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Analysis of Inward Foreign Direct Investments in the United States

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Introduction

In the last decades the growth of multinational enterprise activity in the form of Foreign Direct Investment (hereinafter referred to as FDI) occurred faster than most other international transactions. The United States is the world largest recipient of FDI, which represent a key element for its economy. In fact, foreign companies generate enormous economic benefits, bringing billions of investments dollars, creating thousands of high-paying jobs for American workers and contributing to productivity growth and exports.

The purpose of this thesis work is to analyze the most important determinants of the location decisions of inward FDI in the United States. The existing literature on determinants of FDI can be considered rather extensive, and several studies which deal with this theme focusing on the United States have already been conducted. This research takes also into account some determinants related to agglomeration economies (with particular reference to Marshall and Jacobs externalities), in addition to the most common determinants linked to host countries' specific characteristics.

The study has been conducted by using data extracted from fDi markets by Financial Times Ltd., concerning the greenfield FDI undertaken by multinational enterprises in the fifty federal states during the period 2003-2018. Then, by using the Conditional Logit Model, it has been possible to better understand the forces that drove investments in the United States during this time frame.

The first chapter of this work is introductive and provides a brief discussion on FDI and multinational enterprises, with their characterizing dynamics and their effects. The second chapter focuses on FDI in the United States: initially, the literature review highlights the main results obtained by similar studies in the past, then the database used for the following analysis is introduced and the main results about the investments distribution are presented. The third chapter provides an overall view of the United States economy, that is necessary to understand the differences that characterize each region. The fourth chapter introduces the determinants included in the analysis, justifying the choice with a short explanation of their importance. The fifth chapter starts with the

description of the regression variables, then the Conditional Logit Model is used to obtain results about the effects of the determinants on the foreign firms' location choice. The last chapter contains the conclusions of this study.

1 Foreign direct investments and multinational enterprises

1.1 Definitions

A foreign direct investment (FDI) is an investment involving a long-term relationship made by a firm or individual in one country into business or corporation based in another country, with the intention of establishing a lasting interest. The element of “control” is what distinguishes FDI from foreign portfolio investments, that are just passive investments in the securities of another country. An investment into a foreign firm is considered an FDI when it establishes a lasting interest, that is when an investor obtains more than 10% of the voting rights in a firm.

A multinational enterprise (MNE), also called multinational corporation (MNC) is defined as an enterprise that engages in FDI and owns or controls production of goods or services in at least two countries. A multinational enterprise generally has factories in different countries and a centralized head office where global operations are coordinated. Multinational enterprises undertake FDI to create, acquire or expand a foreign subsidiary. They usually possess considerable human resources, finance, expertise and technology, enjoying substantial competitive advantages.

1.2 FDI classification

There are different reasons that encourage enterprises to invest in a foreign country, and it is possible to classify the type of FDI according to the main purpose of the investment. The most accepted taxonomy is the one proposed by Dunning (1993), which identifies four categories of FDI:

- Resource seeking FDI are undertaken to gain access to resources that are not available or that are more expensive in the home market. Resources can be natural

resources, raw materials, labor force and managerial competences. This type of FDI usually involves relocating parts of the production chain in the host country.

- Market seeking FDI are undertaken to overcome the impediments that limit the access to foreign market, such as transportation cost or tariffs, in order to exploit the possibilities granted by greater dimensions markets and to easily adapt products and services to the requirements of the local consumers. Another important advantage of the physical presence in a host country is to discourage potential competitors from entering the market (Franco et al., 2008). Since this kind of investment might implicate the duplication of some business activities already carried in the origin country, it is typically referred as horizontal FDI (Kinoshita and Campos, 2003).
- Efficiency seeking FDI are undertaken to benefit from factors that enable to compete in international markets and to take advantage of economies of scale, economies of scope and differences in consumer tastes and supply capabilities. Differences in culture, economic systems, policies and market structures are all factors that allow multinational enterprises to create new jobs that are more diversified and with greater productivity and value (Fruma, 2016).
- Strategic asset seeking FDI, defined also as competence creating, are undertaken with the purpose of acquiring a new technological base to gain access to knowledge, resources and capabilities that are considered critical in order to sustain or strengthen a competitive advantage, or to weaken those of competitors (Dunning and Lundan, 2008).

More and more frequently, large enterprises undertake FDI that combine two or more of these categories, with the goal of reaching multiple objectives.

More generally, it is possible to distinguish between vertical and horizontal FDI.

- Vertical FDI occurs when certain stages of production are transferred to subsidiaries operating abroad. The choice to produce in part abroad is mainly

related to the possibility of taking advantage of the existence of international differences in production and resources costs.

- Horizontal FDI occurs when foreign subsidiaries produce exactly the same goods produced by the parent company (in the case of single-product companies) or specific varieties of the same product (in the case of multi-product companies). Horizontal FDI flows occur mainly between developed countries. The choice to produce abroad can be linked above all to the possibility of reducing the costs of access to the foreign market, of better adapting the production to the preferences of local demand and of exploiting the contiguity of the production activity to the markets of consumption.

1.3 FDI approaches

There are two main approaches to undertake an FDI, which differ in the way the multinational enterprises decide to invest: greenfield FDI and brownfield FDI. A greenfield investment implies that the parent company creates a subsidiary in a different country, building its operations from the ground up and establishing its operations by constructing new facilities of production, distribution or research. Instead, with a brownfield FDI, a company takes control of the assets of an existent firm located abroad through mergers or acquisitions.

Greenfield and brownfield FDI are different from several points of view. As concerns the impact on competition in the local market, greenfield FDI increase the competition among firms, with all consequent positive effects; instead, brownfield investments usually generate an increase in market concentration with a loss in welfare. With regard to the injection of capital, a greenfield FDI leads to a growth in the host country stock of physical capital, while a brownfield investment, which involves a change in ownership rather than an inflow of new capital, usually results in a limited increase. The productive capacity of the host country receives more benefits from a greenfield investment, that also generates an increasing demand for workers. However, from UNCTAD (United Nations Conference on Trade and Development), it results that most of the FDI take place through

mergers and acquisitions. This is probably due to the fact that the resulting possibility to exploit the competitive advantages of the local firm, such as the preferential access to production factors and distribution channel, the knowledge of the local market and the established relationships with local authorities, makes investors prefer this approach with respect to greenfield investments (Corporate Finance Institute).

1.4 The “OLI” framework

The “OLI” approach to the study of FDI was developed by John Dunning (Dunning, 1993) and has emerged as a fruitful way for analyzing investments determinants. OLI stands for Ownership, Location and Internalization. These factors are considered to be three main sources of competitive advantage that might persuade MNEs to undertake foreign investments. The “OLI” paradigm has the goal to determine which approach for the production of goods and services among those available, national or international, provides the greatest overall value to the company.

Ownership advantages explain why some firms become multinational enterprises and others do not. The idea is that some firms own levels of assets, such as patents, knowledge, and managerial skills, higher than the average, and this allows them to operate in different locations without reducing their effectiveness.

