

Sines industrial and logistics zones: FDI determinants applied to
Sines and its peers

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Abstract

The goal of this case study is to identify the FDI location determinants according to the most recent scientific studies and match those location determinants with the ones that can be found at Sines's Cluster. Firstly I had to define the main competitor countries and in order to keep things simple I only chose six countries: Germany, Netherlands, Spain, Poland, Egypt and Morocco. The countries Spain, Egypt and Morocco are direct competitors for FDI attraction while Germany and Netherlands compete in terms of containers transshipment.

The information was gathered by searching on database like OCDE, World Bank and Bloomberg but also by talking with AICEP Global Parques and with Port Authority of Sines.

From my theoretical research reducing total costs of the supply chain is crucial nowadays therefore Portugal can win from this since has a better relation between labour costs and qualified labour than Spain. Morocco has a poor infrastructure reducing its attractiveness but the labour is low qualified and cheap therefore might be good for labour intensive industries. Regarding the Eastern Europe countries, after analysing the location determinants they are inferior to Portugal. Germany and Netherland are better than the rest of the countries analysed in almost all aspects, except in labour costs.

Portuguese Government should try to lower Tax in order to increase the competitiveness of the cluster versus the Eastern Europe clusters and also should work to attract a logistics third party in order to increase the efficiency of the cluster.

JEL classification: L900; F230

Key words: Sines; Clusters; Foreign Direct Investment Determinants; Multinational enterprises

Resumo

O objectivo deste caso de estudo do Cluster de Sines é identificar os determinantes de localização de acordo com a pesquisa mais recente e comparar com os determinantes de localização que o cluster de Sines tem. Em primeiro lugar foi necessário definir os países que competem directamente sendo restringidos a seis: Alemanha, Holanda, Espanha, Polónia, Egipto e Marrocos. Os países Espanha, Egipto e Marrocos são os principais concorrentes de Portugal em relação à atracção de investimento directo estrangeiro já a Alemanha e Holanda são concorrentes em relação ao transporte de contentores (*transshipment*).

A informação foi recolhida através da pesquisa nas bases de dados da OCDE, Banco Mundial e Bloomberg mas também através de entrevistas com a AICEP Global Parques e Autoridade Portuária de Sines.

Com base na pesquisa teórica reduzir os custos totais da cadeia de abastecimento é fundamental e Portugal pode ganhar com isso pois tem melhor relação custo da mão-de-obra versus qualidade da mão-de-obra que a Espanha. Em relação a Marrocos, as infra-estruturas são fracas o que reduz a atractividade deste mas a mão-de-obra é barata e pouco qualificada o que é ideal para indústrias intensivas em mão-de-obra. Quanto aos países do leste da Europa tem uma atractividade mais baixa que Portugal quando considerados todos os determinantes de localização. Já a Alemanha e Holanda são melhores que os restantes Países analisados em todos os aspectos excepto nos custos de mão-de-obra.

O Governo Português precisa de reduzir os impostos para que o Cluster de Sines consiga rivalizar com os restantes clusters concorrentes e também devia debruçar-se sobre a necessidade de um operador logístico no cluster de forma a aumentar a eficiência do mesmo.

Classificação JEL: L900; F230

Palavras-chave: Sines; Clusters; Determinantes do Investimento Directo Estrangeiro; Empresas Multinacionais

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Introduction

The Port of Sines has the potential to be one of the most important ports of Europe since has natural characteristics that make it capable to handle any vessel but also a huge unoccupied area to expand the cluster and at same time is close to several important maritime routes that connect Europe to Asia, North America and Africa.

Despite Port of Sines is recognized as a strategic asset for Portugal there are a lack of relevant academic work regarding Sines, FDI and its role as regional growth booster. The only relevant academic thesis that I could find was “*A Análise de Sines como activo geoestratégico nacional*” from Moreira, P. (2012) and as a Portuguese citizen I wanted to write a thesis that could contribute with useful information to my country therefore I decided to do my thesis about Sines cluster. After a brief meeting with the Professor Eurico Dias my thesis theme was defined being related with the attraction of FDI to Sines cluster and which are the FDI location determinants that MNEs value the most and from those which ones Sines’ Cluster has.

The chapter five is the theoretical background where relevant studies about FDI, FDI location determinants, Clusters, port governance and port hinterland are mentioned and explained in order to help the readers to understand better the following chapters.

At chapter six I explain my method to answer the research questions and how I gathered the information to build the case study about Sines cluster. It is organized by chapters since each chapter had a different approach from the previous one.

In my opinion it was important to present a brief historical context of Sines cluster (chapter seven) where I point several topics like why Portuguese Government decided to build it at Sines, why the project did not correspond entirely to the expectations, what infrastructures can be found at the Port between many other topics also discussed.

The next step was to approach the hinterlands of Sines cluster (chapter eight) where I present some of the characteristics of the physical hinterland, logistical hinterland and the macroeconomic hinterland of Sines. The hinterland is important because it is the region that a port or cluster do business therefore the bigger and efficient the better attractiveness it has and also lower costs.

After presenting the theoretical background, and both historical context and hinterland of Sines cluster the next step is to start pointing the several FDI location determinants of Portugal and the other eight countries. The location determinants are divided into eight groups: political and economic stability, Human capital, Infrastructure, Market size, Market growth, Openness of economy, production costs and Financial & economic incentives. The results are presented in tables followed by a brief explanation of the data.

Finally, the last chapter is the conclusion where I point some of the difficulties I had during the process and also point the main findings of this case study.

Literature Review

FDI

There are two important concepts that must be explained before starting explaining some theories regarding FDI which are MNEs and FDI itself.

According to John H. Dunning (1973) Multinational enterprises (MNEs) are enterprises which owns and controls income generating assets in more than one country.

Until 1950's the main theory used to explain FDI was the traditional theory of international capital movements. This theory treated FDI just like any other form of international investment therefore it was also explained by oscillations on the rates of return on capital between countries. In 1960, Hymer contested international capital movement's theory stating differential rate of return hypothesis was not consistent since at time USA combined net outflows if FDI with net inflows of portfolio capital, also flows of FDI in both directions between countries were happening with some frequency, and finally industrial enterprises were engaging more often in FDI than financial enterprises. According to John H. Dunning FDI is more than capital movements it includes the transmission of inputs like entrepreneurship, technology and management skills.

It does, however, involve the transmission of factor inputs other than money capital, viz. entrepreneurship, technology, and management expertise, and is likely to be affected by the relative profitability of the use of these resources in different countries as that of money capital". Furthermore, MNEs are not necessarily profits maximizers. Even if they are, there is no reason why they should forcibly seek higher profits on FDI than on domestic investment (Agarwal, 1980: p. 743).

Foreign direct investment (FDI) acquired an important role in international economy after the Second World War being one of the keys for economic growth.

The main papers developed about FDI were made by S. Hymer, R. Vernon and J. H. Dunning. Based on those studies it was possible to conclude that at a macro level, FDI are responsible for employment creation, high productivity, source for competitiveness and technology spillovers. For developing countries FDI is an important alternative source of financing to bank loans potentiate their exports and access international markets and international currencies. On the other hand, Hanson (2001) states that FDI has few positive aspects and at the study of Lipsey (2003) states that there are positive

aspects but there is not a strong connection between FDI and economic growth. Also the positive and negative impacts vary from industry to industry (Hirschman 1958).

Motives to engage on FDI

According to Dunning and Lundan (2008) there are four main types of reasons to engage on FDI:

- Natural resources seekers;
- Market seekers;
- Efficiency seekers;
- Strategic asset or capability seekers;

Usually MNE's have more than one reason to engage on FDI and also the reason to invest abroad may vary through time according to enterprise needs.

Natural resources seekers

These enterprises invest abroad to acquire specific resources cheaper than in home country increasing their profits and competitiveness.

There are three types of natural resources seekers: Physical resources seekers that want cheaper raw material and energy sources therefore use primary producers and manufacturers in host country to reduce costs and at the same time satisfy the supply.

The second type of natural resources seekers include those that search for cheap and well-motivated unskilled labor force. Usually these investments are made by MNE's operating in manufacturing or services industry in countries with high labor cost so MNE's invest abroad in countries with lower labor costs.

The third and last type of natural resources seekers is MNE's that want to acquire technology capability and managerial, marketing or organizational skills and expertise therefore MNEs decide to invest into developed countries where labour with these skills can be found.

Market seekers

Market seekers include all enterprises that invest in a country or region to supply products or services to markets on that country or adjacent countries (Dunning and Lundan 2008).

There are four main reasons for MNE's invest in market seeking:

- Main suppliers and manufacturers invested in a particular country and in order to retain them it requires to invest also abroad;
- The enterprises need to adapt their products and services to customer needs and sometimes it is only possible by investing on host country in order to be capable of competing with local firms;
- Supplying the host country by distance might be more expensive than supplying by local production therefore on those cases MNEs engage on FDI in market seeking since it is more profitable to invest in production facilities in host country;
- Nowadays is common to see MNEs invest in market seeking as part of their global production and marketing strategy, they see as crucial to have physical presence in leading markets where competitors are present;

According to Dunning and Lundan (2008) the most important reason that explains why firms do market seeking investments are the host Government policies that create trade barriers or by offering tax incentives.

Efficiency seekers

What leads firms to do efficiency seeking investments is to rationalize the structure of resources-based or market seeking investments allowing the investing enterprise to reach higher efficiency through common governance of geographically dispersed activities.

There are two types of efficiency seeking FDI, the first is *“to take advantage of differences in availability and relative costs of traditional factor endowments in different countries”* (Dunning and Lundan 2008) this explains why skilled labor associated with technology, capital and informational- intensive value added activities are concentrated in developed countries while resource and labor- intensive in developing countries.

The second type of efficiency seeking is “taking advantage of the economies of scale and scope, and of differences in consumer tastes and supply capabilities” (Dunning and Lundan 2008) where competences and capabilities, incentive structures, quantity and quality of supporting institutions, characteristics of local competition, nature of demand and government policies play a more important role than traditional factor endowments.

Strategic assets seeking

This include all enterprises that engage on FDI by acquiring assets from foreign firms in order to enhance their competitiveness and reach their long-term goals. What drives enterprises to invest in strategic assets seeking is the possibility to increase the physical assets and human competencies portfolio allowing the enterprise to sustain or increase their ownership specific advantage or weaken the competitors’ ownership specific advantage. Sometimes the possibility of gaining marketing advantages over competitors might also work as a driver to engage on strategic assets seeking FDI.

Horizontal FDI and Vertical FDI

It is possible to divide FDI into two types: Horizontal FDI (HFDI) and Vertical FDI (VFDI). The MNEs choice of HFDI or VFDI depends if they are market seeking or efficiency seeking. When an enterprise decides to invest abroad to produce just some stages of final product, usually unskilled labor-intensive activities, increasing their efficiency it is called Vertical FDI (Markusen 1995).

Horizontal FDI can be seen as a substitute for exporting since the enterprise engage on FDI by build a new production facility closer to the new market (market seeking) in order to avoid trading costs as transaction costs or trade barrier costs (Buckley & Casson 1981).

Each type of FDI has its own impact on regional growth, for instance, VFDI increases local labor demand and HFDI enhance spillovers effects when compared with VFDI since is more knowledge based.

Monopolistic Advantage Theory

Until 1960's most of the researchers believed that neoclassical financial theory could explain international capital flows developed by Heckscher (1919) & Ohlin's (1933), but that theory was based on perfect competition. Neoclassical theory states that capital flows are made based on rates of return on investment. In perfect competition, there are no transaction costs making interest rates higher at developing countries than in developed countries (Dunning and Rugman, 1985) therefore neoclassical theory couldn't explain why MNEs were engaging on FDI. Hymer focused on USA's MNEs international operations at his Ph.D. dissertation called "*The International Operations of National Firms: A Study of Direct Foreign Investment*".

During his dissertation Hymer tried to answer to three main questions:

- Why do firms go abroad?
- How are they able to survive in foreign markets in which they bear initial vis-à-vis native firms?
- Why do they want to retain control and ownership?

Hymer made two important findings, the first one was that MNE could reduce competition between enterprises in different countries by underground agreements with the goal of reducing market competition, regarding the second finding and most important, was that MNEs possess monopolistic advantages that aren't available to local firms, creating market imperfections, one of the main motives why MNEs engage on FDI. Monopolistic advantages can be related with intangible assets (superior knowledge; better organizational or management skills, patents, etc), can be related with economies of scale reducing operational costs, can be due to easy access to cheap raw materials (or scarcity goods), also can be related with easy access to bank loans (low interest rates), finally can be possible to obtain through efficiency at production sight (by reengineering the production process or develop a new technology that reduce costs) or by product differentiation by adding new characteristics that clients value. MNE's must have at least one monopolistic advantage in order to overcome the extra costs of going abroad like settlement costs.

Production Cycle Theory of Vernon

The Production cycle theory of Vernon was the first theory that could explain some FDI at Western Europe countries by USA enterprises after the Second World War in manufacturing industry (Vernon 1966).

This theory is divided in four stages:

- Innovation
- Growth
- Maturity
- Decline

USA enterprises had technological advantages compared with western enterprises (Innovation stage) therefore they had ownership advantages and since USA and Western countries had similar consumer behavior they could sell the surplus products to Europe starting to gain share on those markets (Growth stage). The problem was that European companies started to copy those innovations made by USA enterprises and the gap between USA and European enterprises became smaller therefore USA firms started to invest in Western Europe building production facilities in order to reduce production costs and maintain market share (maturity stage). After some years the technology was standardized and the main variable was the cost production therefore USA firms decided to build production subsidiaries in developing countries lowering labor costs and afterwards exporting the goods to home country and to Western countries (Decline stage).

Vernon's Production cycle theory was able to combine monopolistic advantages with location advantages becoming the first dynamic explanation of the determinants of international trade and international production developed by Dunning (1993).

Internalization Theory by Buckley and Casson (1976)

This theory developed by Buckley and Casson in 1976 tried to explain the main reasons that make MNEs engage on FDI. They found that MNEs organize their intern activities in a way that creates ownership specific advantages that can be explored by engaging on FDI. By doing so they mitigate market imperfections at intermediate goods or intangible assets internalizing the external market achieving lower transaction costs (market imperfections) and at the same time increasing profits. The critical factors that leads MNEs to make internalization are:

- industry specific factors relating to the nature of the product and the structure of the external market;
- region specific factors relating to the geographical and social characteristics of the region linked by the market;
- nation specific factors relating to the political and fiscal relations between the nations concerned;
- firm specific factors which reflect the ability of the management to organize an internal market;

Since it is hard to evaluate intangible assets that creates market imperfections, increasing transaction costs and also the uncertainty. When transaction costs are high and there are high uncertainty MNEs prefer to engage on FDI instead of selling the intermediate goods to a foreign firm especially if it evolves knowledge.

Buckley and Casson focused their theory on MNEs and FDI but still couldn't explain very well why MNEs invest and produce abroad neither why choose location X instead of location Y.

Transaction costs incorporate all the costs related with creating a new economic activity and if the firm can obtain lower costs or higher revenues then they will internalize foreign markets.

