 4.

The results are presented in Table 7.2.1.1: 1.

Table 7.2.1.1: 1 - Objectives of the firm

Answer code	1	2	3	4	5
Number of firms	0	4	6	1	6

Findings:

- There are no firms with the explicit objective of maximizing future earnings or profits. The word maximizing was only used once (firm 15) referring to shareholder value. The commonest answers referred to the creation of shareholder value and minimum level of return.
- The interviewee that mentioned maximization as an objective also referred to the annual plans of the holding (the investment allocation for all the sub-holdings of the group). This is done by considering the profitability potential of each business. But despite the differences in this potential capital is allocated to all sub-holdings, even those that have more than 10 years of losses (such as ‘newspaper edition’ in that specific case).
- All firms aim to achieve a minimum profitability. These objectives are defined by interviewees with reference to an industry benchmark, business maturity, risk evaluation, market characteristics and competition and, in some cases, have the specific concern to be superior to the market interest rate.
- Four firms (8, 10, 11 and 14) explicitly mentioned that the growth objective (size) in international terms was the main concern in the short to medium term and losses were admitted (profits were secondary in importance).
- Two of the interviewees (3 and 11) explicitly stated that profits are only a necessary condition to achieve their objectives. Firm 3: *“Profitability is not an objective, it is a pre-condition to develop (the firm) in the medium to long term. The development (of the firm) is based on three strategic areas: product and operational quality, which is the main objective, research and development and internationalization”*. Firm 11 said: *“we have invested in the UK in 1984 but with the aim of channelling our production in Portugal. The goal to have an higher profitability was not there. And, nowadays, that is still our aim”*.

It may be concluded, then, that firms have not the explicit objective of maximizing profits although a minimum level of return is considered by all interviewees as one of their aims. It might be argued that even without explicitly referring to the maximization objective, firms do implicitly try to attain it. But the making of some non-maximizing decisions clears these doubts (Box 1, Annex 5.1). Some of these decisions are explained by interviewees for commercial reasons - firm 1. But other cases do not have a comprehensible reason. Firm 5 has a small investment in China, with fixed costs, that is not operating. And the same firm owns two retail banks in Cape Verde that are able to do exactly the same operations (the island has

a very small market). Firm 11 relied completely on the host government cooperation for the success of its investment. The operation failed with the end of cooperation and no return came from it.

These are clear signs that **there is a wedge between full rational procedures and bounded rationality**, where several obstacles prevent maximization to be achieved. Moreover, **the aim of a minimum level of profitability seems to operate as a barrier to maximization**, at least in some firms (3, 11 and 15), **and H2a2 is confirmed**.

H2a3 considers how FDI decisions in a firm are made. A group decision is assumed to be better than an individual one due to the pooling of information (Einhorn et al, 1977, p. 168, and Hinsz et al, 1997, p. 52, 53). Given that it was not possible to observe firms in their decision process, the coding for the content analysis was done based on the existing relationship between members of the board (or the decision group) and shareholders. By individual decisions we consider those firms that are in reality family owned businesses. The 5% limit is explained by the fact that members of the board usually own shares of the firm (as fringe benefits) but always below that amount. A shareholder with more than 5% of the shares usually has the right to have a representative on the board and is considered a significant shareholder. The identifying codes are presented in a way where 1 has a lower and 4 a higher expected performance:

- 1 - Group decision when the Portuguese state is a significant shareholder (for example when it has a golden share) and influences strategic decisions.
- 2 - Individual decision when the main shareholder is a member of the board and owns directly or indirectly, through family association, more than 50% of the equity.
- 3 - Individual decision when one of the main shareholders is a member of the board and owns directly or indirectly, through family associations, less than 50% and more than 5% of the equity.
- 4 - Group decision when the firm is public.

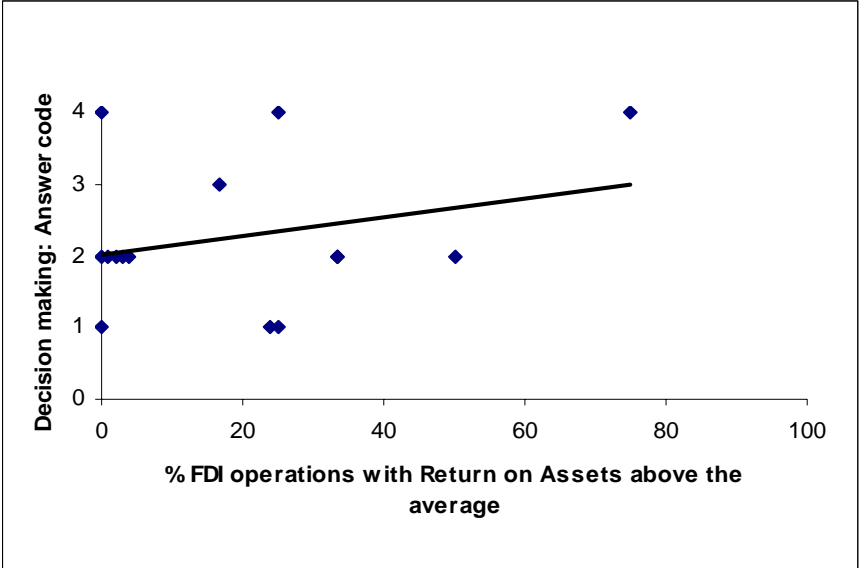
The results are presented in Table 7.2.1.1: 2.

Table 7.2.1.1: 2 - Decision making

Answer code	1	2	3	4
Nr. of firms	3	9	2	3

Only three of the firms are pure public ones and, thus, supposedly have a group decision process where all the information is pooled and the different options are analysed and openly discussed. However, this does not mean that the remaining firms do not follow the same process given that all of them have been successful in their sectors of activity (at least in the home market). They all have several board members that may participate in the decision process even if the final decision is made by one of them, the CEO. There are three firms where the Portuguese state participates by nominating the chairman and some or all the members of the board. These have or have had, in the recent past, a monopoly component in their domestic market (energy, telecommunications and banking).

Figure 7.2.1.1: 1 – Decision making process



One way to assess the relevance of the decision making process is to relate it with the outcome of FDI operations. Graph 7.2.1.1: 1 shows, for 66 cases, the decision making process and the percentage of FDI operations with a level of profits (in percentage of total assets) above that of the consolidated accounts of the firm. A positively sloped relationship should be expected between the two variables given the expected performance presented above. Although all of them have been successful in domestic terms, most firms present worst results abroad than the consolidated ones (domestic and abroad). But there is some evidence of public firms (code 4) being closer to maximization than those owned by a family/individual shareholder or where the Portuguese state interferes (codes 1 to 3).

A related hypothesis is firms in a monopolistic position to be regarded as being further away from maximization (Hicks, 1935). In this context markets are classified according to a high or low monopolistic position of the firm in its main market in Portugal (Table 7.2.1.1: 3). The monopolistic position is directly related to the high or low market share of the firm.

A high monopolistic position is usually associated with less competition and higher profits in the domestic market. Therefore, these firms are expected to relax and to present worst results abroad, that is, a lower percentage of FDI operations with a return on assets above the value registered in the consolidated accounts. From Table 3 it is not possible to fully confirm this although stronger monopolistic positions (high) register a low number of operations with high profitability. Therefore, **H2a3 is at least partially confirmed.**

Table 7.2.1.1: 3 – Monopolistic position in firm’s main markets

Firm	Market	Position	% FDI above consolidated
1	Cork	High	n.a.
2	Banking	Low	16.66 %
3	Pharmaceuticals	Low	0
4	Banking	Low	75 %
5	Banking	Low	25 %
6	Energy	High	25 %
7	Paper distribution	Low	0
8	Retail	Low	0
9	Construction	Low	33.33 %
10	Telecommunications	High	0
11	Automobile	Low	33.33 %
12	Cement	High	0
13	Wine	Low	0
14	Wood products	Low	50 %
15	Retail	Low	0
16	Highway operator	High	n.a.
17	Banking	Low	25 %

Source: 66 FDI operations

Finally, with respect to **H2a4 the study was not able to confirm if managers and firms’ objectives are compatible.** Managers always assumed an institutional position and referred to the firm when asked about their personal aims.

7.2.1.2 – Imperfect information

A second sign of the lack of full rationality in decision making is the collection and processing of information. One usual assumption of FDI and tax competition models is the access, by firms, to perfect information. But information is not perfectly available in FDI decision making and firms respond imperfectly to it for five main reasons (H2b1 to H2b5 – Chapter 4).

The standard tax competition model assumes the access to perfect information but none of the firms interviewed have collected all the relevant information. For instance, firms defined their potential markets where to invest on the basis of a pre-selection that ignored the majority of the available locations. This pre-selection varies with the firm and is based in different criteria such as the geography, referred to by most of the firms, the size of the market, presence of customers or markets where the firm already exports. Given that this selection is based on a group of diversified range of alternatives that satisfied a determined set of conditions and that all the alternatives are not obvious in terms of outcome (a priori it is hard to know with certainty which alternatives are preferable), it is at least possible that the best locations are excluded every time a FDI decision is made.

The perfect information assumption is also weakened by the actions of several firms. FDI decisions are assumed to be based on expectations about outcomes, opportunity costs and potential and actual competitor's threats (Cyert and March, 1963, ch. 4). Therefore, rational agents are expected to collect information with the aim of maximization and within the overall strategy of the firm. In this sense, firms should use common indicators when collecting information such as general economic and business activity, legal and fiscal information or political stability, and use established criteria for the financial analysis of the operations. These allow for an initial expectation about outcomes of FDI operations. Local competition should be also considered in the analysis. But it is with reference to opportunity costs that information is most likely to fail.

This is because firms also use different ways of collecting information. There are procedures that are not standard and interviews allowed an identification of 4 firms without totally

rational procedures to collect information. First, a total of 27 (Annex 5.2) different variables were identified as being relevant for the decision process and all of these were used only by a few firms. Second, firms also use different ways of collecting information. Firm 1 bases it on its marketing network, sometimes from local salesman independent of the firm, while ignoring other markets. Firm 11 decided to invest in the UK due to a pressure from its local representative: *"In 1984 our local representative was in financial difficulty and convinced us to invest in the UK. But the market is not an easy one and there were several years of losses"* explains the manager. Firm 2, on the other hand, uses informal connections, sometimes with competitors, as a way to detect investment opportunities (examples in Annex 5.1, Box 2).

Furthermore, to reach optimal decisions managers have also to perceive correctly the information. However, eight cases were identified where perceptions or the handling of information prevented an optimal decision. Firm 8, for example, made a bad decision when entering the Polish market by wrongly associating habits of consumption in Germany and Poland. Manager: *"I did travel throughout the country in the beginning of the 1990's, trying to speak with consumers when they spoke German, and did reach the conclusion that their habits of consumption were very similar to those of Germany - where I had worked in 1957 and 1958"*. But the firm started in Poland with a cash-and-carry business, where retailers are supposed to buy large quantities of goods. However, in 1994 the Poles did not have large cars (or they did not have a car at all) to transport goods from large to smaller shops and store them. Moreover, consumers needed smaller shops and closer to home. The firm changed the strategy after 1997 by heavily investing in discount supermarkets.

Firms 8 and 15, on the other hand, decided to acquire knowledge of a foreign market through a FDI operation. Firm 8 invested in the UK in an area that differed from the core business but failed because of *"... their culture. It was very difficult for us to adapt to the English culture. We were not able to learn"*. Firm 15 tried to gain experience in the Portuguese and the Spanish markets simultaneously through the introduction of two new shop concepts. There was the perception that the market was similar, in both Portugal and Spain. But the firm undervalued the competitiveness of the Spanish market and after a few years left with losses (while in Portugal it is still operating).

It is clear that firms do not have access to all the information needed and some procedures to collect it and the way managers perceive it and respond are not completely rational. **Both H2b1 and H2b2 are confirmed and only a bounded rationality is possible.**

After its collection and perception, financial information is handled by interviewed firms in a similar way. All firms utilize established criteria to analyse the financial feasibility of FDI operations, mainly the discount cash flow and industry multiples. Therefore, **H2b3 is not confirmed.**

Risk is frequently present in decision making and its influence on the behaviour of economic agents varies with the characteristics of investors. Nevertheless, it may lead to situations where maximization is denied when it is wrongly perceived and evaluated in decision making or is dealt with in a biased way. This happens if a firm could achieve the same profitability with a lower risk or a higher profitability with the same risk (Markowitz, 1952). That is, when just an approximation of optimality is achievable.

A total of 9 situations were identified where risk policies were biased. In some cases maximization was prevented because the firm suffered losses due to a failure to mitigate risk. Firm 10 had an accumulation of unpaid debt from the Angolan state throughout the years but, despite using MIGA investment insurance provided by the World Bank when operating in other African countries, it never did in the case of Angola. The manager says: *“We think that Angola is now more stable politically than most of the countries in the region, except Botswana and Namibia, and we have a privileged cultural relationship and very good connections, through the Portuguese state, with the local authorities”*. However, this *“privileged relationship”* did not prevent the firm from pardoning 75% of the credits on the Angolan state.

In other examples although there was no loss the risk was too high to avoid a mitigation policy. Firm 3 is not mitigating the risk of a huge investment in research despite the danger of bankruptcy and the decision to invest abroad (a double financial effort) being justified by the need to increase sales to pay for the investment (Annex 5.1, Box 3). **These examples confirm H2b4. Risk policies may indeed put a boundary on maximization.**

The interviews also showed that all firms, except one, have some type of concern in terms of risk diversification, although there is no consensual empirical support for its importance as a determinant of FDI in the literature (Markusen, 1995, p. 171). Firm 4, a bank, has no financial participations abroad besides the affiliates. They only have a portfolio of participations in Portuguese corporations. The portfolio is not geographically diversified due to perceived access to better information about the Portuguese market and not because of profitability. And firm 5 opened in New York in order to be able to participate in syndicated loans and other financial operations where the volume is huge although the spread is thin. This allows an asset diversification but with a reduced return.

According to the Markowitz model both firms are not maximizing if they can get a higher return for the same risk. In the first case the Portuguese stock market was less profitable than other markets in developed countries between 2000 and 2004 (Bloomberg, 2007) meaning that, most probably, other more profitable investments were available in the same period. In the second case there may also be other markets with similar risk and volume but higher spreads. **However, given that there is no information about the exact investments of both firms it is not possible to confirm H2b1.** Examples are presented in Annex 5.1 (Box 3)

7.2.1.3 – Simple evidence and conclusions

The interviewees provided several examples of non maximizing behaviour. From a data source of 112 operations, 26 situations were detected as not purely rational and preventing maximization of expected returns. They are divided as follows:

- a) Ability to maximize: 5
- b) Relevant information not perfectly available: 4
- c) Imperfect response to information: 17

However, it can be argued these examples are insufficient to reach a conclusion about the ability of firms to have a maximizing behaviour. Managers, as any human being, are always prone to errors and able to learn and correct their procedures and decisions so that, with time and competition, the behaviour of surviving firms may, possibly, get closer to maximization.

Neoclassical theory states that the higher the degree of competitiveness the lower the number of bounded situations to be found in a FDI operation in all situations. That is, although bounded situations exist and prevent maximization, time and learning should diminish them towards a maximizing behaviour. Thus the expected outcome is the longer the period of investment the lower the expected number of bounded situations.

In opposition to that perspective, the behavioural view is tested by forming a variable named “Numbounded” where all detected bounded situations are included. The objective is to assess the direction of the association between the exposure of each firm to a higher degree of competition, measured through the level of internationalization, and the number of detected bounded situations (H2c). The expected outcome is the number of bounded situations to be not totally explained by rational behaviour arising from the pressure of competition but also by behaviour bounded from economic rationality. Considering:

H0: The degree of competitiveness is inversely related with the number of bounded situations

H1: The degree of competitiveness is not inversely related with the number of bounded situations

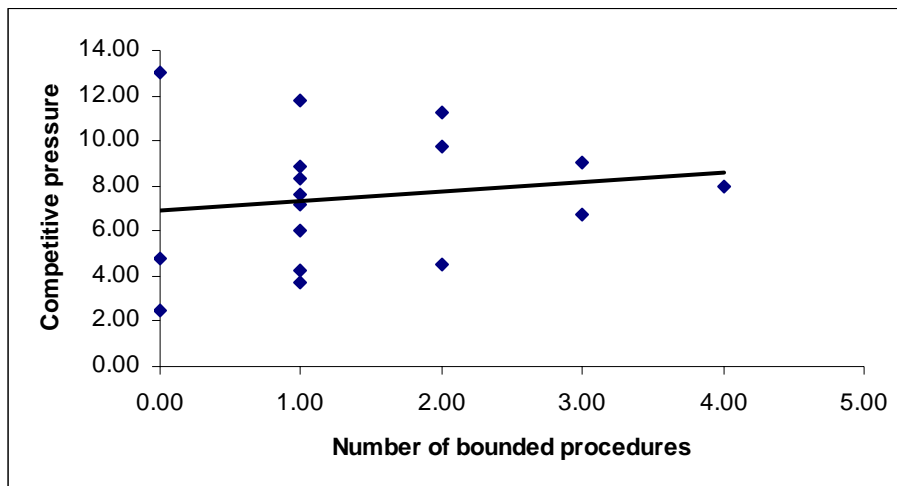
Where the level of internationalization acts as a proxy to the degree of competitiveness and is a firm level variable measured by (Annex 5.3):

- N° of years abroad: 1 point per each year and 15 points for 15 or more years of presence abroad up to the end of 2004.
- Percentage of sales and of employees abroad: 3 points per each 20% class (0-20%: 3; 20-40%: 6; and so on up to 80-100%: 15)
- N° of markets where the firm has a FDI operation – 1 point per each market

The final scale is an average of the 4 items where the higher the value the higher the level of internationalization of the firm.

The graph shows the relationship between these two variables. For the null hypothesis to occur a line with a negative slope is expected. However, the slope of the trend is positive and thus the null hypothesis, based on the available observations, can be rejected.

Figure 7.2.1.3: 1 – Competitive pressure on behaviour



Given this result it can be seen that, at least in certain situations, the competitive pressure is not sufficient to guarantee that firms behave as if maximizing because FDI decisions are many times inconsistent with maximization objectives. This does not mean that the degree of competitiveness does not help firms to be more efficient. It only says that there are circumstances where despite the will or the ability to maximize being not present and the access to information being too imperfect firms may keep on competing in the market without improving their behaviour in a neoclassical sense.

This is in accordance with the findings of the previous paragraphs where it is confirmed that firms do not always aim to maximize future earnings as economic theory usually assumes. Firm 3 is the clearest example but all firms have a set of different goals and, as previously shown, some of their decisions also prevent maximization. Moreover, the aim of a minimum level of profitability may act, in some cases, as a barrier to maximization. Imperfect information and imperfect response to information also introduce a wedge between optimal and bounded behaviour. Therefore, firms and managers are not always rational, although profitability is an important objective. Managers, are, as Simon puts it, only “satisficing” and achieving a “bounded rationality” and it can be concluded that there is a gap in the context of the C-D model. **The consequence is that the optimization assumptions of neoclassical theory are not needed to understand firms’ behaviour in FDI location decisions.**

Nevertheless these conclusions should be carefully read given the very small number of cases available and the related impossibility to perform statistical tests. These results are based on the information collected but one can never be sure that all the relevant information is being

used. Therefore, the results indicate that firms are not able to indefinitely improve their behaviour towards maximization (H2).

7.2.2 – Behavioural rules

Table 7.2.2: 1 – FDI locations with Rules of Behaviour

Time	Type	Intrinsic			Extrinsic			Total cases
		Rule of behaviour	Nr. of cases	Nr. of firms	Rule of behaviour	Nr. of cases	Nr. of firms	
Past		Learning	10	7	Anchoring	43	12	73
		Mental accounting	20	4				
Present					Cascading	4	4	99
					Herding	23	14	
		Strategic inconsistency	13	7	Strategic inconsistency	30	3	
					Inter-expert inconsistency	17	17	
					Fairness	12	4	
Future		Overconfidence	3	3				3
Total cases per type		55			120			175
Total locations		175						

Table 7.2.2: 2 – Rules of Behaviour in FDI location decisions

	FDI locations	Number of firms
1 - Decision to invest abroad	20	
Mental accounting	20	4
2 - Location decision	140	
Learning	10	7
Inconsistency	45	9
Herding	23	14
Cascading	4	4
Anchoring	43	12
Overconfidence	3	3
Fairness	12	4
Total	160	

The third hypothesis concerns the aim to identify the relevance of behavioural rules in explaining FDI location decisions. The use of these rules are expected to motivate firms to choose external markets. Although managers consistently follow them, they are not in accordance with what profit maximization requires. This hypothesis adds to the FDI literature presented in chapter 3 where two main reasons, revenue increase and cost efficiency, are presented as the explanation for investments abroad to occur.

There was an identification of 175 situations (Table 7.2.2: 1 divides them as per the taxonomy presented in chapter 4 and Annex 5.4 allocates them per firm) where behavioural rules were followed but their different types should be qualified. The first type includes rules related to the location decision made by the firm, that is, Learning, Herding, Anchoring, Cascading, a share of Inconsistency (45), Overconfidence and Fairness in a total of 140 situations. Then, there are rules explaining the decision to invest abroad but not the exact location, namely Mental accounting (20). Table 7.2.2: 2 presents them. The remaining 15 rules are specific of the firm.

The inconsistencies in the table are regarded as behavioural rules in the sense that they are kept throughout the years. The non-strategic “anomalies” (except those due to governmental intervention) are presented within the rules of intrinsic nature (7.2.2.1), although they also include extrinsic ones. The remaining inconsistencies are introduced below (7.2.2.2). In both cases the presentation follows the time span.

7.2.2.1 – Rules of intrinsic nature

Managers, as human beings, are not always intrinsically consistent and follow several behavioural rules, with reference to the past, the present and the future, that prevent optimization (H3a1 to H3a5). Those originating in the past comprehend the inability to learn and mental accounting.

Although **learning** helps managers to improve the way they deal with information and make decisions (Cyert and March, 1963, p. 123), maximization is not achievable when prior and imperfect procedures are continuously used in current decisions. The way to avoid the errors of the past is to change behaviour through learning (H3a1). Examples of these

“improvements” in FDI location decisions were found in the interviews. For example, the evaluation of FDI operations has significantly evolved since the 1990’s and all firms are now using established criteria such as the Discount Cash Flow and Market Multiples (Annex 5.1, Box 4).

However, a few examples of the opposite were also identified. Seven of the interviewed firms did not use their previous experience, in ten different situations, in order to improve FDI decisions (Annex 5.1, Box 5). Firm 5 is presently engaged in a fourth venture in Brazil by returning to its initial role as an investment bank (Público, 4/10/2005, p. 45), although it was not very successful in the past. However, it recently sold its controlling share in a large Brazilian bank (Bandeirantes, before 2004) and its participation in one of the three largest Brazilian retail banks (Unibanco, after 2004), a potential source of business for the investment bank. Firm 8 invested in Brazil and in the UK in the second half of the 1990’s despite having a shortage of skilful human resources (a problem detected with the previous investment in Poland) to implement and manage their businesses abroad. Firm 9 had an accumulation of unpaid debts by the Angolan State despite knowledge of the market (where it has presence since 1946). It only changed its policy very recently to an approach where money should be received in advance. Firm 11 is trying for the third time, by following a third different strategy, to be successful in the UK.

Given the presented evidence H3a1, where the use of rules of thumb originates repeated errors in decision making, is supported. This is a clear sign that managers are not always able to learn from past mistakes. Psychologists explain it as a *hindsight bias* where individuals tend to minimize the importance of past negative events through the use of ex-post explanations that make them seem inevitable in retrospect (Fischhoff, 1982, cited by Hilton, 2003, p. 281). They are further evidence of the failure to maximize.

Rules of behaviour may also be directly linked with the decision to invest abroad, before the choice of the location. These depend on the attitude of decision makers towards risk and the previous situations in terms of gains and losses. This mental accounting (Thaler and Johnson, 1990) happens in two different situations.

In the first case a loss that is recoverable may induce risk behaviour by managers (H3a2). This seems to have happened with Firm 11 when further investing in a non-profitable business abroad. The firm invested in the UK in 1984 but the results were not satisfactory: *“The level of profits was not good and we had several years of losses due to the negative impact of tourism and the difficulties of tour operators. These invested in used buses and destroyed the market for new ones”*. In 1998 the firm made a new investment in the UK to produce coaches with a local partner. But despite the agreement, the joint venture was broken because the partner decided to joint venture with other firms. Again, market reasons explained the failure: *“...we lost a lot of money due to market context, namely the demand for coaches that changed after the new investment was made”*. Finally, in 2004 the firm invested again in the production of buses in Portugal to export to the UK and closed the production of coaches by transforming it in a car repairing business. The manager justifies the continuing investment in the UK with the possibility of channelling Portuguese production. But the fact is that, despite the weak results, the firm has been investing continuously since 1984.

Risk taking behaviour may also be affected by prior gains as long as managers believe in their ability to limit losses (H3a3). This *house money effect* may explain how previous experiences by managers or firms affect current decisions. Namely, it can explain the amount of the investment, or at least an upper limit, because losses expected as possible should be below the previous gains. As explained above, Firm 11 is in the UK market for more than 20 years with accumulated losses. However, the firm is earning sufficient money in the domestic market to cover these losses and it uses the UK to channel its production in Portugal. Therefore, the investment in the UK is covered by the home gains.

Three other firms (5, 6 and 10) had benefited from a monopoly situation in the Portuguese market until recently. Firm 5 had the monopoly of banking for public servants in Portugal for more than 20 years while firms 6 and 10 were utilities with a monopolistic position in the market. They were able to absorb sufficient liquidity that partially motivated and was later used to invest abroad. Table 7.2.2.1: 1 shows obtained profits since 1995. It may be seen that the return on assets of firms 6 and 10 decreases significantly in the period due to the liberalization of both industries¹. Firm 5, on the other hand, presented a significantly higher

¹ In accordance with EU law the liberalization of both industries started in the beginning of 2000.

financial margin than the average of the Portuguese banking sector throughout the 1990's (annex 5.5).

Table 7.2.2.1: 1 – Consolidated Profits and ROA (values in Million Euros)

Profits	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Firm 5	291.17	248.45	528.09	350.75	349.13	544.47	653.78	665.13	667.25	448.48
Firm 6	n.a.	n.a.	n.a.	522.79	513.94	548.97	450.83	335.22	381.11	440.15
Firm 10	180.83	273.95	349.64	441.1	494.68	540.32	307.39	391.05	240.23	500.12
ROA										
Firm 5	0.85%	0.68%	1.28%	0.72%	0.63%	0.87%	0.98%	1.00%	0.90%	0.64%
Firm 6	n.a.	n.a.	n.a.	4.22%	3.75%	3.69%	2.78%	1.85%	2.04%	1.95%
Firm 10	4.31%	6.29%	7.01%	4.75%	5.81%	4.09%	1.74%	2.85%	1.77%	3.86%

Source: Annual reports. ROA = Profits / Total assets

This is implicitly confirmed in two interviews. Firm 6 stated that *"the market was mature for us and the firm generated excessive cash-flows for our needs in Portugal. Thus, we needed to invest abroad"*. The same happened with firms 5 and 10. Moreover, the manager of firm 12 when explaining the internationalization policy of a direct competitor (not included in this study): *"they had a privileged situation during the privatization of the industry (in the 1990's) because the state left them with a lot of money to invest abroad"*. This shows how consecutive Portuguese governments "allowed" state owned firms to earn from their monopoly position and start the internationalization process before being privatized.

The investments made by those three firms were generally less profitable than the earnings in the home market. Although one cannot be 100% sure that managers accepted a higher risk when the investments were decided, it is clear that they have been not successful for a long time. Firm 5 invested in Spain in 1991 and it keeps on having losses (Pinheiro-Alves, 2001). Firm 6 invested in Brazil in 1997 and, although is having profits now, the new management hired in 2002 decided to focus on the Spanish market while Brazil is still "running" but in an autonomous and self-financing way. Firm 10 invested in Brazil in 1998 and, despite the accumulated losses (table 7.2.2.1: 2)², obtained a commercial success and this is a possible explanation to keep the investment. But the motivation for these firms to maintain the investments abroad despite the bad financial results, and besides political considerations (the Portuguese government still has a word in the strategy of these firms), can be understood if it

² In the annual report of 2002 firm 10 presented *"...an improvement in the return of the investment in Brazil"* as one of its main challenges (PT, annual report 2002, p. 23). But until 2004 with no success.

is realized that the three firms have shown systematic consolidated profits in the end of each year (table 7.2.2.1: 1). That is, the profits obtained in Portugal, and in some other less important markets, are “hiding” lower profitability in the larger and “strategic” FDI investments made by these firms. The profits from the activity in Portugal, in a way similar to tax revenue for the state due to their monopolistic component, have been financing these losses. Thus, the losses were not large enough to cancel the profits obtained in Portugal and managers are, in fact, operating through a mental accounting rule.

Table 7.2.2.1: 2 – Net income of the main strategic investments abroad

	Country	1997	1998	1999	2000	2001	2002	2003	2004
Firm 5	Spain	n.a.	n.a.	n.a.	n.a.	3.16	1.84	0.4	-11.7
Firm 6	Brazil	n.a.	n.a.	-24.9*	7.25*	79.9*	-20.2*	-86.3*	48.1
Firm 10	Brazil	-	17.00	9.42	122.1	-519.0	-34.2	-9.88	-59.2

Values in Million euros

* Contributed to consolidated accounts due to absence of minority interests.

Therefore, **both H3a2 and H3a3 are confirmed and FDI decisions, a total of 20, are explained due to domestic profitability in three situations partially arising from the monopoly component.** That is, while risk policies or imperfect information may put a boundary to maximization, mental accounting situations, as described above, are systematic rules followed by investors where uncertainty reduces the possibility of maximization. Bad financial results abroad are kept and “hidden” year after year by domestic profits.

The heuristics originating in the present are concerned with consistency in decision making. A rational manager is supposed to be consistent during all the decision making process. In FDI operations all the decisions are supposed to be consistent with the objectives and the strategy of the firm.

Despite the long term focus, firms do often make FDI decisions - and fail to correct them - not consistent with the strategy (H3a4). They are expending efforts and resources (financial, human and others) into different directions and are not fully concentrated in their main objectives (Schwartz, 1998, p. 145). There were 22 situations of strategic inconsistency both of intrinsic and extrinsic nature (presented in Table 7.2.2.1: 3 and in Annex 5.4). Firms 8 and 15 failed diversification attempts due to the absence of a clear strategy at the time of decision. Firm 5 operates two competing banks in the same market and Firm 9 operates two businesses

abroad for several years although they are not within its strategy. The reason is its profitability indicating that a type of “sunk costs” prevents these investments to be channelled to the strategic businesses of the firm. Box 6 (Annex 5.1) details these examples and thus **it supports H3a4 by showing this inconsistent behaviour to be an obstacle to maximization.**

Table 7.2.2.1: 3 – Non-strategic investments

Firm	Nr. FDI	Y=Consistent ; N=Strategic inconsistency
1	9	Y=9 ; N=0
2	12	Y=12 ; N=0
3	1	Y=1 ; N=0
4	5	Y=5 ; N=0
5	15*	Y=8 ; N=5
6	5*	Y=1 ; N=3
7	8	Y=8 ; N=0
8	3	Y=2 ; N=1
9	8	Y=5 ; N=3
10	17*	Y=8 ; N=7
11	6*	Y=3 ; N=0
12	4	Y=2 ; N=2
13	2	Y=2 ; N=0
14	2	Y=2 ; N=0
15	2	Y=1 ; N=1
16	1	Y=1 ; N=0
17	12	Y=12 ; N=0

* Investments missing due to lack of information

The continuation of the time line also affects agents’ decisions. *Overconfidence* may lead to non-optimal decisions due to a disregard of relevant information that can cause an illusion of control over future events (H3a5). Brazil is an example of overconfidence about the knowledge of the market for the CEO of firm 8: *“I knew the market (for professional reasons) but that was the reason we made so many mistakes. The Portuguese fell in love with Brazil, the food, the climate. The investment was a complete nonsense given that it is a different market, with very strong and cash-rich local and international competition. It is not for us”*. Despite its previous experience in that market, the CEO showed a tendency to interpret information in order to confirm its own pre-judgements about the operation, a *confirmatory bias* (Rabin, 1998, p. 26) and to ignore non-favourable information such as the above referred characteristics of the market.

A different reason is the existence of mistaken beliefs or illusory correlations, in which decisions or rules of thumb can be based. An example is the idea that it is easier to obtain higher profitability in less developed countries and markets due to perceived better skills and abilities (Hilton, 2003, p. 275). It may be based on an excess of information that managers cannot handle properly or on the fact that people think they know observable facts better than is actually the case. This seemed to be the case of some investments in Brazil, a Portuguese speaking and less developed market where, theoretically, it would be easier and profitable to invest. Firms 2 and 5 had previous experience in Brazil but repeated the mistake by making a huge investment in the second half of the 1990's. In less than five years both firms (and firm 8) had divested or changed their investment (Annex 5.1, Box 7).

Table 7.2.2.1: 4 - Perceptions on advantages and disadvantages in foreign markets

Firm	Nr. FDI	Nr. Advantages	Nr. Disadvantages
1	9	3	0
2	12	3	0
3	1	1	2
4	5	2	0
5	15	1	0
6	5	1	2
7	8	1	2
8	3	2	2
9	8	3	1
10	17	3	1
11	6	1	2
12	4	1	0
13	2	1	0
14	2	-	-
15	2	2	3
16	1	1	0
17	12	4	2

Another sign of overconfidence may be seen in the information provided by interviewees about advantages and disadvantages of their firms in foreign markets (Table 7.2.2.1: 4). The existence of advantages in foreign markets is a necessary requirement for a successful FDI (Dunning, 1979). But nine interviewees only perceived one or less advantages in the foreign market. It does not mean that investments are, or will be, not successful but it is a sign that there are some chances of failure given the difficulty in recognizing the advantages over the

competition. It also shows some (over) confidence on the competition capabilities of the firm by assuming, implicitly, that one advantage is sufficient to be successful. This seems to be confirmed by the fact that 10 interviewees more easily recognized their advantages in foreign markets than their disadvantages. That may be either because they have more advantages but it may also be because they do not know very well the market and are excessively confident in their firm. **For all the above reasons H3a5 is confirmed.**

7.2.2.2 – Rules of extrinsic nature

Environmental characteristics are also recognized to influence economic agents in very different ways. Evidence of a reference to the past and the present is included in this dissertation. Regarding past events, cultural and firms' values often act as an “anchor” to FDI location decisions.

Economic theory says that cultural and historical (of the firm) variables are relevant for FDI decisions (H3b1 e H3b2). The use of these variables do not necessarily prevent maximization but they also do not guarantee higher profitability. What is clear is that decisions are not rational, in the neoclassical sense, if mainly based on these variables because they are very likely to prevent profit maximization.

Cultural anchoring, a type of cultural influence, happens when investments are attracted by countries that communicate in the investor's native tongue and have a similar cultural background. Almost one third (35 in 112) of the investments are located in Portuguese speaking countries and a further 3 also are explained by cultural or historical reasons. Thus, it seems that this type of anchoring is relevant for decision makers (as Grinblatt and Keloharju, 2001, p. 1064, have shown for Finland) because the decision to invest abroad was evaluated from a particular starting point, cultural linkages, and the choice of this point influenced behavioural outcomes (investment locations).

The answers obtained in the interviews confirm this statement. Seven firms explicitly stated that cultural variables were determinants for investment location and a further three also referred to their relevance (Annex 5.1, Box 8). Moreover, six firms present historical (of the firm) reasons to be present in a market. In most cases, cultural and historically driven FDI has

not good results. The outcome is inferior when compared with consolidated data. This is presented below for Brazil. But the same applies for other countries as presented in table 7.2.2.2: 1. The information concerns 2004 when the majority of the operations were running for some years and thus had a sufficient time period to become profitable. All together there are 16 locations with lower and 11 with higher return than consolidated accounts. Therefore, **both H3b1 and H3b2 are confirmed** and the C-D model provides a further significant explanation for firm's behaviour besides the neoclassical approach.