Location advantages are related to where an MNE decide to locate its investments. There are various benefits that might arise from the specific features of the host country, depending on social, environmental, political and economic factors. Companies must verify whether or not there is an advantage in performing specific functions within a particular host country and choose the location on the basis of the main objectives of their investment. More specifically, in case of horizontal FDI a multinational might decide to locate its business where it has the possibility to improve its market access to foreign consumers, while in case of vertical FDI a firm will choose trying to avail lower production cost.

Finally, internalization advantages influence how firms decide to operate, and in particular whether to produce a particular product in-house or outsource the production to a third party which guarantees better products or greater knowledge of the foreign environment. In that context, sometimes it results more cost effective to operate from a different location while keep doing the work in-house.

1.5 The effects of multinational enterprises and foreign direct investments

Multinational enterprises' activity produces multiple economic, social, political, cultural and environmental effects (Goldstein and Piscitello, 2007). There are conflicting opinions concerning the effects of FDI, and multinationals are often considered either as welcome bearers of foreign wealth and knowledge or as unwelcome threats to national wealth and identity (Barba Navaretti and Venables, 2006).

Critics sustain that multinational enterprises are global players with huge bargaining and market power, with the possibility to easily circumvent regulations and policies. For these reasons, MNEs are often considered as companies that make profit by exploiting favorable conditions at the expense of local workers and host countries. Evidence shows that the majority of MNE activities are undertaken by private business enterprises, suggesting that they mainly act for the interests of their shareholders rather than the entire community (Fruma, 2016). People generally assume that these enterprises have undue political influence over governments and that they exploit developing nations while creating job losses in their own home countries.

On the other hand, the economic rationale for offering special incentives to attract FDI derives from the belief that they produce externalities in the form of technology transfer and spillovers (i.e. effects produced by the presence of the MSE on the local firms). More specifically, while spillovers intra industry (horizontal) might have negative effects crowding out local competitors in the same sector, spillovers inter industry (vertical) that influence the whole supply chain of the enterprise itself are positive, since foreign investors provide suppliers with technical assistance, training and other kinds of information (Jude, 2012). Furthermore, when the MNEs get in touch with local firms,

linkages with both suppliers and customers can rise: these relationships usually lead to positive effects toward local actors, such as increasing input demand and prices reduction. Macroeconomic studies using aggregate FDI flows for a broad cross section of countries generally suggest a positive role of FDI in generating economic growth, especially in particular environments (Moran et al., 2005). Different mechanisms linked to FDI increase national wealth, and empirical studies suggest that FDI are usually associated with the creation of new job opportunities and enhancement of technology transfer. FDI inflow boosts economic growth and represents an important source of capital for the host country. Since many MNEs enjoy reputable brand names and privileged access to technology and managerial techniques (Casson, 1987), FDI usually bring technologies, financial resources and more efficient managerial skills. Therefore, local companies are stimulated to improve themselves in front of the increased market competition that threatens their advantage or monopoly. Furthermore, MNEs often offer better work conditions with respect to national firms.

Consequently, advanced economies have recognized the importance of FDI, and the attitudes towards inward FDI has changed in the last years, with most countries that have lowered entry barriers and have provided various incentives in order to attract investments from foreign companies.

2 Foreign direct investments in the United States

2.1 Research objective

The United States welcome foreign investments and offer to international investors a stable and open economy (Kornecki and Ekanayake, 2012). The United States is the largest recipient of FDI in the world, and FDI represent a key element for the economy. Foreign companies and their subsidiaries generate enormous economic benefits for the American economy, bringing billions of investments dollars, creating thousands of high-paying jobs for American workers and contributing to productivity growth and exports. There are various characteristics that make investing in the United States very attractive and that increase the importance of the U.S. market as a location for foreign companies' businesses, such as the fact that the United States counts more than 307 million people, a landmass of 3.7 million square miles, an economy larger than any other single country, and the most important market for a global business (Kornecki and Ekanayake, 2012).

The purpose of this research is to investigate what drives multinational enterprises to prefer one destination more than another, analyzing the influence that various determinants have in this decision-making process. This analysis aims at developing a model that will allow to better understand the forces that have driven investments in the fifty federal states of the United States in the past years, and to point out which is the impact of the main host countries' characteristics that foreign investors take into account during their evaluations.

2.2 Literature review

Nowadays, many studies about the role of FDI, their effects and the determinants that attract them in different countries all over the world have been performed. Many researchers have further explored these topics with particular reference to the United States, with some differences in terms of purposes, methodology and conclusions.

Coughlin et al. (1989) analyzed the pattern of FDI in manufacturing for the period 1981-1983, developing a Conditional Logit Model of the foreign firm's investment decision based on profit maximization. Among the most important results they obtained, what deserve to be mentioned are the key role of the number of potential sites, the importance of the per capita income, the positive role of manufacturing density, and the negative role of high wages and unitary taxation. In addition, they underlined that the role of the government is not limited to taxation, but expenditures to attract FDI really influence the choices of foreign investors.

Japan is the country that most invested in the U.S. in terms of capital during the last years. A study by Hennart and Park (1994) examines the impact of location, governance factors and strategic interactions on Japanese firms' propensity to manufacture in the United States. The results support the view that a FDI can be explained by location, governance, and strategic variables. Generally, the larger a Japanese firm's R&D expenditures, the greater the probability it will manufacture in the United States, but this is not the case for advertising expenditures. Economies of scale and trade barriers encourage Japanese FDI, as well as concentrated and high-growth American industries. Japanese firms with medium domestic market shares have the highest propensity to invest in the United States. Another important result is that there is evidence of follow-the-leader behavior between firms of rival enterprise groups, but none of exchange-of-threat between American and Japanese firms.

Chung and Alcácer (2002) examined whether and when state technical capabilities attracted foreign investments in manufacturing from 1987-1993. They examined in which of the 48 contiguous states inward FDI transactions were located by using a state-level analysis because of data constraints and because of the implications that political boundaries have for the economic activity. The Random Parameter Logistic regression (RPL) were adopted to make use of the numerous reasons that motivate firms to conduct FDI. The research shows that states with greater market size, lower factor costs, and better access to surrounding states attract more foreign investments. In addition, the analysis provides three findings that help to better understand knowledge seeking FDI. First, knowledge seeking is limited to firms in research-intensive industries; although state R&D intensity does not attract FDI on average, a significant minority of firms, mostly in

research-intensive industries, is attracted to states with high R&D intensity. Second, investing firms in the pharmaceutical industry are those that value state R&D intensity the most. Finally, knowledge seeking FDI occurs not only among technical laggards, but also among technically leading firms.

Axarlogou (2004) analyzed data for the period between 1974 and 1991, from which emerge that FDI inflows in the United States are strongly influenced by spending on education. This study comes to the conclusion that quality of the local labor force, along with the efforts to improve this quality, is pivotal in attracting FDI inflows.

In another study, Axarloglou (2005) also found evidence that in the competition between states which want to attract the same inward FDI, factors such as relative labor productivity, relative spending on education, and relative crime rate play an important role. His study also suggests that relative tax incentives become extremely important in attracting investments inflows when the contest comes down to two states.

A research by Kornecki and Ekanayake (2012) investigates factors affecting the inward FDI flow among the fifty states. By using annual data from 1997 to 2007, they identified state-specific determinants of foreign investments, and investigate their importance. Results show that real per capita income, expenditure on education and research and development expenditure have a significant positive impact on inward FDI, while per capita taxes, unit labor cost, manufacturing density and unemployment rate have a negative impact.