Eclectic Paradigm

The eclectic paradigm approach by John H. Dunning integrates several orthodox theories being capable to explain why MNE's choose to go on FDI instead of exporting and licensing. The eclectic paradigm is divided on three sub paradigms:

- Ownership sub-paradigm;
- Location sub-paradigm;
- Internationalization sub-paradigm;

If a firm wants to engage on FDI it is necessary to satisfy the three sub-paradigms or else it would be better choose a different way like exporting or licensing.

Table 1: Choices of FDI; Exporting or Licencing

	Ownership Advantage	Internalization Advantage	Location Advantage
FDI	YES	YES	YES
Export	YES	YES	NO
License	YES	NO	NO

Source: Dunning, John H. (1981)

Ownership sub-paradigm

Dunning used Hymer's monopolistic advantage theory as a base to develop his ownership advantage sub-paradigm.

Enterprises seeking for competitive advantages would only invest in other countries when the benefits of exploiting those resources are bigger than the opportunity costs of exploiting them.

There are three types of ownership specific competitive advantages:

- Specific advantages related to the possession and exploitation of monopoly power; these advantages maintain or create entrance barriers to final product markets by firms not possessing them.
- Specific advantages related to the possession of a group of scarce, unique and sustainable resources and capabilities, this reflects the superior technical efficiency compared to the competitors creating entrance barriers to the companies that doesn't possess them.

- Specific advantages related to the competencies of managers of firms in identifying, evaluate and harness resources and capabilities from any place in the world that combined with the already existing resources and capabilities of the company it allows to achieve the long term goals and interests.

Later at 1988, Dunning divided ownership advantages into Ownership assets (Oa) and Ownership transaction (Ot). Ownership assets refers to property rights or other intangible assets like reputation or knowledge. Ownership advantages are linked with the transaction costs of production, on other words, it is the ability of a company to reduce the transaction costs for instance, using economies of scale, or know-how based on previous experiences or even synergies created at finance, purchasing or other department.

Ownership specific advantages can vary from industry to industry but at the same time many studies show evidences that a big slice of the multinational enterprises' international productions, independently of the sector, are concentrated in activities based on knowledge like R&D, scientific and technical workers, production differentiation, etc. This happens because the knowledge assets are cheaper to replicate abroad than physical assets and also due to the fact that knowledge assets have the capability to joint production facilities at low cost (Markusen 1995). Based on this it is possible to conclude that IT companies have more easily knowledge assets than labor intensive companies because It companies have the need to invest a lot in R&D to develop patents or exclusive technical knowledge that can grant a competitive advantage.

Locational sub-paradigm

Before 1930s all economists and scholars gave low attention on how the location variable could be influential to the companies' decision on where to invest in cross-border activities. After that, the economists started to give attention to the location in studies like Krugman (1991, 1993) and Venables (1998), industrial geographers like Scott (1996), Storper (1995) and Storper & Scott (1995) created theories about clusters of some types of economic activities and also by business scholars like Porter (1994, 1996) and Enright (1991, 1998) stating that an optimum locational portfolio of assets can be seen as a competitive advantage. Regarding the Eclectic paradigm, the locational sub paradigm considers that a company will engage in foreign production when they

recognize that it's possible to combine their ownership advantages with the locational advantages of a country or region.

In order to do so the MNE's need to have ownership advantages over the foreign country's companies and at the same they also take into consideration if foreign country location advantages are good enough to worth the risk of investing. The location advantages is the key determinant of FDI since if MNEs consider location advantages good enough they engage in FDI otherwise they decide for exporting instead. Sometimes choose exporting is better than engage on FDI, for instance when home country has cheaper resources than foreign country making more profitable to produce at home country. On the other hand FDI can be the best choice even if foreign country don't have cheaper products but have entrance barriers like high import tariffs making more profitable to produce abroad.

To choose a location, usually enterprises must take into account several explanatory variables that differ according to the motives for FDI, type of cluster, home and host country of the investing enterprise and also according to the culture of the enterprise (each company has different cultures therefore that leads to different decisions based on same information).

The explanatory variables can be also called as location determinants and will be explained better further.

In the past, the nature and composition of a country or region's comparative advantage has been previously based on its possession of a unique package of unmovable natural resources and capabilities, but nowadays, has evolved to its ability to offer a distinctive and non-imitable set of location bound created assets, even if it refers to home country companies that can be suit for alliances and somehow complement the MNE's core competencies.

Therefore It is important that both governments and sub national authorities recognize the importance of MNE's and their impact on national economy, so they can create the proper conditions for MNE's through suitable economic and social infrastructures that can be used by home country companies and generate ownership advantages that can satisfy global market needs becoming suitable to attract FDI.

Internalization sub-paradigm

The internalization sub paradigm is based on Buckley and Casson (1976) internalization theory since it is the most accepted theory about internalization. The internalization specific advantages refers to MNE's capability to internalize their ownership advantages in order to decrease the transaction cost during the international production. So, if the transaction and coordination costs of using an outsourcing company are higher than internalizing the operation, the MNE's should engage on FDI.

According to Dunning (1988) MNEs that possess ownership-specific advantages prefer to transfer them across national boundaries within their own organization instead of sell them, by doing so MNEs reduce the risk and the uncertain transaction cost linked to the market imperfections.

There are three kinds of market imperfection:

- Market imperfections created by the risk and the uncertainty of transaction costs, can be related with risk of broken outsourcing contracts;
- Market imperfections related with the ability of firms in creating economies of large-scale production, for example MNEs that can get competitive advantage through oligopolistic behavior and exploit the market creating a market imperfection;
- Market imperfections that occur where the transaction cost of a particular good or service, it is hard to value knowledge precisely therefore buyer or seller can create opportunism for one of the sides or create more uncertainty affecting the price of the good (price distortion) therefore contribute for market failure. We can state that FDI is more important for knowledge based companies since if they sell or buy intangible assets may create market distortion;

Dunning and Rugman (1985) also developed a study about market imperfections dividing into two groups in order to explain different types of ownership advantages and also capable of explaining why MNEs engage on exporting or FDI:

- Structural market imperfections, this type of imperfection can be created by companies with monopoly behaviors making trade barriers or by Government's laws (taxes, protections to national companies, etc.);
- Transactional market imperfections, this type of imperfection is related with the lack of information during a transaction of an intangible asset;

When MNEs perceive greater transaction costs related with market failure they prefer to explore their competitive advantage and engage on FDI than trade with foreign enterprises.

We can conclude that the transaction costs are very important to MNEs since they have an important role in the decision making regarding internalization of the production. In fact, enterprise's capability of reducing transaction costs can be seen as an internalization specific advantage allowing the enterprise to avoid search and negotiating costs, information asymmetries, etc. At the same time when a company decide on internalization of production they maintain their reputation intact by assuring product quality or even avoid government intervention through quotas or tariffs.

Even though Internalization theory is the most accepted in the researcher's circle, J. Dunning (2000) states that in the last decade there are some researchers contesting the internalization theory mainly due to three reasons:

- it doesn't consider all companies' activities, it only considers the activities related with transaction;
- It is a static model since doesn't guide the companies on how they can re-organize their activities in order to create future assets.
- Buckley and Casson theory cannot explain entirely the inter-firm coalitions like alliances in research field for a period of time in a determined country or region;

Location determinants of FDI

Many researchers of FDI are focusing their work on location determinants of FDI like political and economic stability; human capital; infrastructures; market size; market growth; openness of the economy; production cost and Financial/economic incentives.

Political and Economic Stability

In order to evaluate economic stability of a particular region the researchers used proxies like inflation rate, unemployment rate, balance of payments deficit, exchange rates.

When inflation rate is volatile it is a sign that the economy is instable therefore may be seen as an obstacle to capture FDI (Botrić and Škuflić 2006, Asiedu 2006, Mhlanga et al. 2010, Vijayakumar et al. (2010, Mohamed and Sidiropoulos 2010).

High unemployment rate is associated to economic instability but according to Botrić and Škuflić (2006) there is a positive correlation between inflows of FDI and unemployment rate, a possible explanation to this finding is that high unemployment rate means lower labor costs and higher availability of human capital overcoming the negative effects of economic instability.

The balance of payments deficit is another proxy used to analyze the impact of economic stability in FDI attraction where higher balance of payments deficit has a negative impact on attracting FDI (Schneider and Frey 1985).

The exchange rates are another proxy that many researchers use but it is controversial since in some studies Volatile exchange rates have positive effect (Cushman, 1985; Goldberg and Kolstad, 1995) while in others have negative effect on FDI (Urata and Kawai, 2000; Bénassy-Quéré et al., 2001)

According to Franco et al (2008), when MNE engage on Resource seeking FDI or Market seeking FDI there is a positive correlation between FDI and exchange rate volatility. The strategic asset seeking FDI is negatively correlated to exchange volatility (Franco et al 2008).

Regarding the political stability the most used proxies were corruption perception, type of political regime, regime duration and protection of copyrights.

The corruption index is an important proxy for political stability since when there are high levels of corruption the index is low meaning enterprises' operations are restrained and the profits reduced (Biswas 2002). When the corruption is high investors might be unencouraged to invest (Asiedu 2006, Júlio et al 2013) but there are countries like Nigeria that have high levels of corruption still attract high inward FDI flows mainly due to natural resources, growth and market size (Clevee 2008).

The type of political regime is important since democracy based systems are different from those that are based on autocracy. Researchers like Biswas (2002) and Schneider and Frey (1985) used the type of political regime as a proxy of political stability and analyzed the impact on FDI. Political systems based on democracy enhance FDI attraction comparatively to autocracy systems (Biswas 2002; Schneider and Frey 1985). The regime duration is another proxy that has impact in FDI attraction since higher the regime duration lower the attractiveness of the country (Biswas 2002).

Institutions that protect copyrights are important for FDI attraction since investors feel more comfortable with environments that grant more confidence in retaining their capital and also the capital's returns (Biswas 2002; Júlio et al 2013).

Human Capital

The Human Capital is important for MNE's that want to engage on efficiency seeking FDI related with intensive value added activities and strategic asset seeking FDI since those types of FDI usually are located in developed countries.

Secondary school enrolment ratio was used as proxy by Schneider and Frey (1985) and Cleeve (2008) to analyze Human capital impact on FDI flows. Both studies found that there are positive relation between FDI attraction and human capital since when Secondary school enrolment ratio is higher so is the FDI attractiveness. Adult illiteracy rate is another proxy used to analyze human capital and its impact on FDI inflows. The adult illiteracy rate is negatively related with skilled labor availability (Coughlin and Segev 2000). According to Cleeve (2008), in theory, adult illiteracy ratio should also be negatively related to FDI inflows but no conclusive results were obtain. Another study was conducted by Asiedu (2006) where he used a similar proxy to Cleeve (2008) called Literacy rate, he found that Literacy rate is positively related to FDI attractiveness.

The mean years of education was another proxy used to represent human capital and its impact on FDI where was possible to conclude that is positive related with FDI (Júlio et al 2013).

Infrastructures

A good infrastructure development is very important to enhance FDI attractiveness since through it is possible to reduce transaction costs and increase productivity of investments therefore, in theory, more developed infrastructures means more FDI (Mhlanga et al 2010). One proxy used to analyze the variable infrastructure was the number of phone lines per hundred inhabitants but according to Mhlanga et al (2010) there is a weak positive relation between infrastructure variable and FDI. Another proxy used to evaluate the infrastructures impact on FDI flows was the number of internet connections, there was a negative relation between internet connections and FDI flows (Botrić et al 2006). These findings can be explained by the period where data was collected, between 1990 and 2003, when internet started to be massive used after the year 2000 (Botrić et al 2006).

Another relevant proxy to study the impact of infrastructures at FDI flows is Infrastructure index per country. The Infrastructure index was based on electric Power Consumption (kWh per capita), energy use (kg of oil equivalent per capita) and fixed line mobile phone subscribers (per 100 people) where it is possible to verify that there is a positive relation between infrastructure index and FDI flows (Vijayakumar et al 2010).

According to Castro (2007) paved road is the most important proxy from the several he analyzed (paved road, roads, electricity generation and electricity capacity) having a robust positive relation with FDI.

Market Growth

There are two proxies used in studies to evaluate the impact of market growth in FDI flows being GDP Growth and Industrial Production index.

The results of the proxy GDP growth is not consensual since in the study of Mhlanga et al. (2010) there was no relevant findings but on other hand other studies (Cleeve 2008; Mohamed and Sidiropoulos 2010; Arbatli 2011) found positive relation between the proxy and FDI flows.

Finally the other proxy considered was Industrial Production index where there were no conclusive findings (Vijayakumar et al 2010).

Market Size

To analyze the impact of market size in FDI flows there are three proxies to represent market size: GDP, GDP per capita and number of inhabitants.

The GDP is positive related with FDI flows (Botrić and Škuflić 2006, Asiedu 2006; Mohamed and Sidiropoulos 2010; Vijayakumar et al 2010) since larger host countries have more potential demand and also lower costs associated to scale economies (Walsh et al 2010).

The GDP per capita is another proxy used and it is also positive related with FDI flows (Cleeve 2008).

Finally, the number of inhabitants is also a viable proxy to represent market size but there is different results since Mohamed and Sidiropoulos (2010) did not find significant results but Botrić and Škuflić (2006) found a negative relation this proves that what make MNEs invest on SEEC-7 countries is not market seeking related.

Openness of Economy

The most consensual proxy to represent openness of economy is imports more exports over GDP but in some cases the Openness index ICRG is also used.

The results of studies using ratio imports more exports over GDP are not consensual since some researchers found evidences showing that this proxy is positive related with FDI flows (Asiedu 2006; Botrić and Škuflić (2006); Cleeve (2008) Mhlanga et al. (2010))while others did not find robust evidences (Mohamed and Sidiropoulos 2010; Vijayakumar et al 2010).

Production Costs

The production costs are especially relevant for efficiency seeking FDI but also important for natural resources seeking FDI and for resource seeking FDI (Dunning and Lundan 2008) where, in theory, lower production costs means more FDI.

The labor costs was the proxy chosen by many researchers where most of them reach the same evidence, when labor costs are lower there is higher FDI attractiveness (Schneider and Frey 1985; Vijayakumar et al 2010; Júlio et al 2013), from the studies

found only Botrić and Škuflić (2006) reached different results, labor costs were negative related with FDI flows, this conclusion can be explained by the type of MNEs that engage on FDI in the studied countries, service MNEs, that usually are associated with higher wages (Botrić and Škuflić 2006).

Financial/Economic incentives

According to Bora (2002) fiscal incentives are one of the most used to attract FDI in developing countries as tax holidays or temporary rebates.

After gathering several studies about Financial and economic incentives the proxies used were tax holidays, tax concessions, profit repatriation, and tax payment.

Regarding the proxy tax payment lower tax payment leads to higher FDI flows attractiveness (Júlio 2013) but regarding FDI Stock the opposite is true, higher tax payment means more FDI stock.

As stated before, tax holidays is the most common form of tax incentives therefore it is one of the most used proxies to represent Financial/economic incentives, where this proxy is positive related with FDI flows (Cleeve 2008), offering too much tax concessions can also have the opposite desired effect (Cleeve 2008). Another used proxy is tax concessions where similar results to previous proxy were find, positive related with FDI has flows (Cleeve 2008).

The last proxy found in the research was profit repatriation where the evidences found was positive related with FDI flows (Cleeve 2008).

