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Employees relocation in reshoring operations: Effects on first & second host countries.

A descriptive study on European Manufacturing companies

FERRAN LABRADOR MARTÍNEZ - 915920

Supervisor:
STEFANO ELIA

School of Industrial and Information Engineering

Master of Science Degree in Management Engineering

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ABSTRACT

Firms all over the world are starting to take advantage of the benefits of the globalisation. Trends in workforce reorganization and relocation have started to be in the big picture of worldwide firms in order to expand and increase their profits. The development of new economic states has changed tendencies in the world's economy. This study explores how trait differences of countries can affect relocation of employees when a Relocation of Second Degree (RSD) occurs.

RSDs are transfers in foreign countries of previously offshored divisions by manufacturing firms. An RSD can be a Relocation in a Third Country (RTC) or a Relocation in the Home Country (RHC). However, in this dissertation are only considered the RTC cases.

The first part of this dissertation consists in a literature review based on two topics. Firstly, an analysis of the relocations with emphasis on the RSD is performed including technical concepts. The second section explores the possible effects of manufacturing or other activities relocation in the employment.

After the literature part, data is presented, in the first place, explaining the general trends of relocation by European countries. Afterwards, data and variables are analysed in order to study the employees' relocation through a descriptive statistical analysis.

Obtained results of this study are a first step in the analysis of employees' relocation in an RSD. Which allow us to deeply know more about different characteristics for each, origin and destination countries. For instance, on the one hand top ranked destinations stand out for their production cost efficiency. On the other hand, what is remarkable in the top ranked countries of origin is the high level of innovation.

Keywords: Relocation, Reshoring, Offshoring, Employees relocation, Relocation to a Third Country (RTC), Relocation of Second Degree (RSD).

EXECUTIVE SUMMARY

This dissertation studies the effects on the employees' relocation of firms undertaken an RSD to a country with special economic characteristics. In particular, the ones related to market, cost and production efficiency and the well-known Fourth Industrial Revolution.

Current globalisation and disruption of new technological systems have reshaped the location of Multinational Enterprises (MNEs) factories. The aim of this dissertation is to establish an eventual correlation effect within macroeconomic and technological traits (at country and firm levels) and the choice of relocating employees, due to a reshoring of the productive activities previously offshored.

The analysis begins in *chapter 1* with a literature review of two main topics: the reshoring theory and its effects on employment. Both matters are analysed separately.

Regarding the first topic the theoretical conceptualization of reshoring is given, starting from the definition of offshoring and coming to the final definition of RSD, with the distinction in relocation to the home country (RHC) and relocation to a third country (RTC). Secondly, there is an analysis of the main trends on reshoring, in order to find measures to determine the magnitude of the phenomenon, the main countries of origin and the most desired targets. Possible reshoring motivations are also referred, from anecdotal investigation to organized frameworks. The aim of this last part is to categorize the specific reasons for reshoring into macro-categories.

AS previously established, the second section of the literature consists in the examination of job reduction and employees' relocation, with the aim of relating them with the relocation of production activities. The chapter will consist in a four-section analysis of offshoring/reshoring effects in the employment. The first part consists in an analysis of how is affected the employment at firm level. Regarding the second part, considering some past research and data studies, it is analysed the effects on employment composition by offshoring in terms of low-skilled and high-skilled workers. The third part focuses on analysing how wages are affected by the topic in terms of low-

skilled and high-skilled employees. The last part of the chapter shifts from studying the effects offshoring to the effects of reshoring.

Once the terms are conceptualized and the possible explanations of the phenomenon are given, in *chapter 2,* some descriptive statistics are exhibited. The first dimension of analysis is the description of the trends in the RSD and Employees' relocation magnitudes, studying the possible events that may have influenced the trends, such as the EU expansion in 2004 or the financial global recession started in 2008. In this section, are also presented the most frequent countries for the RSD distinguished by origin and destination states, taking only into consideration the RTC cases. The dataset is represented by a total of 337 relocation operations which are extracted by the European Restructuring Monitor (ERM). Apart from analysing the number of relocations by country of origin or destination, the main issue of the study is analysing the trends in number of employees relocated by country.

In *Chapter 3,* the core of the thesis is presented. In fact, the dissertation presents a descriptive statistic study of how is correlated the choice of relocating the workforce in an RSD with economic and technological characteristics, which can differ between home and host country. For each dataset record (337) data about the firm is recorded: year in which the RSD has been announce and data regarding the home and the host countries.

A thorough display of the variables analysed is provided in the study. Firstly, the main variable of the dissertation, which is the number of employees relocated from Country B (home country) to Country C (host country), is introduced. Subsequently, main explanatory variables are introduced, in order to measure differential values within countries regarding three drivers: *market-seeking, asset-seeking* and *efficiency-seeking,* theorized by Dunning (1993). An extra variable will be considered too: level of High Technology and Industry 4.0 in countries and firms. The statistical analysis contains also a set of additional variables to analyse the correlation with the employees' relocation, checking different aspects such as expenditure of countries' government or outputs of firms. A set of statistical comparisons among the data are displayed based on the

differential between the first host country (Country B) and the second host country (Country C). This chapter is based on two analysis, the first one is only considering the three top ranking origin and destination countries and comparing their characteristics. The second one is based on the five top origin and destinations, but this time comparing them with their destination and origin countries respectively.

In *Chapter 4*, the results confirm that the most common destinations to relocate employees during RSD are Eastern European countries with low production costs. This analysis provides some interesting results about the main characteristics that origin countries, relocating more employees, present. These countries stand out in terms of innovation and high levels of technology. On the contrary, not only Eastern countries are an attractive target location, some others are developed countries that stand out for their high levels of productivity.

Given the quantitative results, it is possible to affirm that what do not exert an effect on the number of employees relocated is the market seeking data. Destination countries tend to have lower levels of market opportunities than in origin. Hence, target countries are not attractive in terms of market opportunities.

Given these assumptions in the last section, indications for further research are provided. This is only a first insight in the study of employees' relocation in RSD. Thus, considering the rapidly evolution in terms of economy and technology, an extension of the survey period is recommended. It would be interesting to consider 2016 as starting year, 2017 ,2018 and 2019.

In addition, other information will be provided to enhance the overall analysis. From a mathematical model to study the direct correlation of economic, technological and social variables with the main variable (number of employees relocated) to an extension exposition key to understand relocation operations (not considered in this dissertation).

In the last chapter some conclusions are drawn defining the thesis research as first step for further investigation in relocation effects on employment. The topic can be extended, also in worldwide coverage and considering RHC.

INTRODUCTION

The discussion of firm's relocations and the employment restructuring that implies, started with the birth of this phenomenon in the 60s and 70s of the 20th century. During this period, many firms of the developed Western countries transferred their production abroad, in order to pursue and obtain benefits in terms of costs reduction. In the years of the industrialization, the pursue of increasing the production efficiency was one of the most desired competitive factors, which meant establishing a system to reduce the overall production costs.

In the last years, the tendency of relocating productive activities have been increasing and academics have been trying to figure out which are the main trends. With the studies from European Restructuring Monitor and Fraunhofer Institute for Systems and Innovation Research, the phenomenon has been well covered and followed in time (Armbruster 2005; Kinkel et al. 2007; Dachs and Cristoph 2014). Moreover, currently, the area of relocation has experienced a radical shift and it has emerged a new trend. In the very last years, a huge number of firms have repatriated their productive activities or have decided to move to a new country to pursue new strategic goals. This new phenomenon has been deeply investigated by academics (Leibl et al. 2011; Albertoni 2015; Barbieri 2018).

Among the possible causes of searching new target location for the repatriation of industrial activities, development of new technologies is key. However, Asian countries and East European countries are rapidly improving the development of their economies, which is also key to relocation. The development of these states has turned around relocation trends, due to cost efficiency improvement. Moreover, the appearance of the Fourth Industrial Revolution and the area of Industry 4.0 in our live will affect the production systems around the world. It will have a key role in reshaping the distribution of the activities of Multinational Enterprises (Laplume, Petersen, and Pearce 2016; Buonafede et al. 2018).

The aim of this dissertation is the analysis about the possible relation of the relocations of second degree with the employment restructuring.

CHAPTER 1: REVIEW ON THE LITERATURE

1. Offshoring & Reshoring Theory

1.1. Conceptualization of terms

In the earlier 80s an exodus tendency of large multinational enterprises (MNE) started. A high activity of offshoring production and outsourcing to foreign contractors in low-wage environments such as Southeast Asia and East Europe began. The term "offshoring" became popular because of the important number of MNEs, especially from United States of America moving their manufacturing processes overseas to China. Hence, in the last twenty years, not only American MNEs started a global movement of offshoring.

The phenomenon has been catching the attention of scholars as well as it has become widely discussed in the technical literature and in the economic press.

The offshoring term has been described by Cambridge dictionary as "*the practice of basing a business or part of a business in a different country, usually because this involves a reduction of costs".* Another definition from an industrial point of view, is the one described by the Market Business News for the Offshore manufacturing as *a "physical restructuring and establishment of manufacturing processes overseas, usually to a lower-cost destination or one with fewer regulatory restrictions".*

The global outsourcing starts when the MNEs increase in a country and an environment of competitive pressures is established in that country. Hence, starting to appear a resource shortage inhouse such as financial, human, operational, material constraints. For that reason, companies try to change their local strategies for international strategies as is Offshoring introduced by Fratocchi et al. (2014): "*the cross-border location to distant locations of value activities that were once performed within the firm's country of origin, and aims to serve global rather than local demand*". Global outsourcing allows firms starting to access internationally dispersed resources, access

expertise and workforce to gain flexibility, reduce costs, go faster to the market, increase the production capacity and focus on core business.

The focus of this dissertation will be mainly on the phenomenon of relocation of manufacturing activities performed by MNEs. Not all that outsourcing assembling is manufacturing but also involves service activities. The clearest example is Facebook, the world's most popular media owner, creates no content. In other words, the users of Facebook are the ones creating the content. Another example is Uber which is the largest taxi company of the world without owning vehicles. Something is changing in services sector altering the business model of services firms. But in order to not extend the scope of the study let's put all the effort in squeeze all the evolution and trends of manufacturing outsourcing.

Previously two concepts are been commented, offshoring and outsourcing. In this dissertation both will be parts of the study, but it is important not to confuse as the same term. Outsourcing is about moving internal operations to a third-party, to move transactional activities to the experts in order to give an organization the capacity to focus on its expertise. Regarding the offshoring, it is a primarily a geographic activity. Offshoring takes advantage of the cost differentials by relocating factories from costly countries to the cheaper economies. In the last years of 20th century and beginning of the 21st century many MNEs are changing their strategies and combining both offshoring with outsourcing. That consists on moving production to a third-party that is based in an overseas location.

It has been mentioned the relocation of activities or factories from one location to another, but not all the activities can be globally outsourced. It is necessary obey some traits to be a suitable outsourced process or activity.

- **Non-core activities**: otherwise institutional knowledge leaves and company loses its competitive advantage.
- **Need up-to-date expertise in rapidly changing technologies**: Specialized providers more likely to have that expertise.

- **Need to adapt to volume fluctuations**: Providers can mitigate problems by serving counter cyclical clients.
- **Low requirement for interaction with colleagues or customers**: Time zone, language and cultural differences may be significant barriers to communication and coordination.
- **Codified, digitized and measurable**: Reduces operational risk that process may not operate smoothly.

The trend of the offshoring is stablished globally in the 21st century but as is a period of rapid changes and of technological breakthroughs it is difficult to accomplish that everyone is satisfied. For that reason, the outsourcing can present major risks.

- **Country Risk:** Determined by the differences shown in terms of politics, socio-economic, cultural, regulatory and exchange rate between the two countries.
- **Operational Risk:** Present issues in the delivery of products or services.
- **Compliance Risk:** Providers may not comply with regulation, internal policies or ethical standards agreed among parts.
- **Strategic Risk:** This risk can be shown when you go with a strategy implemented in one country to another. Appearing issues like intellectual property theft, opportunistic behaviour by provider or a simple customer dissatisfaction because the interests are not the same.
- **Credit Risk:** Monetary problems always can be present in a transaction. In this case when the vendor is unable to fulfil contract due to financial problems.
- **Reputation Risk:** Appears when in the host country bad publicity negatively impacting earnings and capital.

In order to face these critical risks, it is important to go abroad with a new operating business model and not conceive the outsourcing process as a mere imitation or cost-reduction strategy. The transaction in its essence is important as well; select the right

partner and define a detailed contractual agreement. All these concepts are important to not confront the "hidden" costs of outsourcing.

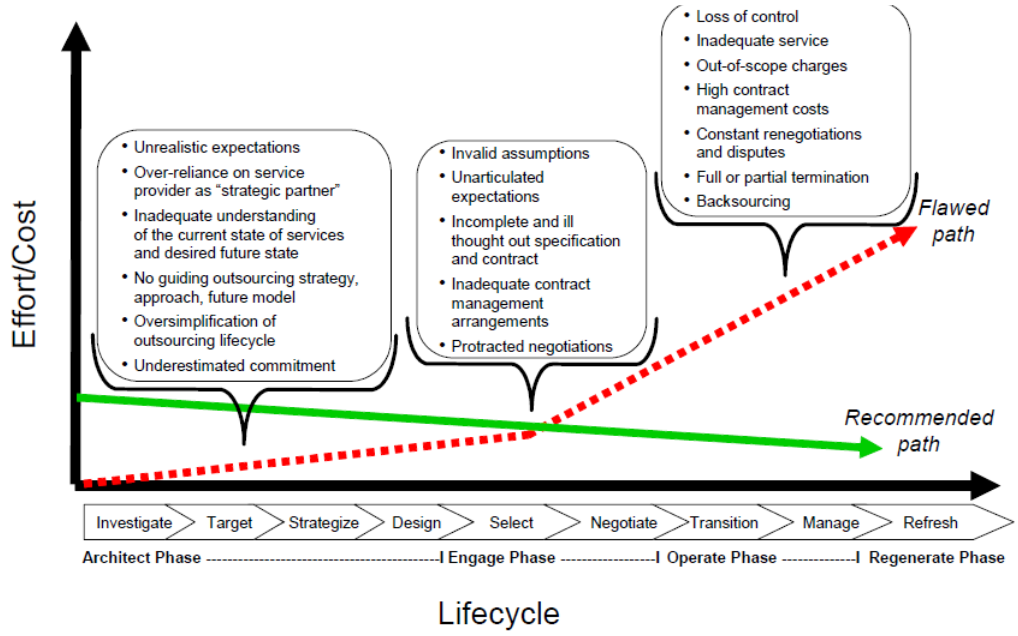

Figure 1.1 – Managing Outsourcing: Most Cost-Effective Path. Source: Cullen, Seddon, Willcocks

In the recent years, the world is witnessing a particular phenomenon: part of the MNEs like Apple and Bosch have announced their intention to return some of the activities, previous offshore, back to their home countries. The literature affirms the fact that offshoring decisions must not be considered as a non-reversible process (Kinkel et al. 2007). After this confirmation, several concepts released can be found in the extant literature expressing in different ways the relocation phenomenon. The most used terms in chronological order are "*international divestment*" (Boddewyn and Torneden 1973), *"de-internationalization"* (Benito and Welch 1997), *"back-shoring"* (Kinkel and Maloca 2009 and *"re-shoring"* (Ellram, Tate and Petersen 2013). All the cited terms have their own definition. However, each of them lacks one or more aspects of the relocation.

The first term does not express the relocation to the home country, the voluntariness of the decision and the difference between in or out-sourcing. The second definition does not consider the relocation to the home country, only consists in a reduction of the engagement in cross-border activities by a firm; furthermore, this definition does not take into consideration the possible differences in in-sourcing or out-sourcing activities.

The definition that refers to the term back-shoring defines the adopted terminology as a re-concentration of part of production from own foreign locations as well as from foreign suppliers to the domestic production site of the firm. As the other two previous definitions, it does not express voluntariness of the decision. Finally, the re-shoring definition lacks in describing if the transferred activity is in or outsourced.