Table 7.2.2.2: 1 – Relative performance of FDI in Portuguese speaking countries

Country Firm	Consolidated ROA (2004)	Angola	Cape Verde	Guinea Bissau	Macao	Mozambique	S. Tomé Principe	Timor
Firm 2	0.60%	Higher	-	-	Lower	-	-	-
Firm 4	0.80%	Higher	-	-	-	Higher	-	-
Firm 5	0.64%	-	Lower	-	Lower	Higher	n.a.	Higher
Firm 6	1.95%	-	Lower	-	n.a.	-	-	-
Firm 9	1.70%	Higher	-	-	-	Higher	-	-
Firm 10	3.86%	n.a.	n.a.	Lower	n.a.	n.a.	n.a.	n.a.
Firm 11	1.40%	Lower	Higher	Lower	-	Lower	-	-
Firm 12	7.83%	Lower	Lower	-	-	-	-	-
Firm 17	0.72%	Lower	-	-	Higher	Higher	-	-

Brazil is presented in table 7.2.2.2: 3 below.

Moving to the present, there are also some inconsistencies with a clear strategy and a long term focus (H3b3) directly related with the exact location decision of a firm. A total of 21 operations abroad were identified as having some sort of inconsistency with the strategy of three firms (5, 6 and 10) due to specific instructions of the Portuguese state as a shareholder. The Portuguese state owns 100% of firm 5 and has a golden share with a compulsory say in the strategy of firms 6 and 10. It can be questioned if government instructions do necessarily prevent a maximizing behaviour. Although the answer is no the firm following government instructions is not investing by using an objective criteria in terms of expected returns and opportunity costs (even when profitability is a pre-condition for the investment, as the managers of the three firms referred). Furthermore, many operations were detected where FDI profitability is lower or negative and other cases where the investment simply does not make sense in rational terms.

Overall, most of these investments were located in former Portuguese colonies (Spain and Luxembourg are the exception – Table 7.2.2.2: 2). Almost all of them are very recent

investments, starting in the beginning of the 1990’s when these Portuguese speaking countries had at least 15 years of independence.

Table 7.2.2.2: 2 – Inconsistent FDI location decisions

Firm 5	Firm 6	Firm 10
Brazil	Brazil	Angola
Cape Verde	Cape Verde	Brazil
China	Macao	Cape Verde
Luxembourg	Spain	Guinea Bissau
Macao		Macao
Mozambique		Mozambique
S. Tomé e Príncipe		S. Tomé e Príncipe
Spain		Timor
Timor		

Regarding firm 5 it can be also said that given it is the shareholder who approves the strategy a FDI location decision can never be against it. However, while the different managements of the firm throughout the years expressed their own views of target markets, the corresponding “supervisors” had a strategy dominated by political issues. For example, firm 5 invested in Timor in 2001, when the strategy of the firm was mainly focused in Spain and Africa, exclusively for political reasons given the will of the Portuguese state to help a recently born nation and not to maximize the expected returns of the firm. Political considerations are also an explanation why the firm keeps two banks with similar capabilities operating in Cape Verde and why a branch in China is left almost inoperative for more than a decade.

Firms 6 and 10, on the other hand, followed guidelines of the Portuguese state when considering investments in Brazil and Spain (see herding behaviour below). All FDI operations in Africa are related to the cooperation policy of successive Portuguese governments (trying to regain confidence from the rulers of the former colonies while helping their development). Firm 10, for example, is in Mozambique but is not authorized to sell its elected product in the internationalization strategy, mobile communications.

The investments in Macao are also explained by the Portuguese presence until 1999. But these investments were made recently, although before 1999, and were related to the concern of the Portuguese state to leave signs of its presence in Macao after China took over the territory. Firm 5 is, together with Bank of China, the issuing bank in Macao as a result of an

agreement between Portugal and China. This presence together with the availability in the news of the huge potential of the Chinese market and a fad to invest in China led the firm to mention the country, very recently and only after the completion of these investments, as its main strategic market after Spain and Africa³.

Although some of these investments are profitable the three firms are channelling resources to places very often not included in their overall strategy or, in the case of firm 5, altering strategy to accommodate politically driven FDI operations. Furthermore, they have no freedom to disinvest even if they want to due to the agreements and political goals that motivated these operations. Therefore, **this systematically inconsistent behaviour is another obstacle to maximization and H3b3 is confirmed.**

A different sign of inconsistency is the use of a widespread set of variables by all firms when making similar decisions. **The use of different evidence by firms to their location decisions (H3b4) is confirmed in the information collected.** The interviewees mentioned a total of 27 different reasons to determine the location of their investments (Annex 5.2). This is in line with what Slovic (1969, 1972) identified as little inter-expert consistency when studying decision making by experts in financial markets. The nature of the businesses are not able to totally explain these differences. For example, four of the firms are from the same industry (banking) and together they refer to twelve different determinants. From these only 5 are common to at least two of the firms. The remaining 7 are specific to one of the firms.

This lack of agreement over the relevant determinants is a sign of difficulty to define an optimal search process for selection of alternatives and collection of information given the scarce resources of managers in terms of attention and cognition (Gabaix and Laibson, 2003). Furthermore it shows that the available alternatives are not always conspicuous and given that firms have been using the same variables for a large period of time⁴ it can be concluded that at least some of them are not looking at the right determinants. Firms are under using information and this is a barrier to optimization.

³ The annual report of 2002 does not mention the 10 years old branch of Zhuhai. In 2003 the branch is mentioned and the same happens in 2004, when a small paragraph about China is included (CGD, 2002, 2003 and 2004 annual reports).

⁴ This is explicitly confirmed by several interviewees.

Firms and managers are also believed to follow the “herd” in very efficient financial markets (H3b5). This may happen also on FDI. First, *availability* of well publicized events was overestimated by some Portuguese managers when deciding to invest in Brazil in the period between 1997 and 1999. In the specific case of the firms interviewed all, except one, of those that have investments in Brazil made a big investment in the mentioned period. But the firm that invested later, in 2001, did consider investment in the same period. They were not the only Portuguese firms to invest in this country in the same years. According to Costa (2003) there were, in 2001, 147 investments in Brazil made by 83 parent Portuguese companies and a large majority of these had invested after 1996⁵. This is not a coincidence. In 1996, the Portuguese government decided that Brazil was the main objective for the Portuguese economy (NPI, 1997). The Portuguese prime-minister at the time made several speeches and visits to this country, explicitly exhorting investors to move to that market. IPE (a state owned holding) participated as a shareholder in the investment made by firm 15 in Brazil. Furthermore, the year 2000 marked the 500th anniversary of the arrival of Pedro Álvares Cabral to Brazil (following the 500th anniversary of Vasco da Gama’s journey to India), with widespread celebrations both in Portugal and in Brazil. Therefore, there was, on that period, a huge stream of news about the attractiveness and the opportunity of investing in Brazil. Portuguese firms were in the beginning of the process of internationalization (in terms of FDI) and cultural ties, common language, a huge market and a “push” from the government (through specific incentives such as interest free loans) explained the sudden interest in Brazil (Costa, 2003). In this process, judgements about FDI decisions were altered and other potential markets were clearly downplayed given the availability of evidence about Brazil.

A related case is *Herding* behaviour, transmitted through direct communication between managers (seven of the interviewees confirmed the informal exchange of information between firms about foreign markets) or observation of actions or outcomes of other firms’ actions (Banerjee, 1992). In order to test whether Portuguese managers were vulnerable to this bias, a specific question was asked to interviewees about the hypothesis of investing in China or in India. The idea to explore is that China seemed, at the time of the interviews, to have a greater appeal than India (Fromlet, 2004, and *The Economist*, 24/9/2005, p. 99). This was probably due to the frequently mentioned rates of economic growth and the fashion phenomenon

⁵ Banco de Portugal (2005) estimates, in 2001, the total number of 268 Portuguese firms with investments abroad. That is, almost one in three Portuguese firms invested in Brazil.

associated with China in the news. However, India was also growing very well, it is as large as China in terms of market size and it has lower political risk because it is an established democracy (in fact it is now, 2008, also a fashion in itself). Despite the similarities between the markets, five of the managers confirmed that their firm had considered the possibility of investing in China but not in India showing that they were succumbing to the higher appeal of the Chinese market.

In Portuguese FDI there are two markets where the herding phenomenon is easily recognizable and 16 situations were identified in the interviews (Table 7.2.2.2: 2). First, as shown above, the Brazilian market. Second, the Spanish market where 10 of the 17 firms invested after 1990. Another 170 firms followed the same path in this period, to an estimated total of 250 Portuguese firms in Spain (Pinheiro-Alves, 2001). In both cases it can be said that FDI decisions were influenced by an existing “unanimity” towards the attractiveness of these markets. This is true even when the required knowledge to invest seemed to be wrongly perceived.

From our sample of seven investments in Brazil, four (firms 2, 5, 8 and 15) of them were sold a few years later and, of the remaining, one (firm 10) is significantly less profitable for the investor than the Portuguese market. Only firm 6 registered, in 2004, a higher profitability than the consolidated value. Moreover, the Portuguese state had a share of the investment made by firm 15 and sold it with a huge loss. Between 1997 and 2001 the Portuguese firms together invested 13,000 Million Euros in Brazil but divested half of this amount (Banco de Portugal, 2005). In Spain, the scenario is similar. In eleven investments, eight are less profitable (firms 2, 3, 4, 5, 6, 7, 14 and 15), one (firm 13) was sold and in another one (firm 1) there is no available information in terms of profitability. The share of divestment over investment is even larger than in Brazil, 67%. This indicates that a significant part of the investments were not successful and firms had to leave the market.

Table 7.2.2.2: 3 confirms the lower return obtained abroad by firms investing in Spain and Brazil. Values are taken from annual reports or verbally confirmed by the interviewees when there is no financial information.

Table 7.2.2.2: 3 – Return on FDI operations

2004	Consolidated	Brazil		Spain	
	ROA	Starting Year	ROA	Starting Year	ROA
Firm 1	1.86%			1976*	n.a.
Firm 2	0.60%	1997	Lower	1992	Lower
Firm 3	n.a.			1998	Lower
Firm 4	0.80%			1996	Lower
Firm 5	0.64%	1998	Lower	1991	-0.48%
Firm 6	1.95%	1997	2.06%	2001	0.72%
Firm 7	0.59%			1990	Lower
Firm 8	4.14%	1997	Lower		
Firm 9	1.70%				
Firm 10	3.86%	1998	Lower		
Firm 11	1.40%			2001	1.63%
Firm 12	7.83%				
Firm 13	8.94%			2002*	n.a.
Firm 14	n.a.			1991	Lower
Firm 15	5.15%	1997	Lower	1997	Lower
Firm 16	3.94%	2001	n.a.		
Firm 17	0.72%				

* Not included in the herding anomaly

The trend to invest in Spain and in Brazil seems to be also a clear sign of a *false consensus bias* (Thaler, 2000, p. 133). By looking at other firms moving to these markets the idea of a “target market” and “good businesses” is automatically established and discussed among managers. Those that do not “follow the herd” are considered “suspicious” by the market and their reputation may be in danger (*reputation-based herding* – Zwiebel, 1995, p. 17). There is clear evidence in the interviews about this phenomenon. The manager of firm 15 stated: “*We had a lot of cash to spend and the government had limited the number of licences to operate in Portugal. So, we decided to invest abroad. On the occasion Brazil and Latin America were the most fashionable locations and this (the investments) has a lot to do with fashions, as you know*”. Firm 2: “*We went when other firms also went – PT, Jerónimo Martins, Sonae*”. It should be noted that firm 2 is present in Brazil since 1976 but despite the knowledge of the market the investment was not successful. The manager explains: “*We bought Banco Boavista in 1997 but it went badly wrong and in 2000 we exchange for Bradesco shares. The Brazilian market is very specific and foreigners have not been very successful in this market. It is necessary to have local managers because it is a peculiar market*”.

Additionally, the CEO of firm 8 explicitly stated that one of the reasons to invest in Brazil was the pressure received from financial market analysts, those who are responsible to classify listed stocks in terms of the opportunity of the investment. He said: “*We went abroad*

because financial analysts did put a pressure on us by ‘threatening’ with a devaluation of our shares. But let me tell you that today I am very cautious with investment banks”. Thus, this investment was also to please investors (Rajan, 1994).

Eastern Europe is a third market where a herding phenomenon can be recognized and it also confirms H3b5. This market has been in the news for several reasons since 1990, with the downfall of the “Berlin wall”. During the 1990’s these countries had a transition process to democracy and a market economy which culminated, in the 2000’s, with adherence to the European Union. All countries have made important political and economic reforms, even if in different ways and speeds, that often led to periods of high growth. More important, it is believed they have a huge potential in terms of growth, due to their relatively skilful population and the financial support of the EU, and thus many business opportunities are arising. In this case, however, the herding phenomenon is not specific to Portugal given that firms of several other countries invested in Eastern Europe during the period (Altomonte and Pennings, 2008). But the return was also not superior to the consolidated accounts in all cases except firm 17.

Table 7.2.2.2: 4 – Herding in Eastern Europe

Firm	Eastern Europe	ROA (2004)
2	1997	Lower
8	1995	Lower
9	1996	Lower
	1997	Lower
	1999	Lower
10	1990	n.a.
17	1998	Higher

A further detected anomaly (H3b6) happens when a firm’s selected action does not depend on its private information signals but is based upon the observation, by managers, of other firms’ actions and, supposedly, private information (*informational cascade* - Bickshandani et al, 1992).

It makes more sense for firms to “cascade” when they compete in the same industry because that is when holding private information may be more valuable relative to competitors. Kinoshita and Mody (2001, p. 456) show evidence that Japanese firms are encouraged to

engage in FDI in other Asian countries when other (Japanese) rival firms do it. And in a similar view, although in the context of agglomeration economies, Barry et al (2001, p. 12) empirically explain the investment in a country through the presence of other firms as a provider of information (*signalling*) about the attractiveness of the market. In our small sample, there are four firms from the banking industry whose managers invested in a total of 23 countries. More than half of these locations have at least investments of two of the firms, five countries have investment of three banks and in two locations, France and Cayman Islands, there is a presence of the four firms.

Considering the ten largest banks owned by Portuguese investors, and also including their representative offices (Annex 5.6), in half of the locations (15) there are at least three banks and in eight locations there are at least five investments. All the ten banks have or had a presence in the Cayman Islands but among the large number of available off-shore locations this was “elected” as “the” off-shore by Portuguese managers and their law consultants⁶. This is a clear sign of the **existence of an informational cascading among Portuguese banks in some of their location decisions and thus H3b6 is supported.**

Moral influences also have a specific role in economic decisions (Etzioni, 1988) and the actual issue of social responsibility and the related reports issued by large firms confirms it. A studied example is *fairness*, when managers act in conformity with informal but socially accepted rules or standards (H3b7 - Kahneman et al, 1986).

An example was found in firm 11: “*We wanted to help the development of Mozambique and agreed, with the state as a partner, to install a factory to produce components and assemble buses. But the government, instead of giving some type of protection to the industry, decided to raise tariffs for the import of components and to eliminate tariffs for the import of buses. Thus, the factory is now inactive because there are no necessary conditions to develop any type of business. And we are very disappointed. It seems that they do not want our help*”. This manager reflects a common feeling in Portugal about the need to invest in the ex-colonies and help them to develop. This may explain why the firm invested in good faith, without any formal guarantee, believing that the Mozambican government, as a shareholder, would support the operation.

⁶ Jain and Gupta (1987) present similar evidence in the context of international lending decisions by banks.

There are other examples in the firms surveyed, namely those closely related with the Portuguese policy of helping former colonies. This policy has been partly implemented through state-owned firms (firm 5) and public firms where the government still has influence (firms 6 and 10). **Table 7.2.2.2: 5 presents the cases and confirms H3b7.**

Table 7.2.2.2: 5 – “Fairness” decisions

Firm 5	Firm 6	Firm 10	Firm 11
Timor	Cape Verde	Angola	Mozambique
Cape Verde		Cape Verde	
Mozambique		Guinea Bissau	
S. Tomé e Príncipe		Mozambique	
		S. Tomé e Príncipe	
		Timor	

7.2.3 – A few detailed examples

The main objective of this chapter is to identify the relevance of rules of behaviour in explaining FDI location decisions (H3). The model predicts an association between uncertainty and the existence of these rules. All the hypotheses presented (H3a and H3b) confirm that managers do indeed use rules of behaviour in their FDI location decisions. A total of 175 behavioural rules were detected in 112 operations⁷.

A few detailed examples help to better understand the difference between the neoclassical and the behavioural approaches. First, firms 2 and 8 decided to invest in the Brazilian market in the second half of the 1990’s. The tax competition literature explains this location decision with fiscal advantages. But both firms explicitly denied it (chapter 8). The FDI literature, on the other hand, provides two main explanations for these investments, cost efficiency and revenue.

Firm 2 was already in Brazil, through an investment bank and other areas of business, when the decision to make a huge investment in a retail bank was implemented. Its manager refers to the exhaustion of the Portuguese market and thus the need for other markets to grow and to look for profitability as motives to invest abroad. He also stated that the group only invests

abroad in businesses where it has a very good know-how in the domestic activity, like retail banking services. As reasons for the location in Brazil he refers to cultural variables such as a common tongue and a resident Portuguese community. Therefore, according to FDI theory the aim was to increase revenue by having access to new clients in a different market with cultural liaisons.

The behavioural approach provides a more complete picture where expected profitability and business growth have a necessary role. However, these are not specific to Brazil. There were other possible choices with similar characteristics and where the growth potential could have been bigger. The choice of Brazil is explained by cultural variables, as already referred, but also by the presence of the group in the country since 1976 and the simultaneous move of a few hundred Portuguese firms to the country motivated by the Portuguese government (see 7.2.2.2 above). It is also explained by an overconfidence in the project shown by the inability to learn from the previous experience in the market. As the interviewee stated *“The Brazilian market is very specific and foreigners have not been very successful. It is necessary to have local managers because it is a peculiar market”*. But the firm should have known that in advance because it was there since 1976. Therefore, in 1997 there was an overconfidence on the ability of their managers to obtain different results than those of other banks, more experienced in international activity. More than 20 years of market knowledge were not sufficient for the firm to realize that it needed local managers.

Table 7.2.3: 1 compares the two approaches and underlines the more complete explanation provided by the C-D model. In firm 2, for example, the four last determinants of the location decision are not usually recognized by the neoclassical approach. But it is the existence of these determinants that confirm a gap in the C-D model where a maximizing behaviour is prevented.

Firm 8 provides a very similar example. Its aim was also to increase revenue by having access to new clients in a different market. The firm also received some pressure from market analysts to invest abroad. The growth potential was also not exclusive to Brazil, as its present experience in Poland shows, although it presented an attractive market growth rate. But the main reason to choose the market was the cultural relationship. However, the behavioural

⁷ Annex 5.7 details the rules and locations.

approach provides two extra explanations: availability and herding, as noted above, and overconfidence from the CEO and main shareholder. He says: *“In the 1960’s I was marketing manager of Unilever in Brazil. I knew the market ... if I didn’t I would have not committed so many mistakes”* and then *“It was a nonsense to go to Brazil. It is a very different market, with powerful competitors, both locals and foreigners, very strong and with a lot of money. We have no balance sheet for the market”*. But the information about competitors was publicly available and the manager had knowledge of it. Therefore, an illusory perception about the abilities of the firm and of control over future events also explains the investment. The manager recognizes: *“due to a stupid pride I was convinced that we would make it”*.

In both cases the decision to invest in Brazil was made and the gap between the competence and the difficulty can be found in behavioural rules. The reliability condition was not superior to the tolerance limit and **both firms dealt with uncertainty by using rules of intrinsic and extrinsic nature and related with the past (cultural and historical variables and learning), the present (availability and herding) and the future (overconfidence)**. Both firms left the market after a few years.

A second example is given by firm 10 and two location decisions, in Mozambique and East Timor. Again, the tax competition model is not able to explain these investments. The main explanation of FDI theory is the cultural relationship existing between Portugal and these two countries together with the perception of a superior know-how by the investing firm and the need to serve clients in Mozambique. The behavioural approach provides several other explanations for the location decision that discard the traditional maximization aim. First, both operations are inconsistent with the firm’s strategy and thus are an obstacle for maximization. The internationalization of firm 10 is based on mobile communications and focused on Brazil and Africa. However, the firm is not a mobile operator in Mozambique and East Timor is in Asia. Second, the location decision was made after government instructions (the Portuguese state has a golden share in this firm) and with a sense of fairness. Both are Portuguese ex-colonies and very poor countries where the decolonization process was not correctly managed by Portugal. Therefore, there is a common will, in the Portuguese society, to help these countries and mainly the new independent state of East Timor.

**Table 7.2.3: 1 – Neoclassical and behavioural approaches in FDI location decisions
Firms 2, 5, 8, 10 and 11**

Firm 2	FDI theory	Behavioural
Firm 2: Brazil	- Growth potential - Cultural affinity	- Growth potential - Cultural anchoring - History of the firm - Availability and herding - Overconfidence - Learning inability
Firm 5: China	- Geographical proximity - To serve clients	- Geographical proximity - To serve clients - Strategic inconsistency - Mental accounting - Cultural anchoring - Learning inability
Firm 5: Spain	- Geographical proximity - To serve clients - To compete with Spanish banks	- Geographical proximity - To serve clients - To compete with Spanish banks - Availability and herding - Strategic inconsistency - Mental accounting
Firm 8: Brazil	- Cultural affinity - Market growth rate	- Market growth rate - Availability and herding - Cultural anchoring - Overconfidence
Firm 10: East Timor	- Cultural affinity - Superior know-how	- Cultural anchoring - Superior know-how - Strategic inconsistency - Mental accounting - Fairness
Firm 10: Mozambique	- Cultural affinity - Superior know-how - To serve clients	- Cultural anchoring - Superior know-how - To serve clients - Strategic inconsistency - Mental accounting - Fairness
Firm 11: Mozambique	- Cultural affinity - Superior know-how	- Cultural anchoring - Superior know-how - Fairness
Firm 11: United Kingdom	- To channel domestic production - Market size	- To channel domestic production - Market size - Mental accounting - Learning inability

The interviewed manager refers that profitability is always the aim of investments abroad and “...in less developed countries the required return is higher and shorter – 5 years maximum - than in developed economies”. But this is hardly the case of East Timor given the difficult

situation of the country. Moreover, both are small investments where the risk of losing money is limited namely in comparison with the huge revenue stream arising from the dominant position of the firm in the Portuguese market. Firm 10 enjoyed, for a large number of years, a comfortable position as a monopolist provider of telecommunication services. Today it still has a dominant position in fixed and cable services⁸. Therefore, the risk of losing money is cancelled out by the profits from its domestic activity. **The existence of political objectives with a fairness component together with a house money effect arising from the near monopolistic position of firm 10, provide a more complete explanation of the decision to invest in these countries than the neoclassical approach.**

A similar example is given by firm 5. The investments in China and Spain are justified by growth potential and the aim of obtaining profits. Geographical proximity and willingness to serve clients are location reasons while fiscal variables are said to be of no relevance. But the interview reveals other important reasons. The group had a branch in Zuhai, near Macau, since 1991. This branch can only operate in foreign currency and thus is “...*relatively inactive*” in the words of the interviewee. It was inconsistent with the strategy of the firm up to 2003, when China was firstly considered as a target market. For more than 13 years capital was invested in the branch, without return, and the firm was not able to learn and change the situation. All the banking operations could be booked in other affiliates of the group, including Macao, and thus the branch was unnecessary. Therefore, **FDI is better explained by the history of the group, for decades the issuing bank of Macao, and by the political need to maintain a Portuguese presence in the region and to strengthen a position in Macao, which was expected to become a special area of China after 1999.**

In the case of Spain the interviewee refers to several additional reasons: “...*to be in a competitive market and Spain is a natural market for us due to geographical proximity. Furthermore, there is a strong presence of Spanish banks in Portugal and our competitiveness also depends on being in Spain*”. Although these are valid reasons, and recognized by FDI theory, it should be noted that firm 5 has a market share of less than 1% in the Spanish market, and is mainly located near the border with Portugal. The biggest Spanish bank, on the other hand, is larger than the entire Portuguese market and has a share of 20% despite informal “warnings” by successive Portuguese governments against an excessive

⁸ It was recently fined in 38 Million Euros due to abuse of the dominant position (Público, 2/8/2007, p. 42).

Spanish presence (Pinheiro-Alves, 2001, p. 139). Therefore, political reasons, namely government instructions, also help to explain the investment in Spain. The fear of an “invasion” of Portugal by Spanish firms was counterbalanced through government instructions and appeals for Portuguese investors to go to Spain (7.2.2.2 above). In both cases a house money effect can also be observed given that firm 5, owned by the Portuguese state, enjoyed, for many years, a monopoly position as the bank of civil servants and pensioners, and thus had a cheaper funding than other banks (annex 5.5).

A final example is firm 11 where investments in the United Kingdom and Mozambique are justified by the need to channel domestic production and market size, in the first case, and cultural affinity and superior know-how in the second. However, both investments have peculiar stories. The investment in the UK started in 1984 when a local representative “convinced” the firm to invest in the country. More than 20 years after it started the firm was not able to become profitable and to learn from different attempts to change the business. The investment has been financed mainly with domestic cash-flows. In Mozambique there was an agreement with the local government where, informally, access to the market was “exchanged” for the superior know-how of firm 11 in assembling buses. But, according to the interviewee, the local government broke its promises and there was no formal guarantee in favour of the firm. This trust is explained by an attitude of fairness towards a very poor country.

The above presented cases, where FDI location decisions are explained by behavioural rules, have as a consequence no aim or ability to maximize. The aim for profitability is always there but maximization is never an issue and it is impossible to reach due to several barriers (namely the use of behavioural rules). Therefore, **location decisions are not dependent on maximization objectives and H3 is fully confirmed.**

7.3 – A test of the Heiner model

After a detailed presentation of behavioural rules it is now possible to empirically test the model.

7.3.1 – Testable hypothesis

The Heiner model explains the use of behavioural rules via the need to deal with uncertainty. Higher uncertainty results on an increase in both the tolerance limit and the needed reliability condition to select an action in the right time and thus it constraints flexibility in adopting new options (leading to a higher use of rules of behaviour - H1). When uncertainty increases the Competence-Difficulty gap also grows and decision-making is further away from maximization. Therefore, from chapter 4 and assuming constant bounded behaviour (B), as long as $C < D$, the higher the uncertainty the higher is the reliance of investors (or any other agents) on behavioural rules of intrinsic (A_i) and extrinsic (A_e) nature:

$$U = B + A_e + A_i > 0 \quad (6)$$

There is more information regarding behavioural rules and these are recurrent and not simply related to episodic occurrences, as with bounded behaviour. Nevertheless, the model will also be tested by considering bounded behaviour.

A predicted consequence of the model is that firms invest more where there is less uncertainty (H1a). It shows how relevant is uncertainty in decision-making and how needed is a behavioural approach to complement neoclassical theory. **The expected result of the test is a confirmation of a positive and significant relationship between uncertainty and the use of behavioural rules.**

7.3.2 - Characterization of variables

In order to test the Heiner model it is necessary to define a measure for behavioural rules and uncertainty⁹. The data has a total of 112 observations representing 4.6% of Portuguese firms with FDI and 11.8% of FDI operations abroad (Banco de Portugal, 2005) where 68 register the existence of rules of behaviour and 20 of bounded procedures. There are 16 observations with both types of “anomalies”. When putting them together there are a total of 40 observations without and 72 observations with detected anomalies. It should be noted that, to test the model, behavioural rules can be directly related to the chosen location. But all should

⁹ Annex 5.9 describes the variables.

be allocated to one of the 112 countries and in this way the test includes 160 rules. The remaining 15 are related with the decision making process but cannot be allocated to a specific FDI operation.

Table 7.3.2: 1 – Frequencies of detected “irrationalities” per type of country

Groups of countryrating	Rules of behaviour	Nr. of FDI operations	Bounded procedures	Nr. of FDI operations
Rating A (low uncertainty)	38	25	12	9
Rating B (medium uncertainty)	45	17	10	8
Rating C (high uncertainty)	77	26	4	3
Not allocated	15	-	-	-
Total	175	68	26	20

A measure is obtained from the data collected in the interviews and documentation analysis. A variable called “**Numbehav**” is formed from the number of rules of behaviour detected for each firm and for each FDI operation in a total of 175 cases (Table 7.2.2: 1 above). The above (7.2.1.3) defined variable named “**Numbounded**”, with all detected bounded situations, is also considered.

The most obvious way to measure uncertainty is sovereign risk ratings (proxy 1: “**Countryrating**”) as presented by firms such as Moody’s and Standard&Poor’s (S&P). The country historical ratings of S&P for long term debt in local currency have older values than those presented by other firms and thus are chosen (A means lower, B intermediate and C higher risk). Since these are not available for all cases, and given that the level of development is usually (by rating firms) recognized to be negatively correlated with risk, they are replaced, when absent, by the measure of development used by the World Bank (Annex 5.8).

This is not a perfect proxy because ratings strictly represent the ability of the country to pay its sovereign debt in local currency by considering political, economic and financial risks while the Heiner model refers to uncertainty as a whole and not only the risk component. However, the inclusion of these different risks indicates that the “known unknowns” of uncertainty that are not represented by a probability are somehow considered. Only the “unknown unknowns” are missing.

A second proxy is to define behavioural rules by underlining the cultural connections of Portugal. Thus a second variable called “**Typeofcountry**” is also considered where Portuguese speaking countries are regarded as having more uncertainty than OECD countries, to which Portugal is more integrated in economic and political terms, and less uncertainty than the remaining countries with no special connections with Portugal.

Different proxies to uncertainty may arise from the level of internationalization of each firm. The longer a firm is exposed to foreign markets the higher should be the experience and thus the lower the uncertainty when choosing a new market to invest. Therefore, it can be considered that a longer presence abroad allows for an improvement in the knowledge of how to operate in unfamiliar environments and thus a decrease in uncertainty when the next location decision is made. This is considered even if this improvement does not necessarily lead to optimal decision making and does not prevent the use of repeated rules of behaviour. In this sense, uncertainty is expected to decrease with the number of external markets where the firm is active (proxy 3: “**Numbmarkets**”) and with the number of years abroad every time a decision to make a FDI is made (proxy 4: “**Numbyears**”). The lower is the number of markets and the number of years abroad the lower is the experience accumulated by the firm and the higher should be the uncertainty faced by managers.

The four proxies allow us to consider different perspectives in terms of measurement of the variables in the Heiner model. But they do not represent the perceptions of individual managers in terms of uncertainty and this would be the ideal measure in theoretical terms. From the above proxy 2 may be the one that is nearer the perceptions of respondents that mention the advantage of better knowing Portuguese-speaking countries. For example, manager of firm 11 says when justifying the investments in Angola and Cape Verde: “*Our Irish partners do not understand the advantage of having a close cultural relationship with these countries*”.

The main assumptions to perform statistical tests is the independence of observations and the randomness of selection from the population (Pallant, 2001, p. 256). In the first case there are two potential problems: Money spent in one location is not available for other FDI operations. However, while it may have eventually delayed some of the remaining operations it did not

necessarily eliminate them and it did not change the behavioural characteristics in FDI operations. Second, some FDI is located in neighbouring countries of previous operations, meaning that the location choice was possibly influenced by the location of previous investments. This may be the case of firm 9 for herding behaviour in Eastern Europe. However, each operation corresponds to an individual case in our sample and the remaining behavioural rules and bounded procedures are not related with it. Regarding the second assumption, the selection process was random but skewed to large firms in the Portuguese context.

A second issue is that of the distribution of the population. The chi-square goodness of fit test assesses the degree of correspondence between the observed and expected observations, being the latter based on the population (Siegel and Castellan, 1989, p. 45). The test can only be performed for the variable “**typeofcountry**” because that is where information for the universe is available¹⁰. The null hypothesis states that the observed values have a good fit with the expected values. The results are presented in Annex 5.10 (Table 1), where it can be seen that for the variable “**typeofcountry**” the null hypothesis cannot be rejected.

For the variable “**Numbehav**” there is no information about the population. It is assumed that expected values are in accordance with behavioural theory, that is, the higher the uncertainty the higher is the number of rules used by firms in FDI location decisions. Given the size differences in the number of countries included in each rating category (A-60; B-25; C-27) the expected values should be more countries with zero or a smaller number of rules. But the theory does not tell us exactly how many rules should be detected in each case. Nevertheless, the number of cases in the sample is higher for occurrences with a lower number of rules of behaviour as predicted by theory (Table 2, Annex 5.10).

The one-sample Kolmogorov-Smirnov test allows for a confirmation of the distribution of the variables and is based on the following hypotheses:

H0: The sample comes from a pre-defined (Normal, Poisson, etc) distribution

H1: It does not

¹⁰ Banco de Portugal (2005).

For each variable it compares its observed cumulative distribution function with the pre-defined distribution and it tests whether the observations could have come from this distribution. The outcome of the test shows that the null hypothesis cannot be rejected and thus the sample of the variables “**Numbehav**” (aggregated and disaggregated in two different groups of rules – Annex 5.9), “**Typeofcountry**” and “**Countryrating**” could have come from a Poisson distribution when each variable is grouped according to the decision making process (Table 3, Annex 5.10). But they cannot come from a normal distribution. This is confirmed in normality tests (both through K-S and normality plots – Annex 5.10, Tables 4, 5 and 6, and Figures 1 to 6).

Therefore, it can be seen that the sample for the variable “**Typeofcountry**” has a good fit with the universe. But even if a similar statement cannot be confirmed for the remaining variables it should be noted that representativeness is not essential given the inductive nature of the dissertation.

7.3.3 - Testing the model

The Heiner model is now checked by testing the following null and alternative hypothesis:

H0: There is no association between uncertainty and rules of behaviour

H1: There is an association

Tests are performed for three different situations given the lower number of observations where behavioural rules or bounded procedures were detected. The latter are included because they are also deviations from maximizing behaviour (Heiner, 1983, p. 564). These allow us to understand the impact of including bounded procedures and of disregarding observations with zero rules:

Situation 1 – Only rules of behaviour that can be allocated to a specific operation are considered. The total number of operations is included and all observations without detected behavioural rules are assumed to be zero (“**Numbehav**”).

Situation 2 – It includes rules of behaviour and bounded procedures (“**Numbehav**” and “**Numbounded**”) and the empty observations are assumed to be zero for both. It allows us to check for differences with situation 1, where bounded procedures are absent.

Situation 3 – Observations with 1 and 2 or more rules of behaviour plus bounded procedures are included. No assumption is made of zero, thereby allowing us to see their effect by comparing with previous situations. In this case the number of observations is 72 corresponding to the number of FDI’s where behavioural rules and/or bounded procedures were detected, that is, 7.6% of the total FDI operations in 2004.

A first issue is that of the linearity in the relationship between uncertainty and behavioural rules. Scatter plots (Figures 1 to 4, Annex 5.11) show a very weak linear relationship between them. Thus linear tests are not appropriate for the data. But the null hypothesis that uncertainty and rules of behaviour are independent can be checked by using the chi-square statistic. All tests based on the chi-square calculate the difference between the observed and expected values and require each cell to have an expected value greater than 1 and more than 80% of the cells to have a value greater than 5 (Norusis, 2003, p. 167). This means that data has to be aggregated for the number of behavioural rules. “**Numbehav**” is thus grouped by 0, 1 and 2 or more behavioural rules.

Table 7.3.3: 1 shows the results both for the Pearson chi-square and the likelihood ratio for uncertainty, “**Countryrating**”, and aggregated “**Numbehav**” (“**Typeofcountry**” is presented in table 1, Annex 6.11). In situations 1, 2 and 3 the null hypothesis can be rejected at a significance level of 1% (except in the test for “**Typeofcountry**” in situation 3) meaning that in fewer than 1 sample in 100 the two variables would be independent. This means that both the inclusion of bounded procedures and the no assumption of zeros does not have a qualitative impact on the outcome¹¹.