Sometimes it can happen to come across studies with conclusions contradicting the results obtained by other researchers. For example, O'Meara (2015), trying to identify the principal determinants of FDI on a cross country basis, found out that traditional variables relating to the size and scale of economic activity in the host country are the most significant, while variables such as economic freedom, tax incentives and human capital, are not at all significant. These findings are in line with similar studies that show market size, economic openness and quality of infrastructure to be important elements in explaining FDI inflows but are in contrast with the researches that consider those variables to be key drivers.

Against the result that tax incentives do not significantly affect the choices of foreign investors, Morisset and Pirnia (2002) pointed out that it certainly cannot be a coincidence that FDI in tax haven countries in the Caribbean and South Pacific grew more than fivefold between 1985 and 1994, to over \$200 billion. According to them, it is therefore necessary to include a tax variable among the FDI determinants to observe the effect that fiscal incentives might have on the location decision. Such inconsistency of results proves that the impact of FDI determinants can strongly differ case by case.

From the literature review emerges that in the past many studies did not focus on factors that, in more recent years, have been recognized as truly significant. In particular, many of the most recent empirical studies analyze the effect of agglomeration economies on multinational investment, verifying their role in attracting FDI inflows. Spatial agglomeration is likely to play a very important role in the industry location and site selection, because proximity between firms, both belonging to the same and to different industries, might generate positive externalities.

Smith and Florida (1993) examined the role of agglomeration and co-location in the process of FDI location choice by an econometric analysis of Japanese manufacturing establishment in the automotive industry. Their research empirically shows the preference for locations in close proximity to Japanese automotive assemblers, confirming the hypothesis that co-location of end-users and suppliers have a significant impact in the decision process.

According to Bronzini (2004), many studies did not systematically attempt to disentangle whether FDI are drawn by the concentration of firms within the same industry or within different industry (sectorial specialization or sectorial diversification). In other words, a large number of research did not focus on whether FDI are attracted to some areas because of the agglomeration of firms producing similar goods or, on the contrary, because of the concentration of firms producing different goods and services. By investigating the FDI inflows in the Italian regions over a seven years period between 1994 and 2000, Bronzini found out strong evidence that the more a region is specialized and dense, the more it attracts foreign investment within the same sector (Marshall externalities influence),

while the attractiveness of areas with diversified industries (Jacobs externalities influence) is significant especially in manufacturing sector.

2.3 FDI dataset

For this research, data about inward FDI in the United States were obtained from the fDi markets database developed by Financial Times. More precisely, it was possible to retrieve 21,791 observations of announced greenfield FDI undertaken in the U.S. during the period 2003-2018. The dataset provides many details regarding each investment, such as the investment date, the investing company, the destination state, the industry sector and the industry activity, giving the opportunity to focus on different aspects and to extrapolate several interesting information.

Consistently with the purpose of the study, only the investments directed to the fifty federal states were taken into account, hence excluding the observations related to investments undertaken in Washington D.C., American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and Virgin Islands. For the same reason, investments for which the destination state was not specified were also excluded. Consequently, the final utile number of observations was 20,236.

2.4 FDI distribution

The following maps show an overall view of the distribution of the announced greenfield inward FDI undertaken in the United States from 2003 to 2018, both in terms of capital invested and number of investments. In the time frame between 2003 and 2018, more than 20,000 inward FDI have been announced by more than 10,500 companies from all over the world, for a total capital invested higher than \$ 970,000 billion.

2.4.1 Destination State

Texas is the state that received the biggest amount of capital (approximately \$125,000 billion, more than 10% of the total capital invested) followed by California and New York (respectively about \$89,000 billion and \$86,000 billion).

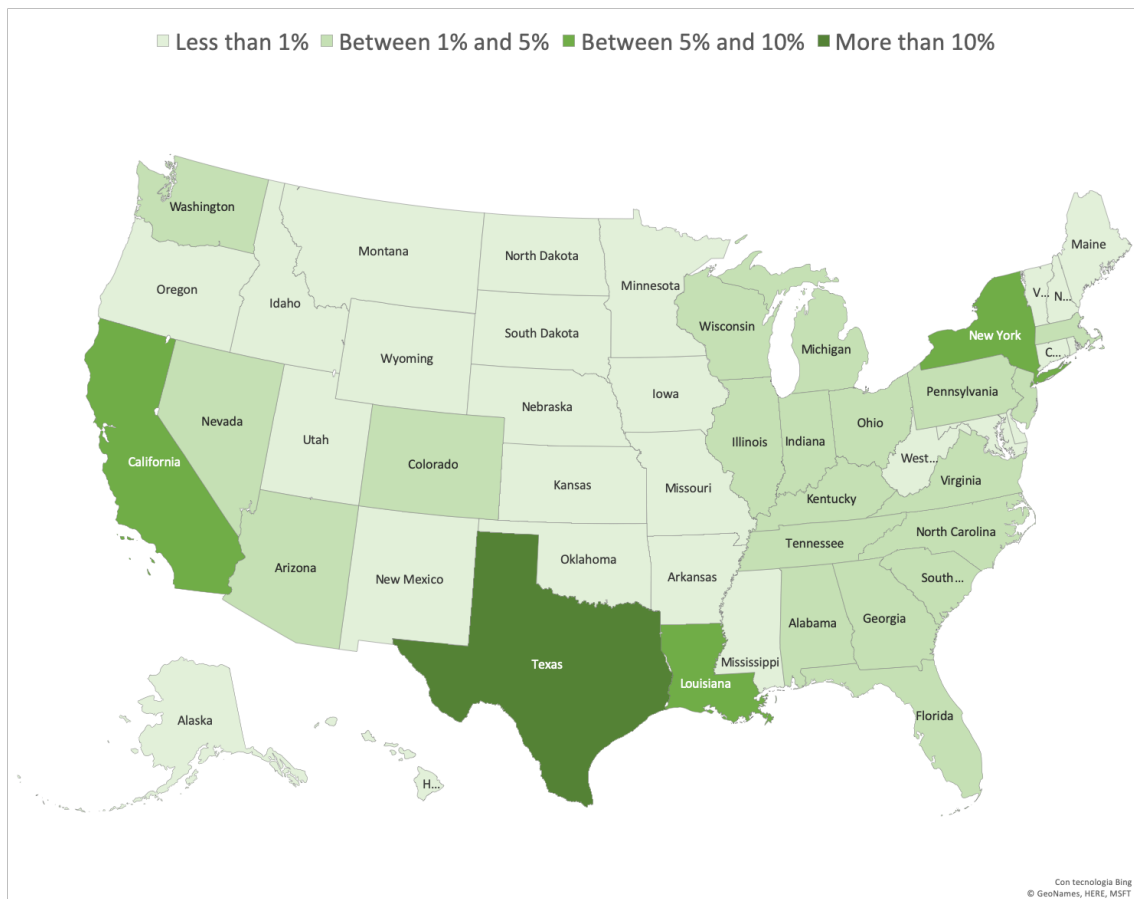


Figure 2.1: percentage of capital invested in inward FDI. Source: fDi markets.