Once defined the offshoring and reshoring phenomenon and its characterising traits, it is important to go through another point. This mention the definition of the alternative ways can be pursued by the firm within the relocation. The decision process can be explain using a four-quadrant matrix. The framework is formed by a two-dimensional analysis. The first dimension is the one describing the spatial dimension, having two possibilities national or international. The second dimension is regarding the ownership dimension. Referring to the buy or make dilemma: insource the production by the firm or outsource it to a supplier in a different country. The resulting categories are called:

- **National relocation**: If the firm locates the production in the home country in a firm-owned facility.
- **National outsourcing**: If the production is outsourced to a supplier operating nationally (in the home country).
- **International relocation**: If the production is located in a firm-owned facility abroad, referred by the offshoring approach.
- **International outsourcing**: If the firm refers to a supplier in a foreign country.

OWNERSHIP DIMENSION / SPATIAL DIMENSION	Internal	External
National	NATIONAL RELOCATION	NATIONAL OUTSOURCING
International	INTERNATIONAL RELOCATION	INTERNATIONAL OUTSOURCING

Figure 1.2 - Framework for the relocations. Source: Own Elaboration

This matrix is very useful to comprehend and see immediately the different scenarios that a firm can undertake. Nevertheless, from what can be understood about offshoring and reshoring terms, the outlined model might be applied for both decisions. What can be highlighted is that both decisions (offshoring one and the following reshoring one) are interlinked and overlapping and exist a strong causal link between the two.

It is important to highlight that the term reshoring does not refer to a unique type of operation. Reshoring activities can be structured in different ways characterized by the geographical dimension. A key factor to discern is the target country for the second step of relocation. For example, a firm can undergo three different types of relocation depending the target country. First, a firm that relocates its production activities back to its home country is undertaking a back-reshoring operation. Furthermore, a near-shoring operation can be identified when a firm relocates some activities formerly located in a country in the same region of the home country. Differently, a further offshoring happens when a firm relocates its activities far away from both the first host country and the home country (Fratocchi et al. 2014).

This investigation it is focused in one of the types of reshoring activities but is important to clarify the distinction between the possible different initiatives. The conceptualization proposed by Barbieri et al. (2018) is helpful to implement a precise and exhaustive analysis into the trends and the reasons behind the relocations. In general, a reshoring decision can be defined as a relocation of second degree (RSD), since it comes necessarily after a first operation of offshoring. Inside the RSD, two subcategories can be described depending on the geographical target of the relocated activity:

- Relocation to home country (RHC). When after the initial process of delocalization from country A (home country) to country B (1st host country), the firm decides to move the production activity back to the country A.
- Relocation to third country (RTC). When the firm decide to undergo a relocation of second degree from country B to a country C (2nd host country), different to the country A.

From now on and along the research, it will be mainly referred to a reshoring decision involving the movement to a third country as RTC, keeping the notation by Barbieri et al. (2018). The movement back to the home country will be referred as RHC but it will be barely named, because the dissertation will focus the study to the RTC.

The concepts presented in this chapter are two, the offshoring and the reshoring operations. It is important to know that a reshoring activity goes always after an offshoring transaction because this last suffers some issues of establishment. The reasons of decide to undertake an RSD can be summarize as follow:

- *Unsatisfaction by the performance* due to the hidden costs of the offshoring activity commented above.
- *Problems with geographic, cultural/linguistic, political and economic distance*. Before to take the offshoring decision, it is extremely important to analyse the cultural, physical, institutional and geographical distance or differences between the two countries. This study can be done through a useful tool as is the CAGE Distance Framework.
- *The business context has changed, and new attractive locations has emerged*. When the relocation of first degree occurred, the economic and political conditions of the two countries and the over world situation took an important role at the decision time. But the global world conditions in the last years are too much volatile.
- *Strong interdependencies among the functions*. Functions established in the two countries (Country A and B) are strongly linked and is difficult and costly to maintain separately.
- *Political incentives*. Several firms decide to come back to their home countries or go to a further country, because the governments of that countries have decided to setup initiatives to boost all the companies establishing their activities to these countries.
- *Made-in effect.* When firms decide to relocate in a less costly location, they are exposed to a loss of reputation due to that customers do not perceive the

product with the same quality when these are made in concrete location. The following table shows the idea of consumers' perception and attitudes in front of a product depending on where it is produced.

Country	Associations	Values/Bias
Italy	Art, History, Culture	Elegance, style, quality
France	Culture	Elegance, quality
Germany	Organization, discipline	Strength, solidity
China	Communism, Economical and demographical growth	Falsification, low cost
Japan	Social rules, roots	Innovation, precision
USA	Innovation, leadership, freedom	Power, supremacy, arrogance

Table 1.1 - Made-in image. Source: Own Elaboration

1.2. Research trends in reshoring activities

Being conceptualize the offshoring and reshoring phenomena, a meticulous analysis on the main traits of relocation decision and contemporary trends should be performed.

Offshoring is no stranger to firms anymore. In the last years, companies have accepted this fact for several reasons. The most outstanding trait which organisations benefit of is its cost effectiveness. As demand has become more unpredictable, it has pushed many trends in the offshoring industry. Following, it can be highlighted some of the important trends which have change the organisation's strategy involving the offshoring decision.

Offshoring value-added services

At the beginning days of offshoring firms used to offshore core business processes. In recent studies, the perception of offshore has changed and companies tend to offshore more back office services and other value-added operations. They prefer to transfer these processes to their partners because:

- Better efficiency and effectiveness from offshore partners
- More savings on operational costs

Doing this type of offshore, firms can focus their efforts on the core business where they have their area of expertise. Most value-added services being outsourced are graphics and web development tasks, marketing and finance operations.

New offshore locations emerge

New emerging economies or countries are being the target locations for offshore services. The most common regions are Asia, with Philippines as one of the countries most valued, and Latin America. Firms now see a greater opportunity for business expansions due to the proper options to relocate.

Companies can get rid of process completely

Firms have learned to totally abandon some of the process and offshore them. This means that companies are deciding to relocate small operations in order to put all their focus on what really matters, in other words what generate the profits. With this practice, clients can confidently leave tasks offshore while they take care of the core business processes.

Reshoring trends

Once mentioned some of the trends caused by offshore activities, it can be commented that the relocation of production activities is not a recent phenomenon. Indeed, it can be considered quite a common fact (Fratocchi et al. 2015). The globalisation of service offshored and outsourced begun to take off in late 1990s, when started a growth and a technological improvement in information and communication technology (ICT). The new technologies in ICT allowed digitization which allowed at the same time the divorce of processes. Moreover, the reshoring of value chain activities has interested firms operating in variety of sectors for almost two decades (Kinkel and Maloca 2009).

Through the years, academics have shown interest in the topic of relocate the production activities in manufacturing industries. For this reason, different surveys and researches can be analysed to understand which has been the evolution of relocation trends. Since 1995 the “Innovation on Production” survey by the Fraunhofer Institute for Systems and Innovation Research has been updated once every two years. This survey studies the situation from a total of 13,426 German firms having undergone any relocation of the production activities. Update surveys allow the scholars and researchers to get the big picture of tendencies and the related variation on the relocation of production activities. The data on German companies suggest a clear trait of countries entering in the EU during 2004’s expansion, being attractive markets for relocation activities together with Asian countries. Focusing in EU countries, the most attractive target countries for German firms are located in East Europe and are led by Hungary, Poland and Czech Republic (Kinkel et al. 2007).

Concurrently with the Innovation on Production survey, other research has been developed in order to study how happened the boom of relocation phenomenon. Eurostat has developed two survey data on international sourcing; the first one focused in the period 2001 and 2006 for twelve countries: Czech Republic, Denmark, Germany, Ireland, Italy, Netherlands, Portugal, Slovenia, Finland, Sweden and United Kingdom. The second one covers the period from 2009 to 2011 and it is considering fifteen countries for the study: Belgium, Bulgaria, Denmark, Estonia, Ireland, France, Latvia, Lithuania, Netherlands, Portugal, Romania, Slovakia, Finland, Sweden and Norway.

For both surveys, the data refers to enterprises with 100 or more persons employed and firms with non-financial market activities, covering the following business functions:

- Core Business function related to production of final goods.
- Support business functions as distribution and logistics, ICT services, marketing and sales among others.

The data set of the 2012 survey round consists of around 40,000 enterprises including 14,000 from the manufacturing industry. Nevertheless, the 2007 survey covers 54,000 enterprises including 25,000 from the manufacturing sector. This is due to the fact that in the 2007 survey more large EU countries are participating in the study than in the 2012 research. In order to not extend all the breakthroughs of the two surveys in the dissertation, the main results of both surveys can be summarised as follows (Alajääskö, 2009; Rikama et al., 2013):

- Countries with high labour cost are the ones that show the highest share of international sourcing. Denmark and Finland with 25% and 21% are leading the list for 2012 survey. Irish, UK and Slovenian enterprises were the most highlighted in the 2007 surveys.
- It can be highlighted that outsourcing is mainly driven by manufacturing firms. Around the 66% of all enterprises outsourcing are inside the manufacturing industry.

- The tendency is that more support functions are internationally sourcing than core functions, excepted for France, Ireland, Italy, Sweden and UK. This tendency is due to the apparition of ICT services such as cloud computing which are relatively easy to move from one location to another.
- Knowledge intensive tends more to be sourced. Around 15% to 20% of enterprises are moving R&D and engineering functions abroad.
- Proximity is one of the most important factors to consider when outsource, with domestic sourcing being more renowned than international sourcing.
- The main reason to relocate activities abroad is to reduce labour and other cost. In other words, move towards cost efficient location.
- Last one factor to consider is the direct employment consequences, even though are limited, they should not be underestimated.

All these traits are related to outsourcing, because is not until the second decade of 21st century when the firms decide to reshore. Only the 2012 survey covers data on reshoring activities of European enterprises, where can be differentiated two types: back sourcing and international relocation activities. Backshoring is particularly frequent in Sweden Ireland, Finland and Denmark with shares between 5% and 3.5%. From the other side, Romania, Bulgaria and Lithuania are the ones showing a lowest share in backshoring and international relocation.

More recently researches about the topic have used the European Reshoring Monitor data source to go one step further with the tendencies about relocation. The first analysis is focusing on the home countries from where companies are deciding to relocate their activities. In other words, countries appearing in the chart 1.3 in most cases are the locations where firms have the headquarters. The data collected suggest that reshoring activities varies significantly across home countries. France, Italy and UK are the three home countries with the highest number of reshoring cases. However, Germany ranks only seventh among the reshoring countries despite of its level of manufacturing tradition. Another point to highlighted is the strong participation of Nordic countries in the reshoring activities.

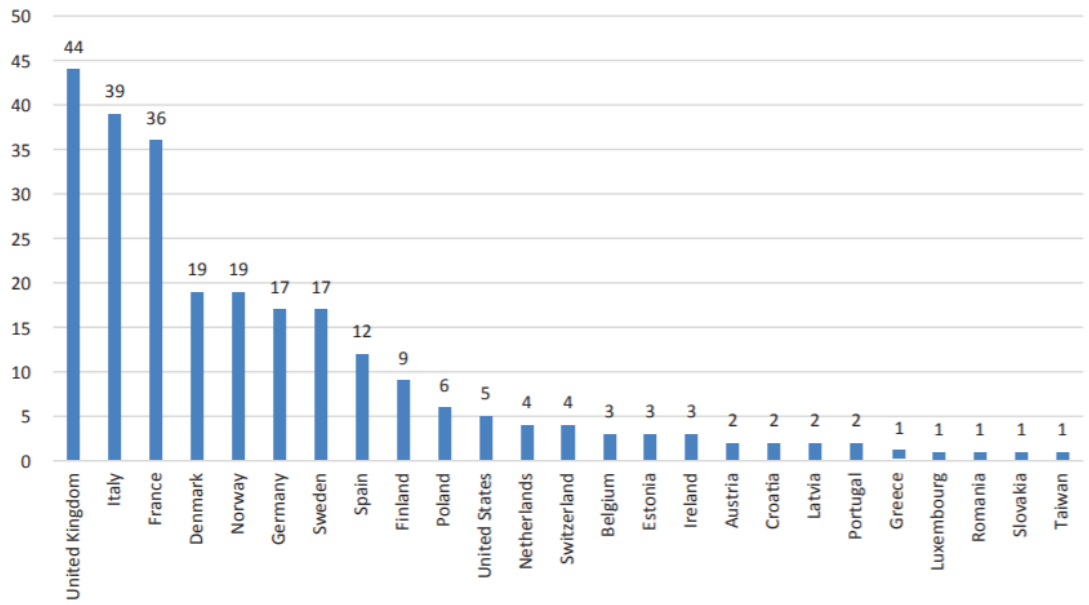

Figure 1.3 - Number of reshoring cases by country (2014-2018). Source: European Reshoring Monitor.

When we talk from the perspective of the host countries being the areas left after an RSD decision cases, they are almost equally distributed between Asia and EFTA countries. When considering decisions to reshore from individual host countries, China is the leading one. This can be explained by different factors:

- China have experienced issues with IP rights and sustainability in recent years.
- Production costs have increased in China.

Regarding EFTA countries we have Poland and Germany as the most frequent host countries. With that, it can be confirmed that reshoring is a strategic action involving both the traditional high-cost Western European states and lower-cost Eastern European ones.

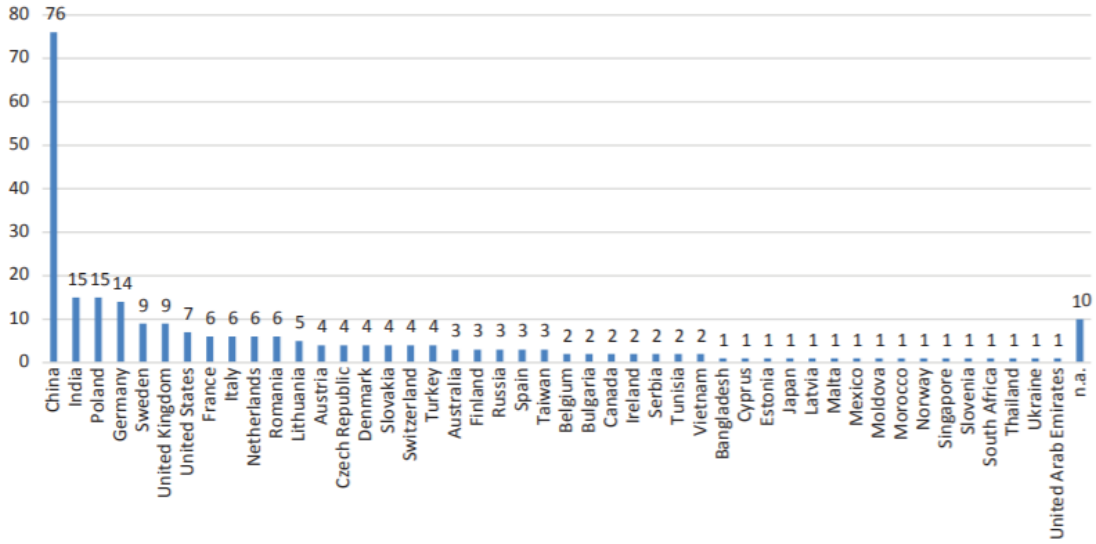

Figure 1.4 - Breakdown by decisions to reshore from host country. Source: European Reshoring Monitor.

From another point of view, leaving to one side the country analysis, it is important to have an overview of how is affecting reshoring at company level. Firms can be categorized in three distinct size according to the number of employees: small, the ones with less than 50 employees; medium, between 50 and 250 employees; finally, large, firms with more than 250 employees.

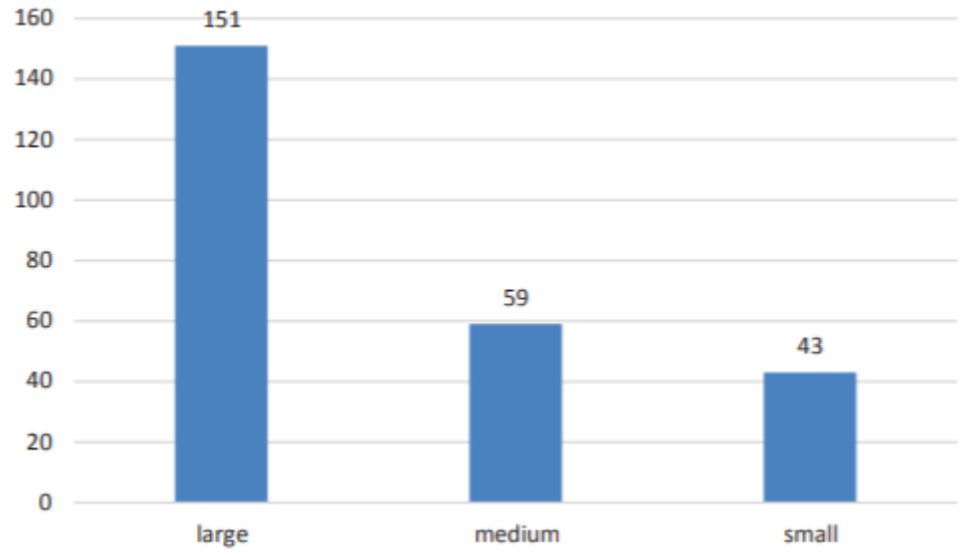

Figure 1.5 - Breakdown of reshoring cases by firm size. Source; European Reshoring Monitor.