Several measures of association and direction are also tested in order to understand how strongly the two variables are related. Table 7.3.3: 2 presents the results for “**countryrating**”

¹¹ The outcome is robust and does not change qualitatively if the grouping is 0, 1 and 2, and 3 or more rules - Table 2, Annex 5.11.

and “**Typeofcountry**” as proxies to uncertainty in situation 1¹². Given the weak linearity existing between variables and their characteristics (nominal and scale) tests are made both for nominal and ordinal data. The latter are usually considered more reliable than tests based simply on nominal variables (Siegel and Castellan, 1989, p. 311). Non-parametric testing generally requires feeble assumptions and only in some cases outliers or ties in the data need to be considered.

**Table 7.3.3: 1 – Independence tests
Countryrating and Numbehav**

0, 1 and 2 or more	Situation 1			
Independence Tests	Value	DFr	N	Significance
Pearson chi-square	30.2	4	112	0.000 ***
Likelihood Ratio	34.9	4	112	0.000 ***
	Situation 2			
Independence Tests	Value	DFr	N	Significance
Pearson chi-square	28.5	4	112	0.000 ***
Likelihood Ratio	33.4	4	112	0.000 ***
	Situation 3			
Independence Tests	Value	DFr	N	Significance
Pearson chi-square	10.2	2	72	0.006 ***
Likelihood Ratio	10.4	2	72	0.005 ***

*** Significant at a 1% level

First, symmetric measures are presented to indicate how strongly the two variables are related. Cramer’s V and the Contingency Coefficient are based on the chi-square statistic and are calculated from a contingency table with observed and expected values¹³. Given the need to aggregate them so that the chi-square statistic is valid both are transformed in nominal variables. The results below indicate a significant and fairly strong relationship between both proxies of uncertainty and “**Numbehav**”.

Symmetric measures based on ordinal data are also presented. In this case the data for the number of rules is disaggregated. The Kendall rank-order correlation coefficient τ (Kendall’s tau) is based on the difference between the number of agreements and disagreements in the

¹² The outcome is similar for situation 2. But not for situation 3 where tests are no longer valid because the number of observations is reduced to 72 – Table 3, Annex 5.11.

ranks of the two variables (as a ratio over the number of pairs). Given the existence of a significant number of ties in the data both the Gamma coefficient and Kendall's tau-b are performed so that their impact can be understood. When Gamma is calculated ties in the data are not included while tau-b considers ties within both variables. These statistics measure the strength and the positive or negative sign of the association (Norusis, 2003, p. 180). The results show a stronger and positive relationship between the variables in comparison with nominal measures. As expected the value of Gamma is higher but the inclusion of ties does not change the outcome.

Table 7.3.3: 2 – Association Tests: Uncertainty and behavioural rules (“Numbehav”)

Situation 1	Value	N	Signific.	Value	N	Signific.
Uncertainty proxy:	Countryrating			Typeofcountry		
Symmetric						
Cramer' V (1)	0.367	112	0.000 ***	0.496	112	0.000 ***
Contingency coef. (1)	0.461	112	0.000 ***	0.574	112	0.000 ***
Kendall's tau-b	0.467	112	0.000 ***	0.273	112	0.000 ***
Gamma	0.640	112	0.000 ***	0.344	112	0.000 ***
Directional						
Lambda	0.118	112	0.009 ***	0.221	112	0.009 ***
Goodman Kruskal Tau	0.089	112	0.000 ***	0.169	112	0.000 ***
Somers' d	0.515	112	0.000 ***	0.280	112	0.000 ***
Eta square	0.544	112	-	0.685	112	-

*** Significant at a 1% level

(1) Requires aggregated data in “Numbehav” because they are based on the chi-square

Given that symmetric measures do not consider dependent and independent variables further (nominal and ordinal) asymmetric measures are calculated. Coefficient Lambda and Goodman and Kruskal's Tau measure the proportional reduction in error when values of one variable are used to predict values of the other (in comparison with the situation when the explanatory variable is absent). Data is disaggregated and of nominal nature. Somer's d considers the number of ties within the dependent variable and measures the difference between the probability that a pair of observations are in the same order and the probability that they disagree in their ordering (in a similar way to Kendall's tau). Finally, Eta square measures the proportion of variability in the dependent variable, of an ordinal nature, that is explained by the independent variable, of a nominal nature (Norusis, 2003, p. 182). Somer's d varies between -1 and 1 while the remaining coefficients vary between 0 and 1. The results show a

¹³ Both have a value bounded by 0 and 1.

stronger relationship for ordinal measures and in all cases the values are significant at a 1% level.

Measures based in proportional reduction in error (Lambda and Goodman) present very low values but this is explained by the use of more disaggregated data in comparison with the other nominal measures which are based on the chi-square distribution (and thus require aggregation)¹⁴.

Similar results are obtained for “**Typeofcountry**”. However, the two other proxies for uncertainty, “**numbyears**” and “**numbmarkets**”, were tested without meaningful results (Table 4, Annex 5.11). It should be noted that these proxies were based on the assumption that higher experience would reduce the use of rules of behaviour. But it might be that these rules change with experience but are not necessarily reduced after a determined point as exposed in 7.2.1.3 above for bounded procedures and in accordance with the Heiner model.

The results for “**Countryrating**” and “**Typeofcountry**” confirm **the existence of a relationship between uncertainty and the number of behavioural rules as predicted by the Heiner model**. Most of the values are fairly strong and all measures indicate positive direction. The Eta coefficient, for example, shows that “**countryrating**” explains 54%, and “**Typeofcountry**” 68%, of the variability in “**Numbehav**”.

However, there is no guarantee that behavioural rules are caused by higher uncertainty. Other reasons may explain this positive relationship and thus it is useful to analyse if it is spurious, that is, if it is explained by a third or a group of other variables connecting both uncertainty and rules of behaviour. Non-parametric statistics allow us to include control variables. Table 5 (Annex 5.11) shows the outcome when four control variables described in Annex 5.9 are considered: “**Decision**”, “**Respondents**”, “**Objective**” and “**Previlevel**”. For all the four control variables the association between uncertainty (“**Countryrating**”) and behavioural rules is still valid except for proportional reduction in error measures due to the level of disaggregation and the small number of observations.

¹⁴ If the variable “Numbehav” is aggregated for these two tests, values would be 0,265 and 0,143 with a better level of significance for Lambda.

Table 7.3.3: 3 – Type of behavioural rules in the Heiner model

Countryrating and Numbehav (Sit. 1) Tests	Rules of Extrinsic Origin				Rules of Intrinsic Origin			
	Value	Deg. Freed	N	Significance	Value	Deg. Freed	N	Significance
Independence								
Pearson Chi-sqaure	23.5	4	112	0.000 ***	22.4	4	112	0.000 ***
Likelihood ration	26.4	4	112	0.000 ***	21.6	4	112	0.000 ***
Symmetric								
Cramer' V	0.324	-	112	0.000 ***	0.317	-	112	0.000 ***
Contingency coef.	0.417	-	112	0.000 ***	0.409	-	112	0.000 ***
Kendall's tau-b	0.396	-	112	0.000 ***	0.353	-	112	0.000 ***
Gamma	0.568	-	112	0.000 ***	0.560	-	112	0.000 ***
		-				-		
Directional								
Lambda	0.150	-	112	0.017 **	0.083	-	112	0.548
Goodman Kruskal Tau	0.094	-	112	0.000 ***	0.141	-	112	0.000 ***
Somers' d	0.418	-	112	0.000 ***	0.313	-	112	0.000 ***
Eta square	0.466	-	112		0.389	-	112	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

Countryrating and Numbehav (Sit. 1) Tests	Rules Originated in the Present				Rules Originated in the Past			
	Value	Deg. Freed	N	Significance	Value	Deg. Freed	N	Significance
Independence								
Pearson Chi-sqaure	11.8	4	112	0.018 **	40.2	4	112	0.000 ***
Likelihood ration	11.4	4	112	0.022 **	43.8	4	112	0.000 ***
Symmetric								
Cramer' V	0.284	-	112	0.006 ***	0.446	-	112	0.000 ***
Contingency coef.	0.373	-	112	0.006 ***	0.533	-	112	0.000 ***
Kendall's tau-b	0.276	-	112	0.001 ***	0.503	-	112	0.000 ***
Gamma	0.421	-	112	0.001 ***	0.711	-	112	0.000 ***
		-				-		
Directional								
Lambda	-	-	112	(1)	0.200	-	112	0.017 **
Goodman Kruskal Tau	0.041	-	112	0.032 **	0.206	-	112	0.000 ***
Somers' d	0.282	-	112	0.001 ***	0.491	-	112	0.000 ***
Eta square	0.304	-	112		0.586	-	112	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

(1) Cannot be computed because the asymptotic standard error equals zero

A further issue is to assess the individual relevance of each type of behavioural rule. There is enough information for extrinsic and intrinsic behavioural rules (114 and 46, respectively) and for those related with the past (73) and the present (84) in the time span. The testing of the model is made by considering both “Countryrating” (Table 7.3.3: 3) and “TypeofCountry” (Table 6, Annex 5.11) as the proxy for uncertainty. **Statistical tests show all types not to contradict the Heiner model**, except rules of intrinsic nature in the second proxy where the results are very weak. In the first proxy, rules originated in the past – anchoring, learning and mental accounting - are the ones presenting a stronger relationship with uncertainty.

Finally, **the consequence of the Heiner model where investments are channelled to locations with lower uncertainty is shown to be valid (H1a)**. Portuguese investments

abroad are concentrated in developed (55%) and in Portuguese speaking countries (24%). In both cases uncertainty is regarded as inferior to most of the alternative locations.

Table 7.3.3: 4 – Portuguese FDI abroad (1996-2004)

	Number of operations		FDI flows Net value	
	Number	% of total	Value (Million euros)	% of total
OECD countries	500	52.7	21.268	55.8
Portuguese-speaking	268	28.2	9.219	24.1
Other countries	180	19.1	7.704	20.1

Banco de Portugal (2005)

7.4 – Conclusions

This chapter allowed for a better understanding of FDI location decisions and the role of behavioural economics. It is concluded that **maximization is prevented in investments abroad both by bounded behaviour and the use of behavioural rules** by decision makers. **The above presented evidence supplies a wide set of new explanations for FDI location decisions.**

First, there are many situations in FDI location decisions where managers, as predicted by the traditional behavioural theory of the firm, behave as if “satisficing” by following a bounded rationality. It can be observed in firms’ objectives, collection and processing of information, and risk coverage policies.

This behaviour is explained, in the C-D model, by the existence of constraints to maximization due to the limited capabilities of the human being to act in a fully rational way. It is in accordance with the analysis of Simon, Cyert, March and other "behaviouralists" and, as per the Heiner model, it constitutes a first limit to neoclassical analysis.

These constraints are a first barrier for the correct use of the reliability condition proposed by the model to predict decision making. Empirical evidence indicates that firms are not able to

indefinitely improve their behaviour towards maximization in a more competitive FDI context because the degree of competitiveness is not always inversely associated with the number of bounded procedures in firms' decisions.

However, these constraints represent just a low level of uncertainty where there is a C-D gap but not necessarily a large one. Theoretically, these are not sufficient to endanger the existence of a firm, namely if it is successful in the domestic market, where the turnover is very significant. Moreover, they do not fully impede the assumptions of foreign investment theory because it is more concerned with how to explain the decision to invest abroad than with the outcome of the investment (Dunning, 1979). Firms, in this context, may still be trying to maximize subject to limits of various natures such as resources and cognitive ability.

There is also plenty of evidence of managers following simplifying strategies when making FDI decisions. FDI location decisions are made of a set of small steps where these behavioural rules are applied. An FDI operation is a new context for decision making where the degree of uncertainty is usually higher and unusual situations are more prone to happen. Portuguese firms are very focused in the domestic market and the higher the uncertainty the more they rely on the same rules of behaviour. Therefore, they do not behave "as if" they could attain maximization and optimization is not even a possibility in these cases, meaning that FDI location decisions do not depend on it.

The use of behavioural rules by economic agents is influenced by the impact of emotions in the decision making process of an individual. The role of emotions in the human brain cannot be separated from the cognitive process and it affects the ability to make decisions as neuroscientists have demonstrated (e.g., Damasio, 1994). Behavioural rules are not explained by some occasional failures but represent a gap in the C-D Model where the degree of uncertainty is higher. They are no mere bounding constraints but **behavioural regularities where the reliability condition explains why maximization is absent and decision making may, in effect, be far away from what is deemed to be rational in a neoclassical sense.**

Several "anomalies" in managers' behaviour were identified in specific FDI operations. Confirmatory bias, false consensus bias and reputation based-herding were evident only occasionally. However, there were other cases where managers repeated the same behaviour

in a consecutive way or kept unchanged non-maximizing decisions for a long period. It happened due to overconfidence from the illusion of being in control, availability of information, herd behaviour, cascading and signalling, cultural anchoring, fairness, mental accounting, decision making inconsistent with strategy, inter-expert inconsistency and under use of information in what concerns FDI determinants, and historical (of the firm) reasons. Therefore, **time and learning are shown not to be sufficient for managers in what concerns improvements in decision making.**

Based on the available observations and performed tests, and given the association existing between the level of uncertainty and the number of behavioural rules detected in Portuguese firms, the Heiner model cannot be regarded as unsuitable to study Portuguese FDI operations. The model predicts that managers rely on actions which are adaptable to relatively recurrent situations but ignoring actions which are appropriate in unusual circumstances. Heiner (1983) explains them due to the behavioural rigidity of agents in adjusting to new situations. Given this learning “failure”, heuristics are needed for a better prediction of behaviour in FDI decisions. Therefore, the model seems a good tool to predict managers’ behaviour in FDI location decisions. **Economic theory should not only understand why firms invest abroad but also how are these decisions made.** Both perspectives are needed and, contrary to neoclassical theory, the model is able to include them.

The above evidence presented a lot of examples where managers followed behavioural rules when facing uncertain situations arising from the decision to invest abroad. **The behavioural approach was able to help explain 55% of FDI location decisions made by the Portuguese firms included in the study.** Moreover, it should be remembered that probably not all of the non-rationalities were detected in the interviews. A deeper analysis of each operation would be needed to find them.

Behavioural rules are new determinants of FDI location decisions usually ignored by the neoclassical approach and complement the two main motives presented by economic literature, revenue increase and cost efficiency considerations. These are manager and firm-level determinants of a special kind because they do not arise from the reason behind the decision to re-locate production, such as market, asset or efficiency-seeking, but from the decision making process in itself.

The hypothesis of the model is not fully confirmed because it has yet to be empirically applied for a wider and more representative number of cases. But it confirms that the neoclassical paradigm is not sufficient to fully explain FDI decisions and thus **it further weakens tax competition theory as a universal postulate for all the firms.**

This is true even when considering some control variables. **Among the regularities those originated in the past and of extrinsic nature seem to have a more significant role in the behaviour of Portuguese firms when making FDI decisions.** But those of intrinsic nature and originated in the present are also valid. Although heuristics indicate that agents are not able to learn from past experiences in all situations and thus cannot improve indefinitely their behaviour towards optimality, the knowledge about behaviour rules might help managers improving their performance by considering and reviewing their use.

But not all managers follow the same rules. As the model predicts, uncertainty varies with the perceptions of managers and these are different from one another given they both are intrinsic to one's self and extrinsic, that is, arising from the environment. FDI operations, especially in less developed economies, face a relatively high level of uncertainty and require actions which are not usually applied in domestic decisions. In the C-D model uncertainty explains behavioural rules and this was the basis of the test performed.

Chapter 8 - The role of business taxes and other incentives

Tax competition models were originally developed from the perspective of a jurisdiction using fiscal variables to attract capital. But this can only happen if firms or investors are willing to move to the jurisdiction due to attractive fiscal conditions. These two complementary perspectives are necessarily interconnected. Moreover, tax competition and FDI theories give a different emphasis to the role taxation, making the former seem like a special case of the latter.

This chapter presents a different approach by focusing on the behaviour of firms to check and see if and how firms' decision-making is influenced by taxation and to understand the incompatibilities existing between the tax competition and the FDI literatures. The aim is to address two simplifications of the standard tax competition model, the role of taxation as a direct determinant of profitability and as a driving force of FDI flows, so that their usefulness in explaining FDI flows can be assessed.

The chapter starts by addressing the role of business taxation in profitability and in FDI location decisions by using empirical data arising from interviews with managers. It proceeds with statistical tests about the behaviour of Portuguese firms and with a second questionnaire to address the double role of taxation in profitability and location decisions. The case of the EU, the most integrated economic space, is then considered in the light of the behavioural approach. It concludes with an interpretation of results.

8.1 - Business taxation as a determinant of FDI

The literature on tax competition simplifies the world by stating that, other things equal, taxation is a driving force of capital movements. But this is a very general statement. The question of interest in this dissertation is the role of taxation in FDI location decisions. The neoclassical reasoning assumes that firms want to maximize expected returns and given that

taxation directly impacts profits firms would invest where tax rates are lower. Thus, tax rates are regarded as one more cost with a direct impact in the profit and loss account. Moreover, it also assumes that the level of taxation does not change in the host or in any other country before firms decide to locate their investments or, otherwise, each tax rate change would motivate firms to review their FDI location decisions.

The behavioural approach emphasizes several motivations for FDI flows to occur. First, it disregards maximizing behaviour while accepting that profitability is essential for a firms' survival in the marketplace. Given the importance of profitability taxation is surely relevant for firms. But the issue is to understand if "Greenfield" decisions and tax rates are really connected as the neoclassical approach states. The behavioural hypothesis is that tax rates are not a key factor because FDI location decisions are too complex to be simplified by a single variable explanation.

H4: Tax rates have no key role in FDI location decisions

As it was shown in the preceding chapters FDI location decisions are based on different objective and subjective variables. It may be that taxation is one of them, as FDI theory recognizes. But tax variables are only relevant when profits exist and thus they are dependent on a pre-condition. It is only after this condition is fulfilled that taxation has a role. This makes the corporate tax rate a unique variable and not simply one more cost to be borne by firms. Therefore the behavioural approach considers that the key aim for managers is to be profitable and not to maximize profits by finding the lower corporate tax rate.

Moreover, the outcome of the tax competition model depends on the mobility of capital flows. The higher the mobility the larger is the inefficiency arising from tax competition. But the explanations of foreign investment arising from the FDI literature are not dependent on the mobility of investment flows. Foreign investment theory recognizes the profit motive but it is more concerned with how to explain the decision to invest abroad than with the outcome of the investment or the maximization aim of the investor (Dunning, 1979). FDI flows, as explained in chapter 3, face significant barriers to their movement and therefore:

H5: The perfect capital mobility assumption is not applicable to FDI flows

8.1.1 – The role of business taxes in profitability

A simplification of the tax competition model is that, other things equal, it is through the difference in tax rates, and thus the marginal productivity of capital, that investment flows are explained. In other words, in this model taxation is implicitly assumed to be the only variable to affect profitability (H4a). But this is a rather simplistic perspective not in line with the behavioural approach where the decision-making process is also considered.

The “irrationality” of this hypothesis is immediately evident although it is useful because it helps to explain the role of business taxes in profitability. The confirmation that taxation is not the only variable affecting profitability is seen in the 27 different reasons presented by Portuguese firms to invest abroad (annex 5.2). However, included in different ways are income and costs that eventually result in profits or losses. The same applies to 15 different criteria to assess an FDI operation where, besides revenue and costs, depreciation rules, industry benchmarking and other variables were at least as important as taxation. The set of different variables that impact profitability and are considered by firms when making FDI location decisions are recognized by the literature (Devereux et al, 2002).

Table 8.1.1: 1 – Firms with losses in FDI operations

Firm	Country	Year of investment
2	Spain	1992
3	Spain	1998
5	South Africa	1995
	Spain	1991
10	Brazil	1998
11	Mozambique	1995
	United Kingdom	1984

Moreover, maximization requires a firm to have an equal marginal productivity of capital in its different locations and the tax rate is assumed to be the key variable in this equalization. Although there is no information about the marginal productivity of capital, the interviewed firms present a wide spread of results and thus seem not to follow a marginalist approach when choosing FDI locations (Tables 7.2.2.2: 1, 3 and 4 above). The existence of positive and negative profits on different investments made by the same firm, after a considerable number of years, indicates equalization to be impossible. According to the available information there

are 5 firms in this situation: 2, 3, 5, 10 and 11. All these investments were operating for more than seven years with accumulated losses (Table 8.1.1: 1) and contrast with the accumulated profits of the consolidated accounts. Furthermore, the FDI performance¹ of Portuguese firms is also unrelated to the difference between the Portuguese and other countries' tax rates, as Table 8.1.1: 2 shows (confirming Devereux and Griffith, 1998). Therefore, not only is maximization prevented but **firms seem not to be concerned about the equalization of the marginal productivity in their investments and thus both H4a and H4a1 are supported.**

Table 8.1.1: 2 – Performance and tax rate differences: Number of FDI operations *

Comparing with Portugal (2004):	Higher profitability	Lower profitability
Locations with higher or equal tax rate	3	8
Locations with lower tax rate	3	21
Total	6	29

* Operations initiated before 2000

But what is important, and usually disregarded by the tax competition literature, is that business taxes cannot be simply understood as one more cost in a profit and loss account for two reasons. First, given its special nature. Business taxes only arise when there are profits. It may be argued that a firm only invests abroad in a search for profits. This is generally true although chapter 7 provided evidence of investments motivated by different reasons. But the specificity of taxation is that its level is irrelevant if there are no profits to tax. This might be important for a FDI operation where the return on the investment is achieved only in 5 years and, in the meantime, firms have losses. Therefore, it seems reasonable to consider that firms are concerned, in the first place, with profits and only afterwards with taxes. The behavioural approach allows for this recognition.

Even considering that in a long term perspective firms expect to profit from their investments abroad a further issue arises. Tax rates are not fixed variables and governments can change them for different reasons that are not directly related with firms' activities. The obvious example is the need to have public receipts. Therefore, in a dynamic perspective there is a “decalage” between the timing of a location decision and profitability and the incidence of taxation, and during all this time governments maintain a “monopolistic” position in their

¹ Measured by the return on assets in 2004 or based on the information provided by interviewees. It compares the global profitability of the firm with the profitability of each FDI operation whose beginning occurred at least 5 years ago.

jurisdictions. The corporate tax rate is beyond the direct influence of firms² while in the case of other variables, such as production costs and labour, the firm may choose the lowest price from different suppliers independent of their geographical location. They may even be located outside the host country.

The importance of the behavioural approach is that it considers the entire FDI decision-making process. A firm that decides now to locate its investment in some country bases this decision on an analysis where expected profits usually arise after a few years (Table 8.1.1: 3). The assessment of the investment is made just before the decision when the firm does not know the future evolution of tax rates in the chosen country and the differentials with the competing locations. If the firm expects profits after five years what will be the relative level of tax rates then? It will depend on several factors that are beyond control by the firm. One of them is the political cycle where new governments may change tax laws. Thus the firm cannot know future tax rates. Furthermore, other countries may also have lowered the tax burden in the meantime. So what does the firm do? Is it going to transfer the investment to a different country with a lower level of taxation and re-start the process? It seems very unlikely given the low mobility of FDI capital. Then, this is a second reason why firms are first concerned with having profits and only afterwards with taxation.

Table 8.1.1: 3 – The way to profitability and the role of taxation: An example

Years: 0	1 to 4	5 to ...
Investment	Losses	Profit
	Costs > Income Tax rate irrelevant	Income > Costs Tax rate becomes relevant

If it is accepted that profitability always precedes the levy of taxes then, even in the maximization context of the neoclassical paradigm what is important for rational firms in making location decisions it is the profitability after taxation and not the corporate tax rate in itself that matters. That is, although the corporate tax rate has a direct impact when firms have profits it is the after-tax rate of profitability that is expected to determine location. Thus, the corporate tax rate may have an important role when firms can choose where to locate profits but it may have an inferior relevance when location decisions are made because its impact on

² The analysis is valid even considering that firms may negotiate a tax exemption for a certain period as large TNC's usually do. This period always include the initial years of the investment when profits are rarer. Furthermore, governments may reduce long-term incentives anticipating the tax planning organization of TNC (Bucovetsky and Haufler, 2008, p. 200).

profitability is limited and indirect and depends on a lot of different issues related with costs and revenue.

This different perception on the role of taxation corresponds to separate approaches to the economic activity of firms. The tax competition literature (chapter 2) mixes these two roles of taxation while FDI theory is more concerned in explaining the location decision and the subsequent investments where taxation may have a role if the firm is profitable. The behavioural approach followed in this dissertation, on the other hand, tries to separate these two roles by focusing on the first so that a better understanding of the initial location decision can be reached.

For the reasons noted above it is important to differentiate short-term capital flows and FDI in a tax competition context. The interviewed firms provided several examples that confirm the lower mobility of FDI flows where, within the tax competition model, only small inefficiencies are predicted. Several firms mentioned a concern with the repatriation of capital when deciding FDI. This is related to profits but the same can be applied to asset sales abroad. Two firms, 8 and 15, took a long time to receive the funds after making the decision to divest from Brazil. Firm 15 took four years while firm 8 took only two years due to financial difficulties but probably sold its network at a lower value (market conditions were worse). A different example was firm 11 which was dependent on the authorization from the Mozambican government to sell a factory and repatriate the money. Without it the firm could not get their money back. In the case of portfolio investment, however, and as long as capital markets have sufficient liquidity, the sale of securities and the consequent repatriation of the money can be done almost immediately. These exit costs impact FDI location decisions (e.g. Gorg, 2005).

The standard model of tax competition refers to capital in general and even when there is imperfect capital mobility its inefficient outcome is still valid although on a smaller scale. But contrary to what happens with portfolio movements the imperfect mobility of FDI limits the options for firms to look for the lower tax rate. Moreover, FDI flows usually present a large temporal gap between the moment of the decision to invest and the incidence of taxation. Therefore, even considering that business taxes have a direct impact on profits, the difficulty in looking for lower tax rates is a restriction to FDI location decisions as predicted by the tax

competition model. Because taxation is only relevant when profitability is achieved and firms do not know what will be the level of tax rates when that happens, **the standard tax competition model is less able to explain FDI location decisions than the behavioural approach. H5 is thus confirmed.**

8.1.2 – The role of business taxes in FDI location decisions

Following this clarification the question on the core of the tax competition literature concerns the role of business taxes in FDI decisions. The tax competition theory assumes that capital moves by searching for the highest rate of return and that this rate depends on the level of taxation or the tax burden. That is, the model assumes that maximizing behaviour explains why lower taxes attract investment. However, it was shown above that firms do not maximize.

Therefore, in order to better understand the role of taxation preparatory interviews were made with two representatives of governmental institutions responsible for the attraction of FDI to Portugal³ where the role given to tax rates is not the assumed by economic literature. One of the interviewees first reported that *“a good investment is not looking for fiscal incentives. The Portuguese state demands 30% of equity and fiscal incentives are only available if the banking system considers the investment viable”*. He added: *“Fiscal incentives are not a ‘sine qua non’ condition to attract investment. A better reason to lower the corporation tax rate is its role as a very good selling argument for the country. That is why it is so important”*. For this interviewee tax rates are relevant by acting as a sign of liberal market conditions but this does not mean that firms locate their investments because of tax rates. It means only that firms have a closer look to the country when they are collecting information about potential markets if the corporate tax rate is lower. It is a way to attract the attention of investors.

The second interviewee mentioned *“The corporation tax rate is important when there is a very large difference with other countries. But it is not a determinant variable for firms when deciding to invest in this or that country. In the 1990’s Portugal did not use the fiscal instrument but was able to attract FDI anyway. Thus I do not think corporation tax rates to be decisive in location decisions”*.

³ API (Portuguese Association for Investment, now AICEP) and DGI (Directorate-General of Industry)

These statements are in accordance with FDI theory, where there is a diversified list of reasons to explain investments abroad, but not with the tax competition model. This “incompatibility” was checked in the interviews with Portuguese firms. During the first hour of each interview a handful of themes were introduced (Table 8.1.2: 1). When commenting on these themes, and before being asked directly about the importance of taxation, only five interviewees mentioned the tax variable and all in different contexts from tax competition. Firm 15 in the context of the fiscal evasion by local competitors, firm 1 about tariffs on imports as a reason to move production to a specific country, firms 1 and 10 as information to collect when studying a market and firms 8 and 9 about reductions in business taxes levied on receipts from international operations by Portuguese authorities but not by the host country. Therefore, all interviewees were able to freely speak about FDI operations, their motives and characteristics, during one hour, but a reference to taxation as a determinant of foreign investment was completely absent.

Table 8.1.2: 1 - Spontaneous reference to tax competition within a theme

Themes	Reference in the first hour of interview (% of interviewees)
How are FDI decisions made	0 %
Determinants to invest abroad	0 %
Criteria observed for the decision	0 %
Collected information	0 %
Why are markets chosen	0 %
Objectives	0 %
Risks	0 %
Advantages and disadvantages	0 %

When finally directly asked about the relevance of taxation in FDI location decisions all interviewees, except one, explicitly denied any relationship between the two variables. That is, **they clearly stated that tax variables were not relevant for a market choice in any FDI location decision made by their firms.** The only interviewee that mentioned taxes, the manager of firm 14, was thinking about a future investment, the delocalization of its factory, not of a decision that was made in the past. However, he simultaneously and explicitly referred to different taxes (excise, VAT and local levied taxation), and not only to corporation

taxes, and considered that all should be lower for a good business environment. This is, after all, a common thought among the business community.

What is also relevant is that three of the interviewees also explicitly reported that only after deciding on an FDI location did they have a concern to minimize the tax burden. Thus, if we accept this result as representative for all the Portuguese firms, the tax competition model makes no sense at all for location decisions because firms do not consider taxation relevant in this specific case.

Only after the introduction of the tax theme, two firms (banks), in a total of 28 different determinants and 128 statements (annex 5.2), mentioned fiscal efficiency as a reason to invest. But, in both cases, as a justification to have a subsidiary in the Cayman Islands, where the benefits are for their customers.

Interviewees also mentioned some possible situations where some type of incentives to attract FDI may make some sense. One of them is the size and the type of the investment. Firm 3 stated: *“There was no support in Spain probably because we acquired an established firm. The state only supports foreign investment above a determined amount and in the case of the ‘Greenfield’ type. For small and medium amounts there are no incentives”*. Another firm stated: *“Our investments do not have enough size to allow for any kind of negotiation or to obtain any advantage in fiscal terms”*. A third response mentioned that *“only large investments are supported by the Brazilian government”*. The CEO of firm 8, a retailer, declared that *“fiscal incentives are important to attract investment but mainly in manufacturing”*. This was confirmed by two of the banks included in the interviews where the idea was that there are no incentives for FDI of financial firms, only for manufacturing. The data shows that the banking sector does not have a broad access to fiscal incentives for FDI. Only 2 of the 44 operations had received these types of incentives. This is also confirmed in the European Tax Survey (EC, 2004). A telecommunications manager, on the other hand, reported that *“our business is so good and profitable, with huge scale economies, that despite the big financial effort needed to invest, the host countries, instead of subsidising investment, tend to levy specific taxes”*. The evidence shows that Governments may opt to negotiate fiscal subsidies only with some firms if targeting sectorial FDI, for example.

Moreover, in some of the countries where the Portuguese firms invested there are no discriminations between foreign and local investments, that is, the incentives are the same for all firms. In Brazil and in the EU, for example, the support given by a country is typified and similar to all firms although there are negotiations on a case by case basis.

The incentives received by the interviewed firms can be classified according to their nature, fiscal or non-fiscal, and the donor, Portugal or the host country (tables 8.1.2: 2). A total of 92 operations received 22 different types of incentives but only 50% are of fiscal nature (Annex 6.1).

Table 8.1.2: 2 - Incentives received in FDI operations

Supporter	Incentives	Fiscal	Non-fiscal	Total
Portugal		6	7	13 (59%)
Host country		5	4	9 (41%)
Total		11 (50%)	11 (50%)	22

In general most (59%) of the incentives received by these firms were given by the Portuguese government, as a support for the internationalization of Portuguese firms, and not by the host country. Therefore, the available information is in clear contradiction with what tax competition theory predicts, that is, the attraction of FDI is expected to be done by recipient countries through the use of fiscal variables. In this way the statements made by managers about **the lack of relevance of fiscal incentives to their FDI decisions are confirmed** by the nature and the number of received incentives⁴.

It should be remembered, however, that these investments have different years of completion and public policies varied throughout the period covered by this work. Furthermore, some information is based on the perception of respondents and thus may be incomplete.

A further question was made about the importance of fiscal incentives or subsidies in the decision where to locate an investment inside a chosen market. In this specific case three interviewees think that taxation has an important role in the location decision inside a market, although only two had received support from local jurisdictions. It confirms the findings of Devereux and Griffith (1998) that incentives by local governments are more relevant for the location of firms than those provided by national governments.

Table 8.1.2: 3 – The real role of taxes in Portuguese FDI location decisions

The role of taxes in FDI locations were:	N°	% of total	Operations where incentives were:	N°	Incentives received from:	% of total
Irrelevant	108	96,4%	Received	22	Portugal	14,1 %
Relevant	4	3,6%	Not received	70	Host country	9,7 %
	112	100 %	No information	20		23,8 %

From the above it is easily seen that both H4b1 and H4b2 are confirmed. The tax competition model is too simplistic to explain FDI flows at least in the case of Portuguese firms. FDI location decisions are complex and rely on a huge variety of determinants, more in line with FDI theory. According to interviewees, **tax variables, including governmental subsidies, were not relevant for firms' 112 location decisions** (the exception was off-shore subsidiaries), and even among those whose job is to compete for FDI attraction the role of taxation is deemed more symbolic than effective in explaining corporate behaviour.

8.2 - Statistical tests

The conclusion above is in accordance with the behavioural approach where the expected association between business tax rates and location decisions is not seen as essential because all the complexity of the FDI decision-making process is considered.

To confirm this conclusion a first test compares corporate tax rates between the actual location decisions and potential locations in the same period where investments could have been made if the firm had chosen a different alternative. All countries with available information about corporate tax rates are considered a potential alternative.

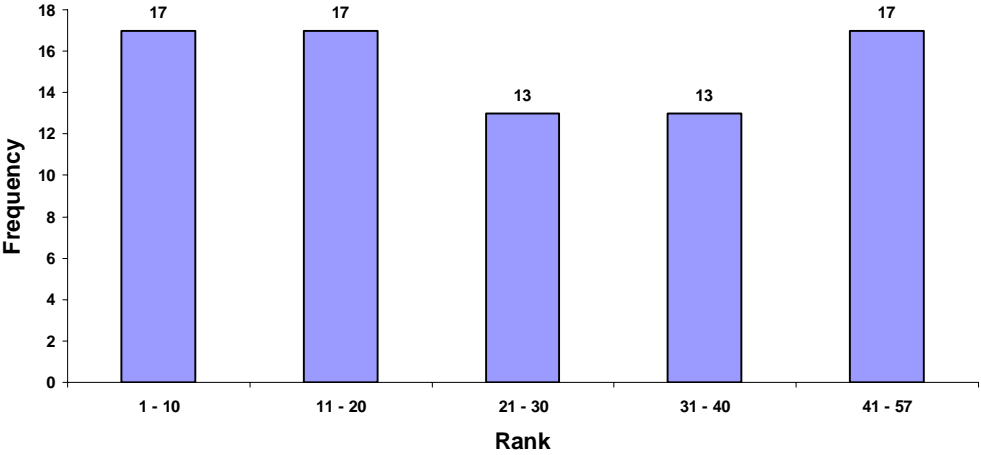
Information on tax rates has two different origins. Top marginal corporate tax rates are available from a database located on the website of the University of Michigan (2007). Data is available for 57 countries between 1980 and 2002. These do not include local tax rates.

⁴ All interviewees referred that their firm would apply to any type of incentives when available, even those that do not agree with their existence and consider that governments should not give any financial support to firms.