Clusters

This chapter will be mostly based on the article of Michael Porter called “*Clusters and the new economy of competition*” published at 1998 by Harvard Business Review.

According to Michael Porter (1998) “*clusters are a geographical concentrations of interconnected enterprises and institutions in a particular field*”, by other words clusters are a vast group of linked enterprises and other entities that are important for competition like suppliers of raw materials, machinery or other service providers that sometimes include elements from downstream of the value chain like distribution channels or even clients. It is not rare when clusters involve industries that do not

belong to the cluster but due to operational or financial synergies those industries settle in the cluster's region. Finally it can be found governmental facilities in the clusters like Universities, vocational training facilities or trade associations and many others enhancing the cluster's potential for attracting more enterprises to the cluster.

Usually clusters are made to potentiate ownership advantages and to take advantage of locational advantages, for instance, in Massachusetts State many clusters were made based on research of MIT and Harvard. Other example is the Netherlands transportation cluster that was based on extensive network waterways, on the efficiency of Rotterdam port and knowledge of the vast maritime history of that country also another reason was the central position of Netherland. There are clusters that may arise to satisfy the demand like in Israel, a cluster in irrigation equipment and agricultural technologies was created to satisfy the desire of being self-sufficient in food allied to the fact that in Israel the water is a scarcity good (Porter 1998). In other cases it is possible to create a cluster close to another one due to common raw materials or similar knowledge. A cluster can also be created by just one or two leader firms capable of stimulate the growth of other companies like suppliers or buyers or even creating new businesses.

It is important to have, retain and attract leader firms because those type of enterprises export their products and also increase the cluster's competition. Having leader firms is an important factor for cluster success since local firms can bring limited growth due to the limitation of local market. The cluster's boundaries are defined by the connections between enterprises and complementarities across industries but in some cases clusters can be restricted to a specific region due to political boundaries. There are cases where the clusters cross the political boundaries (more than one region) or even cross national borders.

The clusters are fundamental to enhance productivity because being part of a cluster allows enterprises to manage more efficiently the inputs, access more information, technology and vital institutions like trade institutions or universities. At the same time being part of a cluster let you be closer to rivals increasing competition but also cooperation especially between vertical industries. Another advantage of belong to a cluster is that enterprises are in the same space increasing the trust between them and suppliers potentiating the partnerships, networks and alliances. These gains can be even bigger if the cluster is a group of independent and informally linked enterprises (Porter 1998).

Being part of a cluster enhances competition by enhancing productivity, innovation and potentiates new businesses.

Cluster as productivity driver

Easier access to employees and suppliers

The transaction costs have a huge impact in decision making of MNEs engaging on FDI or not but the existence of well-developed clusters contribute for low transactions costs since in the cluster can be found a great variety of local suppliers reducing the need of big pills of inventory, reducing delay and also reducing importing costs. At the same time the enterprise is located at same cluster as the suppliers therefore the risk of not fulfilling the contract is lower also reducing the transaction costs. Having the supplier closer is better to achieve higher flexibility than choosing alliances with distant suppliers (although alliances with distant suppliers mitigate some of the disadvantages of distant suppliers but still have governance issues or complex bargaining issues).

Sometimes the best supplier is outside the cluster even when that happens the suppliers settled in the cluster will try to penetrate in the market by adopting an aggressive price strategy.

Regarding the suppliers, the most relevant disadvantage of belonging to a cluster is the possibility of natural resources become rare due to intensified competition increased competition increasing their price.

Being part of a cluster allows firms to access a pool of specialized employees lowering search and transaction costs and at same time reduces reallocation of employees due to the fact that in clusters there are more job opportunities making easy to attract talented labor.

Access to specialized information

In a Cluster it is easier to obtain relevant information from several types like market, technical or competitive information. In this way it allows firms to make better decisions since they have access to more information. On the other hand, as we stated before, being part of a cluster increases trust between value chain members increasing informational flows.

Complementarities

Complementarities can be found in many ways but the most popular is when products or services are combined in a way that satisfies the client needs better than when offered in separated. Another good example is the coordination of activities increasing collective productivity (synergies) reducing operational costs. The coordination of activities is hard to do when enterprises are not close geographically becoming hard to align their strategy and their operations losing possible synergies therefore competitiveness.

Complementarities in clusters also can be found in marketing area since if a cluster reach a well-developed level than its reputation increases buyers' awareness to do business with a vendor based there. If buyers choose to do business with a vendor based on a cluster it means that he can be supplied by more than 1 supplier reducing the bargaining power at the same time reducing operational risk using multisource (if a supplier misses to deliver the goods or services the customer can have other supplier at same location). Other complementarities in marketing are the trade fairs, trade magazines and marketing delegations.

Access to Institutions and Public goods

It is important that Government or other public institutions make investment in specialized infrastructures that enhance productivity of private sector. By doing this Governments create conditions for MNEs to engage on FDI and settle in foreign clusters. Another role of Government is to invest in training programs in order to have a specialized pool of workers and contribute to reduce training costs of private firms. It is also important that Government have institutions with international offices that has as role attract MNE to the cluster.

Private sector also invests in public goods that enhance productivity like training programs, testing laboratories, quality centers and other value adding infrastructures. These infrastructures many times are collective investments made by cluster's members reducing individual investment and at same time they can make better infrastructures.

Better Motivation and Measurement

There are high concentration of enterprises in a cluster therefore direct competitors compete to innovate and achieve the next big thing, this can be seen as a motivator for enterprises. Even indirect competitors contribute for motivation. Competition increase

the motivation because companies have reputation to defend and at same time want to look good next to local community.

Regarding the improvements at measurement it is possible for cluster firms to access information about rival labor costs and supplier costs and since their activities are similar it makes easier to compare performances from employees or even between firms.

Clusters and Innovation

Some factors mentioned on *Clusters as productivity driver* have even bigger role enhancing innovation. Having buyers in cluster is a huge advantage because due to that production firms can access more information about new trends and have better information regarding customer needs. Being in a cluster also allows enterprises to become more agile and flexible since they can react faster to market changes. This is possible because companies are closer to buyers and to suppliers so if they integrate them into the innovation process it is possible to increase the commitment from all value chain reducing the time to market.

The increased competition is a motivator factor but it also plays as trigger to innovate for the same reasons said before: it is all about firms' reputation and be the best in the industry.

Clusters can attract/create new Businesses

Usually new businesses arise in clusters due to several reasons like related industries, similar inputs, lower risks, low barriers to entry, etc. Since in the cluster there are many related industries it is possible for workers to identify possible gaps in products or services and develop a business to satisfy those needs. At the same time, in the cluster it is possible to find the needed infrastructures, skills, labor and inputs. One of the inputs, financial capital might be obtained through loans at lower interest rate if Cluster has a solid reputation. The bigger the cluster the better since size enhances all the advantages stated before.

Clusters might fail

Cluster can be competitive for centuries however it is also possible to lose the competitiveness through both internal and external forces.

External forces

Regarding the external forces, technological discontinuities are the most dangerous threat because if that happens several advantages of cluster can disappear at the same time. Even if the cluster has good assets like specialized labor, supplier bases, specialized knowledge or market information it might not be enough to overcome the impact of technological discontinuity. Technological difficulties can be, for instance, replacement of an intermediate product A for an intermediate product B, that shift might reduce competitiveness of enterprises producers of product A to nearly zero if they don't possess know-how about product B.

Another external threat is the shift between buyers' needs for local market and for a foreign market. This divergence might be a barrier for innovation because if local market is big enough local cluster's firms may stay behind compared with foreign competitor clusters and lose market share in foreign markets, eventually might also lose market share in local market if their needs change too.

Internal forces

Clusters are also vulnerable to internal threats that reduce their competition like overcoming consolidation, cartels, mutual agreements or other restrains that negatively impact local competition. As stated before, competition is a key factor for enhance cluster's success.

Another threat is regulatory inflexibility or union strong rules, both affects negatively the productivity by restraining productivity gains obtained by being in a cluster. Another threat related with Government is the investment facilities or public goods, for instance the investment in education is crucial for proper research and development and also form a good specialized labor pool.

It is important that a firm focus on their goals but must be able to do so at same time that cooperate with other firms of the cluster or else the cluster will suffer of collective inertia becoming harder to embrace new ideas or achieve innovation in case of a shift in customer's needs.

When these rigidities happen the cluster can be saved if the competition between cluster's firms remains sufficiently strong by replacing local suppliers for distant suppliers or even moving part (or the whole) of the production process to another

location. An offshore location is the best option when wages increase faster than productivity gains.

The Government can impact the Clusters

The first step for a good industrial policy is the recognition of productivity as the main driver to reach prosperity by Government. Afterwards, Government must create the proper environment to enhance productivity (macroeconomic policies). The microeconomic foundations will define country's competitiveness and productivity.

It belongs to both Governments, national and local, to create high quality inputs like proper infrastructures and qualified labor but also establish proper competition rules like laws to protect intellectual property or antitrust laws.

Another critical role of Governments is the industrial policy where Governments target the desirable industries to attract by granting subsidies or develop restrictions to protect local companies by creating entrance barriers. In fact industrial policy should aim to all clusters because as state before clusters have linkages among each other therefore it is important to invest in all due to the fact that one cluster can affect the productivity of other clusters. It is important that market set the rules of which clusters will survive instead of the Government.

Porter also states that Governments should focus on already settled clusters instead of creating new ones since many times successful new businesses, new industries and new clusters appear close to an existing cluster.

Usually clusters are formed based on locational advantages but before high investments be made it is important to test the cluster in the market at early stage. Other critical factor for cluster's success is the capability to develop the cluster in order to potentiate the location advantages or unique sources instead of trying to replicate a foreign successful cluster. In order to see the clusters that Porter identified in Portugal at 1998 see Annex 2.

Alternatives to Porter's framework for clusters

Adaptive Cycle Model

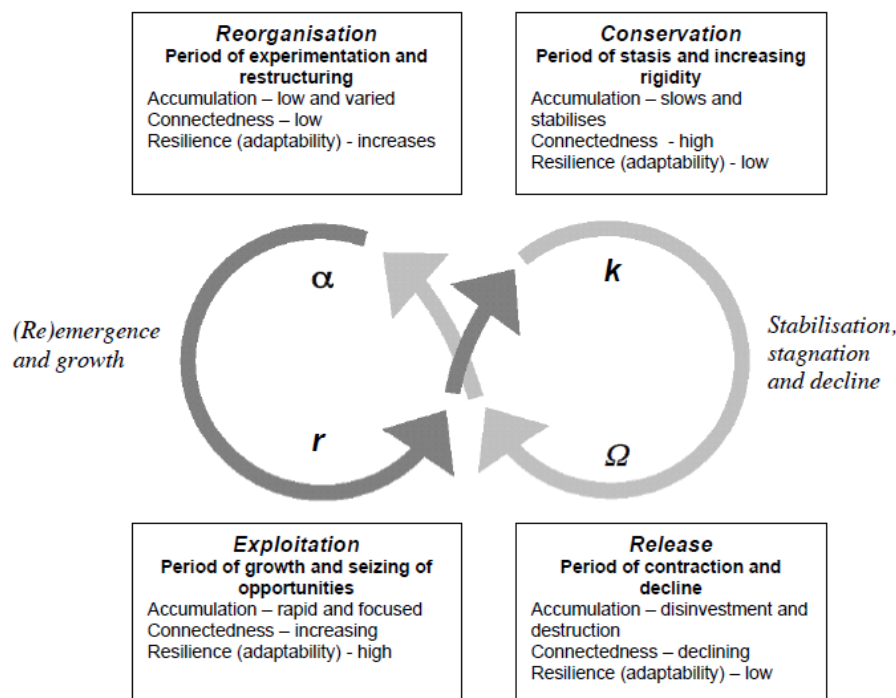
There are some researchers questioning Porter's framework like Martin & Sunley (2003) presenting several valid theories applied to clusters and at same time pointing their limitations. To Martin & Sunley (2003) the best theory to explain cluster evolution

is the Adaptive Cycle Model, this model was developed to explain evolutionary dynamics of ecological systems but has been applied to other fields, one of them ecological economics.

Holling & Gunderson and (2002) developed a conceptual framework called Panarchy in order to explain stability and change in complex systems. It is important to pay particular attention to the system's resilience to external shocks and how resilient the system is to internal changes as it grows.

According to Holling & Guderson (2002) resilience can be defined as the capability of the system to adapt to changes. In adaptive systems like ecosystems, there is a conflict between two trends, the tendency of increasing internal connectedness and order among system elements and the tendency of increased internal connectedness and order reduce the capability of the system to adapt to changes in external or internal environment. Based on this it is possible to realize that might exist a tradeoff between connectedness and resilience: the more connected is the system less adaptive it becomes. The adaptive cycle model tries to solve the conflict among resilience and connectedness by a four stages process of continuous adjustment for ecological, social and environmental systems (figure 1).

Figure 1: Adaptive Cycle model applied to complex system



Source: Martin & Sunley (2003)

The first stage is called exploitation (or “r”) where it is characterized by fast growth and resource accumulation, in this stage is when possible clusters appear and develop. Based on Holling & Gunderson (2002) bigger growth means higher interconnectedness and since it is an early stage the system also has high resilience.

The second stage, conservation (or “k”), is when the system become more stable over time, system’s growth stagnates and becomes rigid. In other words, the system reaches stability around a particular shape, structure and in mode of self-reproduction. This stability means higher interconnectedness therefore the resilience becomes lower or at least makes resilience limited. If during this stage a shock occurs or if the stability and rigidity itself leads to system atrophy, the system reaches the third stage also called release (or “Ω”) where the system contracts, meaning system becomes smaller affecting negatively the interconnectedness and available resources. The fourth and last stage is called reorganization (or “α”) where the system has to restructure, reconfigure and also experiment new areas of business. During this stage resources are grouped but in a slow pace, connectedness is low therefore resilience is high, the system might adopt a new form.

According to Peterson (2000) the change vary according to the stage where the system is, in the first two stages, Exploitation and conservation the change is gradual and predictable on the other hand, the last two stages change might be fast and unpredictable.

The Fourth stage admits two possible outcomes: renewal or replacement.

Renewal vs Replacement

If in the fourth stage the outcome is renewal then the system will begin a new cycle of growth and resource accumulation. If the outcome is replacement then the old system is replaced by a new one with different identity.

It is possible that new system use resources left by old system, if it happens and if those resources are substantial than the new system might be hybrid, between renewal and replacement.

Adaptive Cycle Model applied to Clusters

This model is an interesting framework to apply to clusters since the growth of a cluster is mainly linked to the accumulation of key resources that enhance productivity, the adaptive cycle model states that as the accumulation of resources increase the connectedness between system elements also increase. These connectedness can be seen as the development of interdependencies between co-located firms and institutions that establish the cluster. Those interdependencies creates knowledge spillovers and other externalities network related. Moreover, the model also suggests that in a certain level of interdependence the resilience of the cluster will diminish having negative impact on their capability to react to external shocks such as the appearance of new competitors or technologies.