Around 60% of reshoring cases involve large companies while the rest share is cover by SME companies with the 40%. This fact can be explained because small firms have

greater difficulty in rethinking their business strategies due to a lack of resources. They are less active in offshoring trends, hence in reshoring initiatives as well.

Analysing the phenomenon through the years, in the period from 2014 to 2018, can be affirmed that the first two years the number of relocated cases remain stable. For following two years, the number was doubled and apparently decreasing in the last year of the study. This insight can be considered conclusive because firms' reshoring activities often appears in the press after a time lag.

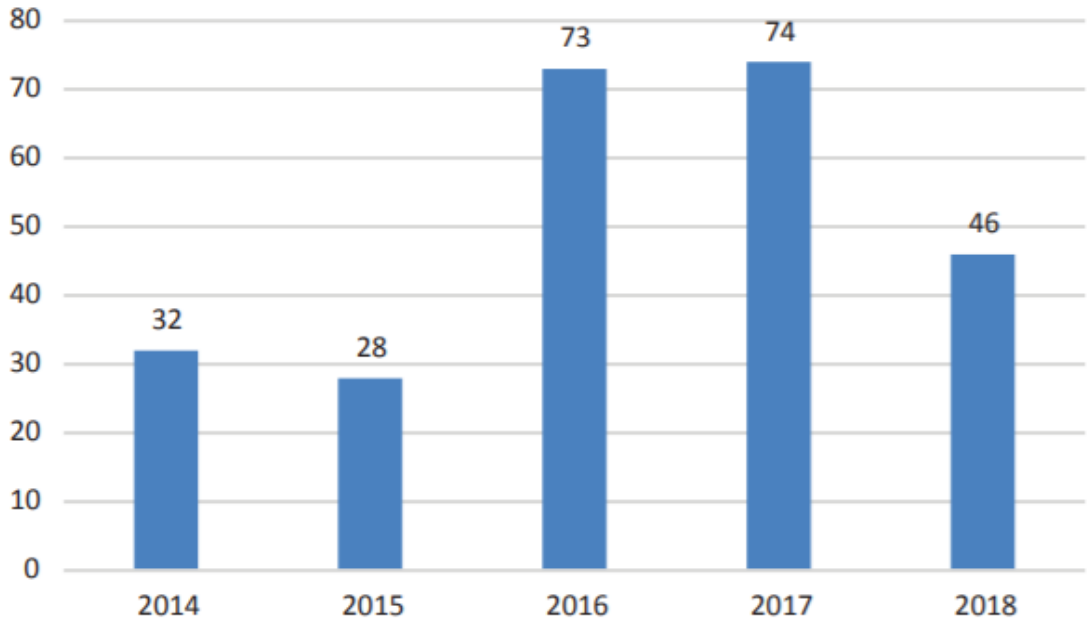

Figure 1.6 - Number of reshoring cases per year. Source: European Reshoring Monitor.

From a time-based breakdown at country level can be highlighted three different patterns:

- Early reshoring countries. In the case of UK, one third of reshoring activities took place in 2014 when the Reshore UK project was launched by UK Trade & Investment.
- Second mover countries. Reshoring decisions peaked in 2016 by the three largest industrial countries in Europe, France, Germany and Italy.

- Late reshoring countries, principally, in the Nordic countries (Sweden, Denmark and Norway) the most part of reshoring activities was implemented in the last two years.

Regarding the countries from which companies reshore, the peak is placed between 2016 and 2017. This discovery together with the number of involved home countries and industries clearly shows that reshoring is becoming more widespread. Going further the findings, it is evident that nearly half of all identified reshoring took place from China and China's share remains stable over the period. There is evidence of increased reshoring from Poland, India and Germany in 2017.

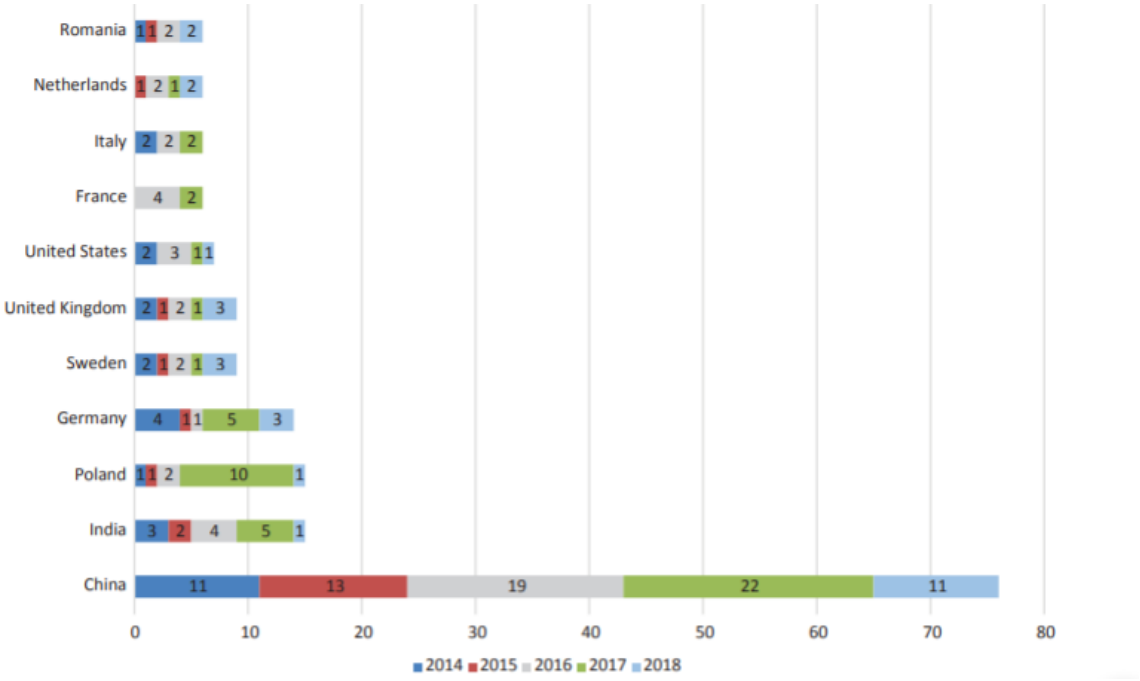

Figure 1.7 - Reshoring decisions by host country and year. Source European Reshoring Monitor.

Finally, from this database, it is possible to affirm that relocation initiative has peaked after the enlargement of European Union in 2004 (Barbieri et al. 2018). It is noticed that the RTC have a geographical tendency towards concentration in Eastern Europe countries like Poland, Hungary and Czech Republic. On the other hand, the countries suffering the most by RHC events are France and Italy as main targets.

Focusing on these traits, it can be affirmed that RTCs are originated from the medium/high wages countries to go directly to lower wages countries (Barbieri et al. 2018). Regarding the RHC the motivations to go back home can be others. This causes and the role of wages affecting the RSD decisions will be discussed in the next dissertation's section.

1.3. Motivations for reshoring activities

A short introduction of the cause of performing a reshoring has been commented in the chapter 1.1, but it is necessary to understand the reasons to decide undertaking a reshoring activity. After analysing the current trends regarding reshoring, it is time to move to an examination of the drivers and motivations of the RSDs.

In the list of issues affecting the RSD decisions there is the concept of the managerial error (Di Mauro et al. 2018). This term refers to a wrongly evaluation of the potentially advantages that a new geographical target for the production facility of a firm would provide. The RHC decision is often influenced by a mistake during the evaluation of the costs and benefits after the first offshoring operation (Kinkel and Maloca 2009). In some cases, both decisions are defined as flawed, referring to the managerial behaviour involved in the relocation strategy. There are two traits that can cause a flawed reshoring decision. The first one is the tendency of following the conduct of other manager without taking into consideration if that decision was properly taken or estimated. Another factor is the overestimation or underestimation of the hidden costs that company has to face after the reshoring (Gray et al. 2013). Summarising, RHC decision is basically happening after the concatenation of unexpected behaviours that firms had at the time of first relocation (Albertoni et al. 2015).

Going deeply in the analysis of factors affecting the offshoring first decision and the subsequent relocation (RHC or RTC), the first highlighted element to consider is the cost differential. The main reason for the first relocation is the overall reduction of production costs continued by an opening of new markets (Dachs et al. 2006). A contrary

theory affirms that both production costs and creation of new markets are equally influenceable to the offshoring decision (Kinkel et al. 2007).

The confirmation of these two factors' importance comes from the study of data, which confirms that costs have a bigger importance for firms than any other variable, as is stated in the German Manufacturing Survey. Inversely, what influenced to the RSD choice is the quality issues and the difficulty to find properly and qualified workforce in order to satisfy the customer demand with the appropriate features. Fratocchi et al. (2016) state, as evidence, that the reasons why is undertake the first relocation action with the ones for the second decision are not related.

The Innovation on Production Survey confirms the statement presented above. The companies that undergo an offshore operation of their production activities which pursue reduction costs, in most cases go together with issues about quality in terms of both personnel and product. What influenced RHC decisions are quality of the production, quality of the workforce, quality of the infrastructure and coordination costs as is stated by Kinkel and Maloca (2009). In general terms of RSD regarding cost efficiency relocations, exist a correlation regarding the decrease of employment in the home country and the number of firms offshoring their production. This fact is due to the intention of targeting less labour expensive locations. In addition, it is important to point out if the factors influencing the relocation decision change when a recession period comes out. No evidence is showing the increasing importance of the labour cost. Nevertheless, in recession periods a decrease in overall consumer demand occurs which would cause an excess of the total production. If firms control many facilities, they tend to concentrate all the production in home country factories. Many authors tried to compile the determinants of RHC, where five categories can be defined for back-reshoring: host country characteristics, home country-related features, labour costs, logistic costs and firm specific factors.

Regarding labour costs, most of the large firm decisions have taken place due to the labour costs differentials which appears among countries (Kinkel 2014). As shown in figure 1.8, the hourly labour costs for developed countries (home countries) are higher

than countries which are hosting more firms such as Hungary, Poland and Czech Republic.

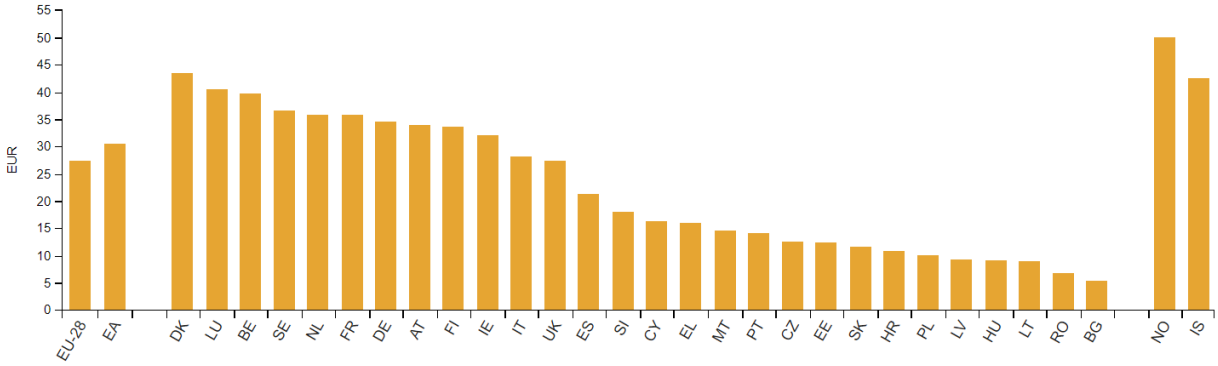

Figure 1.8 - Estimated hourly labour cost. Source: Eurostat 2018.

For what concern logistic cost, some authors affirm that logistic factors have an insignificant influence instead of other reasons. If the logistic aspect is analysed through the Logistic Performance Index (LPI) some countries in both categories target and origin do not present high differences in logistic terms.

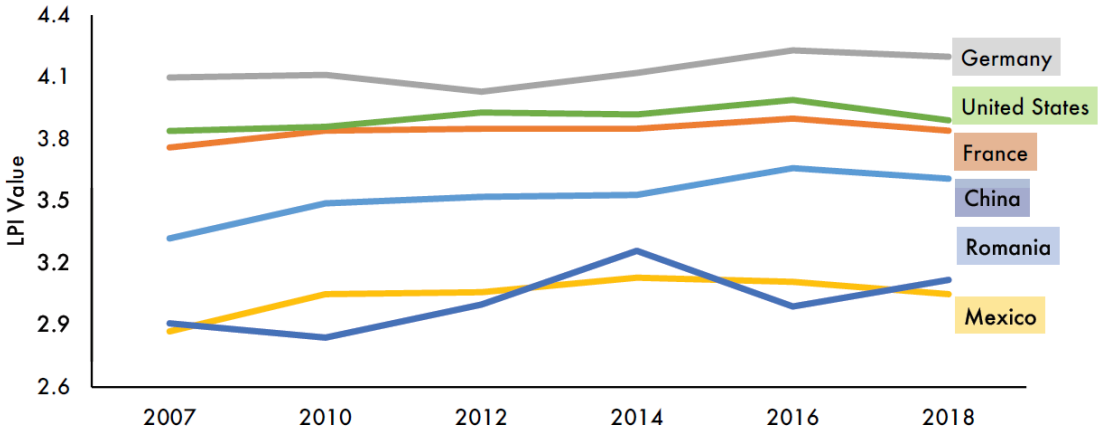

Figure 1.9 - LPI trend. Source: World Bank

Changing the topic to the quality properties of production, it is one of the topics related to the host country traits. Most of the RHC take place due to the lack of quality which is the second most influence reason to back-shoring decisions (Kinkel et al. 2007; Kinkel and Maloca 2009). What is stated by Fratocchi et al. (2015), the skills, the availability and productivity of the workforce from the host country are influencing the RHC

decision as well. An extra factor affecting back-reshoring related to the host country is the possibility to lose the know-how (Dachs and Cristoph 2014). On the other hand, related to the home country, the main factor is the made-in effect (Albertoni et al. 2015). This factor is important for customer perception, giving to the product a value-added feature to certify the quality distinctive characteristics. This trait benefits high-income countries such as Germany, France, USA and Italy which are connected to high quality terms. Another Important trait related to home country is the government actions to encourage firms to back shore their production operations (Ellram et al. 2013). Conversely, in the European Manufacturing Survey, no evidence affirms that companies positively consider these actions to repatriate their activities (Dachs and Cristoph 2014).

Focusing to the firm specific factors which are address as reasons for the RHCs, two factors can be highlighted in the extant literature. Firstly, can be highlighted the concept of reduction of the physical distance between the value adding activities of design and production (Doh, Bunyaratavej and Hahn 2009). The second one is regarding the pursuit of a back-reshoring strategy to the home country due to the investment in automation. Most of these operations are undertaken by countries with an easier access to more advanced and reliable technologies (Arlbjørn and Mikkelsen 2014).