Statutory corporate tax rates (including local taxes), effective marginal tax rates (EMTR) and effective average tax rates (EATR) are available from Devereux et al (2002) for the period between 1979 and 2003 and for 19 OECD countries.

Figure 8.2: 1 shows, for the first dataset, the relative rank of corporate tax rates in the location decision made by Portuguese firms in a total of 74 operations. The ranks are built from 57 countries, the 1st. being the lowest and the 57th the highest statutory tax rate in the year of the investment. It clearly shows that firms frequently opt for higher tax countries.

Figure 8.2: 1 – Frequencies of relative ranks in FDI location decisions: Michigan



This is confirmed if one considers the total data for Portuguese FDI (Banco de Portugal, 2005). Between 1996 and 2004 the three major destinations of Portuguese FDI were Brazil, Spain and Angola (with around 40% of total FDI flows) and these three countries have a significantly different rank in the Michigan database (table 8.2: 1). Moreover, these corporate tax rates were only subject to one change in Brazil and Angola during the period considered and there were FDI inflows even without a significant decrease in tax rates. Thus it seems that statutory tax rates do not have a key role in FDI location decisions. For example, there are a huge number of potential locations with lower tax rates that were not able to attract the investment flows channelled to Angola.

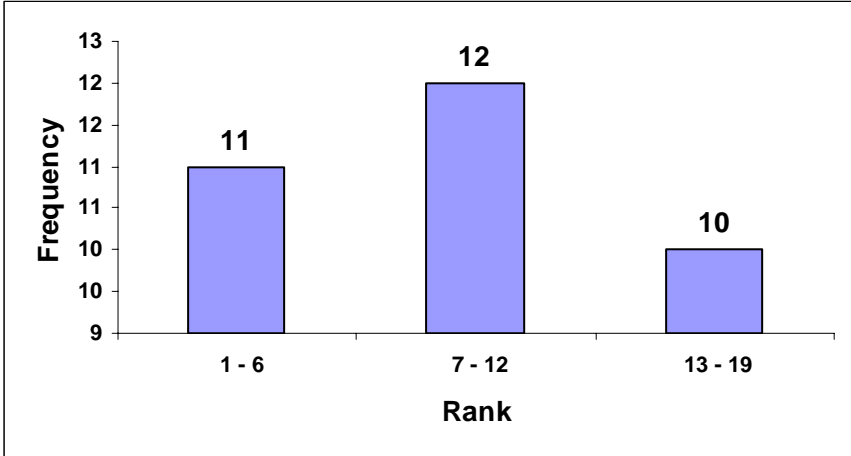
Given that this outcome is based on statutory tax rates the same analysis is made for AETR, considered by theory to be relevant for location decisions. It includes data for 19 OECD countries between 1980 and 2002, the same period as above. The outcome, however, is similar and it confirms the irrelevance of taxation in FDI location decisions (Figure 2). This

may also be seen when Portuguese firms make location decisions in countries with a higher EATR than Portugal. Other things equal it would be rational to invest in Portugal.

Table 8.2: 1 – Rank and statutory corporate tax rates

		1996	1997	1998	1999	2000	2001	2002
Brazil	Tax rate	25%	15%	15%	15%	15%	15%	15%
	Rank	8	5	5	4	4	4	4
Spain	Tax rate	35%	35%	35%	35%	35%	35%	35%
	Rank	28	29	33	35	35	39	41
Angola	Tax rate	40%	40%	40%	40%	40%	35%	35%
	Rank	47	50	53	55	54	39	41

Figure 8.2: 2 – Frequencies of relative ranks in FDI location decisions: AETR



Total Portuguese FDI outflows are also useful to consider the role of tax variables because they include the 112 operations used as a reference for this dissertation. FDI flows to 13 different countries are based on OECD data (OECD FDI statistics, 2005) and their respective EATR. Although the behavioural approach hypothesizes that there is no key association between both variables it should be noted that the observed trend in the last 20 years was for corporate tax rates to decrease in OECD countries (Devereux et al, 2002, p.451) and Portuguese FDI to increase due to the progressive opening of Portugal’s economy after the accession to the EU (Banco de Portugal, 2005). In this sense one could expect that the increase of Portuguese FDI outflows to coincide with the lowering of corporate tax rates abroad.

Table 8.2: 2 – Ordinal measures of association: FDI outflows and EATR

Country (1980-2002)	Number of Valid Cases	Kendall's Tau-b	Gamma	Somer's D (FDI outflows ¹)	Approximate Significance ²
Austria	12	0.50	0.55	0.051	0.864
Belgium	17	-0.177	-0.213	-0.211	0.209
Canada	13	0.016	0.02	0.02	0.941
France	21	-0.304	-0.307	-0.306	0.043**
Great Britain	23	-0.522	-0.551	-0.551	0.000***
Germany	14	-0.33	-0.341	-0.326	0.111
Greece	11	0	0	0	1
Ireland	8	0.218	0.333	0.333	0.414
Italy	12	-0.5	-0.516	-0.516	0.066*
Netherlands	13	-0.261	-0.667	-0.667	0.286
Spain	18	-0.148	-0.167	-0.167	0.252
Switzerland	13	-0.43	-0.6	-0.6	0.018**
USA	23	-0.137	-0.164	-0.163	0.385

1. FDI outflows are the dependent variable.

2. The significance is the same for the 3 tests. Level of significance: *** 1%; ** 5%; *10%.

Scatter plots show that there are no significant linear correlations between the two variables and thus the Pearson correlation coefficient is of no use (Annex 6.2). But when using measures of association based on ordinal variables the result predicted by the behavioural approach is found. These are presented in table 8.2: 2 where it is confirmed that **in the large majority of the cases effective tax rates are not associated with Portuguese FDI outflows**. Therefore, the null hypothesis (there is a significant association between tax rates and FDI location decisions) can be rejected in most of the countries considered. The exceptions are the UK, France, Switzerland and Italy but from these only the UK has an acceptable scatter plot and a significant value (at a 5% level) of the Pearson correlation coefficient of -0.5 indicating a negative association between the two variables.

8.3 – FDI location decisions and tax planning activities

Statistical tests confirm the unimportant role of taxation on Portuguese FDI outflows but partially contradict the outcome of the questionnaire presented above in chapter 6. Some of the interviewed managers also participated in the natural quasi-experiment but their answers in the questionnaire were not consistent with those given about the role of business taxes in FDI operations made by their firms. While in the experiment they consider business taxation an important variable for FDI location decisions, in the interview they saw it as irrelevant for

their own firms. This inconsistency can also be noted in the variable “cultural affinity”, where a low rank in the questionnaire does not fit with the statements addressing the relevance of cultural linkages presented in chapter 7.

As was explained above, business taxes only arise when there are profits and thus profitability always precedes the levy of taxes. Therefore, taxation has a double and separate role, which is not explicitly recognized by economic models, concerning location decisions and tax planning activities. Taxation may have an important role when firms can choose where to locate profits but this does not necessarily imply that the same happens when location decisions are made.

In an attempt to better understand this double role of taxation a second questionnaire was sent to 69 Portuguese managers and students. The implementation was by email or in the classroom at the end of 2006 after a pilot test with 15 students. The activity of respondents was as follows:

Table 8.3: 1 - Respondents

Professional activity	Number	Percent
Technical	6	8.7 %
Middle manager	19	27.6 %
Board member	6	8.7 %
Student	38	55.0 %
Total	69	100 %

The second questionnaire tries to create a market situation (Annex 6.3) for respondents to act as decision makers despite the absence of real incentives, as usually happens in laboratory experiments (Davis and Holt, 1993, p. 14). Question 1 focused on profit shifting or tax planning activities and question 2 investigates its relevance for the profitability of a hypothetical firm in the perception of respondents. Question 3 refers to FDI location decisions while question 4 is similar to question 2 by asking the perception of respondents of the relevance of this decision to the profitability of the firm. Questions 5 and 6 directly confront the two roles of taxation but in the latter case respondents are not obliged to opt for one of them and may choose indifference between the two roles.

Rational decision makers are expected to consider both roles as important for the profitability of the firm. However, and as explained above, the corporate tax rate is expected to be more relevant for tax planning decisions (questions 1 and 2) than in location decisions (questions 3

and 4) where the impact on profitability is indirect and depends on a lot of different issues related with costs and revenue. Using the same logic respondents are expected to choose more frequently tax planning activities (question 5) and to give higher relevance for corporate taxation in terms of profitability than in explaining location decisions (question 6).

The answers to questions 1 and 3 show that respondents have a different perception about the role of taxation and its impact on profitability is deemed to be more important than on FDI location decisions. This is more relevant for managers than for students where the mean value is similar (Table 8.3: 2). The different perception is also confirmed in questions 2 and 4 (Figures 8.3: 1 and 2 below). However, the differences are not large and in both cases taxation is perceived to be relevant for location decisions.

Table 8.3: 2 – The double role of taxation

Questions about tax effects	1 – on profitability	3 – on location decisions
Mean (students and managers – 69 answers)	63.4 %	53.6 %
Standard deviation	30.6	28.7
Mean of students (38 answers)	59.2 %	56.9%
Standard deviation	27.8	27.0

Questions 5 and 6 confront both roles. In the first case the difference is not meaningful given that 51% of respondents chose question 1 (tax planning) as more important in terms of profitability of the firm while 48% chose question 3 (location decisions). The effect of the activity (student or manager) is not large in this case although students give higher relevance for the location decision than managers (Graph 8.3: 3).

But in question 6 the outcome shows the majority of respondents (55%) as indifferent between the two roles. From the remaining, 22 (32%) chose profitability as the main role of taxation while only 9 (13%) chose location decisions (Graph 8.3: 4). That is, **when given the option respondents perceive taxation as indifferent between profitability and location impacts indicating that they tend to mix the two roles.** Overall the questionnaire does not clearly differentiate the two roles of taxation. This mixture explains the outcome of the first questionnaire, in chapter 6, and their contradiction with interviews.

Figure 8.3: 1 – Question 2

Relevance of profitability

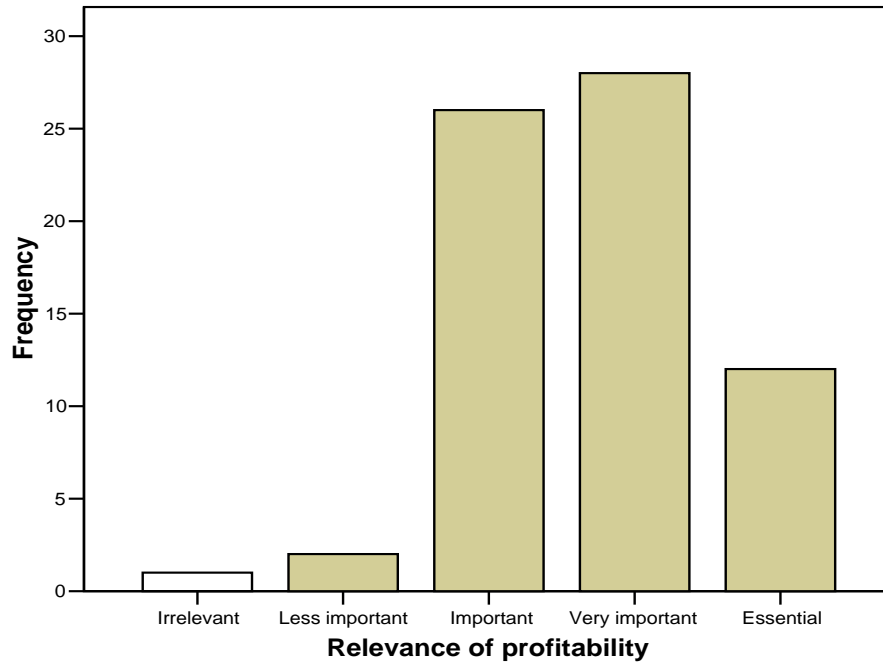


Figure 8.3: 2 – Question 4

Relevance of location

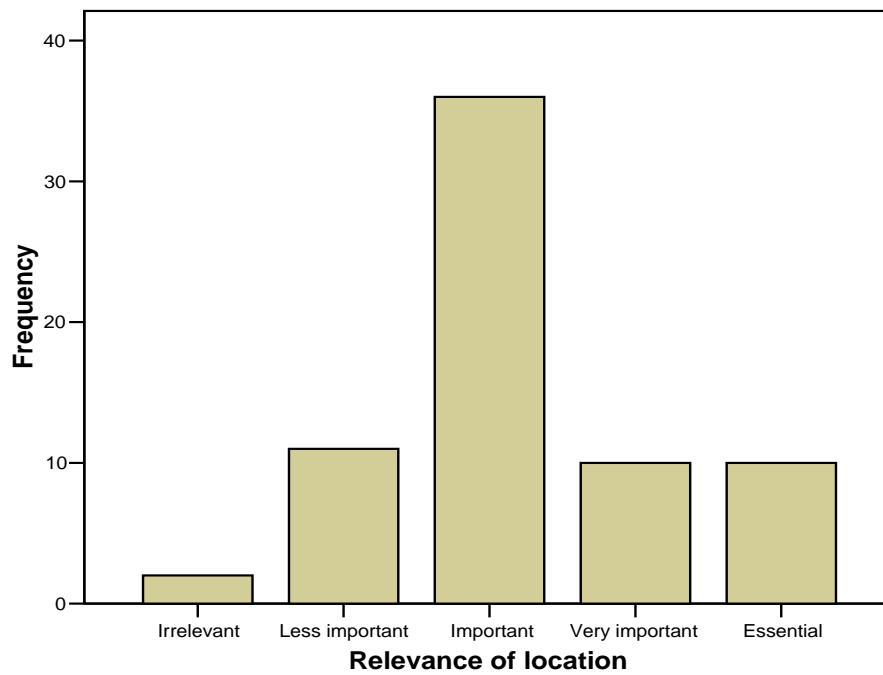


Figure 8.3: 3 – Question 5

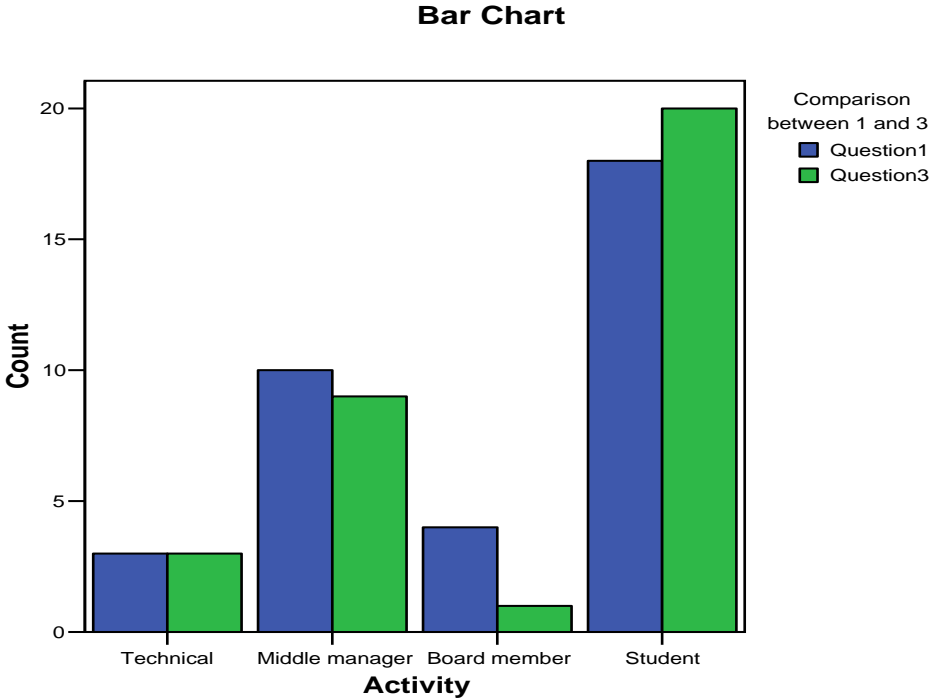
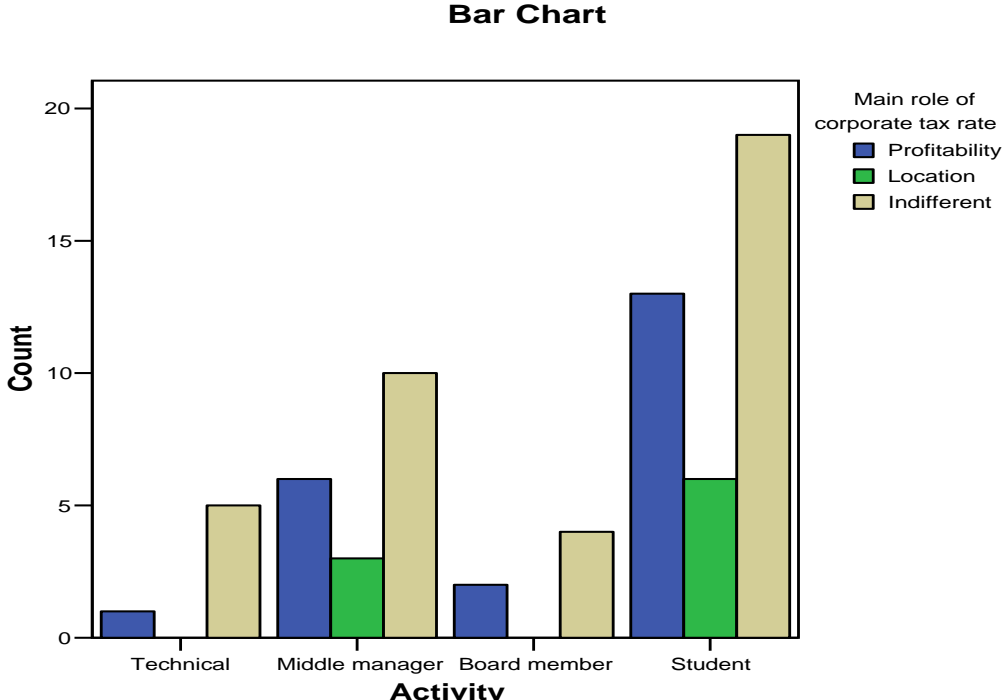


Figure 8.3: 4 – Question 6



8.4 – The European Union case

The European Union is one of the areas where the literature on tax competition has been focused. The *International Tax and Public Finance* journal (volume 10, n° 6, 2003) has even devoted an entire number to this subject. After the completion of monetary integration there has been pressure from EU bodies to proceed with tax integration ideally to a federation-like entity where corporate tax revenue would be managed at a central level. However, the EU is not a federation and thus the effects of taxation to FDI location decisions are here considered from the perspective of different and autonomous countries considering some type of corporate tax harmonization (following chapter 2).

8.4.1 - Background

The EU has tried to achieve at least some level of tax harmonization since its inception. This was explicitly proposed by the Neumark Report in 1962. The legal basis is, according to the European Commission (EC), in the Treaty of Rome. The Treaty mentions, in its art. 2 that the aim of the European Economic Community (EEC) is to promote the economic development of its member states through the establishment of a common market, with free movement of people and capital, and the progressive approximation of economic policies. But there are other reasons besides this vague and general statement. An argument for fiscal integration is the need to increase the revenue in the European budget. Art. 201 of the Treaty of Rome expressed the own resources principle as the source of financing of the European Communities. In 1970, this principle was adopted and three sources of financing were introduced: the Common External Tariff, the first example of fiscal integration on the revenue side among the then EEC countries, agricultural levies and the harmonized Value Added Tax (the 1st and 2nd VAT directives).

Almost simultaneously, full tax integration was considered by the EEC. A first effort to harmonize capital duty payable by companies was made in 1969 (e.g. for increases in capital or share issues – Directive EEC/335/69) although it was only accomplished in 1985 (through the Directive EEC/303/85), and each member state kept full autonomy in the decision of levying or not capital duty within a limit of 1%. But at the beginning of the 1970's the

Commission of the European Communities (CEC), following a broader interpretation of the Treaty of Rome, made a proposal for tax uniformity – integration of corporate and personal income taxes and harmonisation of withholding taxes on dividends – and the Council of Ministers endorsed it to the European Parliament. The European Parliament dismissed it, in 1975, on the basis that tax bases and the way taxes are implemented should also be equalized in order for it to be possible to achieve full tax uniformity.

The idea of fiscal integration lost strength in the difficult economic conditions of the 1970's and the CEC moved to further tax harmonisation through the 6th VAT Directive of 1977, where a tax credit type of VAT was introduced to prevent indirect taxation acting as a barrier to trade (by replacing internal tariffs). But the pressure for tax harmonisation in the EU did not only come from the CEC. The European Court of Justice (ECJ) made several decisions condemning tax discrimination in excise duties in the 1970's, forcing an approximation in tax rates.

Although the European Commission kept the idea of full tax integration, the reservation of European countries and the differences in tax bases led to advances in more acceptable issues. The idea of fiscal harmonization was more easily accepted by European countries than the thought of losing responsibility for defining tax policies to a higher level than the national one. So, the option to proceed with tax harmonisation, instead of tax integration, was maintained during the 1980's in order to guarantee the completion of the Single Market. This applied mainly to product taxation and corporate tax burdens, and the main aim was to reach the goal outlined by the Treaty of Rome of the establishment of a freely competitive common market in the EEC. In 1987, the European Commission (EC) proposed a move to origin-based commodity taxation with a clearing system to avoid revenue transfers between countries. However, the need to align VAT rates was not accepted by countries and an agreement on the clearing system was not reached. The solution was a mixed system of the origin and destination principle, with the first as a basis for cross-border acquisitions by individuals (which allowed for the end of border controls for almost all products⁵) and the second for corporations.

⁵ A few exceptions remain like vehicles.

In the 1990's there was another attempt for some kind of tax coordination under the surveillance of European institutions. The Economic and Monetary Union and the reinforcement of regional and cohesion policies brought the idea of a higher budget for the now European Union. A parallel with the USA federal budget was drawn suggesting an increased capability of the EU in dealing with differences of development. The aim was to follow the experience in the USA and other federations because countries were no longer able to use exchange-rates and monetary policies as a way of adjustment. Therefore, fiscal transfers were considered appropriate to deal with asymmetric shocks and to help less developed regions or countries. In 1996, the EC re-proposed fully origin-based commodity taxation, VAT, with equal tax rates and equal tax bases.

Simultaneously, the need for a level playing field in the EU moved from product tax rates to corporate income tax rates. After the complete elimination of barriers to capital movement inside the EU there were several efforts to put corporations from EU countries under equal taxation conditions. The Ruding Report (1992), based on a survey made to 965 firms about the role of taxation in location decisions, proposed a minimum tax rate for corporations of 30%, but it was not accepted by member-states for fear of firms moving to third countries. The trend of globalisation was also relevant, with a much criticised freedom of movement for capital in search of tax havens. Both the OECD (1998, 2000) and the EC (1997) criticized harmful tax competition and asked for greater international coordination. Presently, these reasons together with the enlargement of the EU, where a group of relatively poorer countries with lower tax rates became members, are the basis for the defence of more equalisation of taxes and more revenue for the EU institutions.

8.4.2 – Present situation

In spite of several attempts by the EC and the ECJ (e.g. the Marks&Spencer case), the progress towards a common fiscal policy is slow. Presently countries maintain their fiscal autonomy over direct taxation, social contributions and partially over indirect taxes. However, the idea of a common fiscal policy and of uniformity of tax rates did not lose ground and keeps coming up every once in a while. The same happens with the introduction of a European tax, levied directly by the European Commission.

The present stance originated in a new report on corporate taxation (EC, 2001) where several alternative options for tax coordination were presented. The explicit aim was both to reduce cross border investment distortions and compliance costs.

The consequence of the report on corporate taxation is the introduction of a common tax base for corporations with EU-wide activities under two different regimes: Common Consolidated Base Taxation (CCBT) and Home State Taxation (HST – Gerard, 2006, Nicodéme, 2006). In the first case, countries would harmonize their rules to calculate taxable profits. In the second, countries maintain their own rules and businesses with cross border activities would only be taxed in their home country (where headquarters are located) and not separately in each country where there are subsidiaries or affiliates. In both cases taxes would be levied on the basis of consolidated accounts and “distributed” to the countries where firms are established by using a formula apportionment based on sales, payroll and property. Each country would be free to set its own level of taxation. Finally, firms operating only at a national level would follow the present national rules.

The proposal of the EC aims to distinguish between large multinationals operating in the EU and SME’s (Small and Medium Enterprises). CCBT was designed for large firms so that they only have to fill in one tax declaration in the EU. This means lower compliance costs for firms and, as expected, they strongly support it (EC, 2004). HST was designed for SME’s with activities abroad. Its implementation means that countries hosting subsidiaries or affiliates lose the autonomy to tax them as presently happens. The level of tax revenue for these countries would depend on the corporate tax rules of the country hosting the headquarters. Therefore, this is hardly acceptable for EU countries and it may explain why, so far, there are no adherents to this scheme.

The whole process has some other problems. First, the outcome of the proposal to create a common tax base is a two-tier system where rules to calculate taxable profits will be different according to each firm’s geographical area of operation. This may be a simplification for large multinationals but it will be a burden for national tax authorities. Its costs, however, were not considered by the EC. Furthermore, it would allow for tax arbitrage to occur if two firms in different regimes cooperate.

Second, tax distortions seem to be much more relevant at a domestic level than in cross border investments. As it was shown in chapter 2, cross border distortions are not large if tax integration happens only at a regional level and cross border distortions will never disappear for firms also established outside the EU. But the differences between corporation taxes and top individual income tax rates within countries influence firms' policies in terms of financing or dividends (Cnossen, 2003, p. 635). However, these distortions are outside the scope of the harmonization process.

Third, corporate tax rates are not explicitly included in these proposals. The immediate reason is that only countries can grant authority for the EC to establish an EU-wide single corporation tax rate. But because there was no common tax base the issue has been left on the shelf. However, if countries keep their autonomy in setting tax rates after the implementation of a common tax base then cross border distortions would not disappear and tax rate competition may even increase because the tax base could not be used to attract FDI. HST would probably increase tax competition for headquarters locations (Cnossen, 2003, p. 640). In other words, if the aim is to reduce cross border distortions the process in development by the EC only makes sense if there is a harmonization of corporate tax rates.

Finally, the all process of creating a common fiscal policy relies on a survey made in the ambit of the Ruding Report and was reinforced by the European Tax Survey (EC, 2004, after p. 101). Both surveys report managers asked for greater tax coordination in the EU. However, the conclusions of these two surveys should be handled very carefully given the above detected inconsistencies between questionnaires and interviews.

Respondents are not those who make FDI decisions. In the Ruding Report they are mostly finance or tax managers whose job is precisely to minimize the tax burden for their firms, and in the ETS the survey does not indicate the respondent. Therefore, in the first case it was like asking someone if their job is really important, and the most probable answer is yes, and in the second there is no information about who is really answering the questionnaire. That is, those that make FDI decisions, the members of the board, are not necessarily involved in the answers. This is probable given that ETS is mainly about compliance costs, a very specific issue handled by tax managers.

There is also significant bias in terms of the answers received. In the ETS large and medium size firms are overrepresented in comparison with small firms and the same happens with respect to countries. For example, The Netherlands and Denmark provide 37% of the answers (EC, 2004, p. 17). In the Ruding Report the overrepresentation arises from industrial firms (68, 1%) and the UK and The Netherlands (37%).

Moreover, The European Tax Survey is a questionnaire about compliance costs where a few questions related to profit shifting and the relevance of taxation to location decisions are included. That is, these questions are answered in a context where the differentiation between the role of taxation in terms of profitability and location decisions is not considered and, as shown in the questionnaires above, managers tend to mix the two roles of taxation.

8.4.3 – Consequences of EU corporate tax policy from the behavioural perspective

Corporate tax integration has as a common starting point the public finance view that tax competition between jurisdictions is inefficient and thus Pareto-inferior to a centralized management of fiscal income. This positivistic outcome relies on the usual set of assumptions that encompass the neoclassical paradigm. But as we have seen some of these assumptions are not valid because at least some firms do not follow the lower corporate tax rate when investing abroad.

The behavioural approach showed that Portuguese firms do not rely on tax rates for their FDI location decisions. It may be that these are small firms in international terms and that the same cannot be said of large multinationals. However, the bulk of companies around the world are SME's and not large multinationals although these originate a significant share of FDI flows. If it is accepted that corporate tax burdens are not key in explaining FDI location decisions then this result is very significant for the literature in the sense that the inefficiencies arising from tax competition are surely even smaller than the already very small ones reported in empirical studies (chapter 2).

This is reinforced by the existing harmonization of incentives to attract FDI in the EU. Since 1999 the EU member states have to comply with rules established within the Social European Fund and the European Fund for Regional Development, where all the support given by a host

country to an investor is defined ex-ante by the European Commission. It includes three areas: training, environment and research & development. All the remaining measures, including fiscal incentives, have to be negotiated on a case by case basis with the European Commission and there are heavy sanctions for countries that fail to comply with it including the obligation for beneficiaries to return the subsidies.

Therefore, the present situation legitimates a question about the real aims of the EC in this process. If one considers that the distortions existing at a cross border level are small and can hardly justify tax harmonization or tax integration, and that the co-existence of different tax rates with CCBT and HST would probably intensify tax competition and thus the distortions, then it is difficult to believe that this change in tax rules proposed by the EC only aims to reduce compliance costs for large multinationals.

A different view of the objectives of the EC might be a further step to help “European” champions to compete with US, Japanese, Chinese, Indian and other multinationals, in line with the goals fulfilled by EU’s Research & Development policy, and to create the conditions for a future European tax levied on large corporations. This is in line with the creation of legal status for the European Company (*Societas Europaeae*) and would be impossible without a common tax base and a single tax rate. Under this view the real aim of the EC is not to reduce distortions or compliance costs. Putting it bluntly, the reduction in compliance costs was only a bait to get the support of the business community in the EC’s tax integration plans.

The main conclusion is that, despite public finance theory, there are very good reasons to be doubtful about significant welfare gains arising from corporate tax harmonization in the EU. The aims of simplification in tax laws expressed by bodies such as the European Economic and Social Committee (2006, p. 9) and the costs to be borne by national tax authorities are fully ignored in this process. There is a justifiable doubt even without considering at what level tax rates would be set in case of tax integration and the consequent gains and losses for each EU member, its impact towards the rest of the world or the eventual effects in terms of efficiency costs of increased corporate taxation. The doubts almost disappear if, as economic theory states, the effects of tax competition as a barrier to an overexpansion of the public sector and the existence of agglomeration economies are also considered. Finally, if it is accepted that the real issue for concern, tax planning activities, would carry on even with tax

integration because large multinationals would use establishments outside Europe for this end it becomes evident that **the option for EU corporate tax integration is mainly a political decision without a clear economic basis.**

8.5 – Interpretation of results and conclusions

The use of a behavioural approach provided a real view about the role of taxation and business incentives in FDI location decisions. Portuguese firms seem not to be guided by tax considerations in their location decisions abroad and the received incentives were mostly provided by the Portuguese government, a complete contradiction to tax competition theory where jurisdictions are expected to implement fiscal policies to attract investment. Therefore, the tax competition model is not suitable to explain their behaviour. Statistical evidence shows it and confirms the statements of managers in interviews. There is thus a reasonable doubt about the usefulness of the standard tax competition model to explain the behaviour of all firms without distinction when it assumes that all capital searches for the lowest tax rate.

The results presented above confirm the initial research hypothesis that taxation is not a key variable in FDI location decisions. Based on the evidence it may be seen that, for the interviewed firms, FDI does not follow the highest rate of return, whether it is influenced by differences in tax rates or not, because managers cannot know either what is the optimal decision to be made nor if they are close to it. This applies both to the successful corporations and to less-competitive firms in the sense that it is not only the degree of competition but also the level of uncertainty that explains the behaviour of firms.

This outcome can be understood if it is considered that there is no evidence of tax competition with EATR at a country level and the literature shows empirical results to depend on some characteristics. They vary with the type of FDI, namely new locations, reinvestments and tax planning activities, and with the existence of agglomeration economies. Agglomeration economies reduce the role of subsidies and the effects of tax competition (Devereux et al, 2007). Moreover, discrete choice models present a lower FDI-tax rate elasticity (De Mooij and Ederveen, 2006) and econometric studies always include an insufficient number of control variables (Hajkova et al, 2006), thereby exaggerating the role of tax variables.

The existing empirical mismatches between the absence of a complete “race to the bottom” and the increase in corporate tax revenue can be explained by the lower importance of taxation for firms when deciding the country of location. Firms do invest in high tax countries and thus contribute to the tax revenue of these “hosts”. In this way, tax competition is consistent with large welfare states and, contrary to the ‘Leviathan’ assumption, it is not a question of government size.

However, there can be no generalization to all firms in the EU because this outcome may be explained by many other factors such as the size of the investments or the relatively early stage of the process of internationalization of Portuguese firms. The European Tax Survey (EC, 2004) shows that taxation is a main relevant factor in the case of large firms. Thus, the evidence presented here needs to be confirmed for a wider number of cases and countries. Furthermore, this conclusion is weakened in the case of location decisions inside a market or in further investments in the chosen country despite these being decisions made after the location choice.

The behavioural approach also **solves the “incompatibilities” existing between tax competition and FDI theories** by separating short from long-term capital flows and the profitability issue from location decisions. First, FDI flows are not perfectly mobile as tax competition requires for its effects to be of greater relevance. The lower the mobility the lower these effects are and FDI flows are very immobile when a firm is committed to stay in a country for several years; Second, tax rates are not the only variable affecting profitability, as the tax competition literature assumes in an oversimplified way by mixing the two roles of taxation. It is a fact of life that firms want to minimize the fiscal burden to be more profitable but that is not the same thing as deciding the country location of investments based on tax variables. The second questionnaire shows that this double role can be easily mixed by respondents. Therefore, it is totally unrealistic to consider taxation as the only variable to affect profitability because there must be profits before the tax rate is levied. Otherwise the level of taxation becomes irrelevant; third, while the tax competition model is based on the marginal tax rate, location decisions are theoretically related with the average effective tax rate where the tax base is also relevant.

The compatibility between both fields is thus achieved if tax competition is restricted to profitability in short-term flows of the portfolio type and capital flows to locate taxable profits, and taxation is included among the variables to be considered by investors when making reinvestments. The behavioural approach, by focusing on location decisions, makes a clear distinction between the two roles of taxation and it allows for both theories to become acceptable and compatible. By considering how FDI decisions are made the behavioural approach complements neoclassical theory.

Finally, **the basis for tax integration in the EU is undermined** by this clarification of tax competition and FDI theories. The inefficiencies arising from cross border capital movements become much smaller if location FDI flows are eliminated from the tax competition setting and only short-term capital movements and reinvestments are considered. Moreover, these inefficiencies do not disappear with tax integration because the rest of the world is still out there. The consequence is that both facts cast serious doubts on the potential welfare gains of tax integration in the European Union as predicted by public finance theory. Moreover, **national policies should not rely on taxation to attract “Greenfield” investment.**

Part III

Final remarks and further considerations

9 - Concluding Remarks

The tax competition literature has been dominated by mainstream neoclassical economics but the richness of economic science is the possibility to use different and complimentary approaches. This is shown by the new insights for both the tax competition literature and FDI theories brought about via the use of behavioural economics.

The contradictions between evidence and theory, the narrow assumptions of the standard tax competition model and the incompatibilities with FDI literature required a behavioural approach where both the environmental context of decision making and the perceptions and motivations of firms' decision makers could be considered. This is readily understandable if one thinks of how complex FDI location decisions are and how long they may take to be completed.

The research methods employed in this dissertation, based on qualitative techniques, allowed for a better understanding of how FDI location decisions are made and for tests of hypotheses derived from behavioural economics and the Heiner model. The robustness of the findings based on interviews, questionnaires, documentation and content analysis are confirmed, whenever possible, by statistical tests. This is **a novel approach in the tax competition field and also in the Portuguese FDI literature.**

In this context, the behavioural approach complements neoclassical theory by relaxing its standard assumptions, namely that investors are rational decision makers that aim to maximize and behave as if maximizing by choosing the best alternative from a set of options based on probabilistic risk adjusted expected returns. More precisely, it exclusively focuses on long term and imperfectly mobile FDI, it avoids an oversimplified role for taxation, it considers imperfect knowledge about the marginal productivity of capital in every potential location and, above all, it assigns uncertainty a prominent role in the decision making process.