When considering the total number of investments received, California results the leading state with almost 3,200 investments (15.8%); New York and Texas come after, with approximately 2,600 (12.8%) and 1,600 (7.9%) inward FDI directed to their territory.

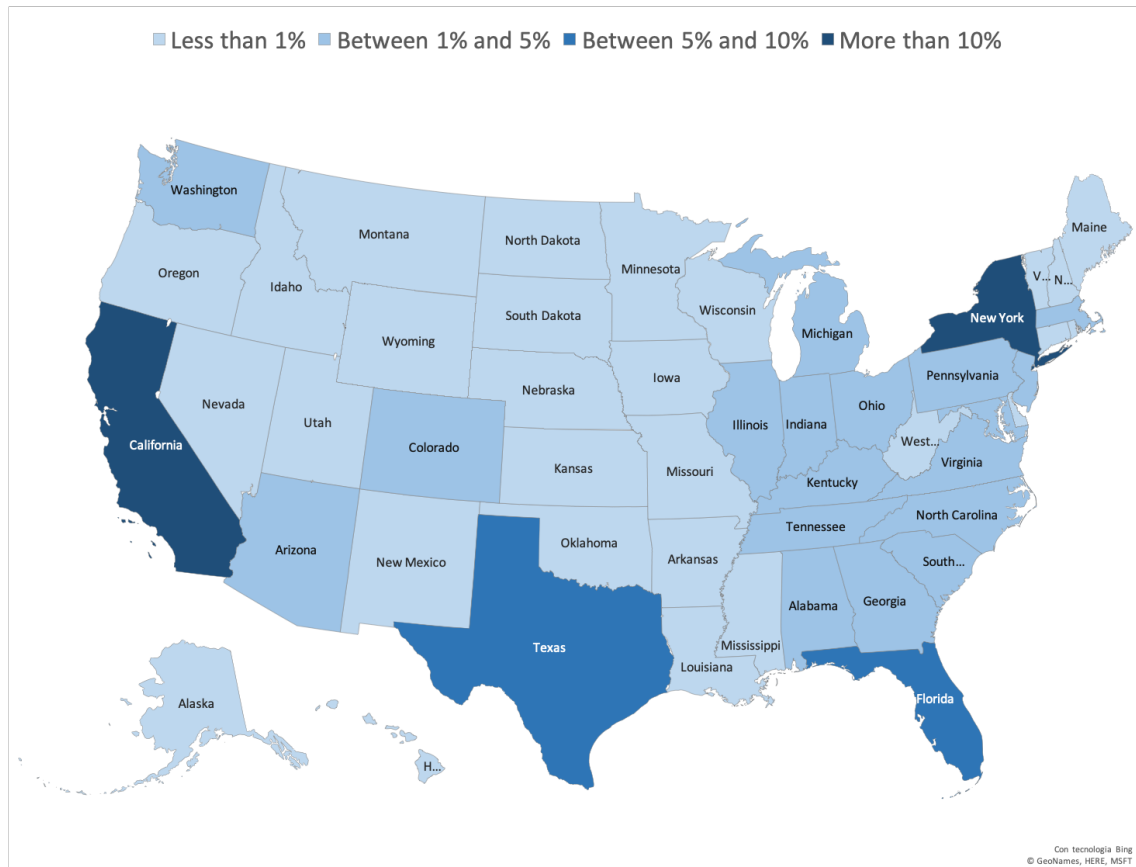


Figure 2.2: number of undertaken inward FDI. Source: fDi markets.

2.4.2 Industry sector

With regard to the industry sectors in which foreign enterprises invest, the first 10 most represented sectors account for the 63% of the total number of inward FDI stock. Software and IT service results the most attractive sector (14.2% of total investments), followed by business services (9.3%) and industrial equipment (7.4%). Automotive components (6.1%) and textiles (6%) complete the top five. The distribution is represented in the following diagram.

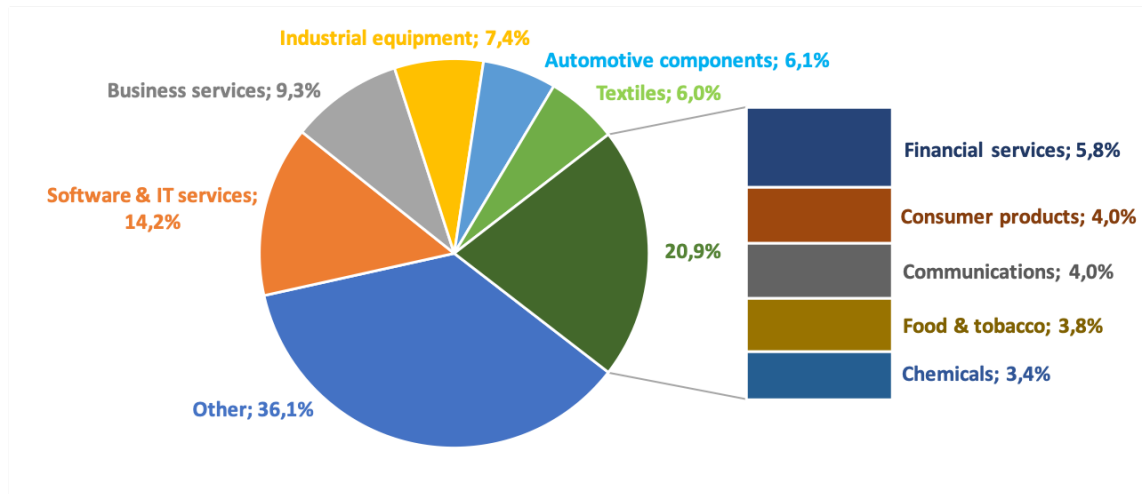


Figure 2.3: percentage of the total number of inward FDI by industry sector. Source: fDi markets.