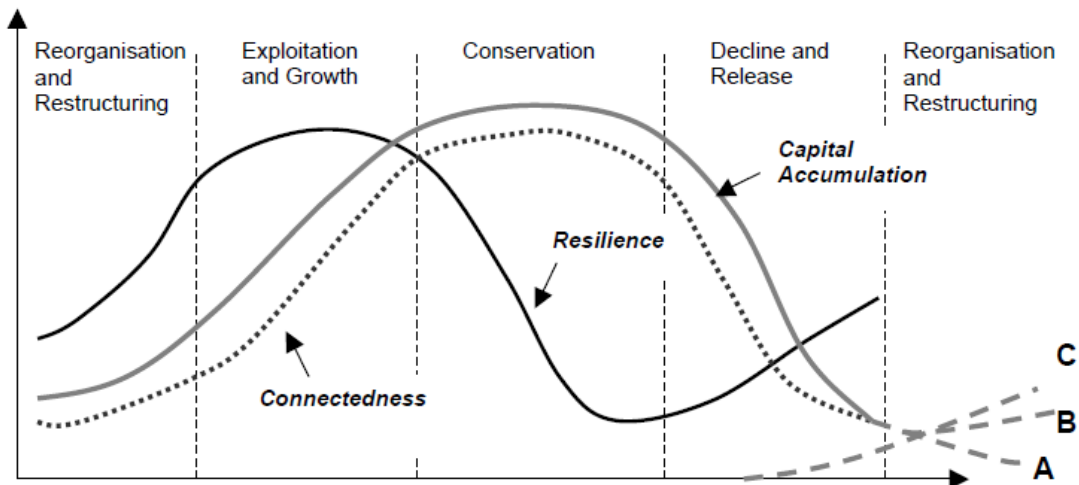
Usually cluster's members doesn't know their capability to adapt to an external shock until it happens. If the cluster's resilience is low than there will be a disinvestment, low or non-growth and the size of the cluster becomes smaller. From this scenario there are three possible outcomes.

First outcome is the one where the cluster will survive upgrading their products, productivity and competitiveness recovering from the shock therefore regaining market share and profitability. At this scenario the cluster restructure the existing firms gaining a second life and restarting pilling resources (path B at figure 3), joins the α stage but might not be enough and still fail to succeed.

The second possible outcome is that a new cluster appear to replace the old one sharing some resources or it is a cluster specialist in a similar industry (path C at figure 3).

The third and last scenario is when a cluster disappears and no other cluster is made so the cluster lose their competitive advantage and keeps decreasing until a point that simply disappear.

Figure 2: Conceptualising Cluster Evolution: Beyond the Life-Cycle Model



Source: Martin & Sunley (2003)

Critics to Porter’s cluster model

Martin & Sunley (2003) contest Porter’s cluster model regarding the simple life-cycle approach due to the assumption that cluster evolution is universally by the progress of a determined process since clusters are considered complex systems than cannot be explained by only one dimension variability.

Wolfe & Gertler (2004) found empirical data that doesn’t fit some universal assumptions assumed at Porter’s cluster model like local competition as a driver for firm’s performance. They also conclude that both national and local contexts has high impact on the shape the evolutionary trajectory of the cluster that might not be the same as Porter US-based norms.

Spenger G. M., Vinodrai T., Gertler M. S. and Wolfe D. A. made a study in 2007 trying to determinate if clusters have a positive impact on economic performance in the study called “Do Clusters make a difference? Defining and assessing their Economic performance. This study was based on Canada’s economy where they identified ninetieth types of clusters and analyzed the information considering four variables: number of patents per ten thousand employees, compound annual employment growth rate, average income and unemployment rate. They found that each type of cluster impacts the economy differently.

It is possible to state that unemployment rates were low in oil and gas cluster, maritime cluster and others. On the other hand unemployment rates were higher at agriculture, mining, wood and other clusters.

They also state that usually clusters have lower unemployment rates when comparing same industry in a non-clusters basis.

Regarding the patent variable, it was possible to verify that the variation between cluster locations versus non cluster location was lower than the unemployment rates. Another important observation made was that six of the ninetieth clusters were responsible for almost 82% of all patents: ICT manufacturing with 28.1% share, biomedical 26.6% share, and 10.1% to automotive cluster, 7% share to rubber and plastic, 5.3% share to steel and 4.7% to agriculture. Comparing clusters vs non clusters it was possible to conclude that eightieth clusters developed less patents than non-cluster similar industries. The only type of cluster with better performance than non-cluster was ICT manufacturing had worst research performance than non-clusters develop more patents.

Another variable analyzed was the average annual income where clusters had higher average annual income than non-clusters, the difference between them reached half in some cases.

The employment growth rate was also higher in clusters except in manufacturing clusters like rubber and plastic, IC, textiles and biomedical where non-clusters had higher employment growth rates. These may be due to the productivity gains that being part of a cluster might offer.

The overall performance of being in a cluster is better than not being, since three out of four variables had better indexes when the industry was in a cluster. The patent was the only variable with better performance when industries weren't at a cluster.

Port Governance models

According to Mary. R. Brooks (2008), Governance is “*the adoption and enforcement of rules governing conduct and property rights*”. Governments or other policy makers impose governance structures in order to achieve national or regional policy objectives.

Port governance is one of the most researched topics regarding port economics according to Pallis (2011) it was the third most researched topic between 1997 and 2008. In fact, this theme is so important that World Bank already published a paper

about port governance reforms worldwide called Port Reform toolkit (World Bank 2007).

According to World Bank Port reform toolkit module 3 (2007), there are many factors that impacts the way ports are organized, structured and managed like the socioeconomic structure, historical developments, location of the port and types of cargoes handled. Based on those factors World Bank identify four types of Port Governance: Service Port, Tool Port, Landlord Port and Private Service Port.

Service Port

This type of governance has a public character where the port authority offers all services required to have a functional seaport by owning and operating all the assets using labor employed directly by the port authority. Service ports has as port authority an institution linked to the ministry of transport/communications where the CEO is civil servant nominated by the minister. The main management challenge related with this governance type is the possible conflict between public entities that respond to the same ministry. Another negative aspect of this model is that there is no role for private firms lowering efficiency (no internal competition) and at the same time it isn't market oriented or used oriented (might not satisfy the customer needs properly). Since the port is fully public oriented the innovation is limited and also is heavily dependent on government budget.

Tool Port

A Tool Port is very similar to the Service Port since both have public character and similar ways of financing. In this type of governance, the port authority also owns, develops and maintain the port infrastructure where usually the owned equipment is operated by labor linked to port authority. The main difference between Service Port and Tool Port is that in the Tool Port cargo handling in the vessel or at the pier many times is made by specialized private firms contracted by shipping agents or other authorized port agent. The main strength is that since the investment on infrastructure is made by Government there are no duplicated unnecessary buildings. This model has some disadvantages, for instance, splits the operational responsibilities that may lead to conflicts between port authority staff and terminal operators affecting negatively the port's efficiency. In order to avoid this problem some port authorities allow the private cargo handling firm to use their own equipment. This type of governance model can be used as a transaction from Service Port to a Landlord Port because sometimes there is

high investment risk or the linkage between the private sector and Port Authorities is not strong yet. A possible mitigation measure is to support initial investment reducing investment risk of private firms. Another advantage of Tool Port is the less bureaucracy (laws and regulations) required to transfer the operation rights since no state property is being transferred.

Landlord Port

Landlord port model is characterized by a hybrid orientation since has both public and private orientation. The port authority has as role to regulate and is the landlord, the port operations are executed by private firms. This model is the most used nowadays in large and medium size ports. The port's infrastructure like refineries or gas tanks are leased to private operating firms or to certain industries. The lease amount is fixed sum per square meter per year taking into consideration the inflation. The private operators invest on their own infrastructure to operate including buildings they also need to invest on their own equipment for terminal in order to do all operational activities. These operational activities are carried by labor hired by the private terminal operators. It is also possible that part of the labor be provided by a port wide labor pool. This model disadvantages has some risks like possible overcapacity increasing costs and at same time reduce port's efficiency or the timing to invest in more capacity might not be the best.

Full Privatized Port

This type of model is hard to find outside of United Kingdom and in New Zealand. In this model the State lose interest on port sector. In Full Privatized ports private firms own the operations, infrastructure and also the land port. Since the port becomes full privatized there is no Government interference creating more flexibility to private firms invest in other complementary activities and also implement market oriented policies. Transferring the land port to private firms is a delayed process due to the related laws and regulations. Some Governments also choose to transfer the regulatory roles to a successful private company becoming self-regulated. This type of model has some disadvantages like land speculations if the port land is close to a major city or if the private firm wants to resell the land for non-port activities being impossible to Governments reclaim the port for maritime usage, possible monopolistic behavior from private firms or the Government lose the ability to apply long term economic policies to port sector.

Port management and Competition

The relationships between port authorities, cargo handling firms and terminal operators affect the port management structure, the most used strategy is the creation of policies to increase internal competition between terminal operations. This strategy can only be applied to big ports because small and medium ports have limited traffic capacity being able to hold only one terminal operator (Port Reform toolkit module 3, World Bank 2007).

There are some key factors that affect inter-port competition:

- **Geographic Location:** it is important that the port has a good transportation network close to it increasing the attractiveness of the port. A strategic location must satisfy some characteristics like proximity to at least one major maritime route, be a Port of natural deep water, be close enough to big consumer or production areas and possess good hinterland connections.
- **Legal framework:** a good legal framework applicable to port management enhances investor confidence. It is important to have specific laws to define properly the several parties' powers and responsibilities. It is also crucial to have well defined the land and competition laws.
- **Financial resources:** a port with his own financial resources can be seen as a competitive advantage over other ports;
- **Institutional structure and socioeconomic environment:** the port authority must create a proper management structure capable of attracting investors at the same time that has specialized labor force and maintain a positive relationship between employees and employers;
- **Efficiency and price:** Nowadays production companies give much attention to the costs making cost variable important in the decision process at the same time they also become more market oriented in order to deliver more value to the clients by improving the logistics process, gain more efficiency and reach better price-performance ratios.
- **Image of the port:** it is also important the image perceived by clients, the best image that the port might have is the optimum mix of the previous characteristic pointed above;

Value Added Services

In a global view usually the port role in the network depends on the location and on the technical and economic developments that can be found on the hinterland. Nowadays with the globalization the consumption patterns and production techniques changed to a bigger scale and that created the need for better transportation services and all related activities therefore specialized cargo handling, storage and many other logistical facilities are needed in ports. It is important that port authorities have these facilities available because not only it will boost the port's economic performance but also its attractiveness. Before creating a new service it is important to realize the value it will bring to the port. Value added services can be divided into value added facilities (VAF) and Value Added logistics (VAL).

Value added Logistics

The VAL are divided into general logistics services that include traditional activities that does not change products nature while it moves. Those activities can be handling, storage, warehousing and distribution between many others. VAL also include the logistics chain integration services that are basically activities that production firms does not consider core business like customization, assembly packaging or quality control.

Value added Facilities

The VAF combines many types of facilities that cannot be associated to a particular type of product or freight flow.

The new trend regarding the Value added Services is the creation of a distriparks with the goal of obtain the perfect environment enhancing VAF and VAL. In this area is possible to the companies to perform trade and transport related value added services.

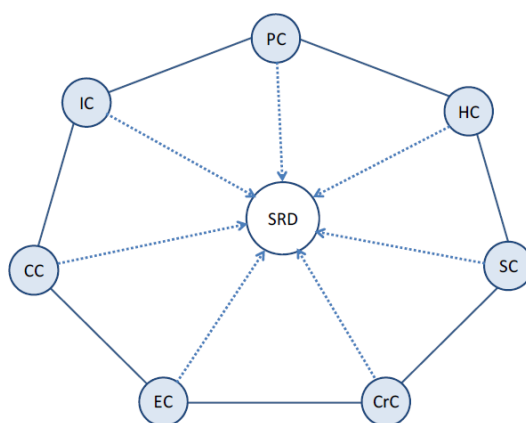
Sustainable Regional Development

According to Stimson et al. (2011) there are five types of capital required to obtain sustainable Regional Development but later Baleiras (2011) added more two becoming seven in total:

- Productive Capital (PC): this capital corresponds to neoclassical theory production inputs like production labor and capital;

- Human Capital (HC): it is related with labor quality since better education, training and other valuable skills means better quality. This type of capital can be seen as productivity enhancing factor. It is important to have a balanced labor force due to the importance of social interactions to reach sustainable regional development;
- Social Capital (SC): includes all communications and interactions between all people of the region like socioeconomic linkages, formal and informal business networks, all relations based on trust and others;~
- Creative Capital (CrC): it is the ability to overcome all challenges and take all business opportunities, it is strongly bond to the entrepreneur spirit, the ability of thinking out of the box, innovative knowledge and the capability to anticipate new consumption patterns or even new trends. This type of capital is usually found in multicultural regions.
- Ecological Capital (EC): incorporates all the required factors that contribute for a good quality of life or good work environment. Those factors can be green spaces, fresh air, good landscapes, good climate, etc;
- Cultural Capital (CC): embraces all cultural aspects of the region like civilian, military and religious traditions or even art works.
- Institutional Capital (IC): this type of capital measures the quantity and quality of public and private institutions and social institutions in the region;

Figure 3: endogenous inputs to reach Sustainable Region Development



Source: Baleiras (2011)

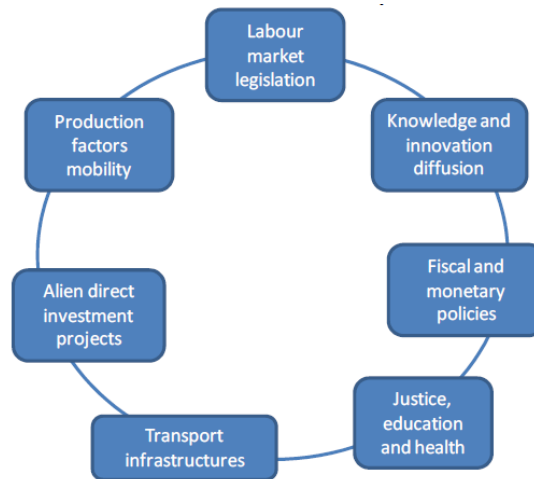
In the figure 3 it is possible to see that each capital source has interactions among them and from those interactions it is possible to create comparative advantages like linkages

between industries, reduced transportation costs, agglomeration or network externalities (creation of clusters). These interactions have different impacts on Sustainable Regional Development varying according the region (Baleiras 2011).

In order to have effective interactions between different types of capital is necessary to have solid collaboration at both horizontal and vertical layers. The collaboration at beginning is between several economic actors like firms, municipalities and ministries. Later on it is between actors of different categories.