After several academics and researches about reshoring motivations, Fratocchi release a theory-driven classification framework regarding variable impacting an RHC operation. This framework was based in both international business and strategic management theories distinguishing reshoring factors in two dimensions. The first one related to the company's strategic goal, referring to the *customer perceived value* and to the *improvement of cost-efficiency.* The second one distinguishes between two levels of analysis for the reshoring decision. From one side, the internal environment aspect defined by the firm-specific factors. From the other side, the external environment variables related by the country-specific factors. The authors argue about how should be conceived the *customer perceived value* goals to explain a relocation. Pointing out that *customer perceived value* could be defined as "the customer's perceived preference for an evaluation of those product attribute, attribute performances, and consequences arising from the use that facilitate achieving the customer's goals and purposes in use

situation" (Woodruff, 1997, p. 142). This class of relocations take place when the current location blocks the firm to deploy and maintain distinctive capabilities to access external knowledge and resources to understand customers' needs and provide effective services. Conversely, *cost-efficiency* explains relocations as the pursuit of minimization of the overall production costs by lowering unit labour cost or increasing labour productivity which benefits from automation, shorter logistics lead times, fewer inventories and lower monitoring costs among others (Fratocchi et al. 2016). All the variables which take part in the framework are ordered according to the dimensions. The relative importance is associated to the punctuation of each factor attributed by the firms' managers in terms of relevance in the relocation decision. The figure 1.10 reports in brackets the relative importance of each factor according to the data used in the survey of Fratocchi. It can be highlighted the most frequent motivations affecting relocation activities among which can be found the *logistics costs* in terms of cost efficiency and *delivery time* for what concerns the dimension customer perceived value. In the ranking, the following most important factors are *labour costs' gap reduction*, *made in effect* and *poor quality of offshore production*.

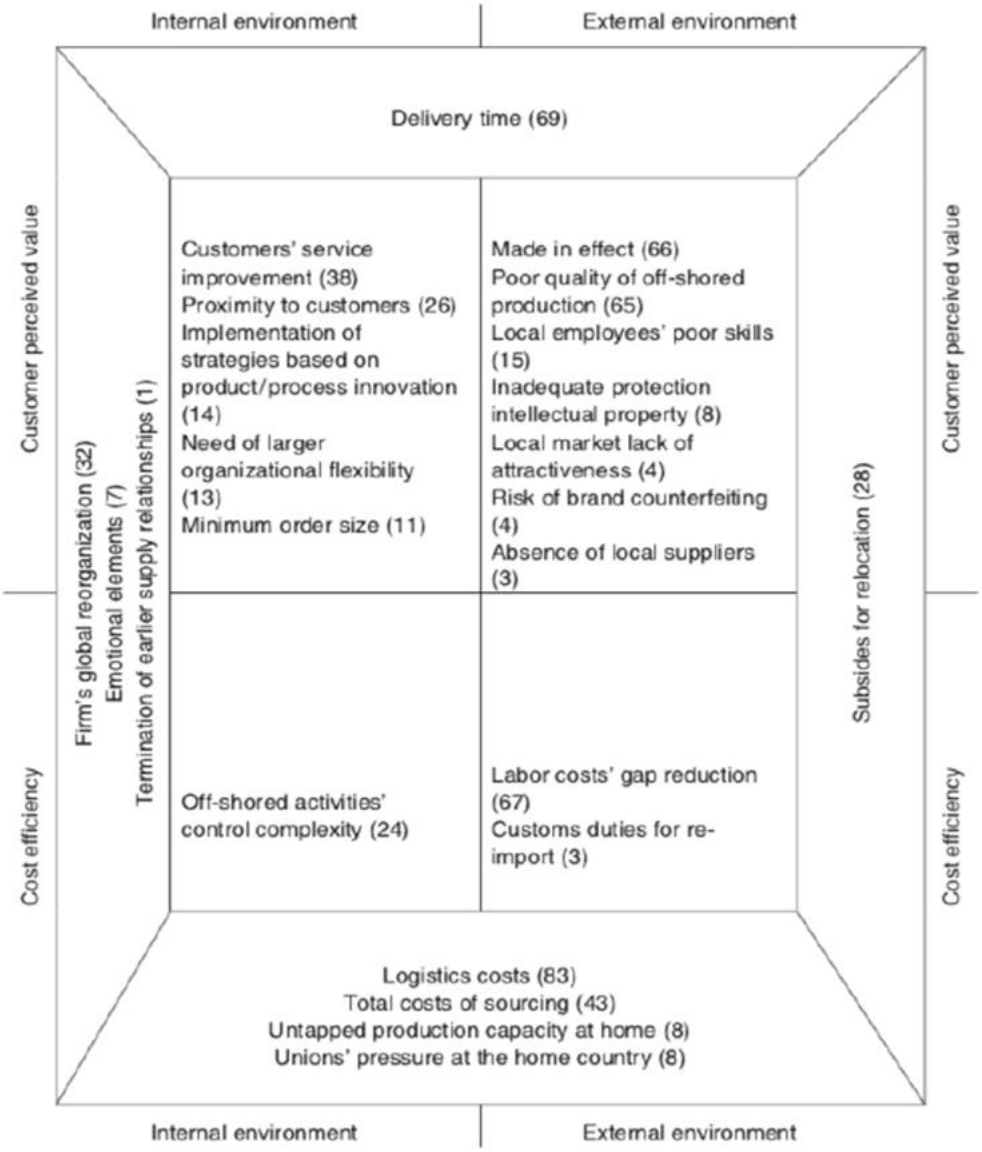

Figure 1.10 - Reshoring motivations. Source: Fratocchi et al. (2016)

In the timeline, after five sets variable and Fratocchi's four-quadrant framework, another framework is proposed by Barbieri et al. (2018). This framework shares drivers with the internationalization theory proposed by Dunning (1993), listed as market-seeking, strategic asset-seeking and efficiency-seeking which is subdivided in cost reduction and productivity enhancement. Two types of relocation, RTC and RHC, have flourished following this distinction proposed. These drivers are built on statistic data. For the first driver, market-seeking, is used the difference between Gross Domestic Product (constant 2011 USD at Purchasing Power Parity, data from the World Bank) of host country and the one of home country. Regarding the strategic asset-seeking driver, is calculated as the difference in terms of R&D researchers per million people between home and host country (World Bank data). The cost reduction driver of efficiency seeking is represented by the difference between unitary labour cost of both countries home and host (data from the OECD, being 2010=100 the base year). For what concerns productivity enhancing sub-driver, it is built on the ratio GDP per person employed differential between host and home country (World Bank, International Labour Organization, ILOSTAT database). The data used in this statistical analysis (Uni-CLUB MoRe) suggested that RTC could be preferred by firms which decide to follow an efficiency seeking first degree decision. The perspective can support the affirmation that firms that underwent a relocation of first-degree pursuing productivity enhancement and cost reduction, will try it again in a third country. Regarding RHC, Barbieri suggest that is a preferable choice by companies that undertook a first-degree relocation following a market seeking strategy.

Summarizing the conceptualization of reshoring motivations, it can be found different approaches through the timeline. The first one comes from the concept of *Quality issues* proposed by Dachs et al. (2006) and followed by the *Concentration of productive capacity* idea of Kinkel (2012). More complex idea was proposed by Fratocchi (2015) with the *Five determinants approach*. Fratocchi completed the relocation motivations approach with the two-axis graph which categorized the drivers in two dimensions: Customer Perceived Value/Cost Efficiency and Internal/External Firm Environment.

Finally, Barbieri (2018) proposed a framework with internationalization theory drivers proposed by Dunning.

Approach	Academic
Quality Issues	Dachs 2006
Concentration of productive capacity	Kinkel 2012
Five determinants: - **Labour Costs** - **Firm Specific Factors** - **Host Country Features** - **Logistic Costs** - **Home Country Features**	Fratocchi 2015
Two – Axis - **Customer Perceived Value/Cost Efficiency** - **Internal/External Environment**	Fratocchi 2016

4 drivers Framework:
- **Market seeking**
- **Strategic asset seeking**
- **Efficiency seeking**
  ○ **Cost Reduction**
  ○ **Productivity Enhancement**
	Barbieri 2018

Table 1.2 - Comprehensive framework for the driver of the RSD. Source: Own Elaboration.

2. Relocation Effects on Employment

The second part of the extant literature reviews the effects on employment by internationalization dynamics. Due to the currently reshoring boom and its novelty, the chapter will be based on the study of the relationship between the offshoring activities and employment. Focusing on different levels affected by relocation operations such as employment composition and wages.

2.1. Offshoring and Employment

The study of reshoring area has recently started, hence the conclusions extracted about how is affected the employment due to reshoring are poorly documented. In the first studies by scholars have been investigated if relocations of second degree might have a positive effect on employment, focusing on the possibility that reshoring activities at home country bring back all those jobs previously offshored. Past researches have analysed the way offshoring impacts the country levels of employment, employee's wages and how workforce composition can change due to these operations. Two categories of workers have emerged, low-skilled and high-skilled. Most of scholars performed their analysis distinguishing these two types of workers, since the results may change significantly according to the category.

Moreover, reshoring from the perspective of the first host country can be perceived as an offshoring operation and the employment effects can be analysed as the cases of home countries. Hence, the first host country faces a job reduction in the same way that the home country faced during the first relocation operation. Analysing the researches focusing on the home country employments dynamics in offshoring operations, it is possible to extrapolate and understand the effects caused on employment by relocations of second degree.

Effects of offshoring on the employment level

The offshoring of manufacturing activities clearly impacts the employment level of countries, but what is debated is if this impact is positive or negative. However, it is more complex specify the effects due to strongly differences among sectors (Groizard et al., 2014).

Macro-effects induced by offshoring activities on the employment level were defined in past researches. Studies of employment tend to be at firm level instead of at country level due to the complexity of relate the unemployment with economic and social change in the country. The reason why analyses are done at firm level rather than at country level is because it is easier to study the dynamics more in detail. Economy unemployment rates depends on the share of workers employed by each company, furthermore, these rates vary due to the company's sector. In the analysis of unemployment at firm level it is possible to spot the following intersectoral effects: job relocation, productivity, scale and selection (Groizard et al. 2014).

In the first place, it is possible to talk about a job relocation effect when an offshore activity is performed. In past studies, this phenomenon was called relocation effect and considered as destructor of jobs due to the simple movement of production activities abroad. (Hijzen et al. 2007). Currently, it is not only considered as a relocation effect. Offshoring of manufacturing activities involve fixed and variable costs. In order to keep variable costs of offshoring decreasing, it is necessary that firms increase the quantities of assets offshored causing an employment reduction in the domestic (Groizard et al. 2014).

The second factor is the productivity effect, when firms offshore one of the objectives is seeking for reduction costs. In first place lowering the inputs costs such as raw materials or energy costs, but at the end these firms are seeking for a decrease in overall production costs. This reduction of costs has a direct consequence in the final prices, allowing to the firms charge customers with lower final prices. Hence, following the law of offer and demand, the demand should increase as a reaction to the decrease in the final prices impacting to the offer, which should tend to increase. As a final consequence,

an increase in the offer oblige firms to increase the employment (Groizard et al. 2014), thus making profit from the decreasing firms' marginal costs and increasing the domestic income (Eggert et al. 2015). In addition, it exists evidence of employment growth due to the creation of efficiency gains. Other factors instead of production ones can benefit from the increase of productivity (Mitra et al. 2007).

Other conclusions regarding the Scale effect can be extracted from the evidences provided by the Sethupathy's research (2013). This study highlighted how offshoring can enhance both productivity and competitiveness as a consequence of pursuing technology enhancement. Some researches confirm that there is no empirical evidence affirming that offshoring firms are causing an increase in unemployment levels, as they are able to increase productivity and profitability above of their competitors. This research affirms that only the most productive companies, considering these MNCs, can offshore facing the fixed costs in those operations. Finally, those who succeed are able to increase their size and multiplying their locations causing at the same time a growth in the firm's employment level. Moreover, firms may benefit from the Scale effect which highlight the possible job creation due to the size growth and the expansion in the industry output (Hijzen et al. 2007).

Finally, related to the employment effect by offshoring, another factor shows up, the Selection effect. Firms which succeed in the offshoring strategy increase market shares at the expense of firms which do not offshore seeing, in most cases, their profits decreasing. Non-offshored firms are in risk of being drive out of the market due to inability to cover fixed costs. Hence, all these firms are obliged to reduce their workforce causing a reduction of employment level (Groizard et al. 2014). Conversely, companies offshoring manufacturing operations might increase their level of employment to face company's expansion (Mitra and Ranjan, 2007).

The effect on employment at firm level is difficult to determine if it is positive or negative since for offshoring firms the productivity and selection effects seems to compensate all that job first lost by the relocation activities. Regarding domestic job losses from non-

offshoring firms can finally be compensated by the necessity to create some activities to recover productivity (Sethupathy, 2013).

Other researches, analysing firm level data, confirm that the impact of offshoring on employment depend on the location and the motive of offshored activities. On the one hand, when firms are relocating to a low-wage country, domestic jobs are substituted abroad in order to reduce labour costs. On the other hand, when the activities abroad are totally distinct from home country, employment from both countries can be completely complemented causing a very small reduction in domestic employment and usually affects more manufacturing jobs (Harrison and McMillan, 2011).

Another important element of further analysis is the correlation between the employment level in both home and host country. Cost of offshoring and labour policies in host countries may affect employment in both markets (Ranjan 2012).

Effects of offshoring on the employment composition

The effects on employment is not the same in all types of workers. Many researchers agree in the point that offshoring affect the domestic workforce composition, but the impact depends on the level of workers, a high impact is incurred by low-skilled workers (Groizard et al. 2014).

However, there is not a consensus about the effect produced on the overall employment level. Taking as example a small an open economy, the employment effects tend to be positive. Low-skilled jobs are offshored in manufacturing sector, but all high-skilled workers are compensating these job losses not only in manufacturing sectors but also in services and IT ones. Moreover, the reduction in employment is very complicated to attribute to offshoring, because in the last years technological innovation has increased in manufacturing sectors. Hence, the employment decrease can be caused by the adoption of new automated technologies in production activities. Consequently, the employees in high-wage countries must protect themselves from both new technologies and offshoring activities (Kirkegaard, 2007).

Through the years, different considerations about the effect of offshoring in employment have come out:

- Feenstra and Hanson thought that if low skilled workers' task were offshored, those can cause a decrease in domestic demand and a consequent increase in the wage gap between low and high skilled workers.
- Offshoring was pursuit with the aim of reduce costs. Consequently, causing an increase in low skilled workers' wages (Jones and Kierzkowski, 1990).
- The tasks most offshored are those characterised by repetitive and routine-based (Levy et al. 2003) and if they can be done in a distinctly geography and do not require person contact (Blinder, 2006).

Thanks to a study on German Multinational enterprises and their offshored employment, some conclusions can be extracted and confirmed. From the study is resulted that offshoring is linked with workforce education and skill upgrading in developing countries. Hence, the jobs more exposed to be offshored are the low-skilled ones. Conversely, high end task, non-routine tasks, are less likely to be relocated. Although, in general terms, the most offshored tasks are usually performed by low skilled workers, the correlation between educational composition of workforce and offshoring is moderate. From the analysis, also can be affirmed that sometimes the costs of offshoring some activities are too high. Hence, it is more convenient to increase the wages of the workers performing these activities than spend the earnings offshoring activities. In addition, Becker (2012) affirmed that offshoring reduces costs more in labour intensive industries rather than skill intensives ones.

Furthermore, another study confirm that job reduction is more affected by technological breakthroughs than offshoring. Indeed, more low-skilled jobs are lost when new technologies replace routine and repetitive task. Hence, the workers' demand shift from low-skilled workers to highly educated workers in order to supervise new technology disruptions (Goos et al. 2014). Most commonly in past researches, the employment composition is affected by specific factors such technological breakthroughs which

favour high-skilled workers, international trade and manufacturing offshoring that tend to relocate low-skilled employees in less developed economies. For that reason, workers demand is undertaken a shift from low-skilled workers to high-skilled workers in the home country.

From different studies, opposing opinions have raised about the effects of offshoring in the employment composition. Some affirm that offshoring has a negative effect on low-skilled workers. On the other hand, other scholars confirm that offshoring raises the skilled labour demand in the home market. From the analysis, it turned out that offshoring is impacting employment negatively in the short run. Moreover, no evidences have been found to confirm that this has effect in the long run. As a conclusion, offshoring is not considered as a major cause of the slowdown in the labour market (Falzoni and Tajoli 2008).

Effects of offshoring on Wages

Not only studies about the effects on employment composition are done. Different scholars have analysed how offshoring impacts wages. Most part of the studies have followed the same structure of effects on employment composition researches, by making a distinction between high and low skilled workers at home country.

As in the prior analysis, from wages analysis different and opposite results and opinions are obtained. On the one hand, it was demonstrated that wages undergo a rise when companies decide to offshore manufacturing activities due to the productivity increase effect (Mitra et al. 2007).