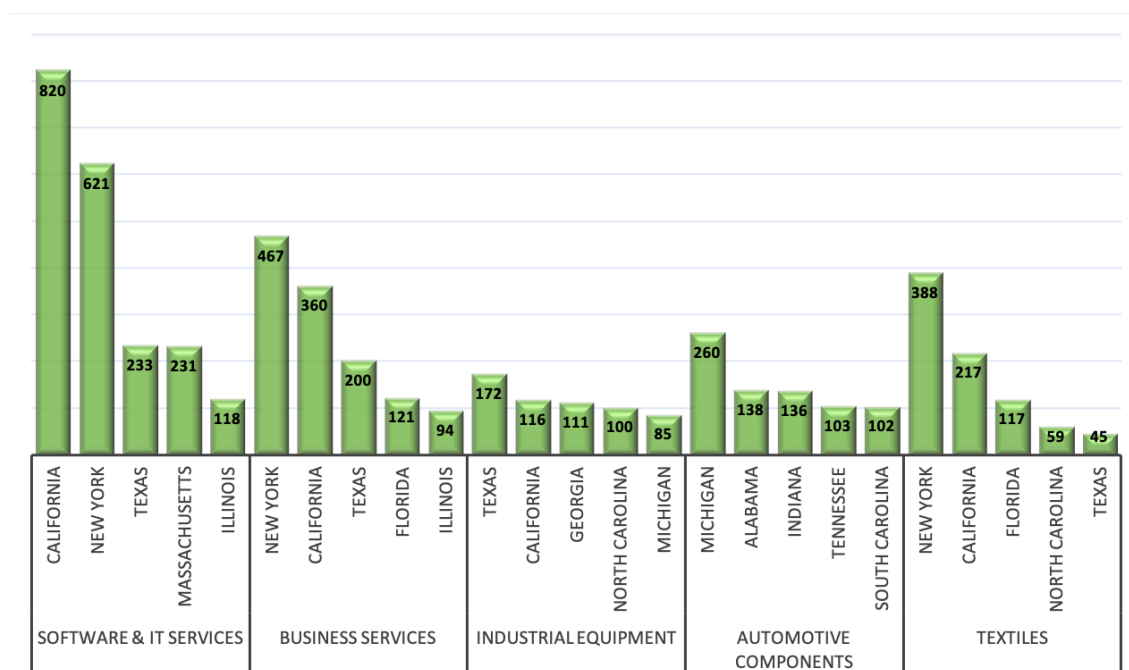


Figure 2.4: distribution of the inward FDI by top five industry sectors in the respective top five destination states. Source: fDi markets.

Things change when considering the amount of capital invested in each sector. The 61.4% of the capital invested is concentrated in the first 10 most financed sectors, with coal, oil

and gas leading with the 11%, followed by chemicals (8.9%), textiles (8%), renewable energy (7%) and real estate (5.6%).

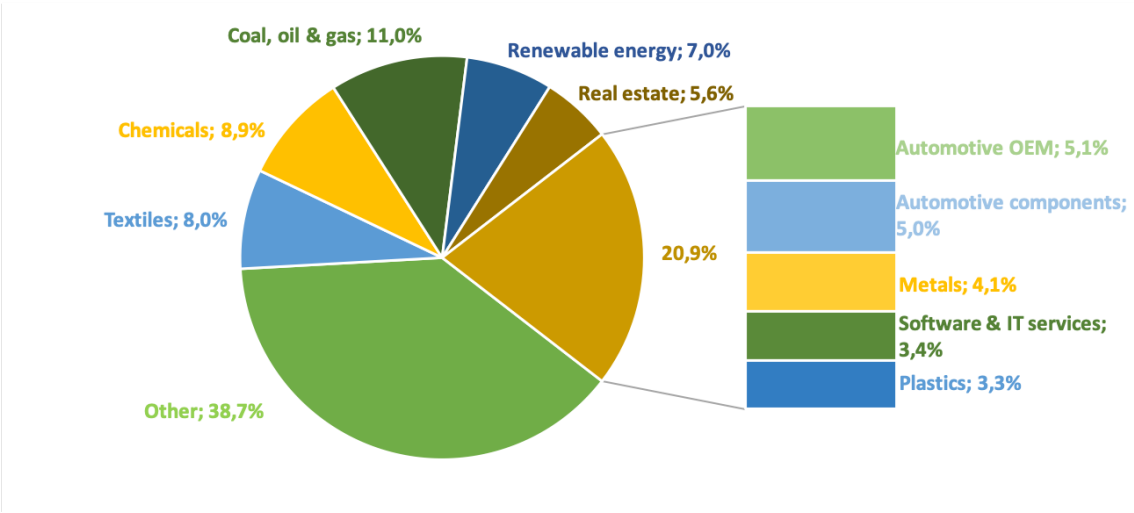


Figure 2.5: percentage of the total capital invested in inward FDI by industry sector. Source: fDi markets.

2.4.3 Industry activity

With regard to the industry activities in which foreign enterprises invest, the number of FDI related to manufacturing (25%), sales, marketing and support (23.6%) and business services (14.7%) account for the 63.3%. Retail (8.6%) and logistics, distribution and transportation are ranked respectively fourth and fifth.

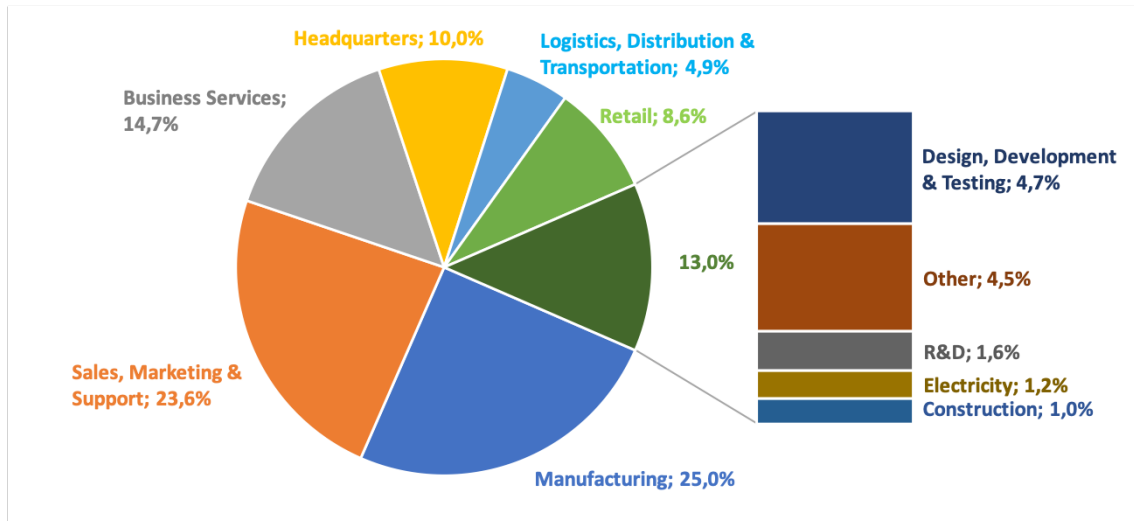


Figure 2.6: percentage of the total number of inward FDI by industry activity. Source: fDi markets.