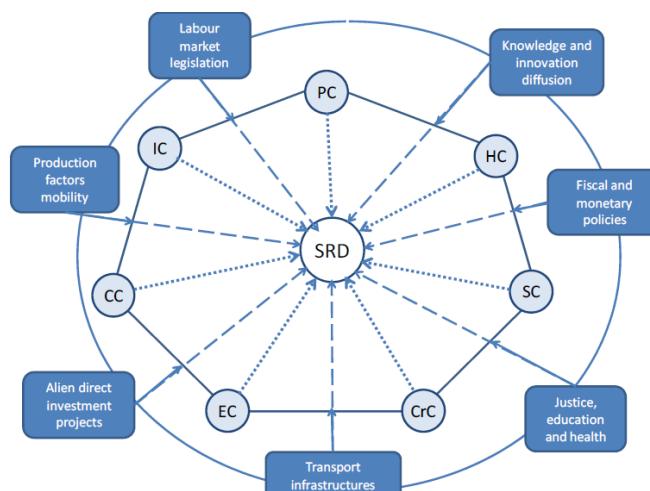
To complete the Sustainable Regional Development model is necessary to point the exogenous variables that impact the model. The exogenous factors affect all types of capital:

Figure 4: Exogenous factors of the SRD model



Source: Baleiras (2011)

Figure 5: The SRD Model



Source: Baleiras (2011)

As the figure 5 shows the exogenous factors impact directly the several types of capital that afterwards affect SRD. This model can be applied to developed or developing countries and within a certain country it can be applied to urban or rural regions.

Method

I have decided to do my thesis as a case study in order to identify the location determinants of inward FDI in the host country and compare cluster of Sines with other clusters at a macro level since it is almost impossible to find data regarding just Sines so makes more sense to compare countries instead regions/clusters themselves. There was the possibility to make a survey to enterprises operating at Sines but it would not be reliable since the data pool would be too low.

The case study design is the single-case type since I focus my attention only on Sines' port case under one context.

There are three research questions that this case study has to answer:

- Which are the location determinants for inward FDI at host country?
- Which location determinants Sines' port has?
- What can be done in order to improve Sines' port attractiveness?

In order to answer my research questions I defined a list of relevant topics showed at chapter five where I present some theoretical background for each topic based on information gathered on thesis, books, papers and other information sources.

In chapter seven it is important to describe some historical relevant data about the region to understand what ZILS is, its potential is and how it can enhance regional development and for that my main source of information was the AICEP Global Parques' website, interview with Dr. Isabel Cardoso and some brochures. It is also crucial to understand what implications of EU guidelines can have in government Politics for clusters or how Government is defining its investment strategy for enhancing national productivity through PETI.

For chapter eight I focused my attention on the several types of hinterland, macroeconomic, physical and logistical because the better the hinterland the better will be port's performance. I gathered information in books, thesis and papers in order to explain the concepts pointed above.

Regarding the chapter nine, I conducted an interview with Dr. Isabel Cardoso from AICEP Global Parques and also with Dr. Luís Silva from Sines Port Authority in order

to gather information about which location determinants Sines has, future investments in infrastructures, improvement opportunities and port competitors.

From the conducted interviews there were identified six countries that should be compared with Portugal being Germany, Netherlands, Spain, Poland, Egypt and Morocco. Germany and Netherlands were introduced into this study because on both countries there are huge hubs that compete with Sines cluster. Regarding Poland and it belongs to Eastern Europe and recently it is growing at good pace. Spain, Morocco and Egypt belong to the region called WestMed where each country has good clusters capable to compete with Sines specially Spain due to the proximity with Portugal. Afterwards I gathered the information regarding each FDI location determinant proxy identified on theoretical research and organized it into eight main groups in order to make it easier to analyze and take conclusions.

1. Historical context

1.1. Portuguese Government and their Growth Policy

After the Second World War most of the Governments applied the concept of Growth poles conceptualized by Francois Perroux in 1955 to their regional, urban and national development planning. Perroux (1964) states that growth does not manifest everywhere it concentrates in growth poles with different intensity changing from region to region, expanding using different channels and also affecting the economy differently. Based on this theory Perroux believed that Governments should invest in the poles that have more resources contributing to the growth of surrounding regions. The growth pole theory was also used by Portuguese Government when they tried to develop proper policies for regional development by adopting a model of investment towards strategic manufacturing firms from steel industry, energy industry or other manufacturing industries with high export potential. In order to do so the Portuguese Government had to adopt a policy less protective and more open to foreign investors.

1.2. Sines Complex

In 1956 the closure of Suarez channel was one possible scenario that would obligate big oil tanks to take the cape route to make the connection between Persia Gulf and Europe. This scenario would benefit Portugal since Portugal has a strategic geographical position. In 1971 the Portuguese Prime Minister Marcello Caetano decided to build an industrial and seaport complex with the intention of boosting south regional economy (Perroux 1955) and reduce the diseconomies effects already affecting Lisbon and Porto, this would be possible through investments in sectors like energy, steel industry or other exporting manufacturing industries. Despite it was a bold decision at the time made sense since the international conjuncture was perfect for big investments in maritime infrastructure. The chosen location should be close to a seaport therefore there were few possible locations: Sines, Setúbal, Alcochete or Sagres. What led the Government to choose Sines was the one with lower price for rural land, potential to become a deep water port and also the strategic position regarding the main maritime routes.

During the 60's Sines was suffering from mass exodus of people leaving to big cities or to foreign countries, with the Sines complex it was possible to counter it by attracting the population from big cities to work at Sines.

This complex was planned to have proper facilities and equipment and be fully integrated at the supply chain in order to attract other manufacturing firms besides oil firms and steel industry firms. At the time some researchers contested this complex stating that would not be the right investment to enhance regional development since it would only extend Lisbon's region (Simões Lopes 2001).

After the complex was built there was a shift regarding the economic activities where the services and manufacturing became more important than primary economic activities like agriculture or fishing. This shift caused the wages to almost quadruplicate but on the other hand also made the cost of life increase becoming the highest in the region.

Nowadays the complex was build more than thirty years ago and it is possible to analyse if the complex achieved its purpose and the answers is no, the researchers that questioned it were right, Sines complex was able to industrialize the coastal region but was not able to develop the interior region increasing even more the asymmetries between the interior and coastal region. In order to demonstrate that the complex was a growth driver to the region, at 1995 the GDP per head at Coastal Alentejo was almost eleven million euros increasing to almost twenty two million euros in 2012 becoming the second region with highest GDP per hear in Portugal right after Lisbon with almost twenty six million euros (source: INE).

1.3. Why the complex somehow failed?

The project failed to correspond to Government expectations due to several motives like external factors, social factors, economic factors and environmental but also because initial expectations were too high where the initial project included too many facilities. Although the initial number of facilities were high many of them were not built but still the complex took six years to be ready for operating, for instance the refinery only started operating at 1980. This delay in the project might be one of the several causes to explain why the complex did not met the expectations.

1.3.1. External Factors

The construction of the complex started in 1972 and after one year there were two main external factors that affected negatively the project, the Yom Kippur War between Egypt and Syria versus Israel made the oil price increase to more than four times compared with pre-war prices, the second external factor was the re-opening of Suarez Channel that reduced the movement of oil tankers into the Sines Seaport.

1.3.2. Social Factors

The land expropriation process was the most negative factor of this investment since local agriculture entrepreneurs sold the land at low price and because of that could not buy new land to restart their business activities.

Due to that many local entrepreneurs were forced to be part of the labour force used to build the complex. After the complex was finished they had no job and no land increasing the social problems. At the same time the population increased dramatically due to the hiring of technicians to satisfy the needs of specialized labour for the complex creating new problems: local services and the housing were insufficient.

1.3.3. Environmental factors

Before the complex construction Sines was a land of almost no human interference but after became a land with high level of industrialization. When this happens the pollution is a serious problem that has to be mitigated or else it is dangerous for public health and also for environment. Economic activities like fishing or agriculture were affected since the pollution at the sea was one problem, another one was the reduced land for agriculture with the expropriation process.

The most tragic accidents happened at the 80's, first when an oil tank exploded near the seaport at 1980 and second when a leakage happened nine years after. These two accidents caused a contraction in local economy and contributed for social contentment.

1.3.4. Political and Economic Factors

The Portuguese economy suffered with the social shocks, external shocks and also with the political instability therefore the economy entered into recession after more than thirty years growing at a good pace. Part of the manufacturing sector and almost all of financial sector were nationalized contributing for the instability felt in the Country. All these shocks made GDP reduce 4.5% comparatively to previous year (source: INE). The political system normalized during the 80's but the macroeconomic policies were not

adjusted to Portuguese reality creating high public deficits and also higher inflation reaching prohibitive levels that impacted negatively the Portuguese competitiveness towards exportation.

1.4. Major Accessibilities of Sines Complex

The firms operating at Sines complex have access to many types of accessibilities: maritime, road, rail and airport. These accessibilities allow the hinterland to grow and incorporate part of Spain.

1.4.1. Maritime Accessibilities

Port of Sines is the most important port in Portugal regarding the volume of cargo handled. It is a deep water seaport that can handle several types of cargos, from petrochemicals to Liquid Gas, containers and others.

1.4.2. Liquid Bulk Terminal (TGLS)

The liquid Bulk Terminal was inaugurated at 1978 being the largest liquid Bulk terminal in Portugal, it was build according the needs of several enterprises to handle different products. This terminal has six jetties and can handle ships up to three hundred and fifty thousand tonnes Dwt. It can handle Crude, refined products, liquefied gas and other liquid bulks simultaneously.

There is a pipeline connecting the terminal to ZILS (Sines industrial and Logistics area) where the firms that use the terminal are located. The terminal is managed by CLT- *Companhia Logística de terminais marítimos* that belongs to GALP Energia Group, this firm won the concession for the terminal.

1.4.3. Petrochemical Terminal (TPQ)

The petrochemical became operational at 1981 where it allows to handle cargo like Propylene, Ethylene, Butadiene, Ethanol and others. This terminal can handle vessels up to twenty two thousand cubic meters through the two jetties available at the terminal. Afterwards the cargo is transported by pipeline to the storage area with proper tanks for each type of product handled. The Petrochemical Terminal is managed by Repsol Polímeros for private use during the concession period.

1.4.4. Multipurpose & RO-RO Terminal (TMS)

The multipurpose and RO-RO Terminal was built in 1992 for public service where the concession was granted to Portsines firm. This terminal has four berths that allows to handle solid bulk cargo, general cargo and RO-RO cargo transported by ships up to one hundred and ninty thousand tonnes Dwt. Usually this terminal handles coal for the power pants of Sines and Pego.

1.4.5. Liquefied Natural Gas Terminal (LNG)

The liquefied Natural Gas Terminal was inaugurated at 2003 with the purpose of being an alternative of Magreb pipeline being responsible for supplying 45% of gas consumption in Portugal (data from 2013). The firm REN Atlântico is responsible for the management of the terminal for private use.

The terminal is equipped with one jetty that allows to handle vessels up to one hundred and sixty thousand five cubic meters. The terminal also has a storage are with three tanks, two of them with a capacity of one hundred and twenty thousand cubic meters each and the third with one hundred and fifty thousand cubic meters.

1.4.6. Terminal XXI (containers)

The containers terminal was built in 2004 under public concession to PSA Sines (Port Singapore Authority), this port can handle container vessels from international routes since it is a deep water seaport with six gantry cranes for postpanamax and super postpanamax. The terminal has a capacity of one million and three hundred and two thousand TEU per year but there is a project on going to expand the terminal and at the end of it the capacity will be one million and seven hundred thousand TEU per year.

The terminal XXI is the major responsible for port's growth since in 2004 the container cargo represented only 1,1% of total cargo but in 2013 was already responsible for almost 33% of total cargo.

1.4.7. Rail Aecessibilities

Zils is connected to National and International railway network by electrified railway where the distance from the port to Zils is only seventeen kilometres. The Sines railway is seventy two km long and is connected to south line (Lisbon-Algarve). Sines railway is also connected to trans-European network since it is possible to transport cargo to Mérida or to Caceres (Spain) that afterwards go to the rest of Europe. There are some projects on going to improve the connections to Spain reducing distance and travel time.

1.4.8. Road Accessibilities

Portugal is one of the most developed countries in Europe regarding road accessibilities since it has highways, main truck roads, secondary roads, national roads and regional roads. It is easy for the firms operating at Sines to transport cargo to Spanish cities like Madrid, Badajoz or Seville or other city in Portugal.

1.4.9. Airport Accessibilities

The nearest airport is at Beja, ninety five kilometres from Sines seaport, this airport is mainly for transporting goods. The second closest is Lisbon airport at a distance of one hundred and fifty nine kilometres.

1.5.Sines Port Authority (APS- Administração Portuária de Sines)

The APS is a Public entity that was created in December of 1977 when the law decree 508/77 was established.

The APS has the mission to do proper management of the economic, financial and patrimonial activities in order to achieve the optimization of port's resources but also economic and operational efficiency at the same time that security and environmental requisites are fulfilled.

The jurisdiction of this entity is divided into two distinctive areas, the maritime area with 14.750 hectares and the land area with 630,9 hectares.

As stated before in the Maritime Accessibilities section, all terminals are explored by private enterprises that are also responsible for their maintenance, making the APS responsible for the administration of the infrastructures. According to World Bank classification Sines port Authority can be classified as a Landlord Port (World Bank Port Toolkit 2007).

The APS is not the only entity deciding the strategic investments inside the Sines's port jurisdiction since AICEP Global Parks and Municipality of Sines has also a word to say.

The APS is under control of Economic ministry therefore the strategic guidelines are provided by the Government through the strategic plan called PETI that contains the

strategic investments to be made from 2014 to 2020 in transportations and infrastructures.

The PETI has the three main goals:

- Increase competitiveness, national growth and employment;
- Ensure that the transportation sector becomes financially sustainable;
- Enhance the mobility of people and goods and also territorial and social cohesion;

According to this plan the maritime sector (25%) and railway sector (44%) will be responsible for almost 70% of all investment where part of these investments will be allocated to Sines.

1.6. Industrial and Logistics Area of Sines (ZILS)

The ZILS is the largest industrial park in Iberian Peninsula located close to Sines Port. This park offers unique conditions to firms that operate there:

- The costs of production factors are competitive, stable and transparent when compared with other regions;
- ZILS offers a great geo-strategic position since it is relatively easy to access growing markets like Africa, North and South America through the Sines port;
- It is easy to transport cargo to Europe by sea, road or railway;
- ZILS offers proper infrastructures and services capable of hosting any industrial or service firm;

It is important for ZILS to attract and retain a diversified pool of industries in order to enhance regional development, employment, entrepreneurship and also training. A diversified pool of industries means more suppliers and more final products available for consumers increasing the cluster and its advantages) but also more synergies between cluster elements enhancing the innovation and competitiveness (Porter 1998) spreading to other regions in the interior.

1.7. Regional Growth Development

Nowadays it is easy for enterprises to invest abroad by doing so the capital, products and human resources flows increase towards the fast growing economies. When this phenomenon happens some regions in a country can be severely affected especially when the regional economy is highly linked to primary sector or to industrial manufacturing like in Alentejo and all South region of Portugal.

Other factors that affect regional growth development are the competition between regions, environmental legislation and climate changes. These factors can be seen as opportunities for regions and firms reach higher efficiency by investing in infrastructures capable of creating comparative advantages (Porter 1998).

It is important for Municipalities to create clusters in order to reduce the outflows of capital and human resources becoming more attractive for MNE's to operate in a cluster basis than alone since in a cluster it is possible to create synergies with other firms, reduce distance to suppliers and more variety of suppliers, good infrastructures, higher information regarding customer's needs (Porter 1998).

1.8. Conclusions: Sines and APS role

Sines Cluster was initially focused in petrochemical products but in order to keep the port competitive was necessary to invest in other type of terminals diversifying the type of cargos handled. Nowadays the Terminal XXI is the Sines port growth driver changing Sines from an Energy cluster to a diversified Regional cluster.