A study for the same topic was performed by Sethupathy (2013) about US firms offshoring to Mexico. This study confirms that employees' wages of offshoring companies are increasing in the home country. Conversely, non-offshore companies are decreasing wages. This is caused by Business Stealing Effect, as non-offshoring companies are forced to lower salaries consequently making them less competitive in the market and creating a higher wage dispersion among firms. Grossman and Rossi-Hansberg (2008) proceeded with analysis considering both side low and high skilled

levels. From the analysis is confirmed that productivity effects allow to increase wages of low-skilled workers whose tasks can be easily offshored. Conversely, as higher is offshoring tendency the lower wages are imposed in the home country due to an alignment among home country salaries and cheaper ones from offshored location. Employees are forced to accept lower wages due to the fear that they are facing by the potential relocation of manufacturing operations (Ranjan 2012).

The study of relation between wages and offshoring is causing a controversy. The wages can be affected both positively and negatively by the offshoring of activities. In a study in the Danish Labour Market performed by Hummels et al. 2014, this trend can be described very well. It can be observed how offshoring is negatively influencing wages of low-skilled employees but, positively affecting high-skilled workers' wages. Due to a decrease of jobs available in domestic country, workers are facing a reduction on their wages. However, when the offshoring operation is causing an enhancement in the overall productivity of the firm, employment and salaries are undertaken an enhancement. In addition, from the study, the impact of offshoring depends on the type of the task performed. For that repetitive task which are negatively affected by the offshoring, wages are falling respectively. However, for that positions exploiting specific knowledge related to science, technology, etc benefits from relocation activities.

Finally, recent studies affirm that exist a U-shape relationship between economic development and offshoring. In addition, from this relationship is being born the back-reshoring. First, manufacturing and labour-intensive task are offshored pursuing poor countries with lower labour costs (lower wages). Afterwards, due to the new production activities, capital grows in the poor country causing an increase in the welfare. Hence, wages start to rise, and firms are less inclined to offshore activities there or keep the current ones in the country (Krenz et al. 2018).

2.2. Reshoring and Employment

If the analysis of offshoring is done by sectors or industries, offshoring and outsourcing have been more harmful for some of them. Companies used their wage bargaining power against middle-class workers or directly decide to relocate production activities to lower labour cost countries. However, not only China, but also in several host countries, wages has risen significantly and cause a massive relocation of that companies that undertook a first offshoring operation (The Economist, 2013).

For what is compiled in Eurofound 2016 regarding job losses, three different situations can be highlighted. Low-tech sectors such as textile have seen the most reduction of jobs. Regarding electrical, plastic goods and computers sectors the reduction have not been as severe as in textile sector. Finally, high-tech sectors have generated a net gain in the period 2008-2016.

However, what studies affirm is that job losses faced by offshoring were lower than expected. Moreover, reshoring activities are recovering job places in Western economies in industries such as automotive and textile, which suffered during the offshoring period. Boston Consulting Group states that by 2020 reshoring will generate around three million jobs in Western Countries (The Economist 2013).

Shifting the attention to European economies, the tendency is not that positive. It will be unlikely that all job losses will come back thanks to reshoring. The first reason is because the reshoring phenomenon is not mainly considered in Europe as in America. Secondly, Chinese market keeps as a more attractive than some expensive and inflexible European markets. Finally, the third reason is that in Europe offshoring was less active due to cultural social and political factors. Additionally, restrictive policies about firing workforce, block some firms to offshore and reduce their workforce.

In 2012 McKinsey states that in the future, the world will show few jobs for low-skilled workers but at the same time the number of high-skilled workers will be reduced. Companies are pursuing a proper and suitable business environment rather than short

term goals. They search for a strategic position where they can find skill workers. Hence, policies will be created by governments in order to attract production activities there (The Economist 2013).

Finally, regarding the relationship between reshoring and employment, most of the past studies include Industry 4.0 in the analysis as the main trigger of the employment reduction. Hence, through the years, reshoring will go together with the use of advanced manufacturing techniques transforming the manufacturing operations in less labour-intensive processes. At first sight, this implies a massive phenomenon of job reductions, but, the new supply chain structure will create new job positions that connects human jobs with automation jobs. On the other hand, it is important to state that technology breakthroughs, in terms of automation jobs, causes that the number of repatriated jobs will be lower than the one that offshored (The Economist 2013).

CHAPTER 2: DATA ANALYSIS.

2.1. WHERE EMPLOYEES ARE RELOCATED?

The 21st Century started with a radical change in trends of the Economic sector. Reshoring and relocation began to be a central topic considered in all strategy changes of firms over the world. It can be considered as a boom of the beginning of the 21st century, because a huge amount of businesses decided to change part of their manufacturing activities from one country to another.

The mainstream of this dissertation is the analysis of the relocation phenomenon in Europe, once the first reshoring activity took place. The analysis of the relocation phenomenon is based on data extracted from the European Restructuring Monitor (ERM) which is useful to provide information related to firms that have relocated part of their activities in a foreign country. The data about reshoring activities for each company is obtained and cross-checked using several sources of data such as international business literature and consulting companies' white papers. The sub-sample of the data base used in this thesis focuses only on relocation operations to a third country (RTC), leaving apart from this work the back-reshoring activities. It contains 337 evidences of RTC. For each of them, variables regarding the origin country, the destination chosen and the year which the relocation took place are reported.

A first analysis of the data helps to highlight the number of relocations through the years under investigation (2002-2015), taking into consideration that all of records are related to an RSD to a third country.

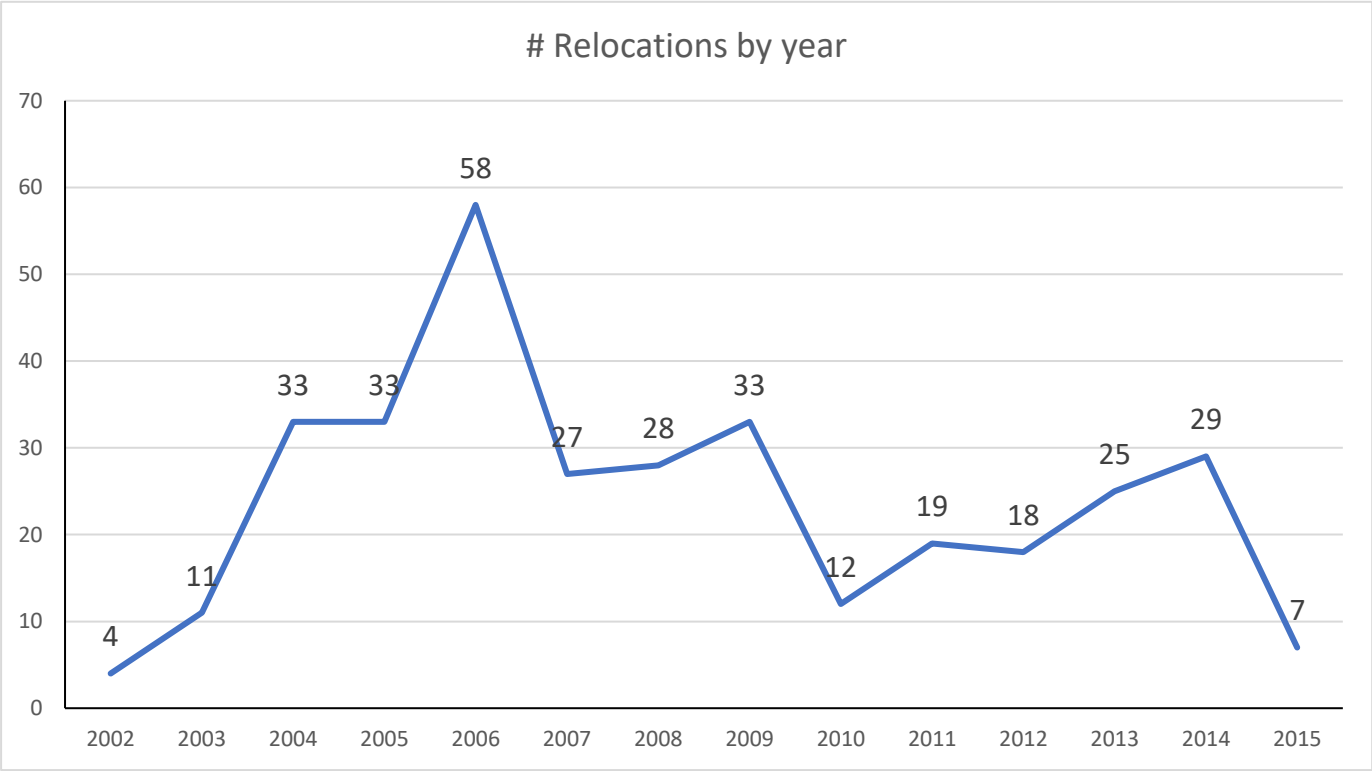

Figure 2.1 - Time evolution of reshoring activities. Source: Barbieri et al. (2018)

In figure 2.1 it is possible to notice how the 2004 expansion of the EU gave a strong push to the number of RTC operations, especially towards the Eastern European countries. This remarkable increase might be attributed to the reduction of the barriers to export on several manufacturing goods. After the relocation boom, in the chart, two periods of relocation recession can be observed due to the crisis phenomena happened in Europe. The first one happened during the 2009 and 2010 after the financial crisis, where companies decide not to go abroad but came back to the origin country. The number of relocations significantly decreases in 2010, probably because of the 2007-2008 financial crisis. For what concerns the 2015 recession period, it is possible to see the second lowest record of relocations which might be attributed to the latest effects of the debt achieve in the crisis period.

What concerns for that thesis is not only the study of the relocation activities undergone, but it is important study what is the number of employees relocated in these operations of moving the manufacturing activities from one country to another.

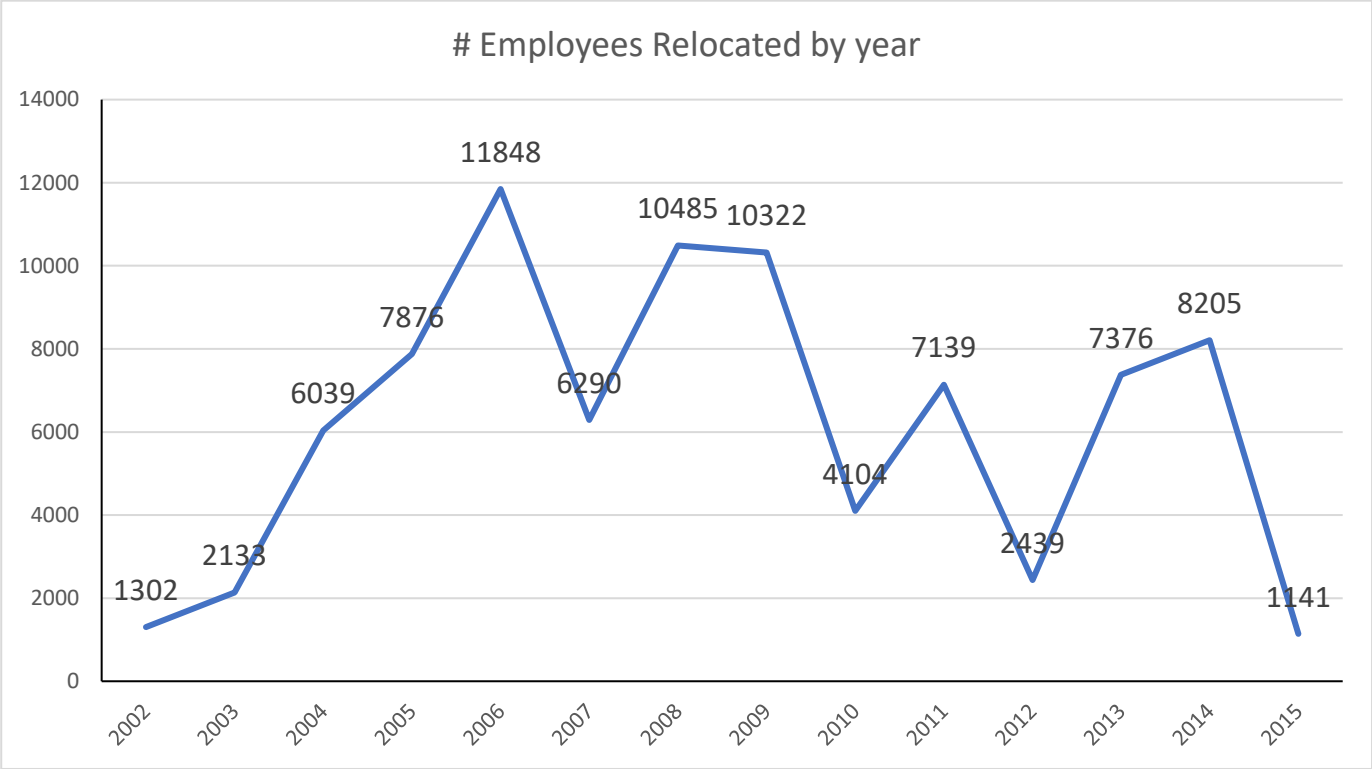

Figure 2.2 - Time evolution of employees relocated. Source: European Restructuring Monitor

Being connected with relocation actions, during the European expansion of 2004 the number of employees relocated due to a reshoring activity began to increase exponentially. Which reach a value of 11,848 employees relocated in the year 2006. During financial crisis period the number began to decrease reaching three minimum points in 2010, 2012 and the lowest in 2015.

Changing the dimension of the analysis, it is possible to make a distinction on the relocation activities on a geographical base. In particular, the figure 2.3 is showing the number of relocations by country of origin. Being useful to analyse which are the most common countries to relocate their activities to a most efficient location. For the reported countries the most ranked countries are United Kingdom, France and Germany, all of them Western European countries.

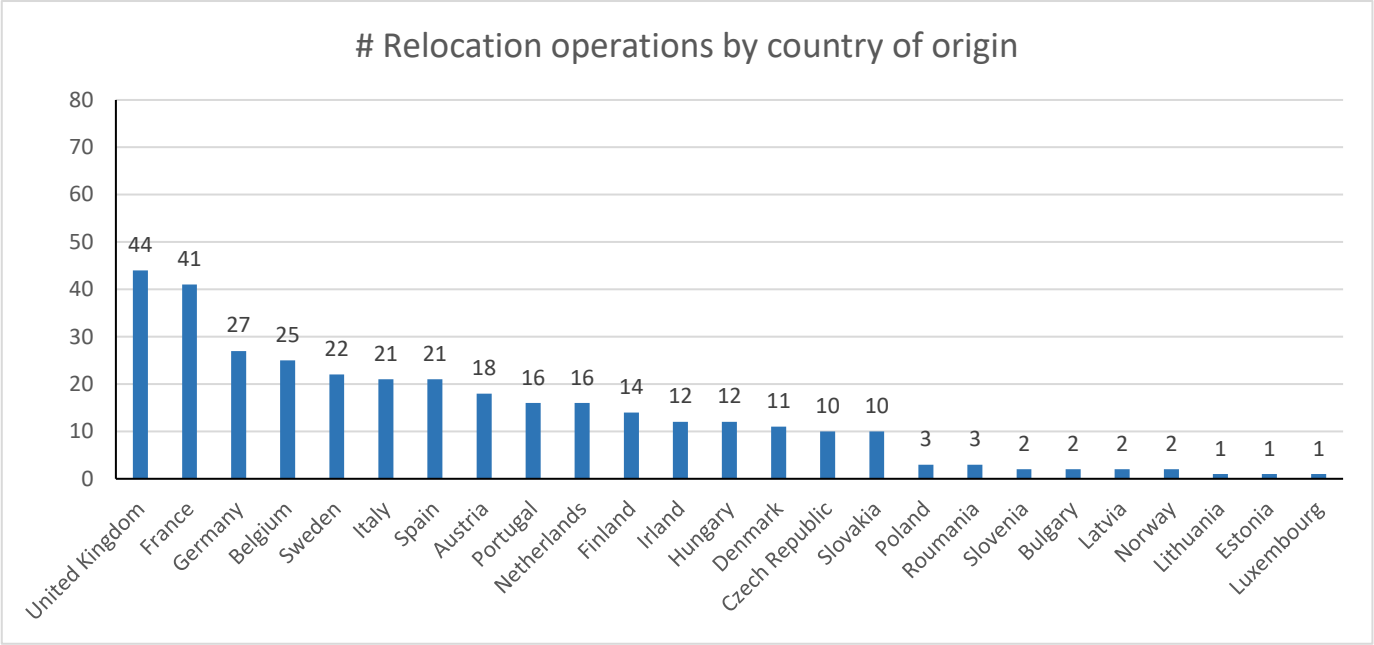

Figure 2.3 – Most frequent origin for RTC. Source: European Restructuring Monitor

Conversely, analysing the number of relocations by country of destination, it can be observed how the Eastern European countries are in the top of the ranking. The data is described in Figure 2.4, where Poland appears as the most selected destination for relocation activities, followed by Czech Republic, Hungary and Romania.