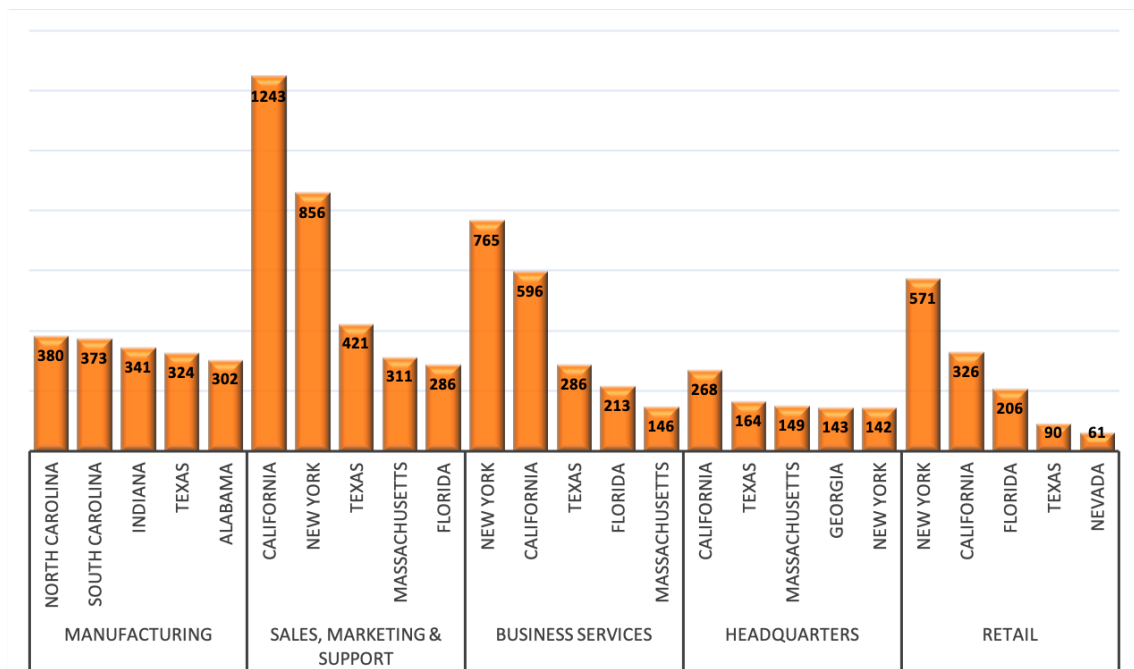


Figure 2.7: distribution of the inward FDI by top five industry activities in the respective top five destination states. Source: fDi markets.

Considering the amount of capital invested in each industry activity, manufacturing leads by far with a share of 48.4%, followed by retail (10.1%), construction (8.2%), electricity

(7.8%) logistics, distribution and transportation (4.6%) and sales, marketing and support (4.2%).

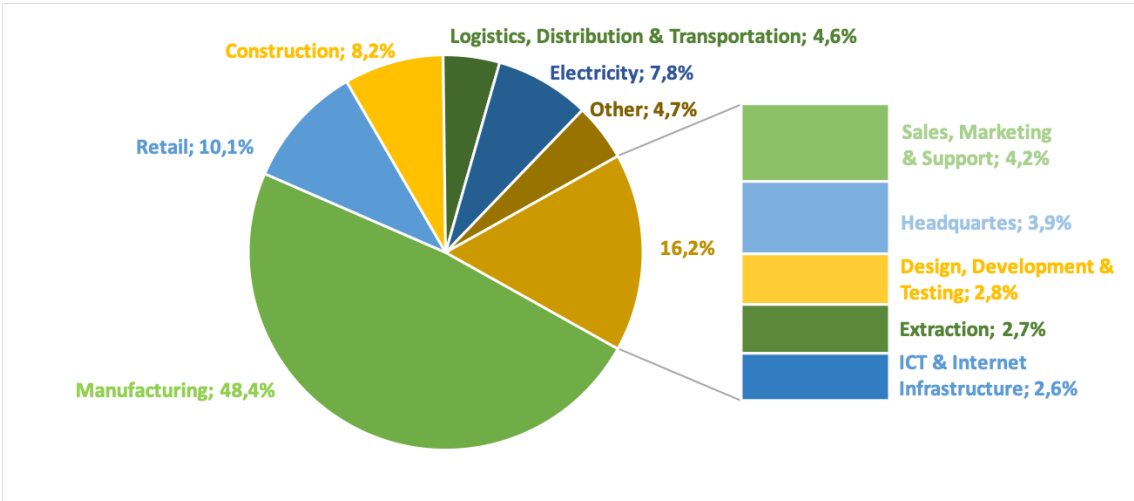


Figure 2.8: percentage of the total capital invested in inward FDI by industry activity. Source: fDi markets.

2.4.4 Source Country

Companies from the United Kingdom undertook the greatest number of investments in the United States, with more than 3,400 FDI accounting for the 15.8% of the total number. United Kingdom is followed by Germany (12.2%), Japan (9.9%), Canada (8.4%) and France (7.7%). Therefore, more than the half of the total number of inward FDI in the United States have been undertaken by only five countries. Italy, with a share of 3.6%, is ranked in the ninth place.

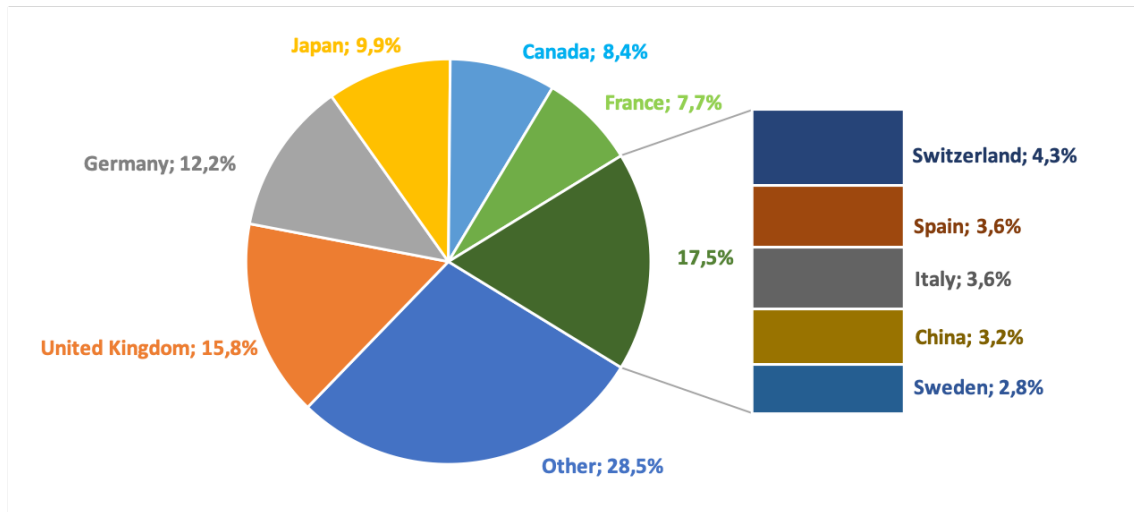


Figure 2.9: percentage of the total number of inward FDI by country. Source: fDi markets.