It is important for APS that in the future they become more active by implementing the required policies to make the hinterland more competitive and larger. The hinterland is reduced but has potential to grow since the container cargo increases year after year making the hinterland also increase (Hayuth 1981 and Starr & Slack 1995), the increase in container cargo can be explained by the transshipping phenomenon, increased exportations and importations. It is important for APS to attract firms to enhance exportations or Sines port will become a transshipping port. The transshipping is an activity that adds low value for the region since it only requires port activities like cargo handling and storage, there is no transformation of the cargo (no manufacturing).

Maritime Chain

In this chapter it is important to explain some concepts regarding the maritime chain like Foreland, Hinterland and Port competition.

The foreland can be defined as the ocean where the port performs commercial activities overseas linked by shipping services.

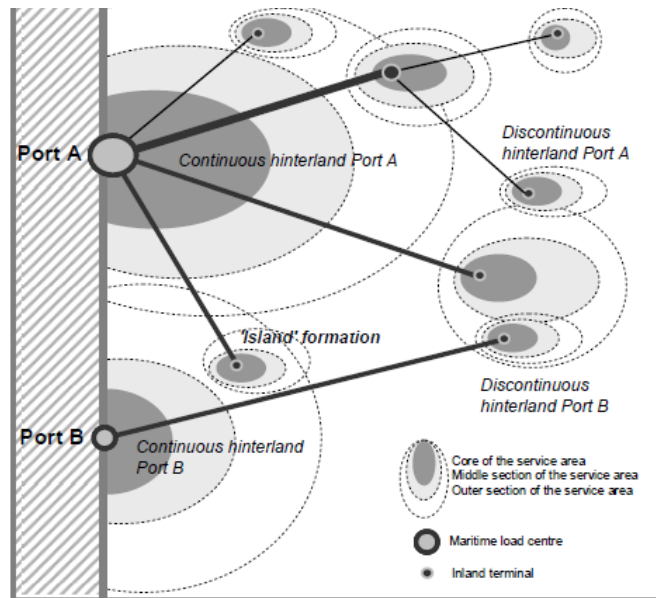
According to Notteboom (ITMMA 2008) the hinterland is the region which a port does most of its business. The hinterland varies according to the commodity (bulk is different from containers), the time (economic cycle, port authority policies, technological changes and others) and the transport mode. There are two types of hinterland, main hinterland that is the area closer to the port and the competition margin that is the area where the port has to compete with other ports.

Nowadays the researchers defend that a concept of static main hinterland is not the most correct since the hinterland limits change according to market changes but agree that usually main hinterland is continuous. The competition margins can be discontinuous since with higher development of intermodal transportation might appear distant hinterland areas also called as Islands (Notteboom ITMMA 2008).

The ports that have container terminals could expand faster their hinterland then other ports increasing inter-port competition (Hayuth 1981 and Starr & Slack 1995) due to that the European container ports can be considered as gateways that are a nodal point in the maritime chain where intercontinental transport flows are being transhipped onto continental areas and vice versa (Fleming and Hayuth 1994, Van Klink et al 1998).

After 2000 the rail and barge transports were liberalized in Europe increasing the efficiency on inland corridors that connect port to inland terminals and to hinterland. The increase of intermodality and in inland corridors had a positive effect in port's hinterland enlarging it (Notteboom ITMMA 2008).

Figure 6: Examples of Continuous and discontinuous Hinterland



Source: Notteboom ITMMA (2008)

Nowadays ports cannot be seen as a single place that handles ships but as an important element of the supply chain therefore to determine port's competitiveness it is required to analyse the supply chain as a whole (Robinson 2002, Carbone and Gouvelal 2007, Notteboom and Winkelmanns 2012)

The port selection is based on total cost of the supply chain therefore the port that allows minimizing the cost of seaport and inland will be the best choice. It is important to have efficient inland corridors and well integrated in order to satisfy consumer needs regarding costs availability and time. Sometimes shippers might opt for more expensive ports (higher hinterland costs or cargo handling costs) but generalized logistics costs are lower compared with other ports.

1.9. Sines macroeconomic hinterland

The macroeconomic hinterland can be defined as the transport demand between several logistical sites of production and consumption also known as distribution centres. Usually only the distribution centres are directly linked to the port, activities that generate cargo or final consumer points are linked indirectly.

The bulk cargo is an exception since often is directly linked with ports making the chain simpler when compared with other types of cargos' supply chain.

It is common to find logistical sites in clusters as a result of the economics of agglomeration and regional specialization (Rodrigue and Notteboom 2000). With globalization variables like interest rates, debt, costs, savings, production, exchange rates and prices must be considered as exogenous forces that impact foreland and hinterland.

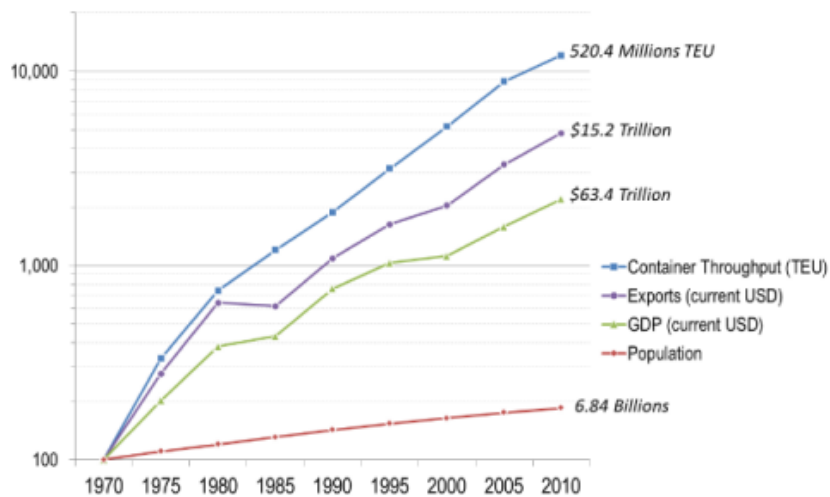
With the increase of global trade flows, especially due to globalization of trade and the supply chain, the transportation demand and the solution found was building bigger vessels to transport containers and invest in infrastructures capable of handling these new ships. The new infrastructures in ports require huge amounts of land and some ports are constrained by lack of available land. Sines cluster has a lot of unoccupied land making it a comparative advantage.

1.9.1. Sines and Port Selection (special focus on Container System)

Container system was created to respond to industrial revolution and the e-commerce phenomenon turning the world into a global marketplace where the distance between markets became smaller. With the globalization the supply chain became more complex and with higher flows between supply chain elements, in order to response to these needs the usage of containers to transport cargo was adopted, a new form of standardised intermodal load units.

The containerization is positive correlated with globalization since higher usage of containers enhances global exports as can be seen in figure.

Graphic 1: Growth of Worldwide population, GDP, Exports and Container transport



Source: Rodrigue et al (2012)¹

The first container ship was made in 1970 with a capacity of 2500 TEU size, through the years the ship size was increasing achieving, in 2012, the capacity of 18000 TEUs. This type of ships can only be handled in few ports around the world since it is required a deep sea port and a container terminal capable of reaching the necessary economies of scale on the other hand ships with this size do reduced number of scales in long trips.

According to Nottebloom (2008) there are other variables to take in consideration in port selection as standalone:

- Physical and technical infrastructures like hinterland accessibilities, terminal infrastructures and others;
- Geographical location, port position regarding the main shipping routes or the hinterlands reach;
- Port efficiency (e.g. economies of scale);
- Port interconnectivity, on other words, connections with other ports and ship movement;
- Efficiency and costs of port management and administration;
- Availability, quality and costs of logistic value added services;
- Availability, quality and costs of port community;
- Port security regarding environmental issues;

¹ Expressly prohibit the usage of the graphic without previous authorization from author

- Port reputation
- The reliability, capacity, frequency and costs of inland transport services by road, rail or barge;

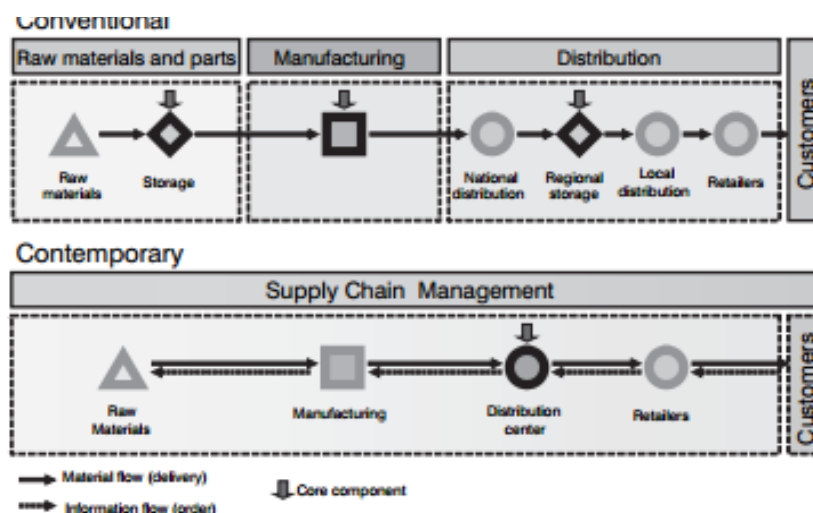
But as stated before, nowadays, port competitiveness cannot be analysed alone, it must be considered the whole supply chain (Robinson 2002, Carbone and Gouvelal 2007, Notteboom and Winkelmanns 2012) therefore the port selection is made in order to reduce the total costs of supply chain where the port is just an element of it.

Sines port is a deep sea port that have the Terminal XXI capable of handling any container ship with the six gantry cranes for postpanamax and super postpanamax.

1.10.Sines Logistical hinterland

The logistical hinterland is all about flows, how they are organized and how they connect the elements of the macroeconomic and physical hinterland (Notteboom and Rodrigue 2008). The inland distribution can be seen as a crucial driver to enhance the port competitiveness therefore transport corridors and logistic networks will be created to connect production, distribution and consumption centres enhancing the supply chain efficiency.

Figure 7: Conventional and contemporary arrangement of goods flow



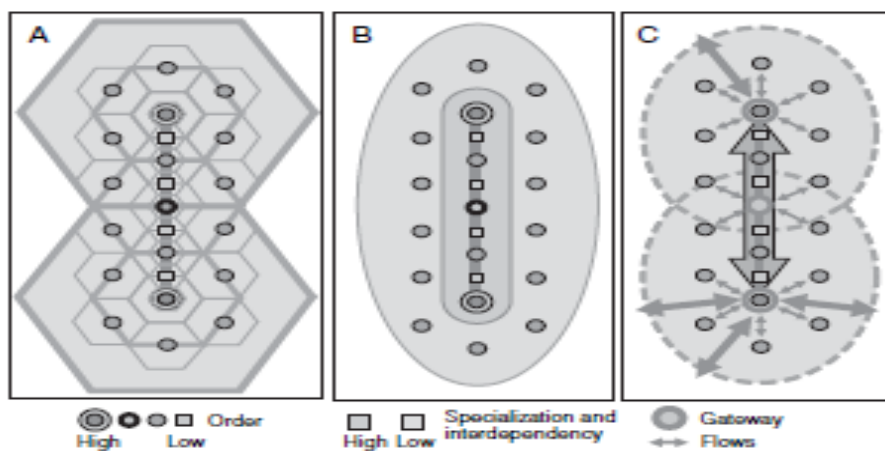
Source: Hesse and Rodrigue (2004)

Before the second half of the twentieth century the conventional model of the flows had at least three different storage stages before reaching final customer increasing the logistical costs (Figure 9). After the second half of the twentieth century the concept of supply chain started to be implemented where all storage were concentrated into only one facility, distribution centre, lowering the logistical costs. Another advantage was the improved information flows that allowed the enterprises to manage the stocks through all supply chain with more confidence (Figure 9). With the implementation of the supply chain the reverse flows was possible where, for instance, returned products could be reintroducing into the production process or the return of used containers, etc.

At same period there was a shift in production process where MNE's decided to split their production process in order to be closer to final customer making the logistical networks more flexible while the transports became more efficient due to innovation and also improvement of nodes and infrastructures. Some enterprises started to develop semi industrial activities like adding labels and manuals, have quality control, and others in the distribution centres. These semi industrial activities are also known as value add logistics services (Notteboom and Rodrigue 2008)

Under the geographical models, in my opinion, the one that suits better Sines is the distributional/flow model (model C at Figure 10) where Sines port is the gateway that works as interface between import and export flows of goods from the regional, national and global systems (Rodrigue, Slack and Comtois 2006).

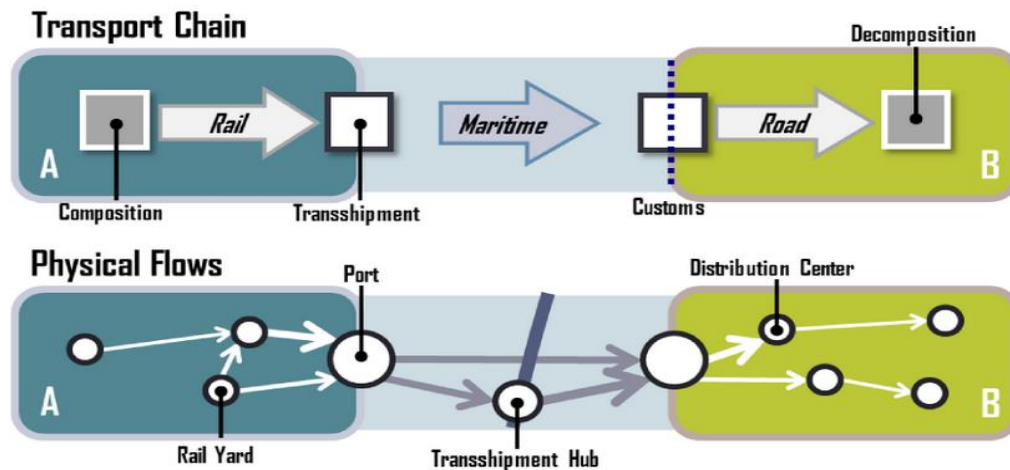
Figure 8: Transport corridors and the regional spatial structure



Source: Rodrigue, Slack and Comtois (2006)

The transport chain is what allows to move the goods (physical flow) from point A to point B where the international transportation usually is made by maritime or air transport (depends from industry to industry) while national and regional transportation is made by road or rail. Once the goods enters at the foreign country needs to pass through custom inspection before reaching final destination (Figure 10).