The behavioural framework developed from the Heiner model was tested based on the information provided by Portuguese firms with FDI operations. **The role of uncertainty in explaining why managers also rely on behavioural rules to make their decisions seems to**

be confirmed. The objective financial analysis based on costs and revenue that translates the maximization aim of the neoclassical firm, framed with strategic goals, is not able to fully explain FDI location decisions. In a world where the role of uncertainty is highlighted, managers also rely on certain rules of behaviour in their business practices for the long term. This confirms what was previously found in the behavioural finance literature where portfolio operations are recognized to be influenced by these rules of thumb.

Thus the C-D model can be regarded as a relevant predictor of Portuguese manager behaviour in FDI decisions. Statistical tests show that the predicted role of uncertainty is not refuted by empirical evidence. Portuguese firms invest more in places where there is less uncertainty and use more behavioural rules when there is more uncertainty. Moreover, the new determinants introduced by the behavioural approach were helpful in explaining 55% of the locations chosen by Portuguese managers and, thus, to provide a significant complementary explanation to neoclassical economics.

However, questionnaire evidence shows the perceptions of managers on FDI location decisions to overvalue the variables usually addressed by the neoclassical literature. The two groups that answered the questionnaire, students and managers, presented similar perceptions on the key variables to explain FDI. These are roughly in accordance with FDI theory. The only behavioural variable included, “cultural affinity”, was regarded as being of minor importance. But in the interviews this variable was regarded by managers as relevant for a significant number of FDI operations. Evidence shows that a large share of Portuguese FDI is channelled to Portuguese speaking countries. Thus there is a contradiction between the answers in formal questionnaires, where FDI theory seems to have great influence, and “informal” interviews where managers freely explain their ideas, and the latter seems to be closer to reality. This contradiction also arises for the role of taxation, raising doubts about the validity of survey results.

The neoclassical literature does not provide a complete understanding of FDI location decisions. Thus, an important finding of this dissertation is **the new explanations of why a country is chosen as a location for production brought about by the applied behavioural approach.** These new determinants originate from the environmental conditions surrounding FDI decisions and from the intrinsic cognitive characteristics of managers responsible for the

decisions, and happen in all phases of the time span. A better comprehension of these determinants may help firms improving their behaviour.

There is, thus, an enhancement of the FDI literature via the introduction of determinants such as overconfidence from the illusion of being in control of events, availability of information, herd behaviour, cascading, cultural anchoring, fairness or mental accounting. These are key determinants arising from the decision making process and not from the traditional neoclassical reasons behind the decision to locate production, such as market, asset or efficiency-seeking issues.

Furthermore, in this dissertation behavioural rules are extended to firms' decisions. These simplifying strategies, usually presented at a level of an individual, are not a one-off thing but are consecutively repeated happenings or non-maximizing decisions kept unchanged over the years by a collective body. Thus, the behavioural approach is also valid in a dynamic perspective when it reveals the learning inabilities of managers and, therefore, it allows for a better understanding of FDI location decisions.

The evidence in this dissertation also justifies the conclusion that maximization may be muted when TNC's are investing abroad. This is not the "satisficing" of the traditional behavioural theory of the firm where constraints from the limited capabilities of the human being explain why TNC's are not able to indefinitely improve their behaviour towards maximization. Rather, it is the following of behavioural rules and the avoidance of actions appropriate only in unusual circumstances that prevents maximization. This behavioural rigidity in adjusting to new situations, in accordance with the Heiner model, is explained by uncertainty and this is an improvement on the neoclassical literature. Portuguese firms are very focused in the domestic market and face a high level of uncertainty when actions, which are not usually applied in domestic decisions, are required. This is very prominent in investments in less developed countries, as this dissertation shows. Therefore, in the context of the model neoclassical assumptions such as **the will and the ability to maximize are not needed for FDI location decisions.**

Among the determinants explaining FDI, taxation is the relevant one in tax competition models. But contrary to what is generally accepted by economists, managers, business

pressure groups and even the media, **taxation is generally not a very important variable for the choice of the market where to locate FDI investments.** From a total of 112 operations only four (off-shore branches owned by banks) were clearly explained by fiscal criteria. In the remaining operations the fiscal variable was not considered to be a key element by decision makers. Contrary to what the tax competition model predicts most of the incentives received by Portuguese TNC's were given by the Portuguese government, as a support for their internationalization, and not by the host country.

Thus, if this result is accepted as representative for all the Portuguese TNC's, the tax competition model makes little sense for Portuguese FDI location decisions because firms do not consider taxation to be a driving force of location flows. If this conclusion is enlarged to include other countries, then the negative influence of taxation to the allocation of capital across countries significantly diminishes because initial investments represent a very significant share of international FDI flows. The same applies to the provision of public goods by national jurisdictions, which is not endangered by FDI tax competition. Taxation is overvalued when it is seen as a key variable for location decisions. Its role seems to arise mainly from the direct impact on firm's profitability and not as an explanatory factor for FDI location decisions.

This overvaluation is confirmed in the perceptions of students and managers. Questionnaires show that there is a "gap" between the two sides of the tax competition model because the role of taxation is deemed to be more important for jurisdictions than for investors. Managers (and students) see taxation as being overvalued by governments relatively to what they consider as its importance for location decisions. This was confirmed both in formal questionnaires and in "informal" interviews with managers.

The overvaluation of taxation as a key variable for FDI location decisions means that **the mismatch existing between the tax competition theory and empirical evidence can be, at least partially, explained by the lesser importance given by firms to taxation when locating their investments abroad.** Public officials understand both the limited role of taxation (as the interviews show) and the relevance of public inputs in new investments, and so do not claim for a "race to the bottom" in corporate tax rates. Furthermore, tax rates impact on FDI stocks (Devereux et al, 2008), meaning that they only have an important role in

further reinvestments, after the initial location decision. The increasing in FDI stocks is an enlargement of tax bases and explains why corporate tax revenue has not been decreasing with tax rates.

Moreover, the unimportant role of taxation in location decisions arising from the behavioural approach allows for both the tax competition and FDI theories to become compatible. FDI location decisions take a long time to be completed, demand a lot of information and make capital immobile due to “sunk” and “exit” costs. Therefore, location decisions and the long term perspective of investors seem to be better explained by FDI theory while tax planning activities and portfolio movements, and thus the short-term view where tax rates immediately impact on profitability, better adhere to the tax competition framework.

But there are two other consequences from this overvaluation of taxation. First, some national governments may be relying too much on fiscal policy to attract new investment and, when this is the case, national policies should be changed accordingly. In other words, **governments should move the focus of their FDI policies from taxation towards other determinants**. Second, although tax competition literature is not definitive about what should be the corporate tax policy in an integrated economic space, **the EU aim of having an integrated corporate tax policy**, which is theoretically based on the adhesion to reality of the tax competition model, **is significantly weakened by the lesser importance of taxation** in FDI location decisions. If fiscal variables are not that important for FDI location decisions then it does not make sense to rely on them as a justification for tax integration in the EU.

Finally, the main implication of this dissertation is that economic theory should not only seek to explain why firms invest abroad but also how are these decisions made and the model employed here, in contrast to neoclassical theory, includes both issues. In general, it is shown that the neoclassical and behavioural approach may complement each other.

Some caveats and future work

This is an exploratory study where the findings and consequences presented above rely on some features that may be improved in future work. There are three possible lines of research for future development.

First, **the enlargement of the database so that the conclusions reported above can be confirmed for a larger number of cases.** The inductive nature of data collection relies on the ability of the researcher to detect and interpret information, and is based on the activity of a relatively small number of operations, 112. Therefore, further evidence is needed to strengthen these results:

- a) A confirmation of the hypotheses derived from the Heiner model for an enlarged database;
- b) The dissertation might be too focused on Portugal. The information collected comes from Portuguese firms which are relatively new to the internationalization process. On average these firms have 18 years of experience abroad but a few of them have a very short presence in international markets. Therefore, it would be useful to study firms from other countries, and from different industries, in a different stage of the internationalization process;
- c) The surveyed firms are of small and medium size in international terms. Although they are representative of the vast majority of firms from all over the world, large TNC's have a very significant share of the total volume of FDI flows and usually are thought to have better expertise in dealing with tax issues across different countries. Thus these results have to be confirmed for TNC's;
- d) Tax planning activities are not included in this dissertation. The results obtained only relate to location decisions because these are the ones which may bring jobs and significant economic growth to host countries. However, there is the implicit assumption that location decisions are not related to tax planning activities. That is, TNC's do not choose a country where to invest because of potential future savings in corporate tax payments. But this assertion has yet to be confirmed;
- e) Reinvestments are made after the location decision and the role of tax variables are probably more important in this situation, as Devereux et al (2008) have shown. Countries also look at actual investors so that their exit can be avoided. A better understanding of the relationship between FDI location and reinvestment decisions is needed;

f) It is also necessary to have a better understanding of the potential relationship existing between decision makers, whether in state owned firms, family businesses or public companies, and firms' performance. This means knowledge of how widespread the detected failures in information collection and perceptions among members of the business community are;

A second line of potential research is **to strengthen the tax competition model:**

a) It is important to have a better understanding about how relevant are the inefficiency costs exposed by the behavioural approach due to the failure of firms to maximize. Are they very significant, as Akerlof and Yellen (1995) have shown in theoretical terms?

b) Closely related is the need to understand why, and when, are firms unable to indefinitely revise their behaviour towards maximization. This dissertation presents evidence that an increase in the degree of competitiveness faced by TNC's is not sufficient to allow for a limitless improvement in their behaviour or in their performance. The improvement, or the ability to learn continuously, seems to happen only up to a certain point and afterwards there seems to be no reduction in the number of bounded procedures or behavioural rules followed by firms. Therefore, a further research question is to examine when and how is this point likely to be reached;

c) Some of the hypotheses presented above about the limits of maximization need to be further examined. Although there is some evidence that the aim to reach a minimum level of profitability may act as a barrier to maximization it might be that this only applies to some firms, but not to all of them, or to impact different firms in different ways. Thus a better understanding of what separates these firms is needed. A similar reasoning may apply to firms' risk policies attenuating maximization;

d) The tax competition literature does not distinguish between the role of taxation in determining profitability and in the location chosen to invest. Thus it is necessary to devise a research mechanism, to be applied in business surveys, to avoid the detected confusion between these two roles.

A third line aims **to strengthen the behavioural approach and to improve the Heiner model:**

a) At the conceptual level a better definition of errors and “anomalies” in the behaviour of economic agents and a way to distinguish them in empirical work is needed. Taxonomy of economic behaviour, including both rational and less than rational decisions, should be developed;

b) There is also a need to better understand how persuasive is the behavioural approach in indicating that the context in which firms operate has a huge influence on their activity and its associated outcomes. Economic science tends to minimize the contextual issues but the role of uncertainty shows that this is an important matter. There is potential for relevant improvements in distinguishing between the influence of each firm’s culture and history and the individual cognitive characteristics of managers, including cultural and moral variables. This is valid for all decisions and it suggests new determinants for country locations in FDI operations;

c) Further work is also needed on detected behavioural rules. The taxonomy presented above is intended as a first step in classifying “anomalies” in firms’ decisions. So far the literature has been focused on different economic situations, such as those in financial markets or in consumption decisions. A better characterization of the influence of the time span and of both the extrinsic and intrinsic dimensions would be welcome;

d) A deeper and clearer definition of inconsistent behaviour by managers, beyond its general meaning of not being in accordance with maximization, has yet to be provided;

e) Finally, there is a need to survey jurisdictions in order to ascertain the effective variables employed when trying to attract investment. This would apply the behavioural approach followed in this dissertation to jurisdictions.

Annexes

Annex 1 – Assumptions and Extensions

The public finance, political economy and new economic geography contributions

Main assumptions	Extensions of the model	Changes in results
Nash world	Perfect competition (Oates and Schwab, 1991). Stackelberg (Baldwin and Krugman, 2004).	Efficient under restrictive assumptions such as benefit taxes. Tax harmonization is Pareto-worsening.
Factors of production		
Perfect capital mobility	Lee (1997). Ludema and Wooton (2000).	Reduces tax competition effects. Integration reduces tax effects.
Labour immobility and in fixed supply	Bucovetsky and Wilson (1991)	Distortion is probably smaller and it arises from the labour market
Taxation		
Taxation on capital is of a source based type	Razin and Sadka (1991), Mintz and Tulkens (1996)	Efficient given taxes available with residence based taxation
The system of taxation of the home country is not considered	Gordon (1992)	Tax competition is more likely to occur in tax credit countries
Tax rates are determined only with the aim of attracting capital	Mintz (1996), Gordon and Slemrod (2000), Slemrod (2004). Edwards and Keen (1996), Rauscher (1998)	Do not change the results but it provides other tax determinants. Tax competition reduces inefficiency.
The provision of public goods depends only on capital taxation	Frenkel et al (1991), Bucovetsky and Wilson (1991)	If a non-distortion tax source is available the model is efficient
Tax rates are the only instrument to compete for capital	Wildasin (1988), Keen and Marchand (1997)	Using public expenditure may result in an overprovision of public inputs
Taxation is the exclusive driving force of capital movements	Not addressed	
Countries		
Countries are symmetric	Wilson (1991), Bucovetsky (1991). Ottaviano and van Ypersele (2002).	Residents of very small countries are better off with tax competition. Tax coordination > Tax competition > Tax harmonization.
Countries have active policies to attract capital by lowering tax rates	Bruckner and Saavedra (2001), Devereux et al (2008)	Reaction functions and evidence of tax competition
Governments are assumed to be benevolent	Edwards and Keen (1996)	Leviathan hypothesis.
Markets, firms, consumers		
Markets within countries are perfectly competitive	Mintz (1996), Huizinga and Nielsen (1997), Garcia-Milá and McGuire (2001)	Taxable rents or agglomeration economies do not change the results.
Individuals have the same preferences and the same income	Frenkel et al (1991). Baldwin and Krugman (2004).	Do not change results. Different taxes justified in equity terms.
The production function has constant returns to scale	Ludema and Wooton (2000), Ottaviano and v. Ypersele (2002).	Optimal outcome with different tax rates.
Firm heterogeneity	Han and Leach (2008)	Efficient allocation of capital with low capital mobility
Investor as rational decision maker	Not addressed	
Investor has perfect information on the marginal product of capital	Not addressed	
Investors search for the lower tax rate to maximize profits	Not addressed	
Uncertainty has a secondary role	Not addressed	

Annex 2 – FDI Location Explanations

Location advantages are the only ones that host governments can manage in order to influence firms when choosing a market to invest. Countries' location advantages can be grouped by policy and economic determinants (UNCTAD, 1999, p. 91). The first refers both to the impact of general economic policies and incentives for incoming FDI. There is an implicit assumption that countries want to attract FDI. This may be true in most cases but restrictive policies such as a complete impediment of FDI are also possible.

The second comprises economic determinants that are favourable to different types of FDI according to firms' motives: market, asset or efficiency-seeking. Table 1 presents them together with their proponents.

Locational determinants	Empirical Evidence *	Theoretical and empirical studies
1 - Governmental policies		
Interest rate differentials	+	Nurkse (cited in Ietto-Gillies, 2005), Culem (1988), Grosse and Trevino (1996), Billington (1999)
Exchange-rate risk	Inconclusive	Aliber (1970), Grubert and Mutti (1991), Grosse and Trevino (1996), Blonigen (1997), Azémar and Delios (2008)
Tariffs and other trade barriers	Inconclusive	Vernon (1966), Culem (1988), Grubert and Mutti (1991), Blonigen (2001), Gastanaga et al (1998)
Political stability	+	Schneider and Frey (1985), UNCTAD (1999), Trevino and Mixon (2004)
Efficient legal system	Inconclusive	Wheeler and Mody (1992), UNCTAD (1999), Buch et al (2005), Gastanaga et al (1998), Hajkova et al (2006)
Restrictions on capital movements	+	Buckley and Casson (1976), Brainard (1993), Gastanaga et al (1998)
Differences in rates of taxation	-	Buckley and Casson (1976), Garrett and Mitchell (2001), De Mooij and Ederveen (2003, 2006)
Investment incentives	+	Aharoni (1999), Head et al (1999), Buch et al (2005), Gorg (2005)
Level of corruption	Inconclusive	Wei (2000), Gastanaga et al (1998), Khamfula (2007)
2 - Economic determinants		
2.1 - Market-seeking FDI		
Size of the market	+	Aliber (1970), Wheeler and Mody (1992), Culem (1988), Billington (1999), Bellak et al (2007)
Purchasing power	+	UNCTAD (1999), Nocke and Yeaple (2008)
Market growth rate	Inconclusive	Culem (1988), Billington (1999), UNCTAD (1999), Chakrabarti (2001), Gastanaga et al (1998)
Psychic distance (language, customs)	-	Johanson and Vahlne (1977), Schneider and Frey (1985), Hennart and Larimo (1998), Bénassi-Quére et al (2007)
Imperfect market structure	+	Caves (1996), Pak and Park (2005)
2.2 - Asset-seeking FDI		
Natural resources	+	Dunning (1979), Hausmann and Fernández-Arias (2001)
Labour, energy, transport, production costs	-	Vernon (1966), Wheeler and Mody (1992), Schneider and Frey (1985), Bellak et al (2007)
High-skilled labour and Unit labour cost	+	Schneider and Frey (1985), Culem (1988), Brainard (1993), Mody et al (1998)
Physical infrastructure (power, roads, ports)	+	Wheeler and Mody (1992), Bellak et al (2007), Nicoletti et al (2003)
2.3 - Efficiency-seeking		
Agglomeration economies	+	Cantwell (1989), Wheeler and Mody (1992), Devereux and Griffith (1998)
Existant level of FDI	+	Wheeler and Mody (1992), Buch et al (2005)
Physical distance	-	Grosse and Trevino (1996), Buch et al (2005), Bellak et al (2007), Bénassi-Quére et al (2007)
Degree of openness	Inconclusive	Muchielli (2002), Brainard (1993), Wheeler and Mody (1992), Buch et al (2005), Azémar and Delios (2008)
Trade	+	Billington (1999), Culem (1988), Grubert and Mutti (1991)

* + Direct correlation; - Inverse correlation

Annex 3.1 – Organizations and interviewees

Firm 1 – Corticeira Amorim
Paulo Bessa – Investor Relations

Firm 2 – Banco Espírito Santo
Mário Mosqueira do Amaral - Board Member
Guilherme Moraes Sarmiento – Sales and Financial Institutions

Firm 3 – Laboratórios Bial
José Redondo – Board Member

Firm 4 – Banco BPI
António Domingues - Board Member

Firm 5 – Caixa Geral de Depósitos
João Real Pereira – International Business Manager

Firm 6 – Energias de Portugal
Joaquim Macedo Santos – International business Manager

Firm 7 - Inapa
Alberto Barata Salgueiro – Board Member

Firm 8 – Jerónimo Martins
Alexandre Soares dos Santos – Chief Executive Officer

Firm 9 – Mota Engil
Arnaldo Figueiredo – Board Member

Firm 10 – Portugal Telecom
Tiago Alexandre Ribeiro – Competition and Market Analysis
Ricardo Luz – International Business Manager

Firm 11 – Salvador Caetano
João Sequeira - Board Member

Firm 12 - Secil
Francisco Nobre Guedes – Board Member

Firm 13 - Sogrape
Fernando da Cunha Guedes – Board Member

Firm 14 - Vicaima
Arlindo da Cunha Leite – Chief Executive Officer

Firm 15 – Sonae Distribuição

Eduardo Piedade – Planning and Financial Control Manager

Firm 16 - Brisa

Victor Paulo Saltão – Board Member

Firm 17 – Millenium BCP

António Figueiredo Lopes - Planning and Control Manager

Associação Portuguesa de Investimento (now AICEP)

Diogo Alarcão – Assistant to the Chairman

Directorate-Generale of Industry

Eduardo Lopes Rodrigues - Director-General

Annex 3.2 – Correspondence Between Themes and Discussion in Interviews

Themes	Issues addressed in the interviews
1 – Objectives of the firm	I
2 - Decision maker	II
3 - Rational behind FDI investment	II-A
4 – Collection of information	II-B
5 - Market choice: key variables	II-C
6 – Timing	II-D
7 – Type of investment	III-A
8 – Productivity	III-B, III-C
9 – Performance	III-D
10 – Risk	III-E
11 - Governmental support	IV

Annex 3.3: 112 FDI operations abroad

Firms	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
Countries																		
Angola		X		X					X	X	X	X					X	7
Argelia	X																	1
Argentina	X									X			X					3
Australia	X																	1
Belgium							X											1
Botswana										X								1
Brazil		X			X	X		X		X					X	X		7
Canada																	X	1
Cape Verde					X	X				X	X	X						5
Cayman Islands (UK)		X		X	X												X	4
Czech Republic									X									1
China	X				X													2
France		X		X	X		X			X							X	6
Germany							X											1
Greece																	X	1
Guatemala						X												1
Guinea Bissau										X	X							2
Hungary									X	X								2
Ireland		X																1
Italy							X											1
Kenia										X								1
Lebanon												X						1
Luxembourg		X			X		X			X							X	5
Macao		X			X	X				X							X	5
Monaco					X													1
Morocco	X									X								2
Mozambique				X	X				X	X	X						X	6
Peru									X									1
Poland		X						X	X								X	4
Russia	X																	1
S. Tomé e Príncipe					X					X								2
Slovak Rep.									X									1
South Africa					X													1
Spain	X	X	X	X	X	X	X				X		X	X	X			11
Switzerland		X					X			X							X	4
Timor					X					X								2
Tunisia	X											X						2
Turkey																	X	1
Uganda										X								1
United Kingdom		X			X		X	X			X			X				6
United States	X	X			X				X								X	5
Total	9	12	1	5	15	5	8	3	8	17	6	4	2	2	2	1	12	112

Annex 4.1 – Relationship between searches

Graph 1 – Google and Herald Tribune: Cross tabulation of values and ranks

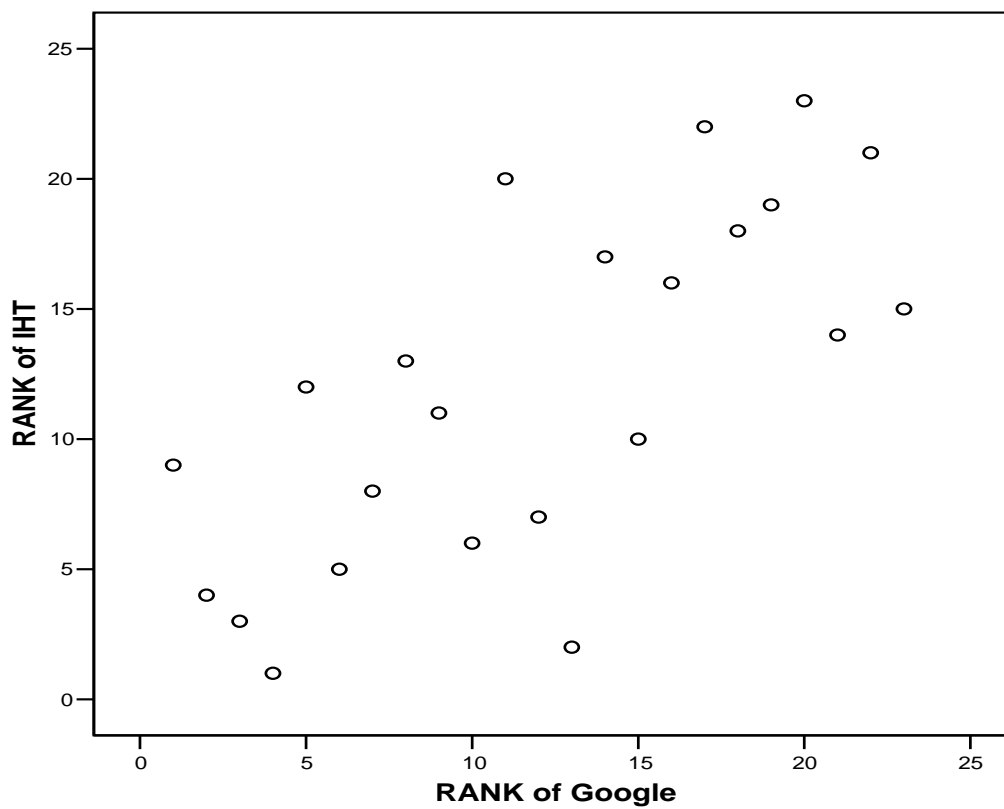
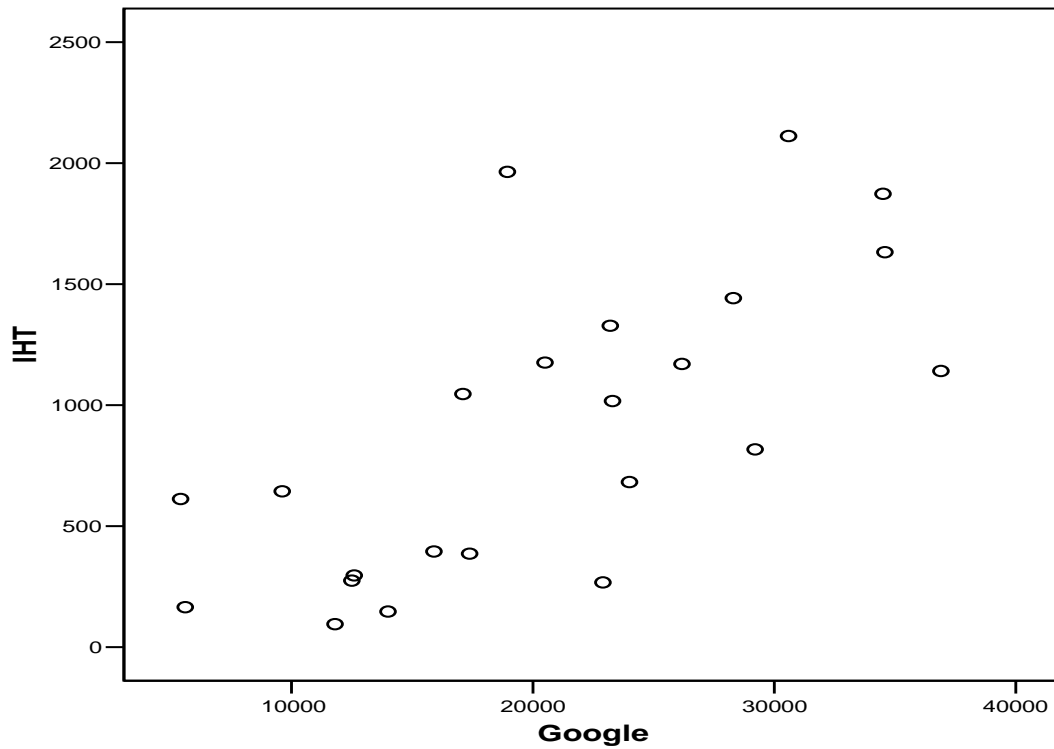


Table 1 – Correlation coefficients: Google and IHT

		Value	Approx. T(a)	Approx. Sig.
Interval by Interval	Pearson's R	,692	4,397	,000(b)
Ordinal by Ordinal	Spearman Correlation	,712	4,653	,000(b)
N of Valid Cases		23		

a Using the asymptotic standard error assuming the null hypothesis.

b Based on normal approximation.

Table 2 – Nonparametric tests
Symmetric measures between:

a) Rank of The Economist and Rank of Herald Tribune

		Value	Approx. T(a)	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	,274	1,568	,117
	Kendall's tau-c	,274	1,568	,117
	Gamma	,275	1,568	,117
N of Valid Cases		23		

a Using the asymptotic standard error assuming the null hypothesis.

b) Rank of The Economist and Rank of Google

		Value	Approx. T(a)	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	,139	,851	,395
	Kendall's tau-c	,139	,851	,395
	Gamma	,139	,851	,395
N of Valid Cases		23		

a Using the asymptotic standard error assuming the null hypothesis.

Annex 4.2 – Questionnaire I

Questions are of four different types: yes-no (4), fill-in-the-blank (2, 3, 7.2 and 8), ranking (5 and 6) and multiple choices (1 and 7.1). The measurement of variables is of three types (Fowler, 2002, p. 89): nominal (for questions 1, 3, 4 and 7) ordinal (questions 5 and 6) and scale or ratio data (asks for numerical data with intrinsic value, questions 2 and 8).

Questions 1 to 4 – The objective is to identify the working experience and studies of those who answer the questionnaire. Working experience provides a deeper and different than theoretical knowledge of an organization decision process. It facilitates a division between those with practical knowledge of FDI decisions and those without it.

Question 5 – To rank and weight variables related with foreign investment decisions from a firm perspective. This question allows for two types of comparisons. First, to give a relative ranking of the FDI determinants presented in the question. Second, to compare the answers between professionals with and without FDI related experience. The question is divided in six different groups or “boxes”, each containing 6 variables, and the division is used to avoid a simultaneous and direct comparison of so many different variables because it would be very difficult for a respondent to rank them all simultaneously (Fowler, 2002, p. 101). All variables are directly compared with “Low business taxes”, the main objective of the study. In this way the relative importance of taxation to other variables is revealed.

Question 6 - To rank the same variables related with foreign investment decisions using the government’s perspective. Does the different perspective change the perception of the respondents?

Question 7 – Seeks to show how important are differences in corporate tax rates to FDI decisions relative to other selected variables in three different countries belonging to the same economic area. Both questionnaires (A and B) present a more attractive country Z and equivalent countries X and Y (if all the variables have the same weight). Country Y is the most attractive of the three in terms of corporate tax rate. In Questionnaire A, country Y has a lower corporate tax rate of 5% and 10% in comparison with countries X and Z, respectively, while in B it is lower by 15% and 20% (in accordance with the difference in corporate tax rates existing among large and small EU countries). In the quasi-experiment only questionnaire B is applied due to the lower number of answers. It is expected that the different scenario (that of an economic area, associated with the European Union) does change the perceptions of respondents about FDI determinants. Namely, that taxation becomes more relevant (Devereux and Griffith, 1998).

Question 8 – It reveals an understanding of how changes in the corporate tax rate would affect investment decisions in the perception of the respondents. It can be used to compare differences between respondents by using the three categories defined in questions 1 to 4. Questionnaire A presents a difference of 5% or 10% while Questionnaire B presents a difference of 15% and 20% (in accordance with the difference in corporate tax rates presented in question 7). For question 8.2 only the answers whose chance was higher than the one indicated in 8.1 were considered valid (given the higher difference in tax rates).

Foreign Direct Investment Decisions

page 1

This questionnaire is confidential and the data will be used only for research purposes. Please place a cross in the line corresponding to your chosen answer, or rank them where appropriate. When writing an answer (words or figures) please do so as clearly as possible.

1 – Indicate, by placing a cross, in which sector are you working now:

a) Manufacturing sector

b) Financial sector

c) Services sector

d) Public, or state, sector

e) Other (please specify) _____

f) Not working at present

2 – Indicate the total number of years of working experience _____

3 - Indicate (with reference to sectors listed in question 1) the sector in which you have spent the majority of your working life:

4 – In your working experience were you, in some way, involved in a firm's decision process of investing abroad (choose yes or no in each question by placing a cross in accordance with your chosen answer)?

Yes No

 a) I had the final decision on whether to invest abroad or not.

 b) I made recommendations for investment decisions abroad.

 c) I executed technical/administrative work that was used as a support for recommendations for investment decisions abroad.

 d) I have been related, in some way, with investment decisions abroad.

Foreign Direct Investment Decisions

page 2

5 – Suppose that a company decides to expand its business abroad and to make a significant investment in another country. Please, indicate the importance, in your opinion, that each variable would have for the choice of the country in which the new investment will be located. Consider both a developed and a developing country as potential options.

Score all variables presented in each box with a value between 0 (irrelevant) and 10 (very important). Please do not leave blank spaces.

Box 5.1	Developed country	Developing country
Large market size		
High purchasing power (GDP per capita)		
Weak local competition		
Low business taxes		
Good infrastructure (roads, etc.)		
Low labour costs		

Box 5.2	Developed country	Developing country
Democratic political system		
Exchange rate stability		
Cultural affinity (e.g. same language)		
Appropriate technology		
Large market size		
Low energy costs		

Box 5.3	Developed country	Developing country
Low levels of corruption		
Good schools and hospitals for employees		
Efficient legal system		
Low business taxes		
Exchange rate stability		
Plentiful raw materials (minerals, etc.)		

Foreign Direct Investment Decisions

page 3

5 – (cont.)

Score all variables presented in each box with a value between 0 (irrelevant) and 10 (very important). Please do not leave blank spaces.

Box 5.4	Developed country	Developing country
Weak trade union influence		
Low cost of capital		
Weak local competition		
Democratic political system		
Low levels of environmental regulation		
Efficient legal system		

Box 5.5	Developed country	Developing country
Available supply of labour		
Low business taxes		
Stable government		
High growth rate of the market		
Low cost of capital		
Cultural affinity (e.g. Same language)		

Box 5.6	Developed country	Developing country
Low energy costs		
Highly-skilled labours		
Appropriate technology		
Few restrictions on capital movements		
Weak trade union influence		
Low business taxes		

Foreign Direct Investment Decisions

page 4

6 - Imagine that you are the chairman of a government agency that has the main task of attracting foreign direct investment to your country. Please choose from the list provided the overall ten key variables to be used as an argument by the agency to attract foreign direct investment.

Rank the ten key variables below (1 being the most important, followed by 2, 3, etc.) by placing the correspondent letter to each variable next to its respective ranking.

Rank	Key variables	Rank	Key variables
1:	_____	6:	_____
2:	_____	7:	_____
3:	_____	8:	_____
4:	_____	9:	_____
5:	_____	10:	_____

Question 6: List of variables to choose	
A - Highly-skilled workers	L – High growth rate of the market
B - Large market size	M - Few restrictions on capital movements
C – Low labour costs	N - Low business taxes
D - Weak local competition	O - Good schools and hospitals for employees
E - Good infrastructure (roads, etc.)	P - Weak trade union influence
F - High purchasing power (GDP per capita)	Q - Available supply of labour
G - Appropriate technology	R - Stable government
H - Low cost of capital	S - Cultural affinity, e.g. same language
I - Plentiful raw materials (minerals, etc.)	T - Low levels of corruption
J - Low energy costs	U - Low levels of environmental regulation
K - Efficient legal system	V - Democratic political system
	W - Exchange rate stability

Foreign Direct Investment Decisions

Questionnaire A – page 5

7 - Suppose now that a company wishes to locate its overseas investment in an economic area that comprises three countries: X, Y and Z. These countries have different characteristics (presented in the table) but belong to the same economic area (e.g. the European Union). Given that they are all part of the economic area the company can supply the entire market in this economic area from one of the countries.

Variables	X	Y	Z
1 – Appropriate technology	Very Good	Good	Reasonable
2 – Legal system	Reasonable	Efficient	Efficient
3 – Quality of infrastructures	Good	Good	Very Good
4 – Corporate tax rate	30%	25% (15% in B)	35%
5 - Hospitals and schools	Good	Good	Very Good
6 – Highly-skilled workers	60%	40%	70%
7 – Labour days lost due to strike	3%	5%	1%

7.1 - Based on this information, where do you think the company should invest?

a) Country X _____ b) Country Y _____ c) Country Z _____

7.2 - Please indicate the main variable(s) that is (are) the basis of your choice:

8 – Imagine that the company decided to invest in country A where the rate of corporate tax is 20% but noticed that country B has a lower corporate tax rate by 5% **(by 15% in questionnaire B)**.

8.1 - What do you think is the chance of the company changing its decision and investing in country B, given the different corporate tax rates (please indicate from 0 to 100%)?

_____ %

8.2 – If the difference between the two countries is 10% **(20% in questionnaire B)**, what do you think is the chance (please indicate from 0 to 100%)?