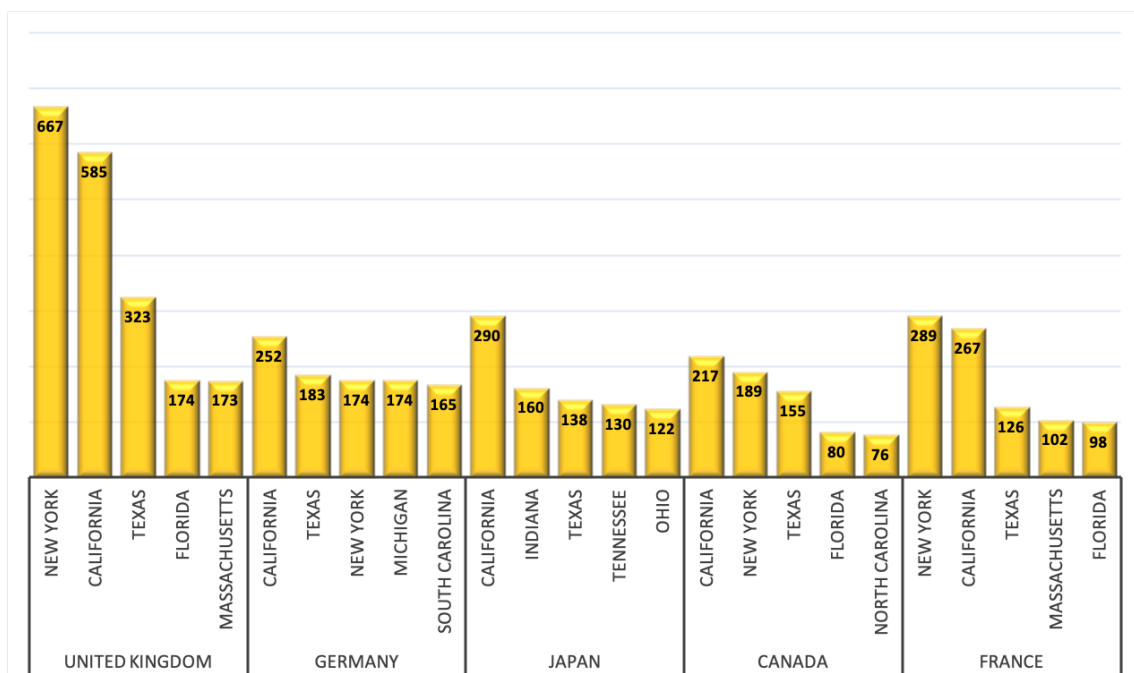


Figure 2.10: distribution of the inward FDI by top five investing countries in the respective top five destination states. Source: fDi markets.

The same five countries are again the leading ones when considering the amount of capital invested. Anyway, in this case Japan is ranked in the first place, having invested the 12.2% of the total, followed by Germany (10.7%), United Kingdom (9.9%), Canada (7.8%) and France (7.5%). Again, most FDI have been undertaken by these five countries (48.1%). Italy, accounting for the 4.4%, is ranked eighth.

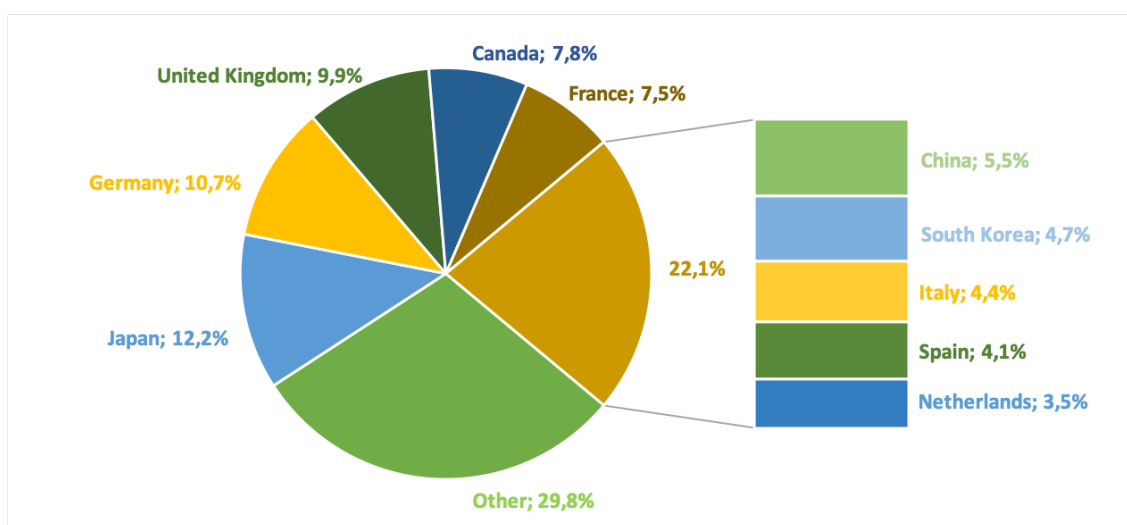


Figure 2.11: percentage of the total capital invested in inward FDI by country. Source: fDi markets.

3 Overview of the United States economy

3.1 U.S. economy

Before analyzing the influence of the FDI determinants, an overview of the U.S. economy is necessary to better understand the general reasons that drive multinational enterprises to invest in a particular state. United States is the world's largest economy by nominal GDP and net wealth. In 2019 the GDP was \$21,429 billion with a 2.3% growth with respect to 2018 and the GDP per capita was \$65,462 (BEA). The states of California, Texas and New York showed a real GDP higher than \$1,000 billion in 2018.

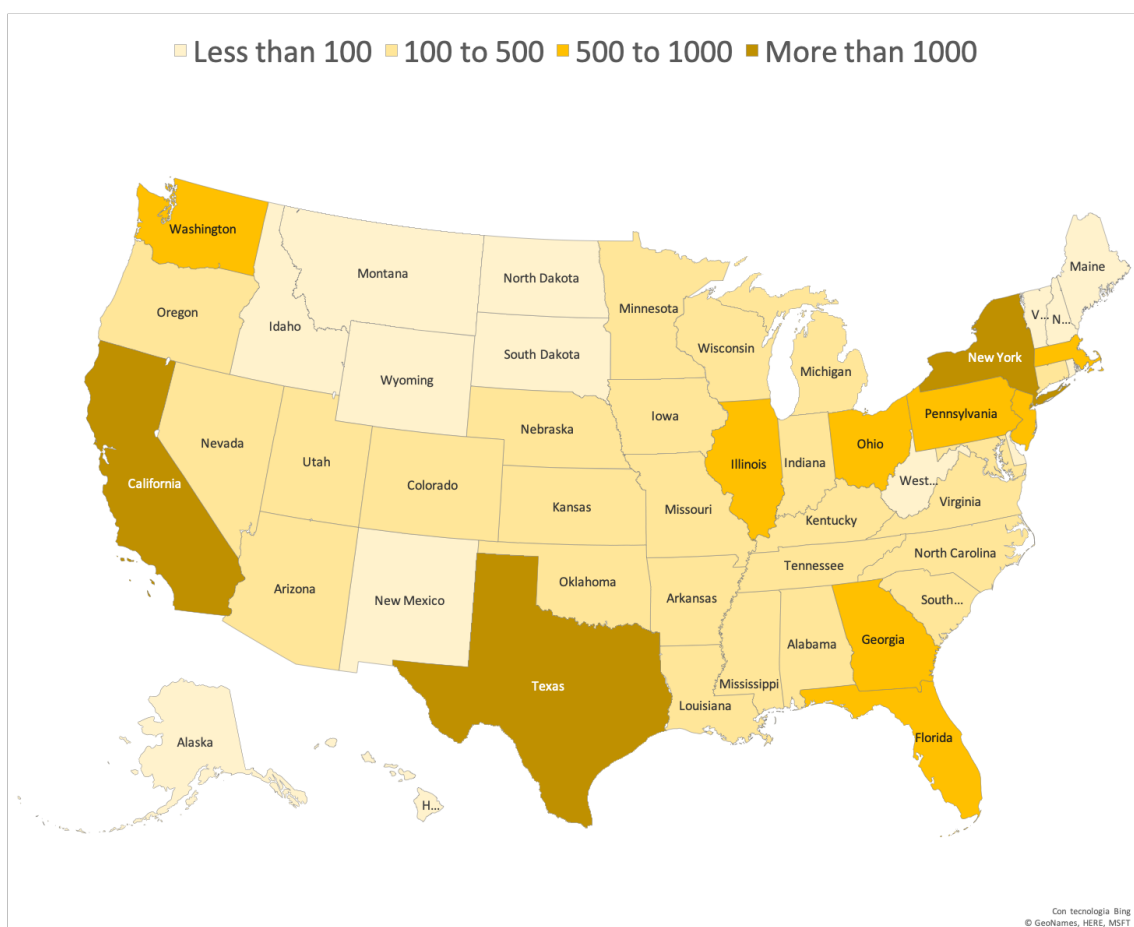


Figure 3.1: distribution of 2018 real GDP (\$bln). Source: Bureau of Economic Analysis.