Figure 9: Transport chain and physical flows in international trade



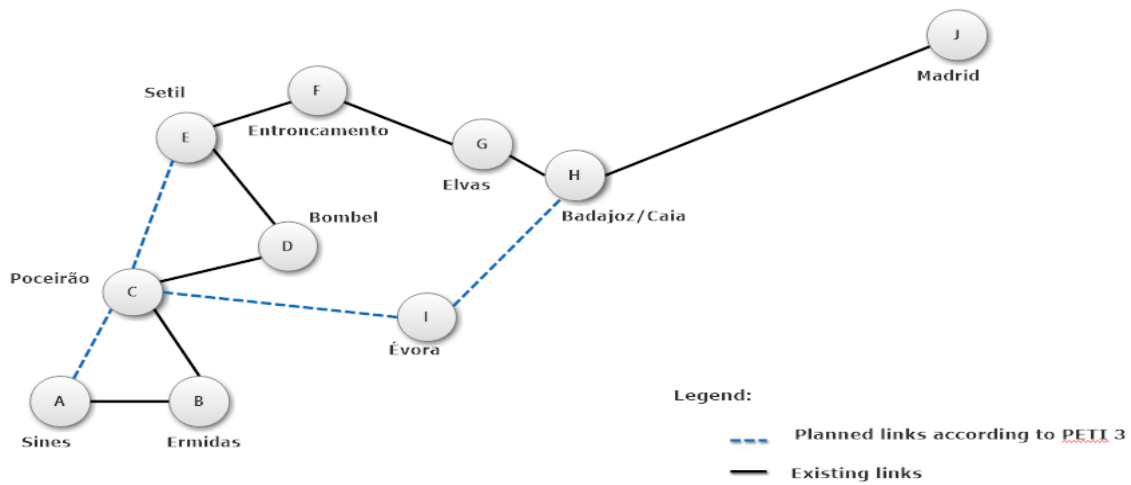
Source Rodrigue (2012)

1.10.1. Sines Rail network

The existing rail network connecting Sines to other locations need some improvements therefore the Portuguese Government has an investment program called PETI 3 where several investments in transportation infrastructures will be made until 2018 inclusive some of them are Sines related. With these new investments a new rail connection will connect Sines to Poceirão (Setúbal) and afterwards to Setil (Lisbon) and a second rail connection will connect Poceirão to Évora and afterwards to Caia/Badajoz (Figure 12). The second new connection is important because it will have a positive effect on Sines cluster hinterland in Spain due to the fact that the transportation will be quicker and with lower tariffs, this is possible since the rail will be more straight allowing more wagons and more speed.

By analysing the Sines rail network (figure 12) it is possible to state that rail connections in the interior are weaker than other regions therefore if Portuguese Government want to enhance regional development it is also necessary to invest in interior regional transport infrastructures like a rail connection for Ermidas to Évora where local clusters could have more mobility and reach other markets.

Figure 10: Sines' Rail way network



Source: Made by myself

1.11.Sines Physical hinterland (Regional Cluster)

The physical hinterland can be seen as the transport supply that Sines's cluster has. Before analyzing the cluster itself it is required to define what a cluster is and the best definition I found was: *"clusters are a geographical concentrations of interconnected enterprises and institutions in a particular field"* (Michael Porter 1998). When analyzing the cluster at Sines it is possible to see a multidimensional cluster since there are several different industries settled at ZILS and also because Sines has all infrastructures required to satisfy any industry needs.

Sines cluster has two main advantages: huge amount of free space to host industries more than 2000 ha with possibility to reach more than 4000 ha (biggest industrial complex in Iberian Peninsula) and the deep water seaport. Nowadays industries require a lot amount of free space in order to reach economy of scales and not all industrial complex has the required amount of free space that Sines can offer and at same time have all infrastructures of Sines. The deep water port is an important advantage since the container ships postpanamax and super postpanamax can only be handled at deep water ports and Sines port is 28 meters deep allowing those types of ships to dock.

As stated before the regional cluster of Sines is made of different clusters where the strongest one is the petrochemical cluster. If we only take in consideration employment and added value, the Artlant PTA and Ibercoal are the most important enterprises since are medium- high technological enterprises where most of its production is for foreign markets. These two firms are the ideal type of firms that Sines should attract to ZILS in order to develop the regional cluster and become a national reference. Besides the petrochemical industry it would be important to attract other industries that are also high technological like shipbuilding industry and metal mechanic industry, an example to follow is the Finnish maritime cluster where they were able to develop the cluster based on shipbuilding industry and metal mechanic industry being nowadays a well established cluster capable of winning all contract to build big ships and petroleum platforms.

1.11.1. Transport Supply

Transport industry has positive impact on economic development and employment through maritime, road, air and rail services at the same time has indirect impact on other industries that depend on transportation to develop their businesses in a more efficient and safer way.

One of the most important goals of AICEP Global Parques is to develop a logistical cluster at ZILS by attracting a global player in logistic services into the complex (interview to AICEP Global Parques at 10th of July of 2014) by doing so it would be possible to offer high value add services to the other industries operating at ZILS like cross docking, handling, packaging and many others. Thought this it would be possible to Sines port to add value using the containers terminal XXI instead of just charge the tariffs for container handling.

According to PETI 3 there will be a new rail connection between Sines port and Badajoz passing by Caia and Poceirão, the new rail connection will be more linear as possible than the others that already exist therefore will be possible to use more wagons per train and also increase train's speed reaching lower transport costs and also reduce the time travel.

1.11.2. Transportation Quality and delivery time vs transport costs

The quality of international transport has improved over the past 30 years where the most important gain was the shorter transportation time. Even ocean liner service became faster comparatively to past years since nowadays the ships are not only bigger and faster but also because with the containerization technology is possible to load and unload quicker. On the other hand even after all these positive changes the ocean liner service is still slow, for instance a travel from Europe to Asia last five weeks (Hummels 2007) but when using air transport only takes few days.

According to Hummels (2001) there are two effects found when Hummels examined the premium that shippers were willing to pay for extra speed reached by using air transportation.

The first effect was that for each day every day in ocean travel time that a country is distant from the importer reduces the probability of sourcing manufactured goods from that country by 1 percent.

The second effect the exporting manufactures are willing to pay just under one percent of the value of the good per day in order mitigate possible travel delays related with ocean transport services.

Time in transit can be a problem when there is high uncertainty in demand and also some lag between production and the retailer, this might lead to a divergence between customer's needs and what enterprises offer specially industries like cloths or fresh products.

The transportation costs are positive correlated with distance therefore higher distance higher transport cost, it also vary from exporter to exporter. Since distance affects the transportation cost it is why one quarter of world of trade is made between countries that share a common border and half of trade is made by partners with a distance lower than three thousand kilometers (Berthelon and Freund 2004).

Regarding Sines, the distance from the cluster to the markets and the raw materials' source is large enhancing the transport costs of the supply chain. This might discourage MNE's to invest at Sines if there are other locations that reduce the total costs of the supply chain.

2. Results

Based on the interview with Dr. Isabel Cardoso from AICEP Global Parques (June 2014) most of ports that compete with Sines are from Eastern Europe, South Europe, North African and Middle East countries therefore in this chapter I will present the several location determinants both from Portugal and the other main competitors in order to show the differences between them.

2.1. Main competitors

In North Europe are placed the biggest sea ports of Europe located at Germany, Netherlands, Belgium and United Kingdom. For this study I chose Germany and Netherlands as the most important competitors of Sines port because at Germany there are the ports of Hamburg and Port of Bremen-Bremerhaven as Hub port that compete with Sines port. Regarding Netherlands the port of Rotterdam is another reference in hub ports

Sines cluster also has competitors in Eastern Europe like Poland, these countries offer several advantages like low cost labour, tax incentives, access to European markets, economic growth and others.

Regarding South Europe the most important competitor is Spain where the ports of Barcelona, Valencia, Algeciras, Las Palmas and specially Cadiz since both Cadiz and Sines compete for the same hinterland.

In North African and Middle East the most important countries are Morocco and Egypt since they offer access to African markets, tax incentives and low cost labour.

Recently Egypt became political instable with civil wars decreasing their attractiveness for FDI.

2.2. Location determinants for FDI

The location determinants for FDI can be classified into eight groups: political and economic stability; human capital; infrastructures; market size; market growth; openness of the economy; production cost and Financial/economic incentives. Each one of the groups is represented by several proxies as already pointed in literature review.

2.2.1. Political and economic stability

Table 2: Proxies of economic stability

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
Unemployment rate ²	15,6%	25,2%	10,1%	5,4%	5,3%	9,0%	11,9%
Inflation rate ³	0,3%	1,4%	1,2%	1,5%	2,5%	1,9%	9,5%
Balance of payments (Millions of USD) ⁴	-4.359	-15.141	-18.263	240.743	72.732	-9.571	-6.972
Exchange rates to USD ⁵	Stable	Stable	Stable	Stable	Stable	Stable	Stable

Source: World Bank statistics

The unemployment rate is a proxy for economic instability where higher instability can be seen as a negative factor for attracting FDI (Botrić and Škuflić (2006). Almost all analysed countries have high unemployment rates with exception of Netherlands, Germany with 5,3% and 5,4% respectively.

According to US Federal Reserve the optimum inflation rate is around two percent and must be always higher than zero percent. The inflation rate at Portugal is positive but low therefore the Portuguese Bank should take measures to increase inflation or it can become negative. The inflation in Egypt is too high so the National Authorities should work to reduce inflation even though it is better to have higher inflation than negative. Regarding the other countries the inflation is between 1% and 2% therefore just need to keep inflation stable at those values and it will have a positive impact on economy growth and stability.

² Unemployment rate at 2012

³ Annual Inflation rate of Year 2013 for consumer prices

⁴ BoP current account in 2012

⁵ Regarding its volatility from 2009 to 2013

When analysing the Balance of Payments (BoP) it is possible to realize that only Germany and Netherlands has a positive BoP and all the other countries have negative BoP. A negative BoP transmits a negative sign to investors reducing FDI attractiveness since it is a sign of political and economic instability (Schneider and Frey 1985).

Finally, the exchange rates are stable in last years (analyzed from 2009 to 2013) but this might not be a good thing since there are no consensus among the research community since some defend that volatile exchange rates have positive impact on FDI (Cushman, 1985; Goldberg and Kolstad, 1995) while others defend the opposite (Urata and Kawai, 2000; Bénassy-Quéré et al., 2001).

Table 3: Proxies of Political Stability

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
Type of regime	Democrac y	Democrac y	Democrac y	Democrac y	Democrac y	Autocracy	Democrac y
Regime duration	Since 1974	Since 1975	Since 1989	Since 1949	Since 1848	Since 789	Since 2011
Copyright protection	6,8	6,5	6,2	7,7	8,2	5,3	4,8
Corruption Index	62	60	59	78	83	36	32

Source: Wikipedia, Transparency Organization and property rights Alliance

Countries with a political regime based on democracy attract more FDI than those based on autocracy (Biswas 2002) it is difficult to explain why but maybe because democratic governments are more credible as efficient agents for social savings and investments with high returns, another possible reason is the higher protection to intellectual property that democracy offer (Olson et al 1994). Almost all countries have a political regime based on democracy with the exception of Morocco where it is a Monarchy (autocracy). Regarding the proxy regime duration most of all countries have the same political regime for more than one decade except Egypt that changed their political regime at 2011 therefore there is still some political instability. According to Biswas (2002) higher regime duration reduces FDI attraction going against his theoretical approach because regimes with higher duration tend to do redistribution of the resources in an inefficient way.

In order to analyse the intellectual property in each country I choose the property right index where the higher value means better protection. From the countries taken into consideration Netherlands and Germany have the higher values 8,2 and 7,7 respectively being in top20 of the intellectual property rights index conducted by Property Rights Alliance. Portugal, Spain and Poland have scores of 6,8, 6,5 and 6,2 respectively this means these countries have good copyrights protection but there are some things that can be improved. Egypt has the lowest value with 4,8.

According to IPRI, Netherlands and Germany belong to the group “very good intellectual property protection” while Portugal and Spain are the only countries from those analysed that belong to the group of “good intellectual property protection”, Poland belongs to “medium intellectual property protection”. Morocco and Egypt belong to the group “bad intellectual property protection”. This proxy is important because MNE’s want to feel that their investments and returns on capital are safe and protected by regulation and by proper institutions.

The last proxy of political stability is the corruption index where it is a scale of 0 to 100, higher value means lower corruption and a lower value means higher corruption. According to Asiedu (2006) and Júlio et al (2013) higher corruption reduces the FDI attraction that a country has since corruption has negative impact on enterprise operations and returns. Netherlands and Germany have very high values with 83 and 78 being at top 15 in the corruption index while Portugal, Spain and Poland are in top40 of the countries with less corruption having 62, 60 and 59 as score respectively. The other countries have scores below 36 points meaning that there is high risk of corruption.

2.2.2. Human Capital

Table 4: Proxies of Human Capital

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
Mean years of School ⁶	8,2	9,6	11,8	12,9	11,9	4,4	6,4
Secondary school enrolment ratio ⁷	113%	129%	97%	101%	130%	66%	86%
Adult literacy rate ⁸	94%	98%	100%	99%	99%	67%	74%

Source: UNESCO and World Bank

The proxy secondary school enrolment ratio can be used to analyse the Public investment in education. This proxy might be higher than 100% since it takes into consideration all children enrolled into secondary level regardless the age and also take into consideration grade repetition (UNESCO institute for statistics). Most of the countries analysed has good percentages, over 90% with exception of Egypt and Morocco with 86% and 66% respectively.

According to Cleeve (2008) secondary school enrolment ratio has a positive impact on FDI attraction therefore higher ratio the better where Spain and Portugal outstands from the others with 129% and 113% respectively.

In theory more education is on one hand associated with higher productivity but on the other hand with higher labour costs. Taking into consideration only the mean years of schooling it is possible to state that Germany, Netherlands and Poland belong to the very high Human Development group, while Spain and Portugal belong to the high Human Development group. Regarding Egypt and Morocco belong to medium Human Development group and low Human Development group respectively.

The adult literacy ratio analyses the quality of available labour where Egypt and Morocco have low literacy ratios meaning that their population is low skilled.

⁶ Data from 2012

⁷ Data from 2011 to 2013

⁸ Data most recent from period 2007 to 2011

The rest of the countries analysed have adult literacy ratios above 95% meaning that the labour pool is qualified.

2.2.3. Infrastructure

Table 5: Proxies of infrastructure

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
Number of phone lines per 100 inhabitants ⁹	43	41	14	59	43	9	8
Number of Internet users per 100 inhabitants ¹⁰	62,1	71,6	62,8	84	94	56	49,6
% Paved Roads of total Roads	86%	100%	67%	100%	N.A.	71%	92%
Km of Paved Roads per thousand inhabitants ¹¹	6,75	14,61	7,28	8,0	NA	1,3	1,62

Source: World Bank statistics

According to Mhlanga et al (2010), in theory, the more developed infrastructures higher the FDI attractiveness since the productivity is enhanced and transaction costs are reduced, but in his study he could only find a weak positive relation between number of phone lines per thousand inhabitants and FDI. By analysing table 5 it is possible to see that Portugal and Spain have their infrastructure more developed than other countries taken into consideration where the worst infrastructure belong to Morocco, Algeria and Egypt.

In theory higher internet connections should be positive related with FDI attraction but according to Botric et al (2006) it is negative related this can be explained by the period of data collect that was made before internet boom.

The counties with higher Internet users per thousand inhabitants the countries are Netherlands, Germany and Spain, with 94, 84 and 71,6 respectively while Poland and

⁹ Data from 2013

¹⁰ Data from 2013

¹¹ Data from 2008 to 2012

Portugal also have a good score with 62,8 and 62,1 respectively. The other countries taken into consideration have values between 40 and 56 users per thousand inhabitants.