_____ %

Thank you very much for your cooperation!

Annex 4.3 – General survey : Question 5

Statistics

		Large Market Size	High Purchasing Power	Weal Local Competition	Low Business Taxes	Good Infrastructure	Low Labour Costs	Democratic Political System	Exchange Rate Stability	Cultural Affinity
N	Valid	112	113	111	112	112	112	113	113	112
	Missing	2	1	3	2	2	2	1	1	2
Mean		7,2411	7,0088	6,1622	7,0804	7,0625	5,5982	6,3274	7,0088	4,9643
Std. Deviation		2,13611	2,02439	2,40280	2,11446	1,96492	2,49490	2,57544	2,13598	2,41962
Variance		4,563	4,098	5,773	4,471	3,861	6,225	6,633	4,562	5,855

		Appropriate Technology	Large Market Size	Low Energy Costs	Low Level of Corruption	Good Schools and Hospitals for Employees	Efficient Legal System	Low Business Taxes	Exchange Rate Stability	Plentiful Raw Materials
N	Valid	113	113	112	113	113	113	112	113	112
	Missing	1	1	2	1	1	1	2	1	2
Mean		6,6726	7,0000	5,7679	6,7611	6,5664	7,5221	6,8571	7,0531	5,3750
Std. Deviation		2,39956	2,19984	2,19328	2,50811	2,41231	2,03144	2,11753	2,09524	2,50090
Variance		5,758	4,839	4,810	6,291	5,819	4,127	4,484	4,390	6,255

Annex 4.3 – General survey: Question 5

Statistics

		Weak Trade Union Influence	Low Cost of Capital	Weak Local Competition	Democratic Political System	Low Levels of Environmental Regulation	Efficient Legal System	Available Supply of Labour	Low Business Taxes	Stable Government
N	Valid	114	114	113	114	110	112	112	112	112
	Missing	0	0	1	0	4	2	2	2	2
Mean		6,4649	6,4474	6,1681	6,3772	5,5273	7,3214	6,5982	6,8214	7,2679
Std. Deviation		2,25843	2,13314	2,31031	2,52909	2,44465	2,16530	2,23993	2,23894	2,10953
Variance		5,101	4,550	5,338	6,396	5,976	4,689	5,017	5,013	4,450

		High Growth Rate of the Market	Low Cost of Capital	Cultural Affinity	Low Energy Costs	Highly-skilled Labour	Appropriate Technology	Few Restrictions on Capital Movements	Weak Trade Union Influence	Low Business Taxes
N	Valid	111	112	112	110	110	110	110	110	110
	Missing	3	2	2	4	4	4	4	4	4
Mean		7,2432	6,7143	5,2411	5,9909	7,5455	6,9545	6,9636	6,3000	6,8000
Std. Deviation		2,13293	2,02875	2,43934	2,16941	1,91391	2,19836	2,36537	2,45155	2,25771
Variance		4,549	4,116	5,950	4,706	3,663	4,833	5,595	6,010	5,097

Annex 4.4 – Nonparametric tests

Symmetric measures between:

a) Rank of General Survey: Developed countries and Rank of Herald Tribune

		Value	Approx. T	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	-.059	-.443	.658
	Kendall's tau-c	-.059	-.443	.658
	Gamma	-.059	-.443	.658
N of Valid Cases		23		

b) Rank of General survey: Developed countries and Rank of Google

		Value	Approx. T	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.123	.842	.400
	Kendall's tau-c	.123	.842	.400
	Gamma	.123	.842	.400
N of Valid Cases		23		

c) Rank of General survey: Less Developed countries and Rank of Herald Tribune

		Value	Approx. T	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.004	.031	.975
	Kendall's tau-c	.004	.031	.975
	Gamma	.004	.031	.975
N of Valid Cases		23		

d) Rank of General Survey: Less Developed countries and Rank of Google

		Value	Approx. T	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	-.004	-.034	.973
	Kendall's tau-c	-.004	-.034	.973
	Gamma	-.004	-.034	.973
N of Valid Cases		23		

Annex 4.5 – Characterization of respondents

In the natural quasi-experiment

The main concern was to have two similar groups in terms of baccalaureate studies, current area of activity, sector where they have greatest working experience and years of working experience. This matching is useful to prevent bias from the composition of the groups.

The area of studies is important given that it gives us an idea of the diversity of respondents and of how many of them had theoretical teaching on FDI theory and corporate management. The number of years of working experience is also a way of knowing the age of respondents. Finally, information about the sector of activity is useful because different areas may give different perspectives on the role of taxation.

Yes Group			No Group		
Area of BSc or BA	N ^o	%	Area of BSc or BA	N ^o	%
Economics	8	26.7	Economics	9	31.0
Management	7	23.3	Management	7	24.1
Engineering	6	20.0	Engineering	7	24.1
Law	2	6.7	Law	2	6.9
Other	3	10.0	Other	2	6.9
Missing	4	13.3	Missing	2	6.9
Total	30	100	Total	29	100

Yes Group			No Group		
Current sector of activity	N ^o	%	Current sector of activity	N ^o	%
Manufacturing	6	20.0	Manufacturing	3	10.3
Financial	6	20.0	Financial	4	13.8
Services	10	33.3	Services	3	10.3
State	2	6.7	State	4	13.8
Other	2	6.7	Other	5	17.2
Missing	4	13.3	Missing	10	34.5
Total	30	100	Total	29	100

Yes Group			No Group		
Longer working experience	N ^o	%	Longer working experience	N ^o	%
Manufacturing	6	20.0	Manufacturing	5	17.2
Financial	8	26.7	Financial	5	17.2
Services	11	36.6	Services	13	44.8
State	3	10.0	State	6	20.7
Other	2	6.7	Other	0	0
Total	30	100	Total	29	100

Yes Group			No Group		
Years of working experience	Nº	%	Years of working experience	Nº	%
0 – 6	7	23.3	0 – 6	13	44.8
7 – 13	6	20.0	7 – 13	7	24.1
14 – 20	10	33.3	14 – 20	5	17.2
Above 20	7	23.7	Above 20	4	13.8
Total	30	100	Total	29	100

Annex 4.6 – Natural quasi-experiment

Table 1 refers to the number of times each variable was ranked in the top 5 positions by respondents.

Table 1 – Frequency in the top 5 positions: Question 6

FDI Determinants	1: Yes Group	2: No Group
Efficient legal system	16	9
High growth rate of the market	12	8
Highly-skilled labour	12	12
Stable government	12	9
Large market size	9	11
Low business taxes	9	9
Few restrictions on capital movements	7	7
Low cost of capital	6	1
Exchange rate stability	6	8
Available supply of labour	6	8
Low labour costs	6	4
Democratic political system	5	3
Appropriate technology	4	6
Good infrastructure (roads, etc.)	4	7
Low levels of corruption	3	5
High purchasing power (GDP per capita)	3	8
Low energy costs	3	3
Weak local competition	2	1
Weak trade union influence	1	0
Plentiful raw materials (minerals, etc.)	1	2
Good schools and hospitals for employees	0	2
Low levels of environmental regulation	0	0
Cultural affinity (e.g. Same language)	0	2
Totals	127	125

Question 6: Imagine that you are the chairman of a government agency that has the main task of attracting foreign direct investment to your country. Please choose from the list provided the overall ten key variables to be used as an argument by the agency to attract foreign direct investment. Rank these below (1 being the most important, followed by 2, 3, etc.).

Table 2 – Comparison of answers to question 6

Pairs of ranks	Pearson's R	Approx T (a)	Sig.	Spearman	Approx T (a)	Sig.
Yes group – No gr.	0.777	5.666	.000	0.818	6.506	.000
Yes gr. – Students	0.726	4.835	.000	0.785	5.806	.000
No gr. - Students	0.765	5.445	.000	0.763	5.409	.000

(a) Using the asymptotic standard error assuming the null hypothesis. Nr. of cases: 23

Figure 1 – Google and managers: Cross tabulation of ranks

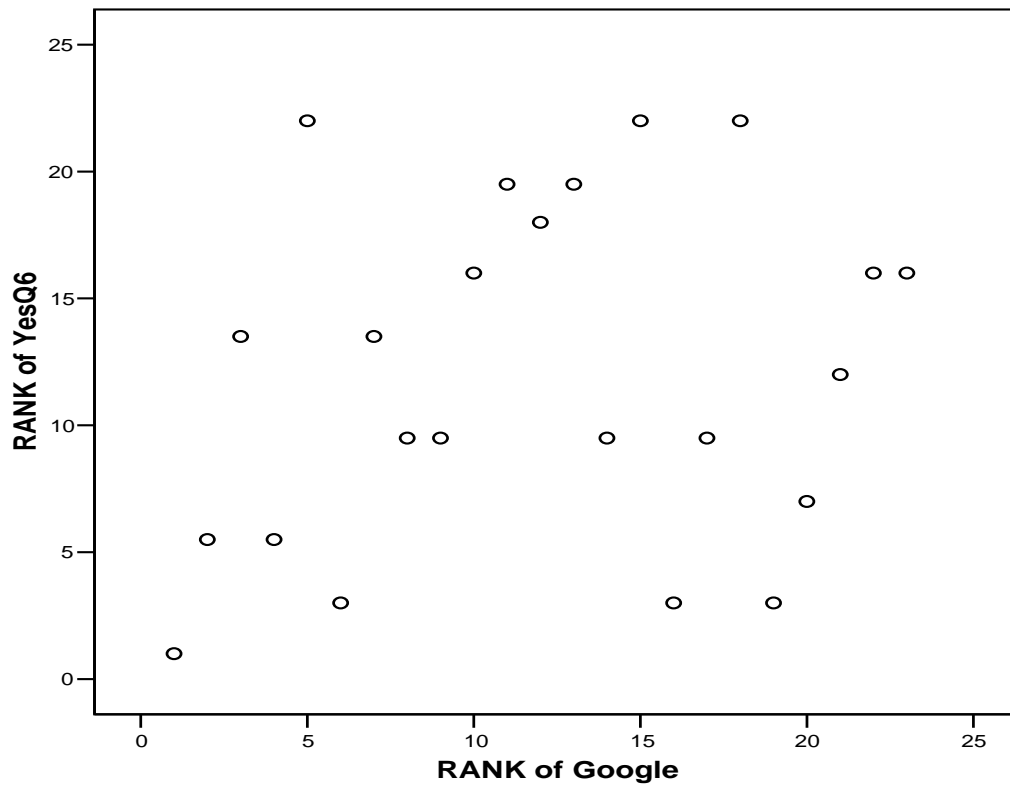
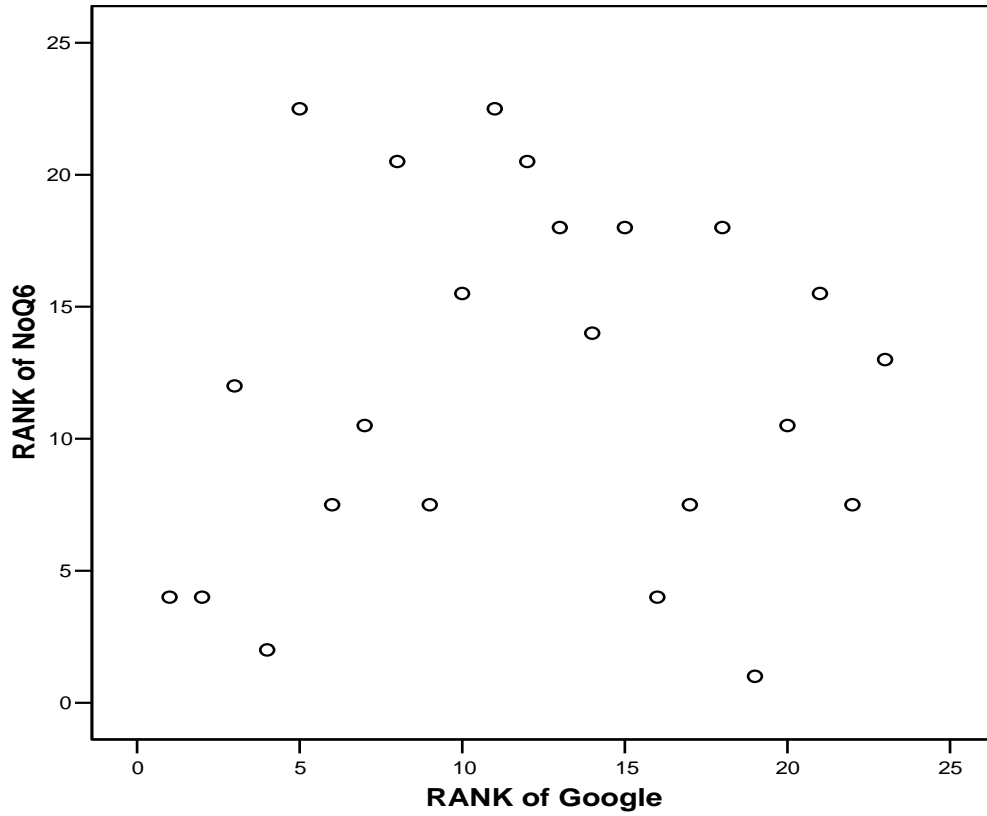


Table 3 – Symmetric measures between Google and Managers in question 6 Ranks

		Value	Approx. T(a)	Approx. Sig.
Yes group – Google	Kendall's tau-b	.193	1.268	.205
	Kendall's tau-c	.195	1.268	.205
	Gamma	.200	1.268	.205
No group – Google	Kendall's tau-b	.037	.231	.818
	Kendall's tau-c	.037	.231	.818
	Gamma	.038	.231	.818
N of Valid Cases		23		

a Using the asymptotic standard error assuming the null hypothesis.

Table 4 lists the variables referred by respondents when justifying their answer to question 7.1.

Table 4 - Main variables indicated as reason for choice

Question 7.2		Yes group	Percent	No group	Percent
1	Appropriate technology	8	12.5	8	11.4
2	Legal system	13	20.3	13	18.6
3	Quality of infrastructures	9	14.1	12	17.1
4	Corporate tax rate	18	28.1	17	24.3
5	Hospitals and schools	0	0	3	4.3
6	Highly-skilled workers	11	17.2	12	17.1
7	Labour days lost due to strike	5	7.8	5	7.2
Total		64	100.0	70	100.0

Annex 5.1 - Boxes 1 to 9: Evidence of bounded procedures and behavioural rules

Box 1 – Maximization prevention in FDI decisions

Firm 1 produces cork stoppers in Australia for marketing reasons although it is not rational, on economic terms, to produce there because the higher price, due to the extra costs in production, gives an opportunity to the competition, namely plastic stoppers. The manager said: *“Made in Australia’ is important, it was a way of having value added in Australia and it was good for the Australian pride. But in rational terms there was no need to produce there. We simply could export the final product instead of exporting cork discs. In this way the price has to compensate the higher cost of exporting cork discs”*.

Firm 5 is present in Cape Verde, an island with a very small market, where it owns two retail banks that are able to do exactly the same operations. And in China: *“We have a branch in Zuhai which is not very active because it operates only with foreign currency”*. The branch not only is not operating despite the fixed costs but it is useless because all the operations in foreign currency can be booked in any other country or in a different off-shore branch. It should also be noted that the firm has a representative office in Shanghai that operates as a forefront for investment banking business.

The same firm opened in New York in order to be able to participate in syndicated loans and other financial operations where the volume is huge although the spread is thin. The goal is to have an asset diversification but, simultaneously, it has a high opportunity cost due to the very small spread which in effect diminishes the average return of capital.

A final example comes from firm 11 that made an investment with no return: *“We wanted to help the development of Mozambique and agreed, with the state as a partner, to install a factory to produce components and assembly buses. But the government, instead of giving some type of protection to the industry, decided to raise tariffs for the import of components and to eliminate tariffs for the import of buses. Thus, the factory is now inactive because the bus operators do not pay their debts and there are no good roads and no conditions to develop any type of business”*.

Box 2 – Information collection and perception

Firm 1 only invests in a country to where it exports and usually buys *"firms that are clients/importers because a new entrant in the market is strictly watched by the existing firms"*. Thus the collection of information is done, in the first place, by its own marketing network. Although there are other sources of information this means that the firm does not consider markets with no sales. Therefore, it ignores if these markets are more or less profitable than the chosen ones and, given that the firm does not collect all the relevant information, it cannot know if it is optimizing its decision making.

Firm 2 have several sources for business opportunities but it relies on informal contacts: *"we have contacts all over the world, given our old experience in the banking sector, and participate in non-official banking associations where we have access to off-the-record information about this or that firm"*. It is clear that informal connections are of the most importance to investment decisions and are more important than the usual information collection procedures.

Firm 8 had an operation in Poland that was, initially, not successful. *"I did travel through all the country in the beginning of the 1990's, trying to speak with consumers when they spoke German, and did reach the conclusion that their habits of consumption were very similar to those of Germany - where I had worked in 1957 and 1958"*. But the firm started in Poland with a cash-and-carry business, where retailers are supposed to buy large quantities of goods. However, in 1994 the poles did not have large cars (or they did not have a car at all) to transport goods from large shops and store them. Thus consumers needed smaller and closer to home shops and the firm changed the strategy after 1997 by heavily investing in discount supermarkets.

Firm 15 tried to gain experience in the Portuguese and the Spanish markets simultaneously through the introduction of two new shop concepts. But the firm undervalued the competitiveness of the Spanish market and after a few years left with losses.

Box 3 – Risk policy

Firm 3 is not mitigating the risk of investment in research. *"Recently we started research to develop new molecules. It is an immense financial effort to our dimension. We expect sales of 100 million Euros in 2005 and are going to invest 200 million in research, in the next 5 years. The drugs industry is very risky in terms of research because you need to invest a lot of money before getting any results. And the possibility of success in a new molecule is very low, less than 1 per thousand. It is a very risky strategy, but the only one that will allow us, in the long term, to have our own place in this industry. And the shareholder, the chairman, is taking a huge risk. A bank certainly would not advise us to take this risk. And the risk of the research (of having a null outcome in terms of results) is not covered. We do not have venture capital or any partnerships, although it is possible that we will in the near future"*.

Firm 4 have no financial participations abroad besides the affiliates. They only have a portfolio of participations in Portuguese corporations. Thus, the portfolio is not geographically diversified and this is not explained by profitability.

Firm 10 had an accumulation of debt from the Angolan state throughout the years but, despite using MIGA investment insurance provided by the World Bank when operating in other African countries, it does not in the case of Angola. *"We think that Angola is more stable politically than most of the countries in the region, except Botswana and Namibia, and we have a privileged cultural relationship and very good connections, through the Portuguese state, with the local authorities"*.

Firm 14 decided not to cover the exchange rate risk with the UK despite the ever present hypothesis that large changes in the price of the pound in euros can eliminate the spread of the business.

Box 4 – Learning

Firm 5 is presently doing a new attempt to have a presence in Brazil by returning to its initial role as an investment bank, although it was not very successful in the past and the market is not within its strategy. However, it is about to sell its participation in one of the largest Brazilian retail banks, a potential source of business for the investment bank. Thus it seems that the presence in Brazil is justified mainly by the holding of a licence to operate, the old presence in the market (since 1924) and by the will of the shareholder to be there due to political and cultural reasons. The same firm operates two competing banks in the same market, Cape Verde, despite its small size in terms of business volume. As the manager recognizes *“We have two banks for historical reasons and although they are becoming specialized in different areas, personal and corporate banking, there may be some questions on why we keep them operating simultaneously”*.

Firm 8 wanted to diversify its retailing activity to sports goods and chose a new market, the UK, to start a new business. The Manager: *“I wanted to test new products. There was an opportunity to buy a firm but, it is a funny thing, contrary to the expected we were not able to learn and adapt to their culture”*. To start simultaneously in a new market with a new business activity was too much for the firm. The problem was the lack of human resources in the firm to control the investments. The firms had detected it in Poland but decided anyway to expand simultaneously to Brazil and the UK.

Firm 9 had, during more than 10 years, an accumulation of debts from the Angolan State despite the knowledge of the market (where it is present since 1975). *“We know very well the market thus the risk is lower”* says the manager. But it took the firm more than a decade to learn: *“There was an accumulation of debt from the past that is about to be sorted out after negotiations between the Portuguese and the Angolan states (private firms are supposed to forgive 75% of the debts they own in a deal settled in 2005). So, our present policy is: no money, no work. We trust people up to a certain point, we start working for them. If there is no cash coming in we stop working until receiving the payment”*.

Firm 11 first invested in the UK, in 1984, to produce buses when its local representative was facing difficulties. After several years of losses due to unexpected changes in the tourism industry and the valuation of the pound the firm decided, in 1998, to change its strategy and invest in the production of coaches. But, as the manager says *“the outcome was not the expected. Further changes in the tourism industry were bad for the demand of our product. And our local partner (Dennis, a chassis producer) made other joint ventures with local producers and the price of chassis went up. We had to finish doing business because in a first moment there were no orders, due to cyclical reasons, and when there was an upsurge in demand our factory was not ready for it”*. In 2004 the firm changed again its strategy and established a repairing business in the UK. The firm is losing money for more than 20 years.

Box 5 - Decision procedures

Firm 10 is developing a complete new model of FDI location decision analysis with the objective of providing coherence, in terms of strategy, to its investments abroad. According to the manager: *"in the past, we had ad-hoc investments without any strategic coherence but with a strong economic and financial rationale. The idea now is to build a model that includes different types of indicators such as risk, market potential, country potential, etc., with information about the level of market attractiveness for all investment opportunities. And, in this way, that allow us to filter any FDI location decisions"*. It should be added that the rationale of some investments made in the past was mainly cultural and political.

The first investment abroad made by firm 12 is now regarded as «too expensive». After this operation the firm decided to create a task force *"in permanent alert to consider investment opportunities. They visit countries and firms, see the books and study the conditions for public tenders. It is composed by experts from commercial, technical and financial areas"*.

Box 6 – FDI decisions inconsistent with the strategy

Firm 5 is investing again in Brazil despite the strategy of targeting Spain and Africa, and since very recently China. The manager justifies this new investment as a *“new step in our Brazilian expansion policy now with the aim to serve our clients and to support Portuguese interests in Mercosul”*. Although there is a strategy in this firm, long-term investment decisions are not necessarily in accordance with it.

Firm 9, a building company, operates two businesses abroad for several years although they are not within its strategy: *“Our strategy is both to diversify businesses, to related areas with construction, and markets (from Portugal, where the growth potential is very small, to Eastern Europe and Africa)”*. In Peru, they have a machinery renting business “inherited” from a merger with another firm. But the manager states that *“while there is profitability we will stay there”* despite the successive economic problems in the country. In Angola, the firm operates as a car importer and owns a car repairing business. *“It is a very important market and we know a lot of wealthy people”* justifies the manager. *“We also provide financial support to our partner, Volvo’s representative in Portugal. The importing firm works very well and we are still interested because Volvo has trucks which are needed for our industry”*. In this second case, although there is a reason connected with construction it is a completely different area of activity where further resources, needed for the core business, are employed.

Firm 12 has an operation, in Cape Verde, that does not comply with two of the main requirements of the strategy to invest abroad: The size of the market has to justify the investment without the risk of shortage of raw materials and the investment should be located in the area of the Mediterranean Sea because it is near the Portuguese market and thus the firm is able to supply it if needed.

Firms 8 and 15 failed diversification attempts due to the absence of a clear strategy at the time of decision. Firm 8 is a food retailing business and decided to “learn” a new business in a new market. *“I wanted to test the possibility of learning to deal with non-food products. There was a good opportunity in the UK to buy a firm focused on sports goods, Lilywhite. But we were not able to learn the specificities of the English market”*. The failure is explained not by the attempt to learn a new business but by the new market. The firm stayed there for several years and never tried again to learn and expand to this new business as its main competitor in Portugal did. Firm 15 invested twice (in Sports goods and in “do-it-yourself” tools and products) in new retail businesses in Portugal and Spain, simultaneously. One reason for the choice of this market was geographical proximity that allowed the firm to supply it from Portugal. However, both the logistics and the lack of knowledge about the Spanish market explained the failure in the two situations. *“The Portuguese experience was not sufficient to invest in the Spanish market”*. In the first attempt it was a test of a new business in a new market but in the second, also a new business, the attempt was not avoided despite the problems in the first case.

Box 7 – Managerial overconfidence

Firm 2: *“We are in Brazil since 1975 (insurance and agriculture businesses) and, in 1997, decided to buy a bank. But it did not work that well because it is a very peculiar market where foreigners are usually not successful. It is necessary to have a local management because they know better the market”*. Despite the knowledge of the market, firm 2 trusted in its own capabilities without result.

Firm 5 invested in Brazil in 1998, following the herd led by the Portuguese government, but three years later left the bank that it had bought. The manager explains: *“The exit is due to the preference of having a small position in a big bank instead of owning a medium retail bank where it was needed a huge effort from our human resources to keep in touch with the management”*. But the results of the bank were not good.

Firm 11 overestimated the existence of an agreement where it was not prevented alternative actions by partners that could harm the business. In Mozambique, the government (and shareholder of the firm) increased tariffs for the imports of the local investment and this should be not unexpected if it is considered that less developed economies rely heavily on trade taxes as revenue.

Box 8 – Cultural and historical anchoring

Firm 2: *“We had a bank in Angola and investments in agriculture in Angola and Brazil, before 1974. When we lost our bank in Portugal the family decided to be in Europe and Brazil. This explains why we still are in these markets. And why we did return to Angola in 2001”.*

The manager of firm 5 justifies FDI in this way: *“The bank followed instructions from the shareholder (the Portuguese state) to have a presence in Portuguese speaking countries”.*

The same with firm 6: *“Brazil was a natural market for us due to the opportunity (liberalization of the Brazilian market) and cultural reasons”.*

In firm 8, the interviewee explains the failure of the investment in Brazil in this way: *“The fact that we speak the same language and like to eat “churrasco” (meat) and rice is not enough”.*

Firm 10 confirms the importance of cultural linkages: *“Our focus was in the Portuguese speaking countries due to affinity but not for profitability reasons”.*

Firm 15: *“We were in Brazil since 1989 through a partnership (in an industrial area). So, when we decided to invest there we already knew the market. The cultural aspect and the special affinity of the CEO to the country were decisive in the choice of Brazil”.*

Annex 5.2 - FDI Determinants

Firms	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
Determinants																		
Growth of the firm (size)		x	x	x	x	x	x	x		x	x		x	x	x	x		13
Market growth rate	x	x	x					x	x	x		x	x	x	x	x		11
Cultural affinity	x	x			x	x		x		x	x	x			x		x	10
Historical reasons		x		x	x				x			x	x		x	x	x	9
Legal environment	x		x			x			x	x				x		x	x	8
Geographical proximity					x		x		x	x	x			x	x			7
Market size	x							x	x	x	x		x			x		7
Local competition	x			x	x			x	x	x							x	7
Superior know-how								x	x	x	x		x				x	6
Political stability	x		x						x	x						x		5
To serve clients	x			x	x					x							x	5
Diversification (product/market)	x				x			x	x	x								5
To channel home production	x		x				x				x			x				5
Excess liquidity					x	x				x					x			4
Factor costs (labour, energy)	x										x	x		x				4
Purchasing power			x							x					x			3
Fiscal efficiency		x		x	x													3
Government instructions					x	x				x								3
Exchange rate risk	x									x								2
Raw Materials	x											x						2
Distribution costs							x					x						2
Experiment of a new service								x							x			2
Fashion															x			1
Pressure from local representative											x							1
Owner's preference															x			1
Bargaining power with suppliers							x											1
Lax environmental laws												x						1

Annex 5.3 – Level of internationalization

Firm	Years	Points	Sales	Points	Employees	Points	Nr. of	Points	Average
	abroad		abroad (%)		abroad (%)		markets		points
1	32	15	90.0%	15	26.0%	6	9	9	11.25
2	32	15	12.0%	3	< 20%	3	13	13	8.50
3	6	6	19.0%	3	30.0%	6	1	1	4.00
4	8	8	14.8%	3	10.6%	3	5	5	4.75
5	80	15	20.7%	6	19.9%	3	15	15	9.75
6	7	7	24.8%	6	29.8%	6	5	5	6.00
7	14	14	95.0%	15	89.2%	15	8	8	13.00
8	9	9	30.3%	6	41.0%	9	3	3	6.75
9	29	15	21.8%	6	23.2%	6	8	8	8.75
10	15	15	24.9%	6	48.7%	9	17	17	11.75
11	20	15	22.1%	6	46.4%	9	6	6	9.00
12	3	3	14.7%	3	28.9%	6	4	4	4.00
13	7	7	11.5%	3	26.1%	6	2	2	4.50
14	16	15	40.0%	9	8.0%	3	2	2	7.25
15	15	15	27.1%	6	53.4%	9	2	2	8.00
16	3	3	< 20%	3	< 20%	3	1	1	2.50
17	9	9	18.7%	3	36.0%	6	12	12	7.50

Annex 5.4 – Rules of behaviour per firm

Firm	Rules of behaviour								Total
	Anchoring	Cascading	Fairness	Herding	Inconsistency	Learning	Mental Acc	Overconfidence	
1					1	1			2
2	4	1		3	1	1		1	11
3				1	1				2
4	2	1		1	1				5
5	12	1	4	2	15	3	7	1	45
6	3		1	2	8		4		18
7				1	1				2
8	1			2	2	1		1	7
9	2			3	4	1			10
10	8		6	2	16	1	8		41
11	4		1	1	1	1	1		9
12	2				3				5
13					1				1
14				1	1	1			3
15	1			2	2				5
16	1			1	1				3
17	3	1		1	1				6
Total	43	4	12	23	60	10	20	3	175

Inconsistent rules

Nature	Extrinsic	Intrinsic	Total
Inter-expert	17	-	17
Governmental	21	-	21
Strategic	9	13	22
Total	47	13	60

- Extrinsic nature: 21 + 17 (governmental and Inter-expert) are presented in 7.2.2.2. The remaining are:

Firm 5: Keeps two banks operating in Cape Verde, investment banking in a non-strategic market, Brazil, Presence since 1991 in a non-strategic market, China, investment in a non-strategic market, Timor;

Firm 6: Investments in non-strategic markets, Cape Verde and Macao;

Firm 10: Not operating in mobile services in Mozambique, investment in non-strategic markets, Timor and Macao;

- Intrinsic nature:

Firm 5: Luxembourg, large presence in number of people to perform operations that can be done in other branches (London, Cayman);

Firm 6: Guatemala, not a strategic market;

Firm 8: Tried simultaneously a new business in a new market outside strategy, UK;

Firm 9: Machinery renting business in Peru, car import and repairing in Angola, USA non-strategic market;

Firm 10: Hungary, Botswana, Kenya, Uganda, non-strategic markets and non-strategic products;

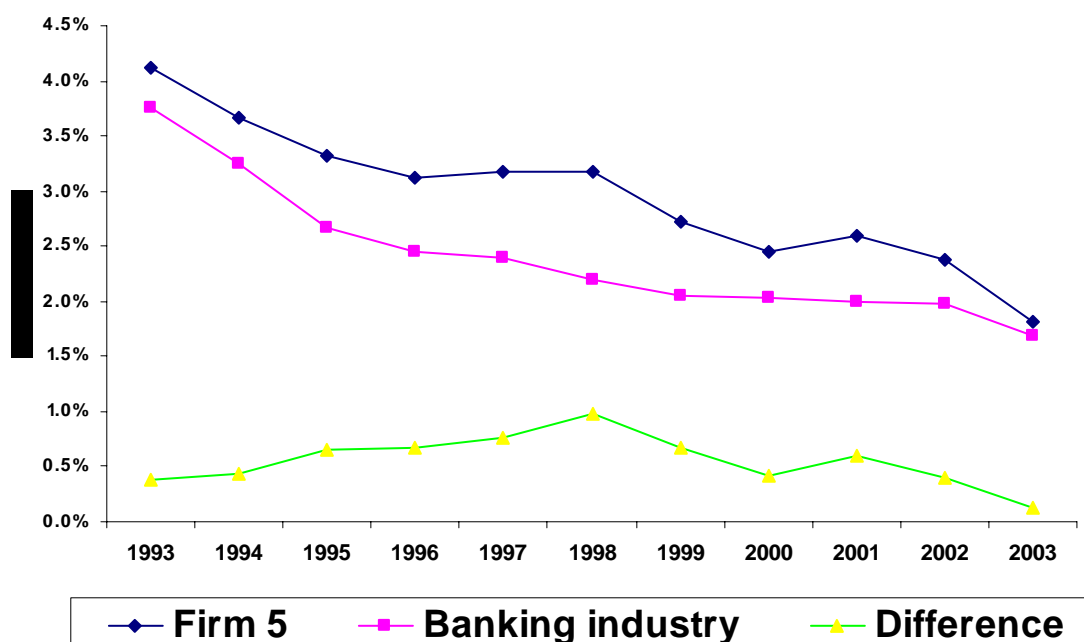
Firm 12: Angola and Cape Verde are markets of small size and not in the Mediterranean Sea where the firm is focused;

Firm 15: Tried twice a new business in a new market, Spain;

Annex 5.5 – Financial margin

Firm 5 and the average of the Portuguese banking industry

Graph 1: FINANCIAL MARGIN



Financial margin is the ration between the financial result, that is, the difference between income and payments of interest, and the total financial assets that originate the financial result (deposits with central banks plus loans to other credit institutions and to clients and fixed income assets). All the information is reported on a yearly basis by the Portuguese Banking Association.