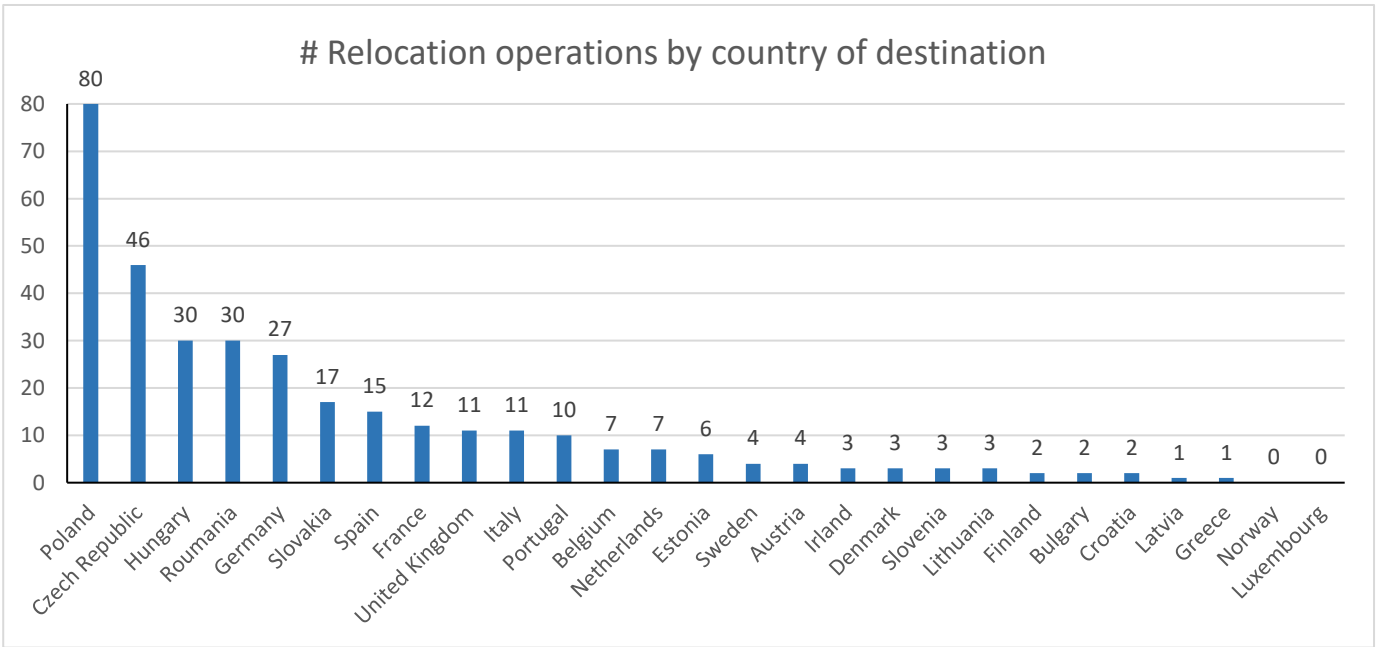

Figure 2.4 – Most frequent destination for RTC. Source: European Restructuring Monitor

Using the same dimension but now analysing the number of employees relocated the big picture does not change a lot. The origin countries which relocated the most are still the same but changing the order in the ranking. Germany is relocating 14,284 employees, United Kingdom 12,462 and France 8,490.

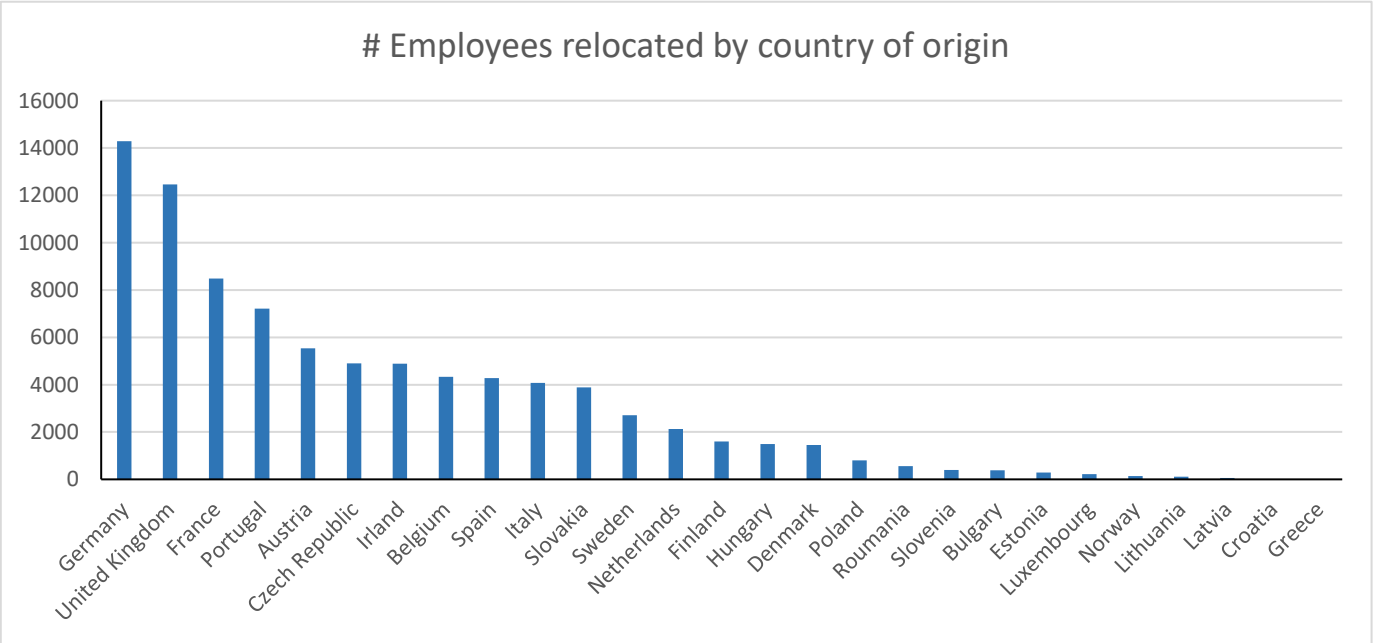

Figure 2.5 – Employees relocated by origin country. Source: European Restructuring Monitor

For what concern the country of destination, it is happening the same as country of origin. The order is changing but the ranking is still the same with Poland in the first place with 25,412 employees relocated.

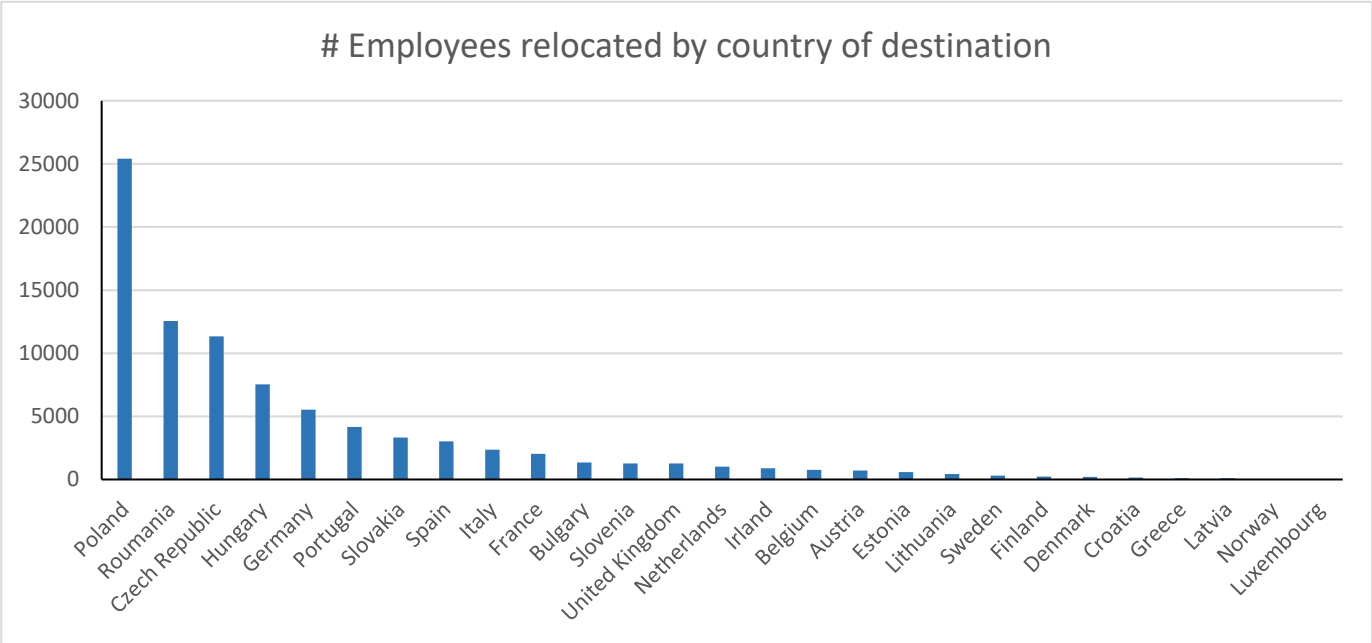

Figure 2.6 – Employees relocated by destination country. Source: European Restructuring Monitor

As is stated through the data obtained in the European Restructuring Monitor the relocation activities are divided between Western European countries as origin states and Eastern European countries as destination states. Several academics, economists and researchers affirm that this tendency is because firms are looking for cost reduction locations when they relocate manufacturing activities. However, the main objective of this thesis is to answer the following questions:

- Why the firms are relocating their employees to Eastern countries?
- Why some Eastern countries are more attractive than the others?
- Which are the differences between the home and the host country?

The following chapter is going to take these questions in order to answer them with the analysis of macro and micro econometric data.

2.2. ANALYTICAL RESEARCH

2.2.1. Definition of factors

The study performed in this thesis is based on the distribution of the workforce due to the characteristics of the country of origin and destination in relocation operations. The total number of relocations in the dataset is 337 and the principal variable in the analysis is the number of employees relocated from the country of origin (Country B) to the country of destination (Country C).

In the analytical research of the thesis five explanatory variables are used in determining the most suitable location to relocate the employees. In other words, which are the characteristics of the target locations to decide to locate firm's employees there and not to another country. These characteristics are the same used in the Dunning's internationalization theory (1993).

Market seeking

This data captures the role of the market-seeking factors and is obtained as the difference in the nominal GDP computed at Purchasing Power Parity. The measure is built as the difference of the averages of the punctual values in the three years preceding the announcement date of the relocation. It is expressed in constant 2011 US dollars and is extracted from the World Development Indicators database of the World Bank. The goal of using this driver is defining why a country results more attractive than another one in terms of market opportunity, since the level of the GDP is considered a proxy of the possibility to expand the market in the target country under analysis.

Asset seeking

The drivers used to consider the asset seeking characteristics of the countries under analysis are the number of researchers in the R&D division and the R&D expenditure per millions of people, which are retrieved from the World Bank database. As well as previous case, the variables are the difference of the average in the three years' values prior to the announcement's year of the RTC.

Efficiency seeking

This factor is sub-divided in two drivers, namely the cost seeking and the productivity seeking advantage. The first one, the cost-seeking, is expressed by the unitary labour cost. This data is extracted from another database, the OECD Compendium of Productivity Indicators, built in the base year 2010=100. In addition, it will be included in this sub-driver another cost factor as it is the Production price. Which is measured, in the same way as the unitary labour cost, taking into consideration the year 2010=100 as the base year. Regarding the productivity seeking variable, it is measured by the value of GDP per person employed, expressed in constant 2011 US millions of dollars at the Purchasing Power Parity. This data is extracted from the World bank database about World Development Indicators. Without difference from the other two location advantages, the values are represented by the difference of the average of the values in the three prior years of the announcement date of the relocation.

FIR technologies

This driver groups two factors measuring the grade of innovation of the firm. The first factor compiles data of patents. The application of patents in matter of the FIR is used as a reference for the level of innovation of the firms in the country of origin or destination. Retrieved the data from the Global Patent Index (GPI) data source provided by the European Patent Index, the variable describes the number of patents in the FIR area. Especially, it represents the number of patents in Industry 4.0 for the firms existing in the countries related in RTC operations. In this specific factor, the reference year is the announcement year of the relocation, hence it is only considered the number of patents by firm in that moment. For this variable, is expected a correlation between the level of innovation and the decision to relocate part of the workforce in the host country. The second factor considers the level of innovation based on the high technology implemented in the firms undertaken an RSD. In particular, the variable is measured in two steps. In the first one, data is extracted from the World bank database about World Development Indicators and is measured as a Sectoral and product approach regarding

R&D intensity of the firms considered in the dissertation. Regarding the second step, taking into consideration the previous data, we divided the High Technology data in four levels. Being the first level for the firms with lower level of technology and the fourth for that companies with the highest technology level. This driver is considered in the study in order to evaluate the correlation of the technology level in the firms with the employees' relocation decision. The high-tech variable, finally, is used as a dummy variable. It has a value of 1 for the companies that operates in industries characterized by a medium-to-high level of technology (equivalent to the levels 3 and 4 of the variable calculated), and 0 for the others, namely the ones with a lower content of technology. Contrasting this data with the source Eurostat-OECD classification (2007), it can be compiled some examples belonging both levels. For the medium-high tech segment are the producers of electronic appliances like Philips or Samsung. On the other hand, among the companies characterized by a lower level of technological content, there are the food producers like Kraft Foods, Nestlé and Mars and the tyre manufacturers, like Goodyear.

As a secondary proxy for FIR technology has been calculated a dummy variable which represents if in the country has been implemented some Industry 4.0 initiative in the announcement year, value 1, and if not represented with the value 0.

Additional Data

In addition to the data representing the factors driving a relocation, in order to broad the information with the aim to further investigate the employees' relocation, it is compiled extra information. Other variables are introduced as they may be traits that differ from country B and country C and may affect the choice of relocate employees. The variables take into consideration data regarding the company, the country of origin and destination or the period in which the relocation took place.

Foreign Direct Investment (FDI) and General government final consumption expenditure

These two drivers are used to measure the willingness of the country to involve in innovation process. Furthermore, Foreign Direct Investment can be a good proxy of the capacity of the country of origin to relocate to another country. Hence, with this proxy can be highlighted which countries tend more to undergo an RTC and which not. About the general government final consumption expenditure, conversely, can be a good proxy to identify which are the country of destination more attractive to relocate the manufacturing activities and employees. In other words, countries with a high government expenditure can be identified as good destinations because maybe foreign firms receive subsidies from the state. The data is retrieved from World Bank database about World Development Indicators and is measured as a percentage of the country's GDP. These values are built as the difference of the average of the values in the three prior years of the relocation date.

Manufacturing Value Added

This driver is used to see if the decision of moving the manufacturing activities and employees from country B to C is correlated with the percentage of manufacturing value added regard the GDP. Extracted from World Bank as well.

Population

It has been decided to include this data in order to evaluate whether is affecting the RTC decision. It can be a proxy of the employees' decision choice; at first sight, countries of destination with high population can be less attractive to relocate employees there because can be an extra cost. Following section may answer this hypothesis.

Crisis period

Two Dummy factors are introduced to examine the effects of the economic crisis of 2007-2008. 'Crisi0811' is the dummy that distinguish the relocations announced during

the years of the crisis. The global recession lasted from the year 2008 to 2011, for this reason, the variable assumes value 1 if the announcement year of the relocation is in the timespan defined, and 0 otherwise. The second dummy variable, called 'Crisi1215' is used to give relevance to the post-crisis years. In this case the variable assumes value 1 if the record has an announcement year included in the interval going from 2012 to the end of the research time horizon, and 0 otherwise.