Half of countries taken into consideration on this case study has more than 85% of their roads as paved roads being a good indicator that transportation infrastructure are guaranteed on the other hand half of countries analysed has below 77%. According to Castro (2007) the proxy km of paved road per capita is one of the most relevant proxies for infrastructure where an increase of 10% on km per capita leads to an increase of 17% to 33% in FDI on host region. There are a lack of roads in Morocco and Egypt since the amount of paved roads per thousand inhabitants are low but on the other hand there are high potential to invest and create proper conditions to attract FDI. Countries like Spain, Germany, Portugal and Poland already have those conditions to attract FDI. Regarding the Netherlands I was not able to find data.

2.2.4. Market size

Table 6: proxies of Market size

Proxies	PRT	ESP	POL	DEU	NLD	MAR	EGY
GDP ¹²	219.96	1.358.26	517.54	3.634.82	800.17	104.37	271.97
	1	2	2	2	3	4	2
GDP per capita ¹³	21.029	29.118	13.432	45.085	47.617	3.109	3.314
Number of inhabitants ¹⁴	10,46	46,65	38,53	80,62	16,80	33,01	82,06

Source: world Bank statistics

The GDP, GDP per capita and number of inhabitants are proxies that measure country attractiveness for FDI.

According to Cleve (2008) GDP is positive correlated with FDI therefore Germany, Spain and Netherlands are the most attractive countries followed by Poland, Egypt and Portugal respectively while the remaining countries have low attractiveness.

¹² Millions of USD (in 2013)

¹³ Data from 2013

¹⁴ Population in millions (in 2013)

Regarding GDP per capita Netherlands and Germany are the best countries to invest but Spain and Portugal also are good options to invest. The rest of the countries have a GDP per capita from 13.432 (Poland) to 3.109 (Morocco).

When countries have high population the national market has great potential to be profitable but on the other hand population might not have the desirable purchasing power therefore countries with high population might not be always the perfect destination for FDI, for instance according to Botrić and Škuflić (2006) population and FDI have a negative relation in the SEEC-7 countries. Egypt is the country with more inhabitants, 82,06 million followed by Germany with 80,62 million. Other relevant countries are Spain with 46,65 million and Poland with 45,49 million. Portugal is the country with lowest population with only 10,46 million from those analyzed.

2.2.5. Market Growth

Table 7: Market growth proxies

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
Industrial production index ¹⁵	94%	90%	111%	106%	99,6%	99,9%	99,8%
GDP growth ¹⁶	-1,4%	-1,2%	1,6%	0,4%	-0,8%	4,4%	1,62%

Source: UN stats and World Bank statistics

The industrial production index has as base the year 2005 and shows the evolution of the industrial production per country. Comparing the year 2005 with the year 2013 it is possible to see that the industry from Poland and Germany were the ones that had best performance with growths of 10,6% and 6,1% respectively. Spain and Portugal had a bad performance where the industry had a contraction of 9,8% and 6,3% respectively. The remaining countries had similar results on both periods.

The GDP growth illustrates how the country is developing in terms of wealth creation where industrial production is one of the several elements taken into consideration for GDP calculation. Since Spain and Portugal had a contraction in industrial production it

¹⁵ Year 2005 = 100 (data from 2013)

¹⁶ Data from 2013 ? (ver)

has a negative impact on GDP decreasing its growth to negative values showing that national economy are contracting. Netherlands also has a negative GDP growth even though the production index is close to 100%. All the other countries have a GDP growth higher than 0,4% where Morocco outstands with 4,4% of growth. Most of these growth is not related with industrial production because in many cases the industrial production is the same as in 2005.

2.2.6. Openness of Economy

Table 8: Openness of Economy proxies

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
imports more exports over GDP¹⁷	80%	66%	93%	95%	167%	87%	42%
Open Markets index	3,6	3,6	3,8	4,2	4,7	2,6	2,9

Source: World Bank statistics and ICC 2013 report 2nd edition

Most of the countries taken into consideration in this study has a ration imports more exports over GDP higher than 80% meaning that trade is responsible for most of the GDP. The exceptions are Spain and Egypt that have the ration lower than 66%.

Regarding the open markets index most of countries have a score higher than 3,6 meaning the market is open to foreigners. While Egypt and Morocco have lower than 2,9 meaning that those markets have some barriers to new entrances.

¹⁷ Data from 2013 with exception of Morocco and Algeria that is from 2012

2.2.7. Production costs

Table 9: Production costs proxy

Proxies:	Portugal	Spain	Poland	Germany	Netherlands	Morocco	Egypt
Labour costs	22.742	34.387	20.069	40.223	47.056	N.A.	7.672

Source: Bloomberg

The proxy labor costs is based on average annual wage per country where the countries can be split into three groups with Netherlands, Germany and Spain as the high wage group with earnings higher than thirty four thousand USD, Portugal and Poland as the medium wage group with an annual value higher than twenty thousand USD and the remaining countries as the low wage group with wages lower than ten thousand USD.

2.2.8. Financial and Economic incentives

Table 10: Financial and Economic incentives proxy

Proxies:	PRT	ESP	POL	DEU	NLD	MAR	EGY
Tax payment	42,3%	58,6%	41,6%	49,4%	39,3%	49,6%	42,6%

Source: World Bank statistics

The tax payments represent the percentage of profits that enterprises have to pay therefore the higher the tax the lower is the interest of MNEs to invest on that country since profits will be lower.

By analysing the table 10 we can see that Spain and Morocco are the countries with higher tax payments with 58,6% and 49,6% respectively while Poland and Portugal have the lowest tax payments with 41,6% and 42,3% respectively.

Conclusions

Nowadays the growth driver of Sines Port is the container terminal that has grown year after year making Sines port a transshipment port. In order to reflect that into the study was necessary to introduced into this case study Hamburg and Rotterdam ports, two of the most important container ports in the world from Germany and Netherlands respectively.

According to table 2 it is possible to see that Portugal is the most economically stable country from direct competitors for FDI (Spain, Poland, Morocco and Egypt) since despites the unemployment rate that is high, the other economic proxies can be considered good when compared with the others but when Germany and Netherlands are brought to the study they are more economically stable than Portugal. Regarding political stability (see table 3) Portugal is also the best option regarding the direct competitors, since has the better score in corruption index and in intellectual protection, the rest proxies had similar results on all countries with exception of Morocco that is an autocracy system while Egypt is experiencing political crisis. Once again both Germany and Netherlands are better than Portugal when took into consideration.

When we analyse the data regarding the human capital (see table 4) one of the conclusions is that Spanish and Portuguese Governments are the ones who invest more in Public education due to the fact that have the higher scores on Secondary school enrolment proxy while Morocco Government is the one who invest less since has the lowest rate with only 66%. Poland has higher mean years of school than the rest of the direct competitor countries making those countries the ones with the most qualified labour pool. The Egypt and Morocco also have the worst results on adult literacy rate with only 74% and 67% while the others had all higher than 90%. After analysing all human capital proxies we can state that there is not a clear best option since all countries have good aspects but in my opinion the best options is Poland due to higher mean years of schooling.

Again Germany and Netherlands are the countries with better scoring but this time Poland, Portugal and Spain have a performance slightly inferior than the other two countries.

Although some studies defend that infrastructures are not relevant I still considered into this case study where despites Germany and Netherlands are the best countries, Spain is the best direct competitor and Portugal the second best option. Spain has higher score on paved road per thousand inhabitants while in the other proxies Portugal and Spain have similar results (see table 5).

Regarding the market size, the biggest market is Germany but as stated before it does not belong to direct competitors therefore Spain is the country with bigger market size since has highest GDP, highest GDP per capita and also has a large number of citizens (see table 6). Portugal is a smaller country with only ten million habitants but when analysing GDP per capital it is almost as big as the Spanish, it is possible to conclude that by comparison GDP per capital makes Portugal a good market to invest when compared with direct competitors.

On the other hand the industrial production at Poland grown when compared with values of the year 2005 while Morocco and Egypt have similar values. In the case of Portugal and Spain the industrial production is weaker than 2005. The other relevant proxy of market growth is the GDP growth where Morocco, Egypt and Poland are growing at a pace higher than 1,6%. Portugal and Spain are experiencing a period of recession where economy is decreasing at 1,4% and 1,2% respectively. After all said Poland is the best countries according to the data of market growth proxies (see table 7).

Most of the countries analysed on this study have the trade between countries as the big responsible for GDP even though Spain and Egypt have the lowest ratio with 66% and 44% respectively meaning that, from direct competitors, are the countries with the most closed economy (see table 8). Regarding the open markets index proxy, Germany and Netherland have the most open economies with a score higher than world average while most of the countries are between 3 and 3,99 corresponding to the world's average. Egypt and Morocco are the exceptions with scores lower the average (see table 8). It is not possible to define which is the best option but is possible to conclude that Morocco and Egypt are the worst countries to invest regarding economy openness proxy.

Another important FDI location determinant is the production costs but since it is hard to gather information from all production inputs usually the research community use as proxy the labour costs (see table 9) where Spain has the highest labour costs with thirty four thousand USD a year while Portugal and Poland have twenty two thousand and

twenty thousand respectively and at table 4 was possible to see that labour pool from those three countries is similar shown by the average years of schooling. In my opinion Portugal and Poland are the best options because their labour costs are around twenty thousand USD a year and also have a similar level of education as Spain.

The financial and economic incentives were adopted by almost all countries after 1980's (Blomström et al 2003) and all the countries analysed in this case study are no exception. On the other hand each case of FDI has different incentives therefore is almost impossible to present numeric data except analysing the tax payment. By analysing the table 10 we can see that Spain and Morocco are the countries with higher tax payments with 58,6% and 49,6% respectively while Poland and Portugal have the lowest tax payments with 41,4% and 42,3% respectively

There are several types of financial and economic incentives like tax holidays, easy profit repatriation, tax allowances. According to AICEP Global Parques, when Sines's cluster presents its candidature it reaches top 3 of best locations for the FDI but in the end usually lose to other competitors due to higher financial and economic incentives. The financial incentives are good for both parts, the country and the enterprise, but is necessary to understand that if a country offers too many incentives the investment might stop being profitable since many times Government offer dozens of thousand USD per FDI job related that was created like happened at Setubal with the investment of Volkswagen.

If the investment is market seeking, in my opinion, Portugal is the best option since has good infrastructure near the deep water port, good rail network that connects Portugal to other countries, the labour costs are not high and the labour is qualified.

If the investment is efficiency seeking, there are two candidates, Portugal and Poland, Portugal if the MNEs are looking for qualified labour or Poland if MNEs want to invest in labour- intensive industries.

Regarding natural resources seeking every country has natural resources specially coal, building materials and good conditions for green energy production. Egypt has huge amounts of oil deposits to explore but since there is political instability FDI attraction is low. Portugal has natural resources like cork, minerals, e wine industry and good conditions for green energy production. Spain has agriculture, minerals and good conditions for green energy production. Poland is a country rich in minerals like amber,

coal, construction minerals and others and also on natural gas. Another rare natural resource that Poland has are the geothermal waters that have the capacity to satisfy thirty million people.

Morocco has the biggest reserve of phosphates and also is rich on other minerals besides that there are no more significant natural resources.

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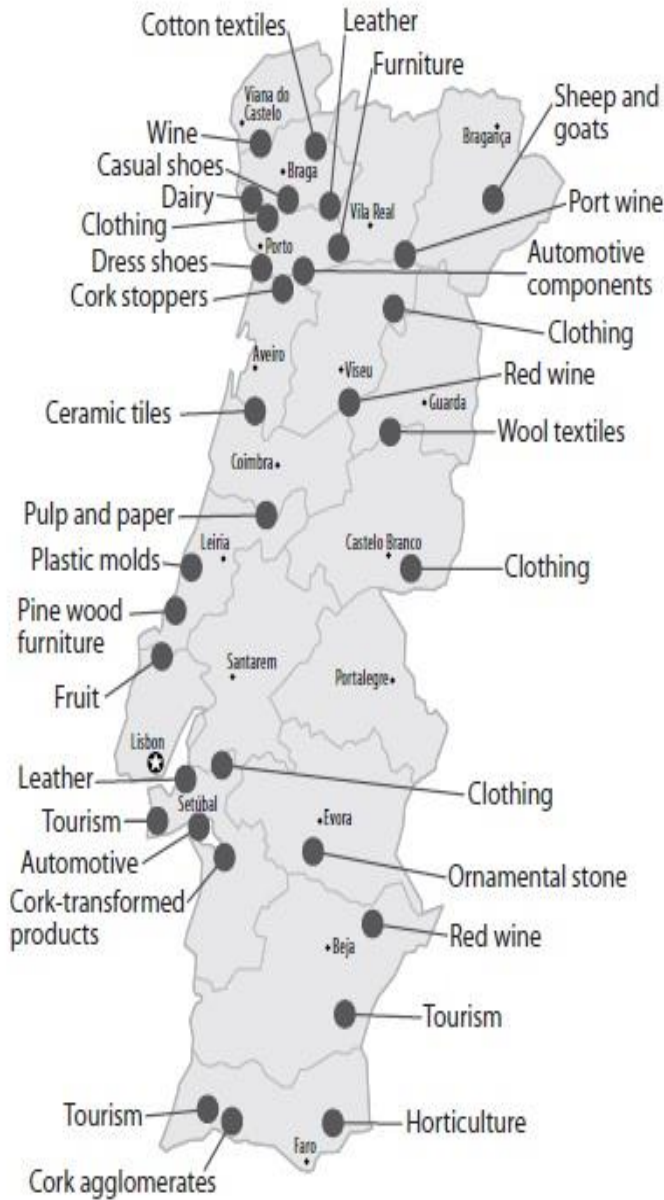
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Annexes

Annex 1

Figure 11: Portuguese clusters identified at 1998 by Porter



Source: Porter (1998)

Annex 2

Table 11: List of FDI location determinants

Types of Location determinants for host country	Location determinants
<ul style="list-style-type: none"> • General Policy framework 	Economic and social stability
	Good Governance
	Policies functioning and structure of markets
	Private property protection
	Industrial and regional policies; development of competitive clusters
	Trade policy and stable exchange rates
<ul style="list-style-type: none"> • Policies specific to FDI 	Bilateral international investment agreements (IIAs)
	Investments incentives
	Social amenities
<ul style="list-style-type: none"> • Economic determinants by type of investment: 	
<ul style="list-style-type: none"> ○ Market seeking 	Markets size and income per capita
	Market Growth
	Country- specific consumer preferences
	Structure of markets
	Physic distance
	Access to regional and global markets
<ul style="list-style-type: none"> ○ Natural resources seeking 	Land and building costs
	Cost of raw materials, components and parts
	Low-cost unskilled labour
	Availability and cost of skilled labour
<ul style="list-style-type: none"> ○ Efficiency seeking 	Cost of resources and capabilities listed on Natural resources seeking investment adjusted for productivity and labour inputs
	Other input costs (transports and communication costs from and within host economy)
	Membership of a regional integration agreement
	Quality of market facilitating institutions
<ul style="list-style-type: none"> ○ Asset seeking investments 	Competition policy
	Technological, managerial, relational and other created assets
	Physical infrastructures
	Macro-innovatory, entrepreneurial and educational capacity/environment

Source: Dunning and Lundan (2008)