Annex 5.6 – FDI of Portuguese owned banks

Firms	2	17	4	5							Total	Total	Total
Countries	BES	BCP	BPI	CGD	MG	Banif	BPN	Fini	Finantia	BPP	branches	Rep office	
Angola	X		X								2	0	2
Belgium				R	R						0	2	2
Brazil	X	R		X		X	X		R		4	2	6
Canada	R	X			R	R					1	3	4
Cape Verde				X							1	0	1
Cayman Islands (UK)	X	X	X	X	X	X	X	X	X	X	10	0	10
China	R			X							1	1	2
France	X	X	X	X	R		X				5	1	6
Germany	R		R	R	R						0	4	4
Greece		X									1	0	1
India				R							0	1	1
Ireland	X										1	0	1
Italy	R										0	1	1
Luxembourg	X	X	R	X	R						3	2	5
Macao	X	X		X							3	0	3
Mexico				R		X					1	1	2
Monaco				X							1	0	1
Mozambique		X	X	X							3	0	3
Nassau	X										1	0	1
Poland	X	X									2	0	2
S. Tomé e Príncipe				X							1	0	1
South Africa	R		R	X							1	2	3
Spain	X		X	X					X	X	5	0	5
Switzerland	X	X	R	R	R						2	3	5
The Netherlands					R						0	1	1
Timor				X							1	0	1
Turkey		X									1	0	1
United Kingdom	X			X	R	R			X		3	2	5
United States	X	X	R	X	R	X			X		5	2	7
Venezuela	R		R	R		R					0	4	4
Total	13	11	5	15	1	4	3	1	4	2	59	32	91

X – Branches and other FDI, R – Representative Offices

Source: Associação Portuguesa de Bancos and Annual Reports

Annex 5.7 – FDI location decisions explained by behavioural rules

Nr.	Firm	Location	Mental accounting	Inconsistency	Herding	Cascading	Anchoring	Overconfidence	Fairness	Learning
1	Amorim	Argelia								
2	Amorim	Argentina								
3	Amorim	Australia								
4	Amorim	China								1
5	Amorim	Morocco								
6	Amorim	Russia								
7	Amorim	Spain								
8	Amorim	Tunisia								
9	Amorim	United States								
10	BES	Angola					1			
11	BES	Brazil			1		2	1		1
12	BES	Cayman Islands				1				
13	BES	France								
14	BES	Ireland								
15	BES	Luxembourg								
16	BES	Macao					1			
17	BES	Poland			1					
18	BES	Spain			1					
19	BES	Switzerland								
20	BES	United Kingdom								
21	BES	United States								
22	Bial	Spain		1	1					
23	BPI	Angola					1			
24	BPI	Cayman Islands				1				
25	BPI	France								
26	BPI	Mozambique					1			

27	BPI	Spain			1				
28	CGD	Brazil	1	2	1		2	1	1
29	CGD	Cape Verde	1	2			2		1
30	CGD	Cayman Islands				1			
31	CGD	China	1	2			1		1
32	CGD	France					1		
33	CGD	Luxembourg		2					
34	CGD	Macao		1			1		
35	CGD	Monaco							
36	CGD	Mozambique	1	1			1		1
37	CGD	S. Tomé e Príncipe	1	1			2		1
38	CGD	South Africa					1		
39	CGD	Spain	1	1	1				
40	CGD	Timor	1	2			1		1
41	CGD	United Kingdom							
42	CGD	United States							
43	EDP	Brazil	1	1	1		1		
44	EDP	Cape Verde	1	2			1		1
45	EDP	Guatemala		1					
46	EDP	Macao	1	2			1		
47	EDP	Spain	1	1	1				
48	Inapa	Belgium							
49	Inapa	France							
50	Inapa	Germany							
51	Inapa	Italy							
52	Inapa	Luxembourg							
53	Inapa	Spain			1				
54	Inapa	Switzerland							
55	Inapa	United Kingdom							
56	JM	Brazil			1		1	1	1
57	JM	Poland			1				
58	JM	United Kingdom		1					1

59	Mota	Angola		1			1		1
60	Mota	Czech Republic			1				
61	Mota	Hungary			1				
62	Mota	Mozambique					1		
63	Mota	Peru		1					
64	Mota	Poland			1				
65	Mota	Slovakia							
66	Mota	United States		1					
67	PT	Angola	1	1			1		1
68	PT	Argentina							
69	PT	Botswana		1					
70	PT	Brazil	1	1	1		1		
71	PT	Cape Verde	1	1			1		1
72	PT	France							
73	PT	Guinea Bissau	1	1			1		1
74	PT	Hungary		1	1				
75	PT	Kenya		1					
76	PT	Luxembourg							
77	PT	Macao	1	2			1		
78	PT	Morocco							
79	PT	Mozambique	1	2			1		1
80	PT	S. Tomé e Príncipe	1	1			1		1
81	PT	Switzerland							
82	PT	Timor	1	2			1		1
83	PT	Uganda		1					
84	SC	Angola					1		
85	SC	Cape Verde					1		
86	SC	Guinea Bissau					1		
87	SC	Mozambique					1		1
88	SC	Spain			1				
89	SC	United Kingdom	1						1
90	Secil	Angola		1			1		

91	Secil	Cape Verde		1			1			
92	Secil	Lebanon								
93	Secil	Tunisia								
94	Sogrape	Argentina								
95	Sogrape	Spain								
96	Vicaima	Spain			1					
97	Vicaima	United Kingdom								
98	Modelo	Brazil			1		1			
99	Modelo	Spain		1	1					1
100	Brisa	Brazil		1	1		1			
101	BCP	Angola					1			
102	BCP	Canada								
103	BCP	Cayman Islands				1				
104	BCP	Macao					1			
105	BCP	France								
106	BCP	Greece								
107	BCP	Luxembourg								
108	BCP	Mozambique					1			
109	BCP	Poland			1					
110	BCP	Switzerland								
111	BCP	Turkey								
112	BCP	United States								
		TOTAL	20	45	23	4	43	3	12	10

Annex 5.8 – Rating measures

1 - Standard & Poor's (<http://www2.standardandpoors.com/portal/>)

S&P credit ratings are based on the following considerations:

- Likelihood of payment-capacity and willingness of the obligor to meet its financial commitment on an obligation in accordance with the terms of the obligation;
- Nature of and provisions of the obligation;
- Protection afforded by, and relative position of, the obligation in the event of bankruptcy, reorganization, or other arrangement under the laws of bankruptcy and other laws affecting creditors' rights.

Rating definitions are expressed in terms of default risk and are simplified to simple notations A, B and C, where the first corresponds to lesser risk and the last to higher risk.

A

An obligor rated 'A' has at least strong capacity to meet its financial commitments although it can be susceptible to the adverse effects of changes in circumstances and economic conditions.

B

An obligor rated 'B' has the capacity to meet its financial commitments. However, adverse business, financial, or economic conditions may impair the obligor's capacity or willingness to meet its financial commitments.

C

An obligor rated 'C' is vulnerable, and is dependent upon favourable business, financial, and economic conditions to meet its financial commitments.

2 - World Bank (<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS>)

The Bank's analytical income categories (low, middle, high income) are based on Gross National Income (GNI) per capita, a broad measure considered to be the best single indicator of economic capacity and progress of a country.

The economies whose per capita GNI falls below the Bank's operational cut-off for "Civil Works Preference" are classified as low-income economies; economies whose per capita GNI is higher than the Bank's operational threshold for "Civil Works Preference" and lower than the threshold for 17-year IBRD loans are classified as lower-middle income economies; and those economies whose per capita GNI is higher than the Bank's operational threshold for 17-year IBRD loans and lower than the threshold for high-income economies are classified as upper-middle income economies. High-income countries have a GNI per capita higher than \$6,000 in 1987 prices. All thresholds remain constant in real terms over time.

World Bank categories below correspond to country ratings in the following manner:

GNI per capita in US\$	S&P Rating
Low income (L)	C
Lower middle income (LM)	C
Upper middle income (UM)	B
High income (H)	A

Annex 5.9 – Description of variables for statistical tests

Rules of behaviour

Numbounded – Number of bounded procedures

Numbehav – Number of behavioural rules. When aggregated information is required tests are made for two different groupings so that their robustness can be checked. The first considers three sets of country locations with zero rules, 1 rule or 2 rules or more. The second considers zero rules, 1 or 2 rules, and 3 rules or more.

Uncertainty

At the level of the FDI operation:

Proxy 1: **Countryrating** – Rating of the country where FDI is located. It varies from rating A, lower uncertainty (risk), to C, higher uncertainty (risk).

Proxy 2: **Typeofcountry** – Divided by: Countries with a similar law and political and economic institutions (OECD and EU) where there is less uncertainty; countries with a common tongue and past with Portugal; remaining countries, with more uncertainty.

Proxy 3: **Nummarkets** – Number of external markets where the firm is present when the next FDI location decision is made. A higher number corresponds to lower uncertainty.

Proxy 4: **Numyears** – Number of years abroad when the next FDI location decision is made. A higher number corresponds to lower uncertainty

Control variables

Decision – Influence of shareholders in decision-making. The shareholder structure did not significantly change in the past for the considered firms. This is divided in 4 categories: Individual decisions with more than 5% and less than 50% or more than 50%. And group decisions when the firm is public or when the Portuguese government has a role.

Respondents – Influence of respondents divided in 3 categories: CEO's, Other members of the board and Middle managers.

Objective – Stated goals of the firm divided in 5 categories: Maximization, Minimum profitability, Other quantitative objective, Qualitative objectives and at least two of the last three.

Previlevel - Previous level of internationalization based on 2 indicators for each firm: Number of years abroad and number of markets where a firm is present when each FDI decision is made. This variable is classified in 3 different categories:

a) Lower level (of internationalization): when the firm only has investments abroad less than 5 years old

b) Medium level: when the firm has FDI for 5 or more years but it is present in less than 5 countries

c) Higher level: when the firm has FDI for 5 or more years and it is present in more than 5 countries

The number 5 is arbitrary in this classification although is confirmed in some verbal statements by interviewees. For example, the manager of firm 8 refers that "*a firm needs at least 5 years to become profitable*".

Annex 5.10 – Characterization of variables

Table 1: Chi-square goodness of fit test

Variable: “Typeofcountry”

	Observed N	Expected N	Residual
OECD and EU	55	59.4	-4.4
Common tongue and past	35	31.4	3.6
Non-OECD and non-culturally near Portugal	22	21.3	.7
Total	112		

Test Statistics

	Type of country
Chi-Square(a)	.767
Df	2
Asymp. Sig.	.681

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 21,3.

Table 2: Cross tabulations

Countryrating * Numbehav Cross tabulation

		Numbehav								Total
		,00	1,00	2,00	3,00	4,00	5,00	6,00	8,00	
Countryrating	Low risk (A)	35	17	4	3	1	0	0	0	60
	Medium risk (B)	8	7	3	1	4	1	0	1	25
	High risk (C)	1	9	5	1	4	5	1	1	27
Total		44	33	12	5	9	6	1	2	112

Typeofcountry * Numbehav Crosstabulation

Count

		Number of behavioural decisions (only rules of thumb)								Total
		,00	1,00	2,00	3,00	4,00	5,00	6,00	8,00	
Type of country	OECD and EU	34	14	4	2	1	0	0	0	55
	Common language and past	0	11	5	3	7	6	1	2	35
	Non-OECD and non-culturally near Portugal	10	8	3	0	1	0	0	0	22
Total		44	33	12	5	9	6	1	2	112

Table 3: One-sample Kolmogorov-Smirnov test – Poisson distribution

Decision			Countryrating	Type of country	Number of rules: 0, 1, 2 or more - situation 1	Number of rules: 0, 1, 2, 3 or more - situation 1
Individual with more than 50%	N		37	37	37	37
	Poisson Parameter(a,b)	Mean	1.8108	3.0000	.8919	.7297
	Most Extreme Differences	Absolute	.164	.199	.062	.112
		Positive	.110	.185	.062	.112
		Negative	-.164	-.199	-.046	-.104
	Kolmogorov-Smirnov Z		.995	1.211	.374	.682
	Asymp. Sig. (2-tailed)		.276	.106	.999	.741
Individual with more than 5%	N		13	13	13	13
	Poisson Parameter(a,b)	Mean	1.3077	2.6154	.6923	.8462
	Most Extreme Differences	Absolute	.270	.264	.039	.100
		Positive	.145	.125	.033	.054
		Negative	-.270	-.264	-.039	-.100
	Kolmogorov-Smirnov Z		.975	.953	.140	.359
	Asymp. Sig. (2-tailed)		.298	.323	1.000	1.000
Group in a public firm	N		25	25	25	25
	Poisson Parameter(a,b)	Mean	1.3600	2.4400	.4000	.4000
	Most Extreme Differences	Absolute	.257	0.300	.070	.070
		Positive	.194	.121	.062	.062
		Negative	-.257	-.300	-.070	-.070
	Kolmogorov-Smirnov Z		1.283	1.499	.352	.352
	Asymp. Sig. (2-tailed)		.074	.022	1.000	1.000
Group when government has a role	N		37	37	37	37
	Poisson Parameter(a,b)	Mean	1.9730	3.0000	1.3784	1.7838
	Most Extreme Differences	Absolute	.139	.199	.221	.248
		Positive	.138	.185	.161	.106
		Negative	-.139	-.199	-.221	-.248
	Kolmogorov-Smirnov Z		.846	1.211	1.344	1.511
	Asymp. Sig. (2-tailed)		.472	.106	.054	.021

a Test distribution is Poisson.

b Calculated from data.

Table 4: One-sample Kolmogorov-Smirnov test – Normal distribution

Decision			Countryrating	Typeofcountry	Numbehav Groups of rules: 0, 1, 2 or more - situation 1	Numbehav Groups of rules: 0, 1e 2, 3 or more - situation 1
Individual with more than 50%	N		37	37	37	37
	Normal Parameters(a,b)	Mean	1.8108	3.0000	.8919	.7297
		Std. Deviation	.81096	.88192	.80911	.73214
	Most Extreme Differences	Absolute	.274	.250	.243	.302
		Positive	.274	.250	.243	.302
		Negative	-.172	-.250	-.185	-.266
	Kolmogorov-Smirnov Z		1.665	1.520	1.479	1.837
	Asymp. Sig. (2-tailed)		.008	.020	.025	.002
Individual with more than 5%	N		13	13	13	13
	Normal Parameters(a,b)	Mean	1.3077	2.6154	.6923	.8462
		Std. Deviation	.63043	.76795	.75107	1.06819
	Most Extreme Differences	Absolute	.456	.327	.283	.289
		Positive	.456	.327	.283	.289
		Negative	-.313	-.211	-.197	-.214
	Kolmogorov-Smirnov Z		1.646	1.179	1.021	1.042
	Asymp. Sig. (2-tailed)		.009	.124	.248	.228
Group in a public firm	N		25	25	25	25
	Normal Parameters(a,b)	Mean	1.3600	2.4400	.4000	.4000
		Std. Deviation	.75719	.71181	.50000	.50000
	Most Extreme Differences	Absolute	.483	.412	.388	.388
		Positive	.483	.412	.388	.388
		Negative	-.317	-.268	-.285	-.285
	Kolmogorov-Smirnov Z		2.414	2.059	1.941	1.941
	Asymp. Sig. (2-tailed)		.000	.000	.001	.001
Group when government has a role	N		37	37	37	37
	Normal Parameters(a,b)	Mean	1.9730	3.0000	1.3784	1.7838
		Std. Deviation	.86559	.74536	.86124	1.31519
	Most Extreme Differences	Absolute	.248	.230	.386	.336
		Positive	.248	.230	.235	.211
		Negative	-.234	-.230	-.386	-.336
	Kolmogorov-Smirnov Z		1.508	1.397	2.350	2.044
	Asymp. Sig. (2-tailed)		.021	.040	.000	.000

a Test distribution is Normal.
b Calculated from data.

Figure 1 – “Countryrating” frequency with normal curve

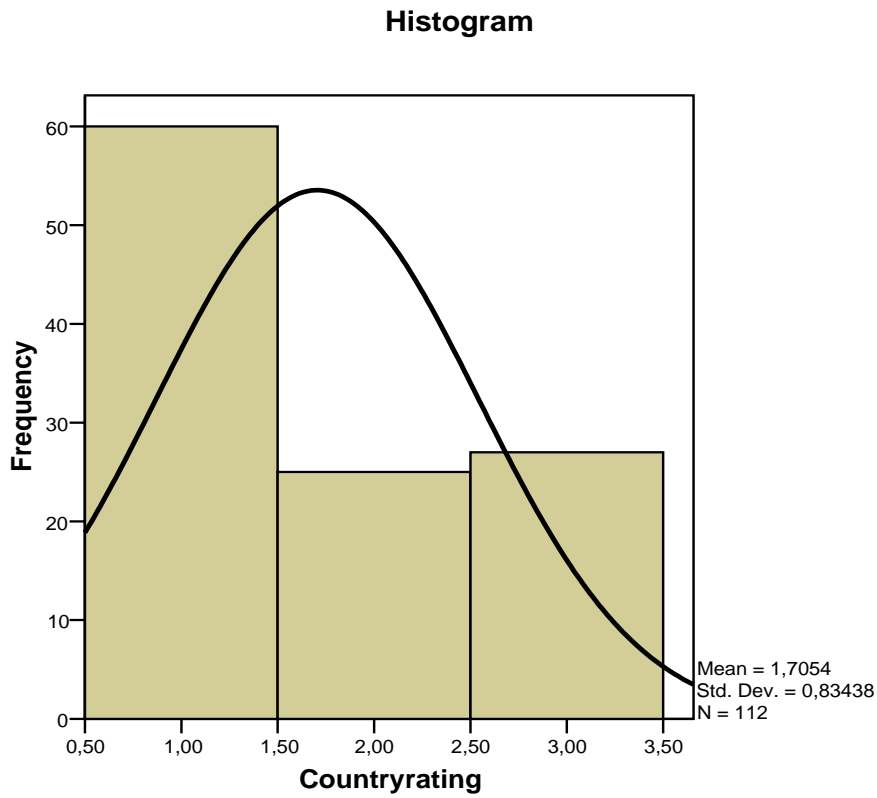


Figure 2 - “Typeofcountry” frequency with normal curve

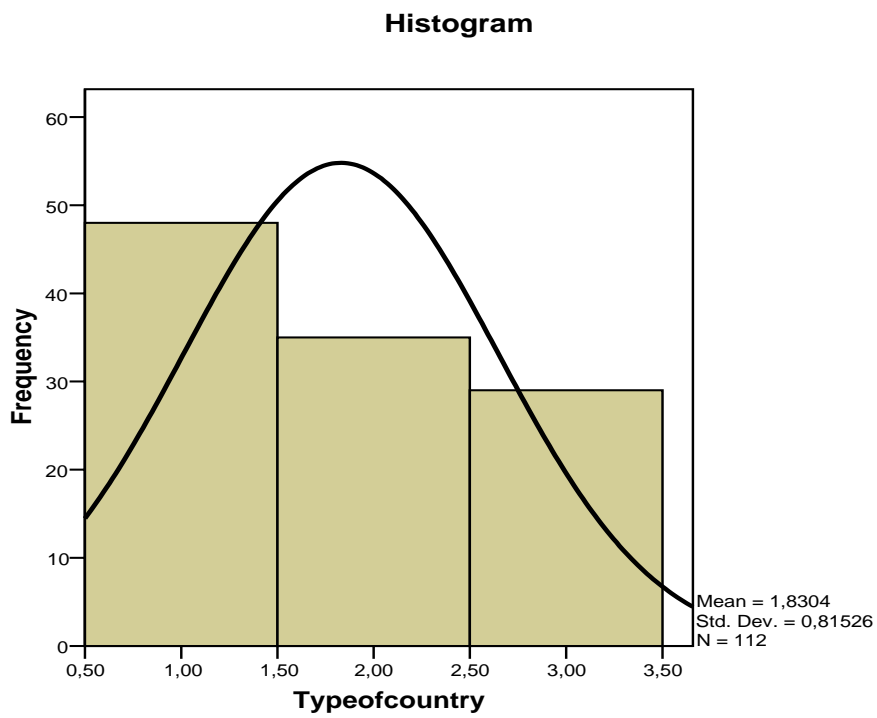


Figure 3 – “Numbmarkets” frequency with normal curve

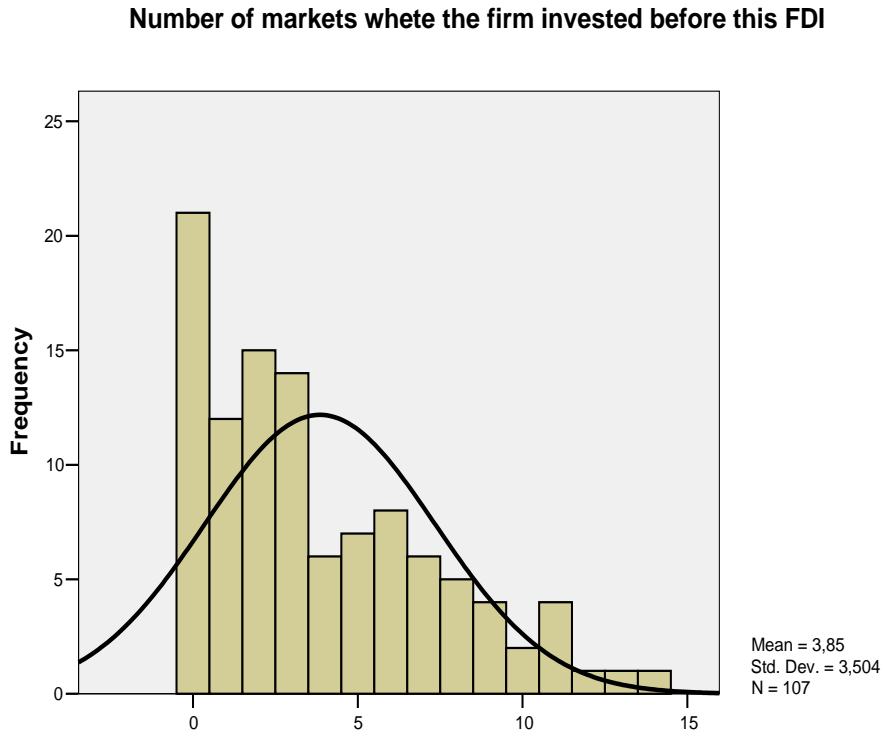


Figure 4 – “Numbyears” frequency with normal curve

Number of years of the firm abroad when this FDI is made

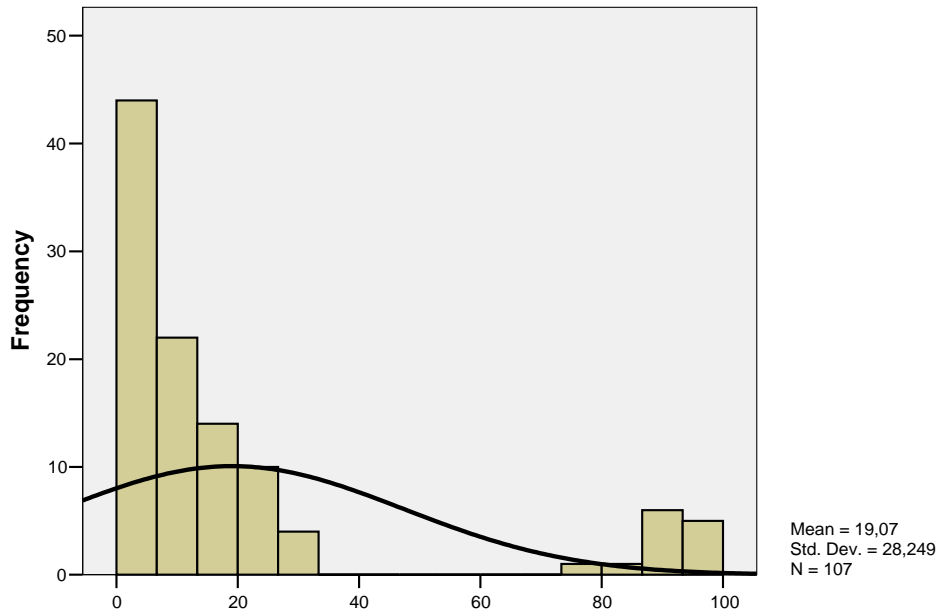


Figure 5a – Groups of rules frequency with normal curve

Grupos de rules: 0, 1, 2 ou mais - sit 1

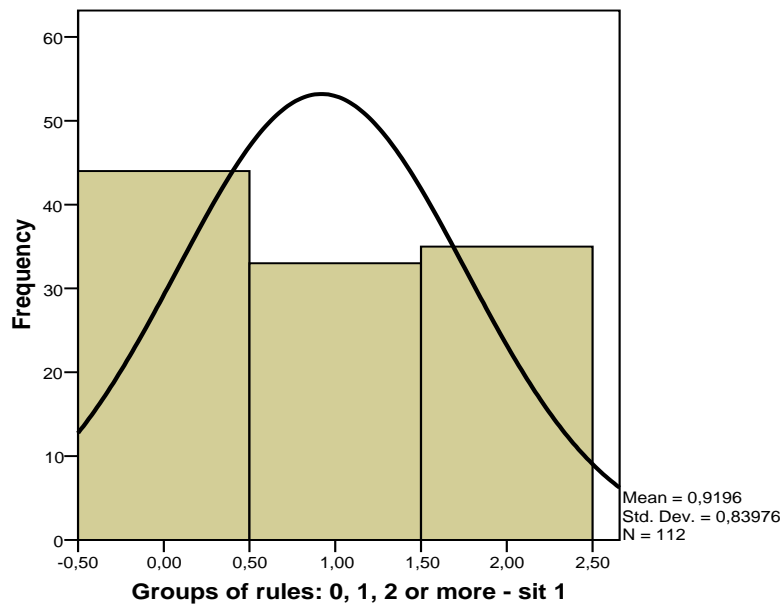


Figure 5b – Groups of rules frequency with normal curve

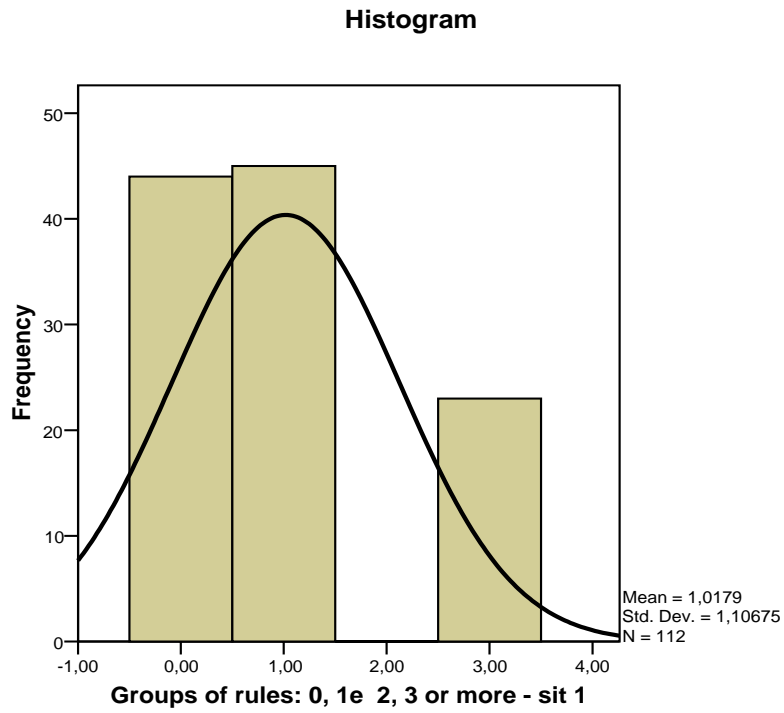


Figure 6 – Behavioural rules frequency with normal curve

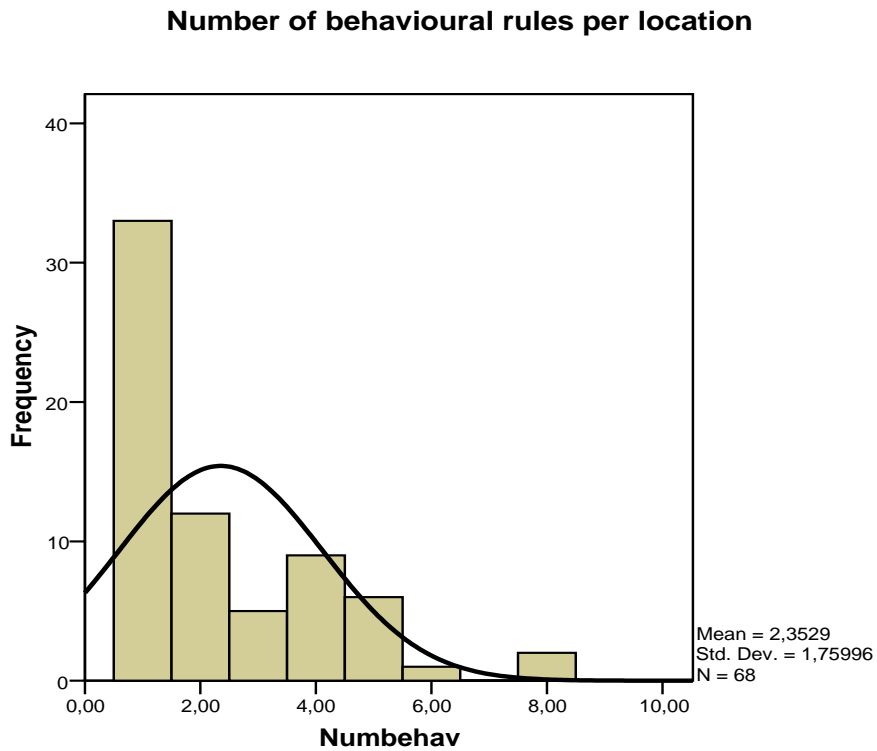


Table 5 - One-sample Kolmogorov-Smirnov test: Normal and Poisson distribution

Decision		Numbehav Normal distribution	Numbehav Poisson distribution
N		37	37
Parameters (a)	Mean		
		.9730	.9730
	Std. Deviation	.98563	
Most Extreme Differences	Absolute		
		.219	.021
	Positive	.219	.021
	Negative	-.162	-.016
Kolmogorov-Smirnov Z		1.331	.130
Asymp. Sig. (2-tailed)		.058	1.000
N		13	13
Parameters (a)	Mean	1.0000	1.0000
	Std. Deviation	1.47196	
Most Extreme Differences	Absolute		
		.346	.110
	Positive	.346	.110
	Negative	-.248	-.074
Kolmogorov-Smirnov Z		1.248	.398
Asymp. Sig. (2-tailed)		.089	.997
N		25	25
Normal Parameters (a)	Mean	.4000	.4000
	Std. Deviation	.50000	
Most Extreme Differences	Absolute		
		.388	.070
	Positive	.388	.062
	Negative	-.285	-.070
Kolmogorov-Smirnov Z		1.941	.352
Asymp. Sig. (2-tailed)		.001	1,000
N		37	37
Parameters (a)	Mean	2.7297	2.7297
	Std. Deviation	2.29390	
Most Extreme Differences	Absolute		
		.153	.178
	Positive	.153	.178
	Negative	-.143	-.140
Kolmogorov-Smirnov Z		.931	1.083
Asymp. Sig. (2-tailed)		.351	.192

a Calculated from data.

Table 6 -Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Numbyears	.272	107	.000	.632	107	.000
Numbmarkets	.175	107	.000	.900	107	.000

a Lilliefors Significance Correction

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Countryrating	.337	112	.000	.728	112	.000

a Lilliefors Significance Correction

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Typeofcountry	.274	112	.000	.778	112	.000

a Lilliefors Significance Correction

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Numbehav	.282	112	.000	.774	112	.000
Groups of rules: 0, 1, 2 or more - sit 1	.256	112	.000	.780	112	.000
Groups of rules: 0, 1e 2, 3 or more - sit 1	.301	112	.000	.748	112	.000

a Lilliefors Significance Correction

Annex 5.11 – Results of statistical tests

Figure 1

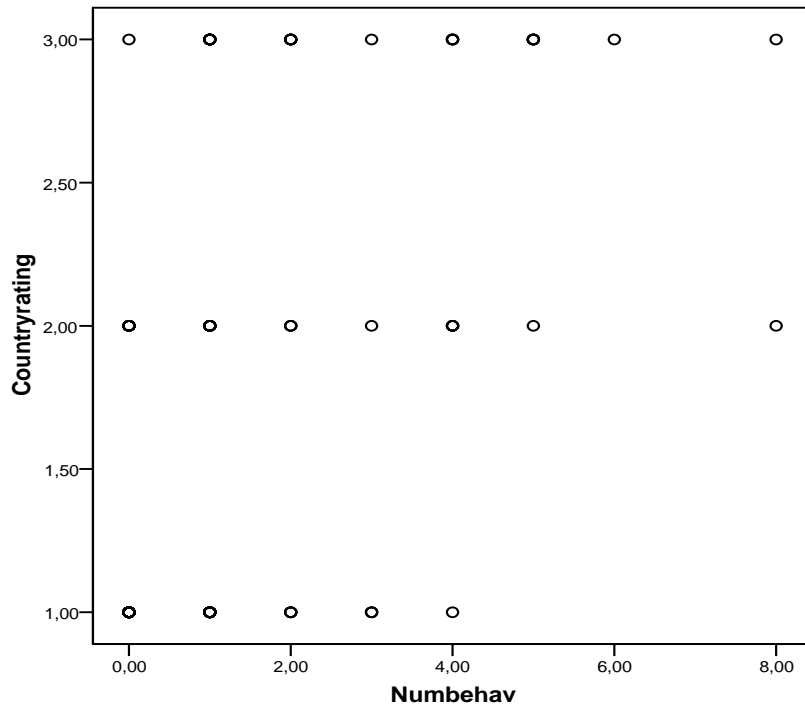


Figure 2

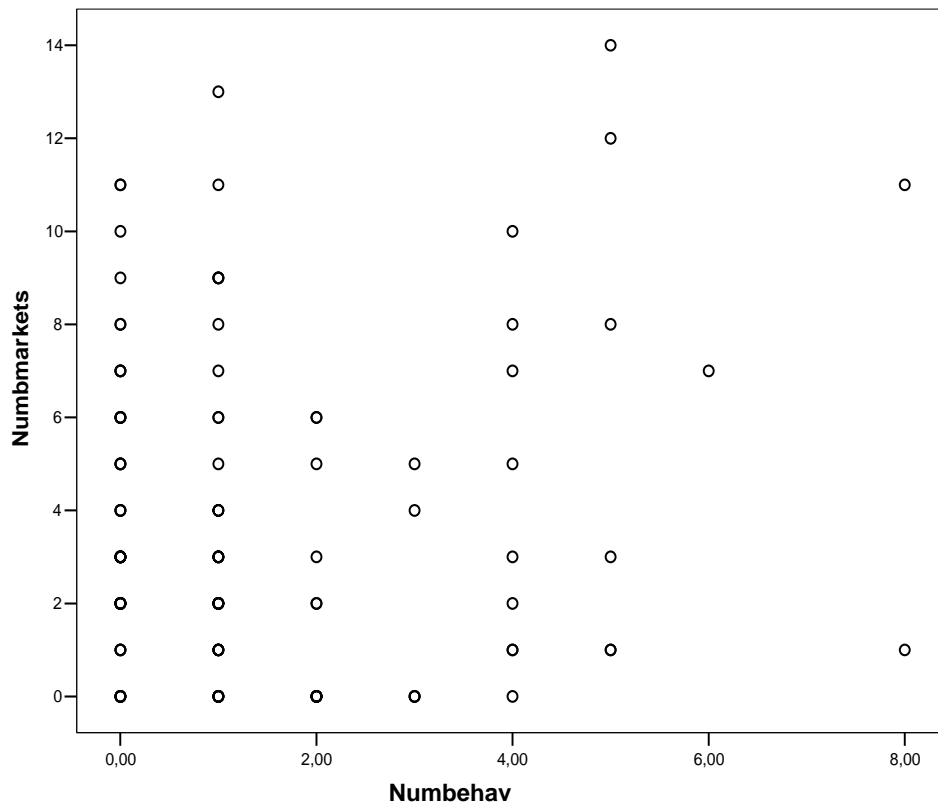


Figure 3

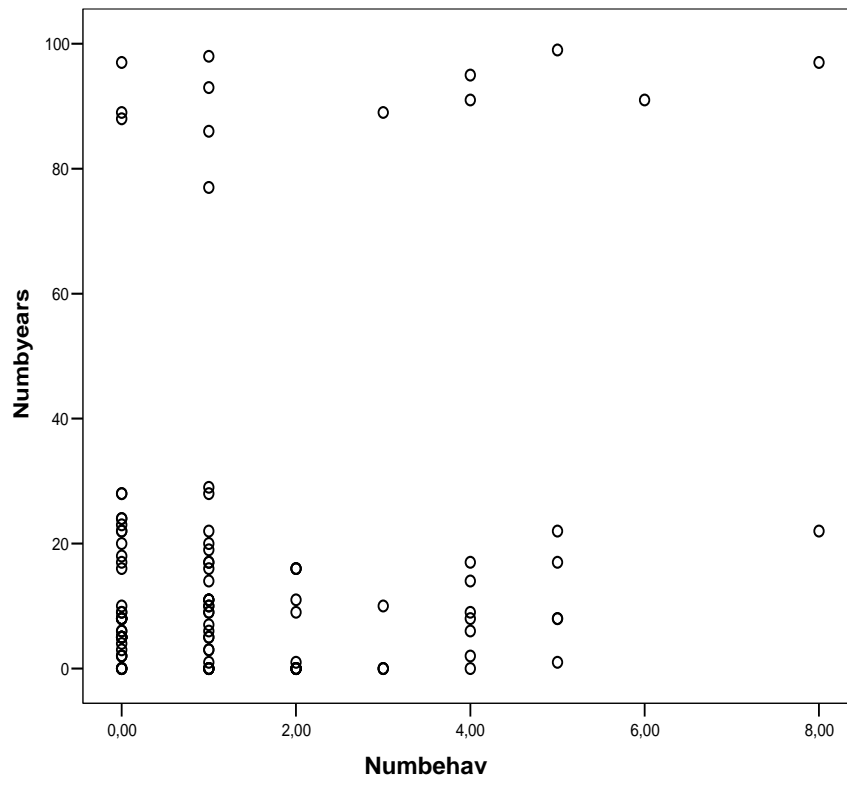


Figure 4

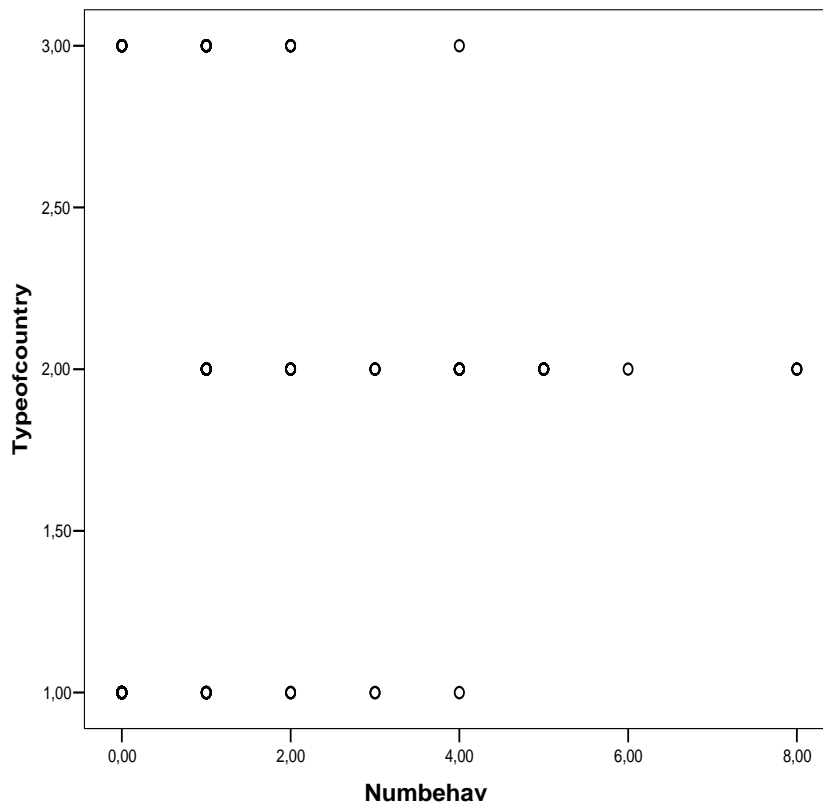


Table 1 – Independence tests: Typeofcountry and Numbehav Groups of 0, 1, and 2 or more behavioural rules

Independence Tests

Situation 1	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	55.099(a)	4	.000***
Likelihood Ratio	64.383	4	.000***
N of Valid Cases	112		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 8,54.