2.2.2. Empirical evidences

Differential traits between country B and Country C

The analysis covers the period from 2002 to 2015, considering 337 relocation instances between 27 different European countries. The analysis consists in a comparison of economic and technological characteristics between the countries of origin and countries of destination of the RSD. In order to simplify and better understand the results, the analysis has been divided in two parts. First, it has been focalised in the three countries of origin and the three countries of destination with more records of employees relocated by the RSD operations undertaken in that country. The second part, in order to extend the study, it has been compared each of the top five countries of origin and destination with their most destinations and origins respectively. For example, if Germany is the origin with the highest number of employees relocated, compare it with their top destinations.

In the table 2.1 is compiled the list of the countries in the dataset with the number of relocations and the number of employees relocated in that operations, with the aim to get the ranking of the countries for the first analysis. The table is divided in two parts, one for the countries of origin and the other for the countries of destination. Both ordered in a descendent way by number of employees relocated. As the Table 2.1 shows, the three origin countries from which the firms are deciding to relocate their employees are Germany, United Kingdom and France. Regarding the ranking for countries of destination there are the following countries: Poland, Romania and Czech Republic.

Country of Origin	# of Relocations	# Employees Relocated
Germany	27	14284
United Kingdom	44	12462
France	41	8490
Portugal	16	7216
Austria	18	5542
Czech Republic	10	4895
Irland	12	4890
Belgium	25	4334
Spain	21	4283
Italy	21	4072
Slovakia	10	3886
Sweden	22	2709
Netherlands	16	2124
Finland	14	1598
Hungary	12	1494
Denmark	11	1453
Poland	3	800
Roumania	3	560
Slovenia	2	394
Bulgary	2	388
Estonia	1	287
Luxembourg	1	224
Norway	2	140
Lithuania	1	115
Latvia	2	59
Croatia	0	0
Greece	0	0
Country of Destin	**# of Relocations**	**# Employees Relocated**
Poland	80	25412
Roumania	30	12562
Czech Republic	46	11346
Hungary	30	7527
Germany	27	5538
Portugal	10	4170
Slovakia	17	3330
Spain	15	3009
Italy	11	2355
France	12	2028
Bulgary	2	1340
Slovenia	3	1280
United Kingdom	11	1258
Netherlands	7	1028
Irland	3	895
Belgium	7	765
Austria	4	710
Estonia	6	588
Lithuania	3	434
Sweden	4	309
Finland	2	242
Denmark	3	207
Croatia	2	150
Greece	1	110
Latvia	1	105
Norway	0	0
Luxembourg	0	0

Table 2.1 - Ranking of countries by employees relocated. Source: Own elaboration

In the comparison of the top three countries for both origin and destination there is not a clear trend in the decision of employees' relocation, but what it can be affirm is that in the ranking the origin countries are, in general, west European countries unlike destination countries that tend to be east European countries. Hence, the Eastern Europe countries can be defined as one of the main destinations for employees' relocation in the RTC. As the Table 2.2 shows, in terms of Market seeking the origin countries tend to present a greater value in country GDP. For what concern the Asset seeking drivers, no clear differences are presented between some of origin and destination countries, but, in general, it can be said that the levels of R&D investigation and expenditure is slightly higher in countries of origin. The efficiency differential should be analysed considering its two drivers separately. Regarding the cost seeking, in terms of comparison of top three origin and destination countries, there is not a correlation between employees' relocation and lower cost countries. On the other hand, in terms of productivity seeking, a negative correlation is presented between employees' relocation and productivity. What means is that the employees are relocated to countries with less productivity than they origin countries. Apart from the Dunning's drivers, an important driver to analyse is the correlation between high technology patents and the workforce relocated. Regarding this driver, it can be observed that there is a negatively correlation as well as in some of the dunning's drivers, hence the employees are moving from high technology and patents developing countries to less developed countries as can be Eastern European countries. The analysis of extra drivers as population, Foreign Direct Investment, Government Expenditure and Manufacturing Value Added are not adding any value in the study of correlation with the number of employees relocated in the RSD.

It is possible to notice, furthermore in the table 2.3, that for the top three ranking indistinctly for origin and destination countries the crisis is affecting the relocations. In general terms, the higher number of relocations are undertaken in no crisis period, but the worst period for the firms to relocate their employees is the recession period (2012-2015) caused by the crisis period of 2008.

Country	Population	Market Seeking	R&D Expenditure	R&D Researchers	Patents
Germany	81.296.296	3,4E+12	2,7	4004	62340
United Kingdom	61.431.818	2,3E+12	1,6	4099	25245
France	64.268.293	2,4E+12	2,1	3638	16937
Czech Republic	10.217.391	2,8E+11	1,4	2624	1048
Roumania	140.333.333	3,6E+11	0,5	944	1040
Poland	10.675.000	7,8E+11	0,7	1676	4403

Country	Unit Labour Cost	Production Price	Productivity Seeking	FDI	Government Expenditure	Manufacturing Value Added
Germany	101	102	79249	1,6%	19	23
United Kingdom	92	93	77231	5,0%	20	10
France	96	98	86720	2,3%	23	12
Czech Republic	97	98	55098	5,0%	20	25
Roumania	83	93	38421	4,5%	16	23
Poland	95	97	49850	3,8%	18	19

Table 2.2 - Comparison of drivers within top 3 origin & destination countries. Source: Own Elaboration.

Country	Crisis 08-11	Crisis 12-15	No Crisis
Germany	6	13	8
France	11	7	23
UK	15	3	26
Poland	23	20	37
Roumania	13	7	10
Czech Republic	12	10	24

Table 2.3 – Crisis effect on number of employees relocations. Source: Own Elaboration.

Once analysed how is affected the number of employees relocated studying the three top countries of origin and destination, a deeply investigation will be done between origin and destination countries. In order to go further with the research and analysis, it will be deeply analysed the differences between the origin country with their top destinations and destination country with their top origins in terms of Dunning's drivers (Market seeking, asset seeking and efficiency seeking) adding the effect of patents. Other variables will not be considered because in the previous study was detected that have no remarkable effect in the employees' relocation.

This second part displays the results of the comparison between origin and destination countries in employees' relocation operations. It is divided in two sample, the first one is based in the comparison analysis of the top five origin countries with their destinations. In the table 2.4, it can be seen the five origin countries with their respective destinations.

Origin	Destinations
Germany	Austria, Czech Republic, Denmark, Finland, France, UK, Hungary, Netherlands, Poland, Romania, Slovakia
United Kingdom	Belgium, Czech Republic, Germany, Estonia, France, Hungary, Ireland, Netherlands, Poland, Romania, Slovakia, Slovenia, Sweden
France	Belgium, Czech Republic, Germany, Spain, UK, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Romania
Portugal	Czech Republic, Germany, Spain, Hungary, Poland, Romania, Slovakia, Slovenia
Austria	Czech Republic, Germany, UK, Hungary, Lithuania, Poland, Portugal, Romania, Slovakia

Table 2.4 - Destinations of top five countries of origin. Source: Own Elaboration.

This second analysis has the purpose to analyse more deeply how can affect to the relocation of employees going to one country or other. From table 2.4, it can be observed that firms are relocating their employees to both Western and Eastern countries irrespective. Hence, at first sight, it would be possible to affirm that relocating to Eastern European countries is not affecting the decision. However, checking the data of the different drivers another thing can be affirmed.

From the Analysis, where the table is display in the Annex 1, the five countries selected to study are presenting the same characteristics in terms of Market Seeking driver. The firms are not changing the destination of their employees in order to pursuit market

opportunities. It is true that when the firms go from one of this five countries to a Western destination, usually, the GDP of destinations tend to be a little higher, but with a minimum difference. Conversely, when the firms go to an Eastern location this GDP is lower than the origin country. In addition, in these cases, the GDP difference between origin and destination is higher, what means that exist a negative correlation between the number of employees relocated and the Market Seeking driver. Hence, it can be affirmed that firms that are moving the workforce to Eastern Countries are prioritizing other characteristics in front of market opportunities.

The asset differential is lacked correlation with the number of employees relocated irrespective of what is the type of the destination country, Western or Eastern. In both cases, the level of R&D in the destination country is not making a turn in the decision of relocating part of the workforce.

It is possible to notice a clear correlation when is analysed the Efficiency Seeking Factor. For all the origins of the analysis except for Austria, there is a clear pattern when it is compared the efficiency of origins and destinations. In this particular case, there is a difference when firms are relocating their employees to a Western country or Eastern country. When firms are relocating their workforce to Western countries, they are looking for a location with productivity seeking, in order to enhance their productivity. On the other hand, when firms are relocating to Eastern countries, they are pursuing a reduction of production cost. Data is showing that for that firms which are relocating more employees to Eastern countries are looking destinations with Unitary Labour Cost lower than the origin state. To summarize, firms are relocating more employees in Western locations with high productivity and to Eastern locations with lower productivity costs.

Regarding the other latest driver, technology level, is not correlated with the number of employees relocated. Hence, a higher or a lower number of patents do not affect the choice of relocation employees or not.

Changing the point of view of the study and analysing from the side of destination countries the drivers for the countries stated in the table 2.5 are being analysed.

Destination	Origins
Poland	Austria, Belgium, Czech Republic, Germany, Denmark, Spain, Finland, France, UK, Hungary, Ireland, Italy, Luxembourg, Netherlands, Portugal Slovakia, Sweden
Romania	Austria, Belgium, Bulgaria, Czech Republic, Germany, France, UK, Hungary, Ireland, Italy, Norway, Poland, Portugal, Slovakia
Czech Republic	Austria, Belgium, Germany, Denmark, Spain, Finland, France, UK, Hungary, Ireland, Italy, Portugal, Slovakia, Sweden
Hungary	Austria, Belgium, Bulgaria, Germany, Spain, Finland, France, UK, Ireland, Italy, Netherlands, Poland, Portugal, Slovakia, Sweden
Germany	Austria, Belgium, Denmark, Finland, France, UK, Hungary, Ireland, Italy, Netherlands, Portugal, Sweden

Table 2.5 - Origin of top five destinations.

In this part of the analysis, it can be observed a particular case, four of the five countries of destination are Eastern countries, but the fifth country is Germany which is one of the top origins and one of the top destinations. What can be affirm is that firms which are located in Germany for what is observed in the previous part of the analysis are looking productivity enhancement in Western countries and cost reduction in Eastern countries. It is important to observe what are pursuing firms that have as a target location for their employees Germany.

Conversely, to the prior study the most part of the countries of origin of these five are Western countries and hardly ever Eastern countries. Firstly, the analysis is focusing in the four first countries because are presenting the same trends. The main correlation with the number of employees relocated and the destination countries is in terms of

efficiency seeking. All the firms are relocating their employees to countries with lower productivity costs than origin states.

The interaction between the employees relocated and the other location advantage drivers does not change from the other analysis. For what concern the asset seeking driver is not affecting the choice of target location of workforce. In some cases, the R&D volume in the destination is higher but other times there is no difference or there is a negatively correlation. What was emerged in the prior analysis and what is confirm in this latest analysis is that Eastern destinations to relocate the workforce always present a lower market seeking, hence the decision of relocating is not based on the market opportunities pursuing. Finally, is reaffirmed that the level of innovation in the country of origin and destination does not make neither a positive nor negative in the employees' relocation. Number of patents is not correlated with the employees' reorganization.

Lastly, it is time to focus on the particular case of Germany and explain which characteristics has in order to be a target for firms in terms of restructuring their workforce. The case of Germany is special because all the origin states are Western countries. The characteristics that caused Germany to be an attractive destination are that shows lower production costs than origin countries for firms that decide to relocate their employees, but with high levels of R&D research and expenditure. Thus, it can be affirmed that in this case, firms are relocating to Germany in order to pursuing an asset advantage in terms of R&D and at the same time reduce the production costs. Regarding the other drivers analysed, there is not a correlation in terms of market seeking, GDP of origin countries and Germany are practically equal. In terms of number of patents, it is the only case that firms are reaching this location also in terms of better opportunities of innovation. Germany is the country with the high number of initiatives in innovation and with the high number of patents implemented. Summarizing, Germany is an attractive location in terms of high level of innovation, asset location advantage and cost location advantage.

CHAPTER 3: DISCUSSION OF THE RESULTS

This dissertation provides some insights in the field of reshoring focusing on the employees' relocation. The statistic study confirms the general trends highlighted in the data analysis section about destinations for employees relocated. In addition, it shows the correlation of some macroeconomic variables with the most common location for relocate the workforce.

For both analyses performed, conclusions can be extracted about which are the main characteristics of the most selected destinations and the top origins in the relocation operation. Hence, with the analysis can be answered the questions of the research about employees' relocation.

1. Analysis of the specification

Starting from the first analysis it can be affirmed that the innovation and technological level of the firms that undertake a reshoring activity can affect the relocation of employees. All the origin countries, in general, present higher levels of innovation and technology causing a replace in the simple, repetitive and routine job places done until the moment for men and women to be done by robots. Hence, these changes are causing a restructuring of the workforce. For that reason, firms are deciding to relocate part of the personnel to lower high-tech countries as are Eastern countries. Thus, confirming our hypothesis that Eastern are more attractive countries to relocate employees. On the contrary, it may seem an important factor to decide where to relocate, but in reality, the market seeking opportunity is not a factor that can be considered to proceed with a workforce restructuration. Furthermore, what is confirmed is that high skill workers are well rated for firms in order to assist in the improvement of the manufacturing process, in the managing of the firm and change or implement new breakthroughs within the firm levels. In fact, from the first analysis it is affirmed that origin countries are always well ranked as asset locations in terms of R&D expenditure and R&D research personnel. For that reason, firms from these locations are deciding to relocate employees to countries not as well ranked in the R&D position

in order to benefit of the high skilled R&D personnel in the destination countries with the aim to implement new methods of productivity in that location.

Another statement of the first analysis, comes from the cost reduction dimension of the efficiency seeking advantage, where a correlation is expressed with the relocation of employees. In addition, results of Barbieri et al. (2018) about the effects of cost reduction factors to the RTC decisions are confirmed. What is extracted as a conclusion from the first analysis is that destination countries differ from the origin countries in terms of production cost. In general, all the countries of destination are showing lower production costs. Because of that, those are the most attractive locations for high technological firms to relocate their workforce. What it can be concluded from this first analysis is that firms are relocating part of their high skilled personnel in terms of innovation and R&D to a cost reduction location in order to make profit of both sides. Or, in other words, they can benefit from the cost reduction location advantage in order to implement new innovative solutions in manufacturing systems.

The productivity enhancing driver, on the contrary does not have any significant relation with the employees' relocation. What is extracted from the sample is that origin countries as a general trend show higher levels of production than the destination countries. Hence, the only reason to relocate employees from one high productive country to a lower productive country is because, as is stated above, they want to combined the high skilled located employees with the low cost of new locations in order to enhance the productivity of the destination countries.

Regarding the extra drivers considered in the first analysis, none of them are correlated with the main variable of the dissertation. For that reason, they are excluded for the deeper analysis performed.

Before getting through the second analysis, a peculiar case is represented by the variable of the crisis which determines if the RSD took place in the years of global recession. This outcome was also discussed by Kinkel (2012). The author observed an

overall decline of the total relocation and, in consequence, of the employees relocated. On the other hand, the results for the post-crisis period (2012-2015) exhibit a stronger effect. Hence, it is possible to affirm that employees' relocation is more influenced by the post-crisis period in both origin and destination locations.

As explained in Section 2.2.2, the analysis has been deepened by studying the different traits of the top five origin and destination countries with their direct destinations and origins respectively. This analysis has been done because the interconnection between origin and destination countries of the first analysis was weak and maybe it did not represent well the characteristic of the home and host countries related with the employees' relocation.

What is confirmed from the first analysis in the second sample is that firms moving to Western countries are relocating their high R&D qualified personnel to advantaged cost location. On the contrary, the pattern of the patents is not confirmed in this second study because, except one country of the sample, the rest are not showing any correlation between patents and employees' restructuring. In addition, origin countries are not always stronger in innovation levels than destination countries.

Finally, what it comes out from this second analysis is that not all the destinations are Eastern European countries. Some firms decide to move part of the personnel to countries where productivity levels are higher than the origin country. From this pattern, a new question emerges: is the productivity level a characteristic of a country that changes the employees' relocation choice? This can be a first step for further investigation in this topic. Furthermore, another exception appears in this second analysis. Germany is considered both as a top origin country and top destination country. What is confirmed from this case is that, some characteristics, like cost reduction advantage, might increase the attractiveness of specific location to relocate there firm's personnel; others characteristics such as innovation level may cause that firms choose relocating employees from this country. In the case of Germany, what turned it into an attractive place for relocating employees is its ranking in terms of

innovation and technological level. Hence, several firms decide move part of the personnel in order to take advantage of these factors.