Situation 2	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	44.002(a)	4	.000***
Likelihood Ratio	53.651	4	.000***
N of Valid Cases	112		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 8,03.

Situation 3	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.883(a)	2	.053*
Likelihood Ratio	5.981	2	.050*
N of Valid Cases	72		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 7,32.

*** Significant at a 1% level; * significant at a 10% level;

These tests cannot be performed for the two remaining proxies of uncertainty due to insufficient number of observations.

Table 2 – Independence Tests: Uncertainty (“Typeofcountry” and “Countryrating”) and Groups of 0, 1 and 2, 3 or more behavioural rules

	Countryrating				Typeofcountry			
	Situation 1				Situation 1			
Independence Tests	Value	DFr	N	Significance	Value	DFr	N	
Pearson chi-square	29.7	4	112	0.000 ***	61.6	4	112	0.000 ***
Likelihood Ratio	34.7	4	112	0.000 ***	71.1	4	112	0.000 ***
	Situation 2				Situation 2			
Independence Tests	Value	DFr	N	Significance	Value	DFr	N	
Pearson chi-square	23.9	4	112	0.000 ***	54.2	4	112	0.000 ***
Likelihood Ratio	28.4	4	112	0.000 ***	62.5	4	112	0.000 ***
	Situation 3				Situation 3			
Independence Tests	Value	DFr	N	Significance	Value	DFr	N	
Pearson chi-square	5.2	2	72	0.071 *	13.4	2	72	0.001 ***
Likelihood Ratio	5.4	2	72	0.065 *	14.8	2	72	0.001 ***

*** Significant at a 1% level; * Significant at a 10% level;

Table 3 - Association Tests: Uncertainty (“Countryrating” and “Typeofcountry”) and behavioural rules (“Numbehav”) - Situations 2 and 3

Uncertainty and behavioural rules

Situation 2	Value	N	Signific.	Value	N	Signific.
Uncertainty proxy:	Countryrating			Typeofcountry		
Symmetric						
Cramer' V (1)	0.357	112	0.000 ***	0.443	112	0.000 ***
Contingency coef. (1)	0.451	112	0.000 ***	0.531	112	0.000 ***
Kendall's tau-b	0.426	112	0.000 ***	0.251	112	0.001 ***
Gamma	0.579	112	0.000 ***	0.326	112	0.001 ***
Directional						
Lambda	0.097	112	0.017 **	0.167	112	0.025 **
Goodman Kruskal Tau	0.081	112	0.000 ***	0.140	112	0.000 ***
Somers' d	0.478	112	0.000 ***	0.272	112	0.001 ***
Eta square	0.505	112	-	0.638	112	-

*** Significant at a 1% level; ** Significant at a 5% level;

(1) Requires aggregated data in “Numbehav” because they are based on the chi-square

Uncertainty and behavioural rules

Situation 3	Value	N	Signific.	Value	N	Signific.
Uncertainty proxy:	Countryrating			Typeofcountry		
Symmetric						
Cramer' V (1)	0.377	112	0.006 ***	0.286	112	0.053 *
Contingency coef. (1)	0.352	112	0.006 ***	0.275	112	0.053 *
Kendall's tau-b	0.307	112	0.001 ***	-0.072	112	0.447
Gamma	0.419	112	0.001 ***	-0.104	112	0.447
Directional						
Lambda	0.024	112	0.739	-	-	-
Goodman Kruskal Tau	0.082	112	0.001 ***	0.071	112	0.003 ***
Somers' d	0.327	112	0.001 ***	-0.078	112	0.447
Eta square	0.413	112	-	0.404	112	-

*** Significant at a 1% level; * Significant at a 10% level;

(1) Requires aggregated data in “Numbehav” because they are based on the chi-square

**Table 4 – Measures of association and direction
Numbyears/Numbmarkets and Numbehav**

Cramer's v and contingency coefficient are not feasible because they are based on the chi-square distribution and the number of observations is insufficient

Statistical Tests	Value	N	Signific.	Value	N	Signific.
Uncertainty proxy:	Numbyears			Numbmarkets		
Symmetric						
Kendall's tau-b	0.031	107	0.690	-0.057	107	0.466
Gamma	0.036	107	0.690	-0.069	107	0.466
Directional						
Lambda	0.239	107	0.007 ***	0.179	107	0.025 **
Goodman Kruskal Tau	0.239	107	0.293	0.095	107	0.861
Somers' d	0.027	107	0.690	-0.052	107	0.466
Eta square	0.447	107	-	0.303	107	-

*** Significant at a 1% level; ** significant at a 5% level;

Table 5 – Control variables: “Countryrating” and “Numbehav”

Table 5a: Decision

Control variable: Decision Situation 1	1 - Individual more than 50%			2 - Individual more than 5%			3 - Group in public firm			4 - Group with State role		
	Value	N	Significance	Value	N	Significance	Value	N	Significance	Value	N	Significance
NTotal =112												
Symmetric												
Kendall's tau-b	0.320	37	0.013 **	0.583	13	0.004 ***	0.432	25	0.037 **	0.541	37	0.000 ***
Gamma	0.459	37	0.013 **	0.857	13	0.004 ***	0.818	25	0.037 **	0.682	37	0.000 ***
Asymmetric												
Lambda	0.174	37	0.278	0.286	13	0.124	0.400	25	0.029 **	0.179	37	0.016 **
Goodman and Kruskal Tau	0.071	37	0.246	0.289	13	0.129	0.300	25	0.027 **	0.127	37	0.004 ***
Somers' d	0.329	37	0.013 **	0.750	13	0.004 ***	0.519	25	0.037 **	0.608	37	0.000 ***
Eta	0.342	37		0.911	13		0.548	25		0.620	37	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

Table 5b: Respondents

Control variable: Respondent Situation 1	1 - CEO			2 - Member of the Board			3 - Middle Manager		
	Value	N	Significance	Value	N	Significance	Value	N	Significance
NTotal =112									
Symmetric									
Kendall's tau-b	0.617	5	0.025 **	0.517	47	0.000 ***	0.465	60	0.000 ***
Gamma	1.000	5	0.025 **	0.742	47	0.000 ***	0.619	60	0.000 ***
Asymmetric									
Lambda	0	-	(1)	0.321	47	0.003 ***	0.111	60	0.095 *
Goodman and Kruskal Tau	0.167	5	0.513	0.165	47	0.000 ***	0.103	60	0.000 ***
Somers' d	0.667	5	0.025 **	0.568	47	0.000 ***	0.510	60	0.000 ***
Eta	0.662	5		0.569	47		0.579	60	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

(1) - Cannot be computed because the asymptotic standard error equals zero

Chi-square based tests are not feasible due to lack of sufficient observations.

Table 5c: Objective

Control variable: Objective Situation 1	1 - Minimum profitability			2 - Other quantitative objective			3 - Qualitative objectives			4 - 1, 2 and 3 together		
	Value	N	Significance	Value	N	Significance	Value	N	Significance	Value	N	Significance
NTotal =112												
Symmetric							Only 1 case					
Kendall's tau-b	0.483	20	0.001 ***	0.567	47	0.000 ***				0.399	44	0.001 ***
Gamma	0.687	20	0.001 ***	0.752	47	0.000 ***				0.568	44	0.001 ***
Asymmetric												
Lambda	0.273	20	0.060 *	0.161	47	0.122				0.040	44	0.562
Goodman and Kruskal Tau	0.225	20	0.074 *	0.123	47	0.002 ***				0.066	44	0.137
Somers' d	0.528	20	0.001 ***	0.610	47	0.000 ***				0.444	44	0.001 ***
Eta	0.528	20		0.625	47					0.523	44	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

Table 5d: Previlevel

Control variable: Level Internationalization Situation 1	1 - Lower level			2 - Medium level			3 - Higher level		
	Value	N	Significance	Value	N	Significance	Value	N	Significance
NTotal =107									
Symmetric									
Kendall's tau-b	0.308	41	0.003 ***	0.529	27	0.000 ***	0.563	39	0.000 ***
Gamma	0.446	41	0.003 ***	0.698	27	0.000 ***	0.747	39	0.000 ***
Asymmetric									
Lambda	0.192	41	0.017 **	0.167	27	0.245	0.087	39	0.311
Goodman and Kruskal Tau	0.101	41	0.027 **	0.143	27	0.034 **	0.142	39	0.001 ***
Somers' d	0.353	41	0.003 ***	0.573	27	0.000 ***	0.616	39	0.000 ***
Eta	0.370	41		0.544	27		0.648	39	

* Significant at a 1% level; ** Significant at a 5% level; *** Significant at a 10% level

Chi-square based tests are not feasible due to lack of sufficient observations.

Table 6 – “Typeofcountry” and different types of behavioural rules

TypeofCountry and Numbehav (Sit. 1) Tests	Rules of Extrinsic Origin				Rules of Intrinsic Origin			
	Value	Deg. Freed	N	Significance	Value	Deg. Freed	N	Significance
Independence								
Pearson Chi-sqaure	60.2	4	112	0.000 ***	18.0	4	112	0.001 ***
Likelihood ration	73.4	4	112	0.000 ***	18.7	4	112	0.001 ***
Symmetric								
Cramer' V	0.519	-	112	0.000 ***	0.284	-	112	0.001 ***
Contingency coef.	0.591	-	112	0.000 ***	0.372	-	112	0.001 ***
Kendall's tau-b	0.212		112	0.008 ***	0.129		112	0.120
Gamma	0.283	-	112	0.008 ***	0.214	-	112	0.120
		-				-		
Directional								
Lambda	0.233	-	112	0.000 ***	0.028	-	112	0.857
Goodman Kruskal Tau	0.214	-	112	0.000 ***	0.118	-	112	0.000 ***
Somers' d	0.216	-	112	0.008 ***	0.110	-	112	0.120
Eta square	0.725	-	112		0.352		112	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

TypeofCountry and Numbehav (Sit. 1) Tests	Rules Originated in the Present				Rules Originated in the Past			
	Value	Deg. Freed	N	Significance	Value	Deg. Freed	N	Significance
Independence								
Pearson Chi-sqaure	34.3	4	112	0.000 ***	77.1	4	112	0.000 ***
Likelihood ration	31.7	4	112	0.000 ***	93.2	4	112	0.000 ***
Symmetric								
Cramer' V	0.409	-	112	0.000 ***	0.370	-	112	0.097 *
Contingency coef.	0.501	-	112	0.000 ***	0.464	-	112	0.097 *
Kendall's tau-b	0.212		112	0.002 ***	0.137		112	0.121
Gamma	0.307	-	112	0.002 ***	0.184	-	112	0.121
		-				-		
Directional								
Lambda	0.056	-	112	0.563	-	-	-	(1)
Goodman Kruskal Tau	0.117	-	112	0.000 ***	0.073	-	112	0.003 ***
Somers' d	0.209	-	112	0.002 ***	0.129	-	112	0.121
Eta square	0.423	-	112		0.819		112	

*** Significant at a 1% level; ** Significant at a 5% level; * Significant at a 10% level

(1) Cannot be computed because the asymptotic standard error equals zero

Annex 6.1 – Incentives in FDI operations

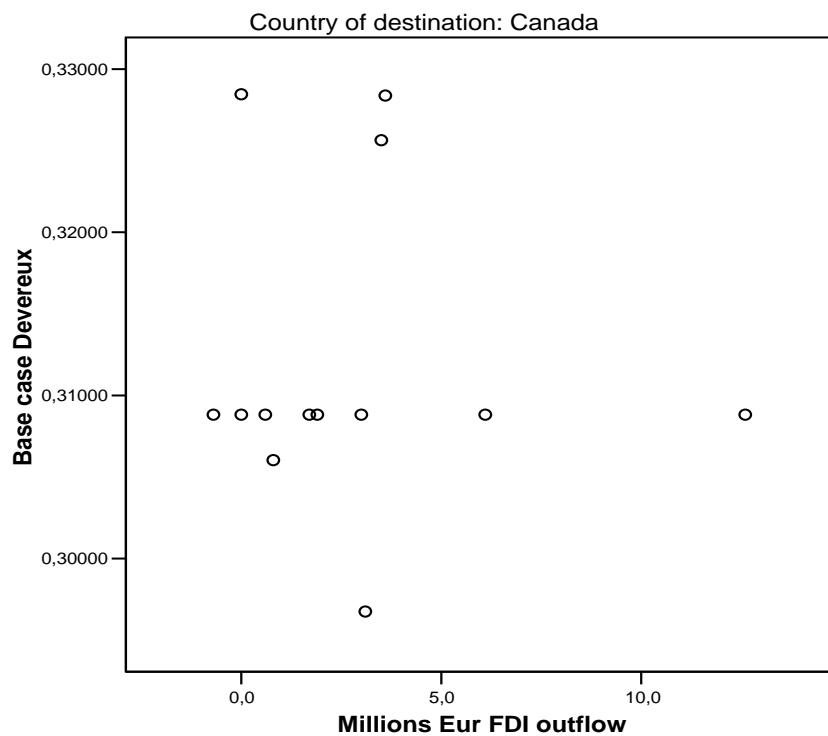
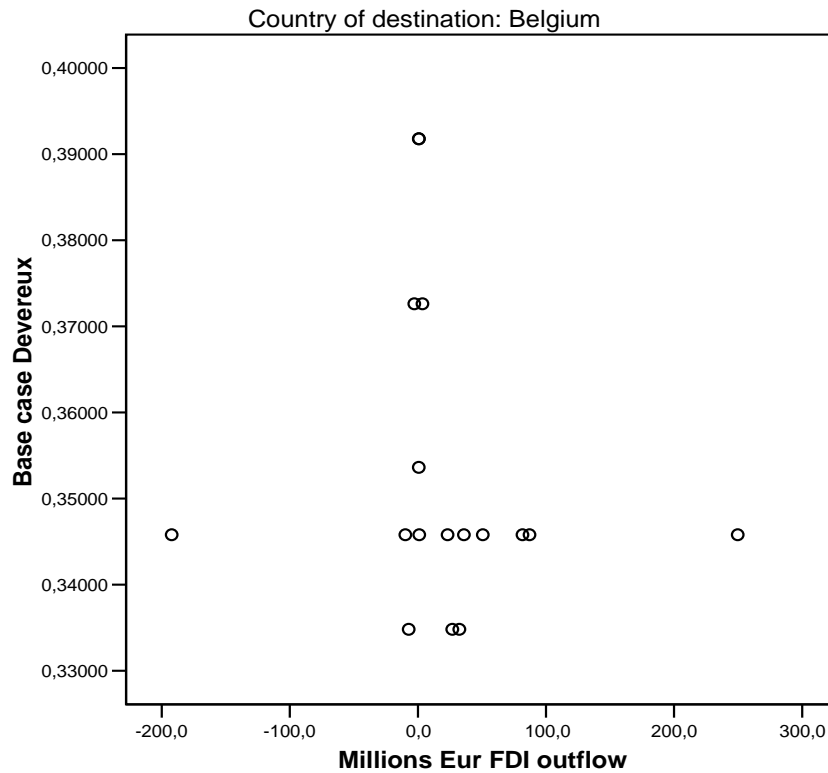
Nature of Governmental Support	Number of cases
Fiscal (several types)	11
Land	1
Shareholding	1
Searching for firms abroad	3
Monopoly position in Portugal	3
Loan with subsidized interest	3
TOTAL	22

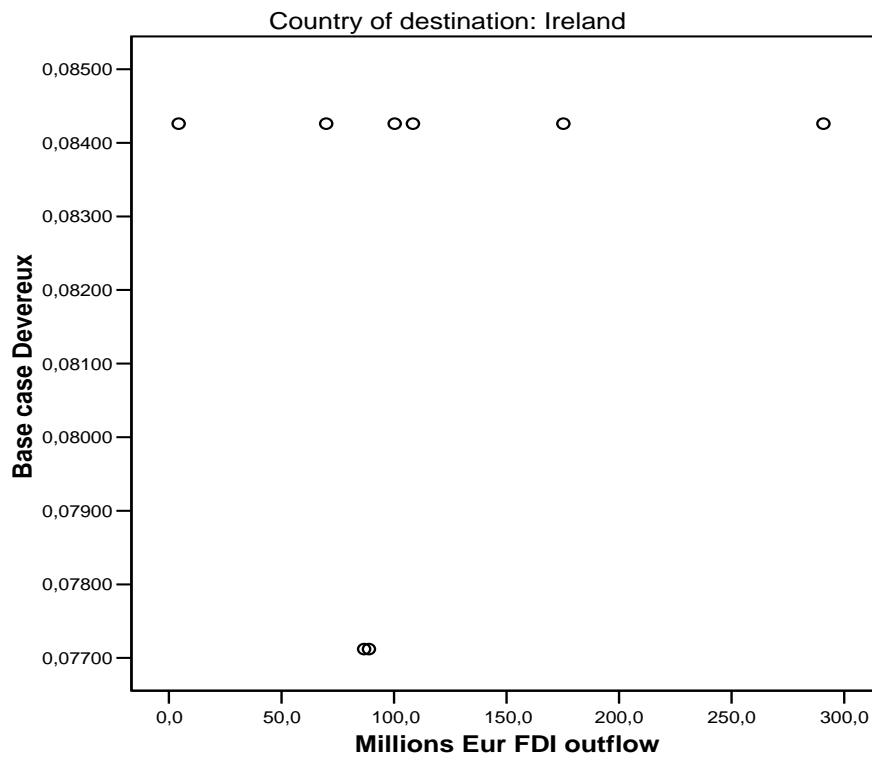
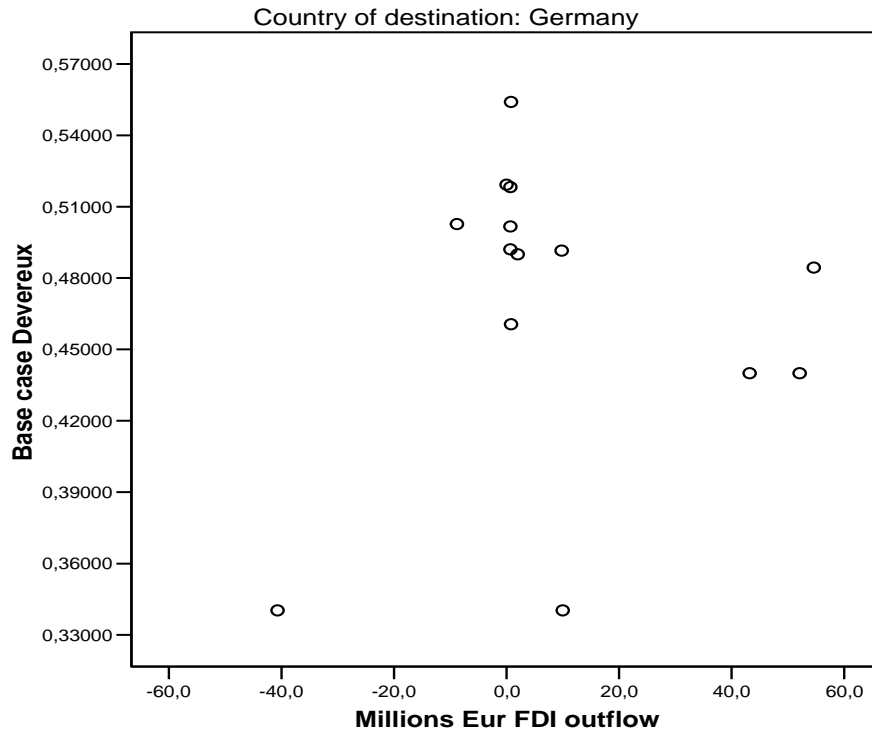
Incentives per sector

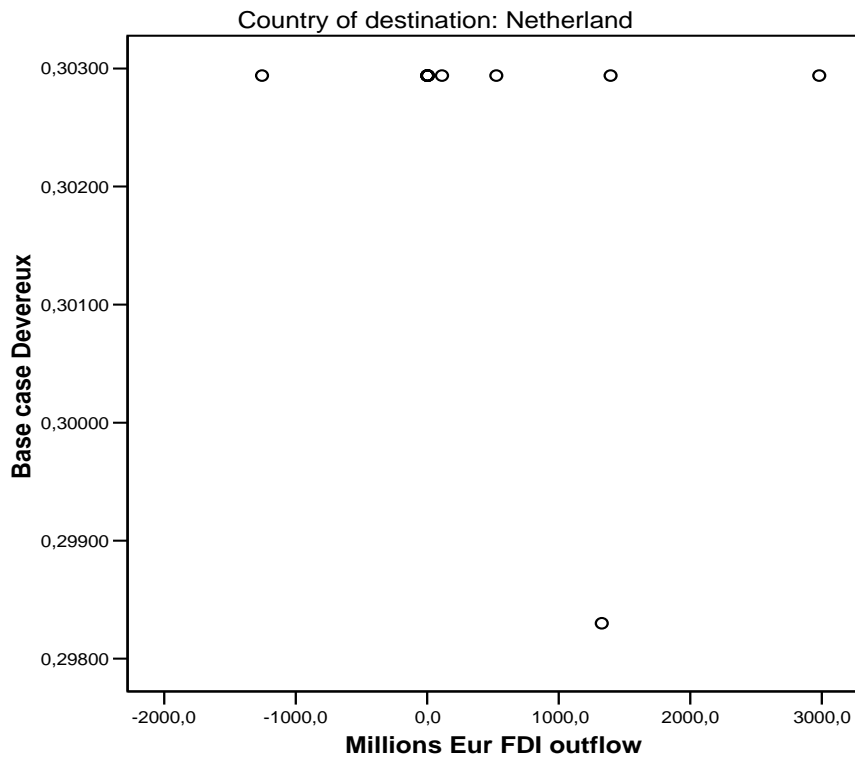
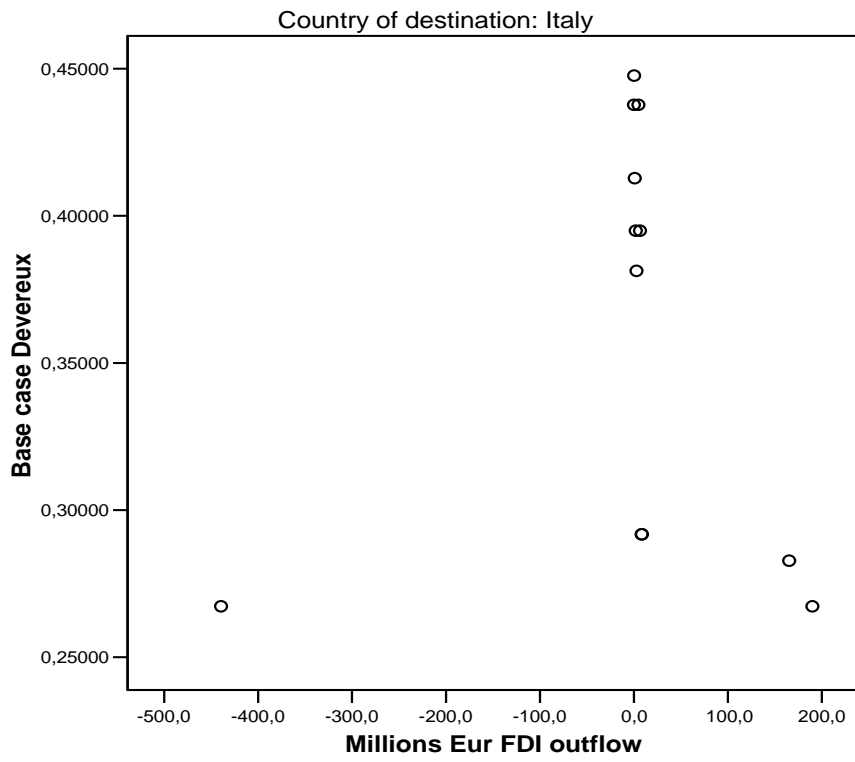
	Host country	Host local	Portugal	Total	%
Manufacturing	0	1	5	6	33.3 %
Construction	0	0	3	3	25.0 %
Services	4	1	3	8	22.2 %
Financial	2	0	1	3	6.8 %
Agriculture	1	0	1	2	100.0 %
Total	7	2	13	22	

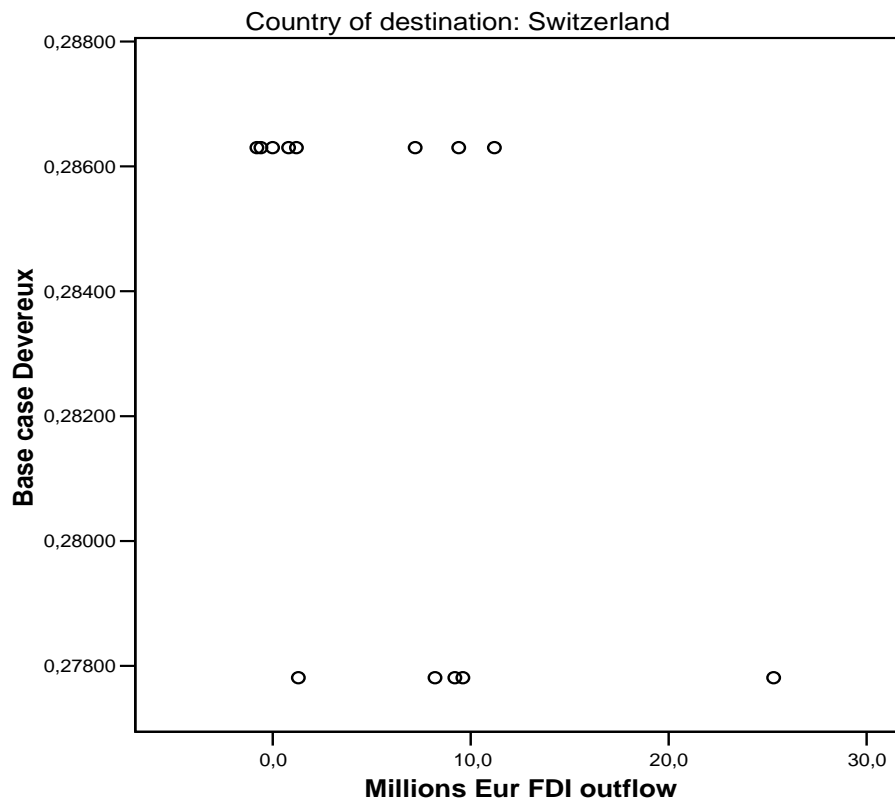
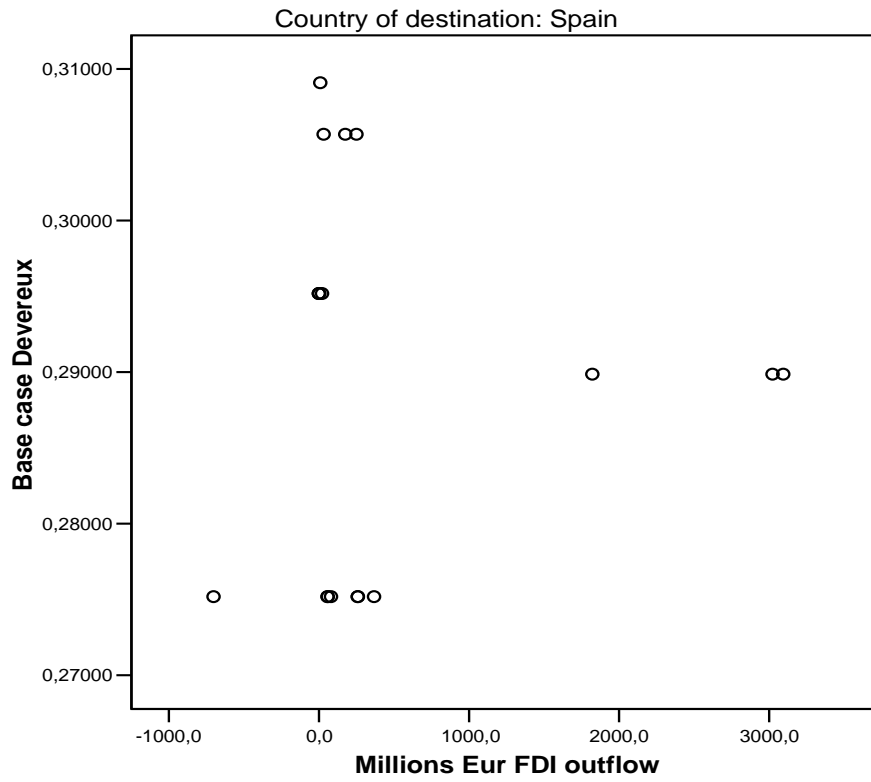
Annex 6.2 – Association between Portuguese FDI outflows and EATR for some OECD countries

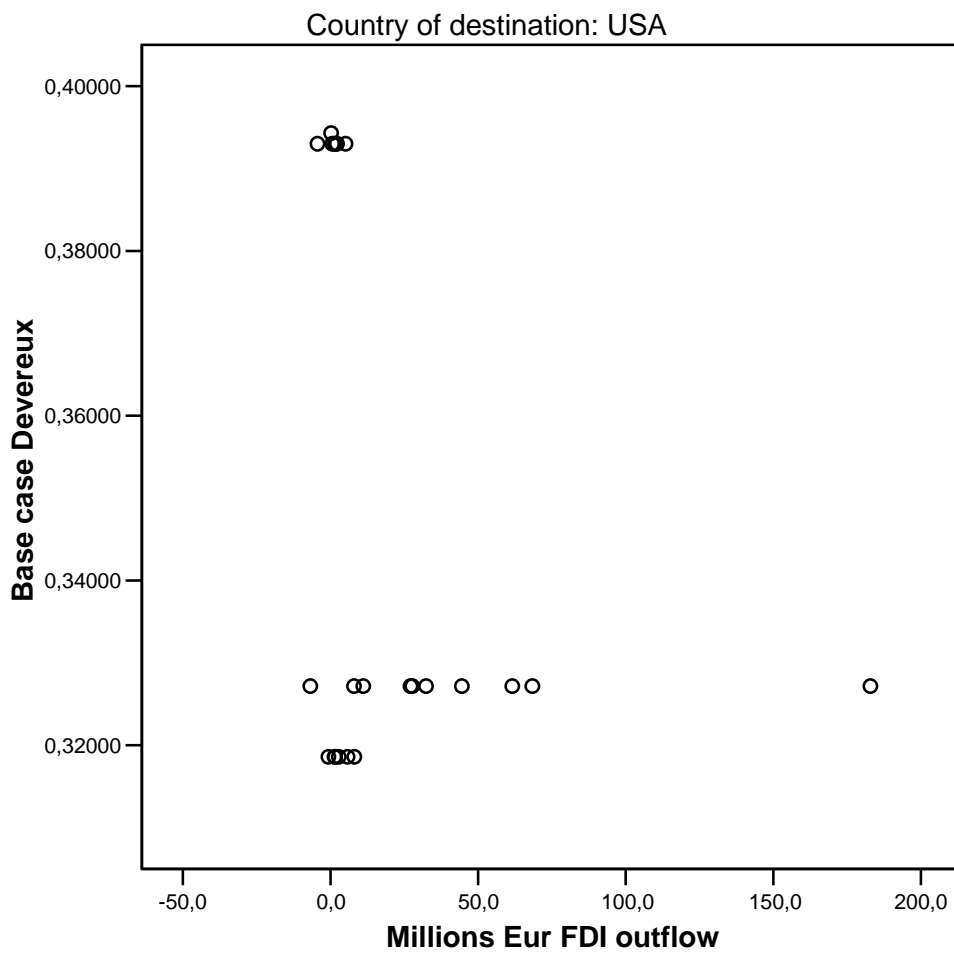
Individual Scatter plots











Annex 6.3 – Questionnaire II

University of Bath, United Kingdom

Universidade da Beira Interior, Portugal

Page 1

Fiscal Decisions by firms

This questionnaire is confidential and the data will be used only for research purposes. Please place a cross in the line corresponding to your chosen answer. When writing an answer (words or figures) please do so as clearly as possible.

Firm E has two factories, in Portugal and in the United Kingdom. Both produce good F by using input I. However, input I is only produced in Portugal. The factory in the UK imports input I from Portugal. Firm E pay taxes in both countries and this payment varies with (i) the corporate tax rate (in Portugal and in the UK), (ii) income from sales of good F (in Portugal and in the UK) and input I (only in Portugal), and production costs namely the cost of importing Input I (only in the UK).

1 – Consider that in Portugal the corporate tax rate (the fiscal burden) is 35% and in the United Kingdom is 25%. What do you think is the chance of firm E to export input I from Portugal to the UK at the lower possible price so that production costs in the UK be smaller in a way that profits can be transferred to this country where the level of taxation is favourable (please indicate a value between 0 and 100%)?

_____ %

2 – How do you classify the effect of this measure (question 1) in the profitability of firm E?

____ Essential

____ Very important

____ Important

____ Less important

____ Irrelevant

3 – Consider now that in the UK the corporate tax rate (the fiscal burden) is 25% and in Hungary is 15%. What do you think is the chance of firm E to close the factory in the UK, selling its assets and dispensing its workers, and to open a new one in Hungary (please indicate a value between 0 and 100%)?

_____ %

Page 2

Fiscal Decisions by firms

This questionnaire is confidential and the data will be used only for research purposes. Please place a cross in the line corresponding to your chosen answer. When writing an answer (words or figures) please do so as clearly as possible.

4 - How do you classify the effect of this measure (question 3) in the profitability of firm E?

Essential Very important Important
 Less important Irrelevant

5 – Of the two above presented measures (questions 1 and 3) which one seems to be more important for the profitability of firm E?

Question 1 Question 3

6 – In your opinion the corporate tax rate (choose one of the answers):

Is more important for its direct effect on the profitability of the firm than as a determinant for the location of a foreign investment.

Is more important as a determinant for the location of a foreign investment than for its direct effect on the profitability of the firm.

It is equally important in both cases.

Thank you very much for your cooperation!

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