2. Remarks on the results and suggestion for further research

At the end of the analysis, it is possible to provide answers to the questions formulated in section 2. As predicted in that section, the most attractive locations are Eastern countries, being top ranked: Poland, Romania, Czech Republic and Hungary. Looking into the statistical analysis these countries are preferable for firms to relocate their activities and their employees. Furthermore, the analysis allows to bring a first sight in which are the characteristics of these countries for being the most selected target ones. In general, for the firms in the sample, the employees are relocated to countries with lower production costs but with a certain level of innovation or with future projection to enhance the innovation and technological levels of the manufacturing sector of the country.

In addition to this, the study shows differences between origin and destination countries. As a general pattern, origin countries tend to present higher technological levels represented by the number of patents and present a higher expenditure in R&D than the destination countries as well. Finally, in terms of efficiency seeking advantage, origin countries usually tend to have more productivity than the destination countries. However, the destination locations are better ranked than origin ones in terms of production cost efficiency.

Considering all the data of the analysis, first conclusions can be extracted, but it is not enough because the sample only considers data for the time range from 2012 to 2015. During the last years, some of the most attractive countries to locate part of the workforce have implemented some initiative to implement industry 4.0 policies, as for example Poland. For this reason, in order to provide more relevant data to analyse the traits that can affect the relocation of employees between countries, it would be very

important to extend the survey period also for the years 2016, 2017, 2018 and 2019. In this way, the analysis would capture the changes in macroeconomic drivers and technological initiatives implemented lately to the years of the sample analysed.

Another question has been posed in the section 2.2.1: Is the productivity level a country characteristic which changes the employees' relocation choice? It has been noticed in the study that some firms value more the productivity efficiency than cost efficiency, hence decide to relocate to countries with high level of productivity.

Apart from extending the period focus of analysis, this dissertation can be a first step for a deeper study of the possible effects that can have the characteristics of the destination country over the employees' relocation. It would be great to develop a mathematical model which allows to study the correlation of several macro and micro econometric factors, technological drivers and labour data with job restructuring or job reduction, when a relocation of second degree is performed. One of these factors considered may be the productivity level at both country level and firm level. This model would be able to track the evolution within the years of the relocation of employees, not only for RTC, also considering RHC (relocation to home country).

CHAPTER 4: CONCLUDING REMARKS

The analysis of the research represents a first attempt to provide evidences on the relationship between the number of employees relocated in a relocation of second degree with some drivers, both at firm level and at country level as well.

The results obtained offer some insights. Examining the differences between home and host countries in the employees' relocation in an RSD, some different conclusions can be drawn. In general, a firm located in a high-tech level country and with asset advantage tend to relocate employees to cost efficiency locations. From the analysis can be concluded that the most common location for relocate the employees are Eastern countries with low production costs. On the other hand, home countries tend to be developed countries with high level of innovation, analysed by the number of patents and the asset advantage in terms of R&D expenditure and researchers. On the contrary, not only Eastern countries are target locations, some Western are attractive locations due to high levels of productivity which firms pursue.

The study is mainly based on a descriptive statistical analysis at country level. Hence, a sophistication in the study of employees' relocation, performing a mathematical deeper analysis considering firm level drivers, is suggested in future studies. Additionally, an extension on the drivers analysed would be a greater improvement of the research in order to see which economic, technological and social factors are affecting the value of employees relocated or the jobs reduced in an RSD.

Another matter in favour of the continuation of the research is the extension of the temporal horizon. In fact, in order to include the new initiatives both economic and technological of the sample countries, the analysis should be extended to the years 2016, 2017, 2018 and 2019.

After having traced these indications, this thesis can be defined as a starting point for future analysis of the employees' relocation trends. Not only occurring in Europe also worldwide.

In conclusion, results provided by this analysis can be considered as previous data to create variables of study for a future empirical model for employees' restructuring in RSD.

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DATA SOURCES

Variables in the statistical study

Indicator	Source	URL
Market-Seeking driver	World Bank	https://databank.worldbank.org/indicator/NY.GDP.MKTP.CD/1ff4a498/Popular-Indicators
Asset-Seeking driver	World Bank	https://databank.worldbank.org/source/world-development-indicators
Cost Reduction driver	OECD	https://data.oecd.org/lprdty/unit-labour-costs.htm
Productivity Enhancing driver	World Bank	https://databank.worldbank.org/source/world-development-indicators
Patents	International Patent Classification	https://www.wipo.int/classifications/ipc/en/
High-Tech	World Bank	https://databank.worldbank.org/source/world-development-indicators

Data on the firms

All the data regarding the firms are extracted from the ERM data set, provided for the research purpose.

Country Macro-Econometrics

All the data used for compared the different countries appearing in the data set is retrieved from the World Bank.

ANNEX

Annex 1: Descriptive Data of Origin countries with their top destinations

Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Germany	62407	2,70	4004	3,4E+12	79249	100,66	101,89	1
Austria	2441	3,07	4955	3,8E+11	86696	109,56	101,40	1
Denmark	1635	3,01	7156	2,5E+11	87732	100,60	106,23	1
Finland	2015	3,34	7373	2,3E+11	87263	88,36	97,09	1
France	17275	2,05	3307	2,3E+12	85484	90,55	92,85	1
Uk	23235	1,61	4029	2,4E+12	78147	101,41	106,94	1
CZE	931	1,58	2946	2,9E+11	56582	97,68	100,99	0
Hungary	740	1,19	2182	2,4E+11	55276	100,88	101,29	0
Holand	2713	1,94	4372	7,6E+11	84333	103,42	111,36	0
Poland	4779	0,74	1755	8,2E+11	51829	97,82	100,95	0
Romania	1049	0,45	929	3,8E+11	41728	93,10	104,88	0
Slovakia	345	0,45	2291	1,3E+11	59025	92,21	103,00	0
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
UK	25245	1,63	4099	2,3E+12	77231	92,35	92,99	1
Belgium	636	1,81	3088	4,1E+11	95123	88,65	83,16	1
Germany	60965	2,67	3901	3,3E+12	78033	99,88	99,47	1
France	17077	2,10	3578	2,4E+12	86868	94,98	97,50	1
Ireland	961	1,61	3113	2,0E+11	98840	110,62	99,89	1
Netherlands	2850	1,79	2930	7,1E+11	83390	90,72	87,52	1
Sweden	3043	3,44	5437	3,8E+11	83088	92,60	90,29	1
CZE	854	1,24	2619	2,8E+11	54851	96,55	96,29	0
Estonia	63	1,07	2745	3,7E+10	54256	90,54	93,31	0
Hungary	824	1,04	1868	2,3E+11	54004	93,57	90,65	0
Poland	4421	0,61	1603	7,4E+11	48092	92,62	94,19	0
Romania	956	0,42	909	3,7E+11	39468	83,75	96,54	0
Slovakia	368	0,49	2088	1,1E+11	51557	89,60	100,28	0
Slovenia	384	1,37	2024	5,2E+10	53798	83,29	83,97	0
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
France	16937	2,11	3638	2,4E+12	86720	95,58	98,48	1
Belgium	617	1,84	3393	4,4E+11	98763	93,50	95,38	1
Germany	59824	2,69	3958	3,3E+12	79705	98,32	102,23	1
Spain	3391	1,19	2578	1,5E+12	74654	92,53	94,96	1
UK	24999	1,63	4132	2,4E+12	79113	92,26	90,79	1
Ireland	935	1,20	2835	2,1E+11	98010	106,51	102,85	1
Italy	0	1,09	1501	2,2E+12	86237	90,14	93,96	1
Netherlands	2792	1,87	3826	7,6E+11	84912	98,70	104,34	1
Portugal	251	1,04	2507	2,9E+11	56944	96,87	93,94	1
CZE	1202	1,36	2485	2,8E+11	54241	96,48	97,12	0
Hungary	2867	0,95	1619	2,3E+11	50554	84,32	79,44	0
Poland	3921	0,69	1654	7,9E+11	50455	95,95	98,96	0
Romania	876	0,45	897	3,4E+11	34925	70,35	77,97	0
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Portugal	240	0,92	2376	2,8E+11	55906	95,54	90,63	1
Germany	60585	2,46	3452	3,2E+12	79009	93,78	96,18	1
Spain	3603	1,26	2745	1,5E+12	73644	95,74	95,23	1
CZE	1252	1,15	1596	2,5E+11	50033	94,31	89,59	0
Hungary	2169	0,96	1693	2,3E+11	52287	88,39	83,64	0
Poland	7354	0,56	1595	6,4E+11	44787	87,40	87,92	0
Roumania	984	0,41	1072	3,1E+11	32543	66,01	73,07	0
Slovakia	631	0,50	2073	1,1E+11	52697	90,05	100,32	0
Slovenia	299	1,53	2920	5,7E+10	58482	85,26	88,36	0
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Austria	2532	2,71	4247	3,7E+11	86486	99,53	99,16	1
Germany	60222	2,42	3350	3,1E+12	76788	96,11	91,24	1
UK	23235	1,61	4029	2,4E+12	78147	101,41	106,94	1
Portugal	669	1,33	3615	2,7E+11	60498	94,45	109,58	1
CZE	936	1,51	3007	3,1E+11	57595	100,11	104,91	0
Hungary	924	0,98	1741	2,4E+11	54032	88,08	85,12	0
Lithuania	137	0,95	2887	7,4E+10	54995	106,36	115,79	0
Poland	4141	0,66	1656	7,8E+11	50005	95,40	98,06	0
Romania	876	0,45	897	3,4E+11	34925	70,35	77,97	0
Slovakia	257	0,85	2604	1,4E+11	63286	100,58	101,76	0

Annex 2: Descriptive Data of Destination countries with their top origin countries

Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Poland	4403	0,68	1676	7,8E+11	49850	94,95	97,34	0
CZE	881	1,30	2749	2,9E+11	55558	100,62	98,75	0
Hungary	820	1,14	2079	2,4E+11	54277	95,17	95,20	0
Slovakia	250	0,49	2028	1,1E+11	51191	91,44	100,92	0
Austria	2523	2,60	4060	3,6E+11	86541	97,04	98,24	1
Belgium	700	1,98	3483	4,4E+11	96632	95,58	96,04	1
Germany	62024	2,69	3975	3,4E+12	78989	100,82	101,25	1
Denmark	1829	2,78	6497	2,5E+11	83721	97,11	103,90	1
Spain	3503	1,20	2648	1,5E+12	72206	93,32	90,79	1
Finland	1885	3,29	7473	2,1E+11	83314	97,77	98,45	1
France	16808	2,14	3745	2,4E+12	87039	97,48	100,26	1
UK	25276	1,63	4054	2,3E+12	77065	92,45	92,75	1
Ireland	923	1,41	2948	2,0E+11	98162	107,73	100,71	1
Italy	7586	1,24	1734	2,2E+12	83734	96,82	100,20	1
Luxembourg	40	1,61	4636	4,7E+10	131676	86,05	96,46	1
Netherlands	2779	1,72	3101	7,5E+11	83851	97,68	94,60	1
Portugal	193	0,74	1992	2,8E+11	55155	93,72	86,87	1
Sweden	2608	3,29	5771	4,1E+11	86172	102,20	96,22	1
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Romania	1040	0,45	944	3,6E+11	38421	83,33	92,82	0
Bulgary	239	0,43	1480	1,1E+11	28669	79,38	88,95	0
CZE	912	1,36	2845	3,0E+11	56460	100,08	100,95	0
Hungary	1202	0,92	1573	2,3E+11	52253	86,57	79,93	0
Poland	3140	0,66	1585	8,0E+11	49043	97,84	97,86	0
Slovakia	243	0,75	2541	1,4E+11	63027	101,10	101,35	0
Austria	2649	2,38	3531	3,5E+11	86519	92,19	92,92	1
Belgium	785	2,03	3427	4,2E+11	95878	95,66	92,10	1
Germany	63483	2,78	4105	3,4E+12	79004	102,45	103,24	1
France	17249	2,05	3418	2,4E+12	86562	92,26	95,80	1
UK	24393	1,64	4244	2,4E+12	78641	96,15	98,55	1
Ireland	961	1,61	3113	2,0E+11	98840	110,62	99,89	1
Italy	0	1,05	1234	2,2E+12	85873	86,02	85,56	1
Norway	6656	1,56	5163	3,1E+11	112617	85,67	69,31	1
Portugal	205	0,76	2016	2,8E+11	55606	96,01	88,74	1
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Czech Republic	1048	1,39	2624	2,8E+11	55098	96,89	98,12	0
Hungary	924	0,98	1741	2,4E+11	54032	88,08	85,12	0
Slovakia	238	0,67	2525	1,5E+11	63257	99,01	103,66	0
Austria	2590	2,76	4419	3,8E+11	87202	99,39	101,89	1
Belgium	842	2,22	3895	4,5E+11	98639	102,56	105,62	1
Germany	62576	2,66	3917	3,4E+12	79431	99,90	101,27	1
Denmark	1823	2,39	5201	2,4E+11	84983	86,60	84,14	1
Spain	3444	1,14	2551	1,5E+12	71782	90,79	88,36	1
Finland	1827	3,42	7460	2,2E+11	82941	108,21	109,69	1
France	16931	2,11	3587	2,4E+12	86298	94,56	97,44	1
UK	24780	1,63	4133	2,3E+12	76952	92,19	92,57	1
Ireland	939	1,12	2484	1,7E+11	93207	96,83	105,07	1
Italy	7790	1,20	1668	2,2E+12	84561	96,22	99,51	1
Portugal	187	0,73	1981	2,8E+11	54930	92,58	85,93	1
Sweden	2859	3,50	6133	3,9E+11	85508	88,95	90,42	1
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Hungary	1662	1,03	1813	2,3E+11	52806	91,28	87,96	0
Bulgary	297	0,63	1693	1,2E+11	33256	116,84	112,27	0
Poland	2778	0,60	1604	7,8E+11	47826	97,33	94,66	0
Slovakia	314	0,46	2239	1,3E+11	56706	92,01	103,61	0
Austria	2649	2,38	3531	3,5E+11	86519	92,19	92,92	1
Belgium	708	1,88	3188	4,2E+11	95230	93,31	90,75	1
Germany	62792	2,71	4076	3,5E+12	79713	99,94	104,84	1
Spain	3457	1,12	2451	1,4E+12	72070	89,74	87,93	1
Finland	2018	3,33	7673	2,1E+11	84729	88,79	93,33	1
France	17050	2,08	3303	2,3E+12	84539	90,18	92,06	1
UK	24177	1,64	4143	2,3E+12	77620	93,73	93,14	1
Ireland	961	1,61	3113	2,0E+11	98840	110,62	99,89	1
Italy	9212	1,31	1943	2,1E+12	82109	102,00	106,28	1
Netherlands	2869	1,83	3105	7,2E+11	82684	94,04	92,56	1
Portugal	263	1,03	2703	2,8E+11	55788	96,05	92,17	1
Sweden	3230	3,39	5431	3,6E+11	81000	88,26	82,75	1
Country	Patents	R&D Expen C	R&D Researchers C	GDP C	GDP/Employee C	Unit Labour Cost C	Production Price C	Western Country
Germany	60724	2,55	3655	3,3E+12	78482	96,72	96,95	1
Austria	2505	2,38	3457	3,4E+11	85095	91,30	91,37	1
Belgium	681	1,84	3149	4,1E+11	95100	90,85	87,22	1
Denmark	1876	2,68	6084	2,5E+11	83846	93,90	98,13	1
Finland	2018	3,33	7673	2,1E+11	84729	88,79	93,33	1
France	16919	2,14	3766	2,5E+12	87687	98,02	101,64	1
UK	23869	1,66	4129	2,3E+12	77529	96,29	97,61	1
Ireland	925	1,23	2893	2,2E+11	98797	109,89	100,50	1
Italy	0	1,05	1234	2,2E+12	85873	86,02	85,56	1
Netherlands	2716	1,85	3563	7,4E+11	84784	95,43	95,95	1
Portugal	220	0,96	2344	2,8E+11	56247	96,25	92,62	1
Sweden	2859	3,50	6133	3,9E+11	85508	88,95	90,42	1
Hungary	924	0,98	1741	2,4E+11	54032	88,08	85,12	0