The United States is the world's largest importer and the second largest exporter. The top imports are cars (\$178B), crude petroleum (\$129B), broadcasting equipment (\$105B), computers (\$73.5B) and vehicle parts (\$67.1B). The top exports are refined petroleum (\$74.5B), cars (56B), planes, helicopters and spacecraft (\$54B), gas turbines (\$31.6B) and packaged medicaments (\$29.5B) (OEC). The top five largest companies by revenue in 2019 are: Walmart (\$514.40B), Exxon Mobil (\$290.21B), Apple (\$265.60B), Berkshire Hathaway (\$247.84B) and Amazon (\$232.89B) (Ceoworld Magazine). The U.S. dollar is the most used currency for international transactions. Service represents by far the most relevant sector, contributing to the 80% of the GDP, followed by the industrial sector (19.1%) and the agricultural sector (0.9%) (OEC).

The Country can be divided in five main regions: West, Midwest, Northeast, Southwest and Southeast.



Figure 3.2: United States regions.

The regions feature different geographical, climatic, demographic and economic characteristics, which are all factors contributing to different specializations in different industrial sectors, and that partially affect multinationals' behavior. Therefore, these differences are partially reflected in the analysis of the investments directed to the five regions, especially when considering the related industrial sectors or industrial activities and the FDI capital investment per capita.

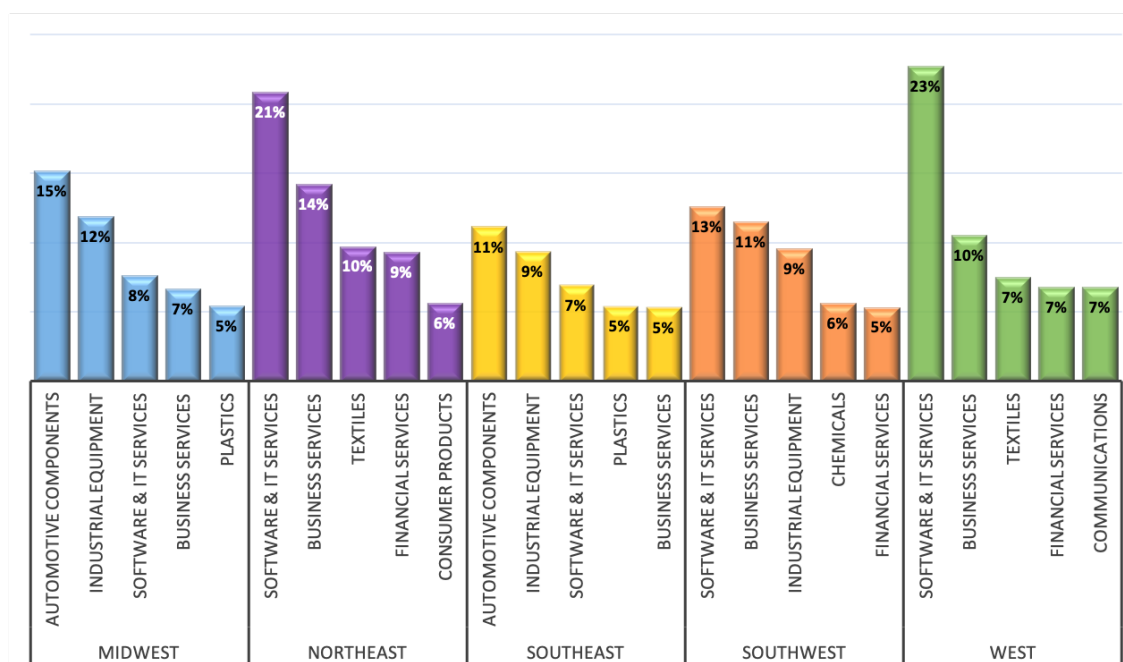


Figure 3.3: percentage distribution of the number of inward FDI in the U.S. regions by top five industry sectors. Source: fDi markets.

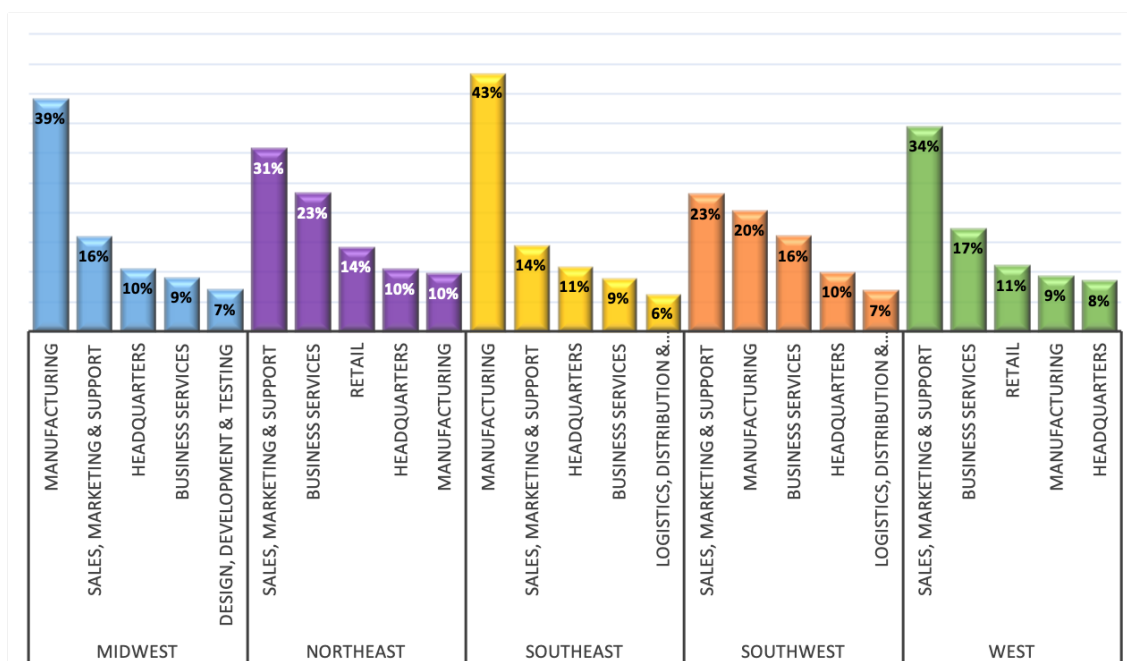


Figure 3.4: percentage distribution of the number of inward FDI in the U.S. regions by top five industry activities. Source: fDi markets.

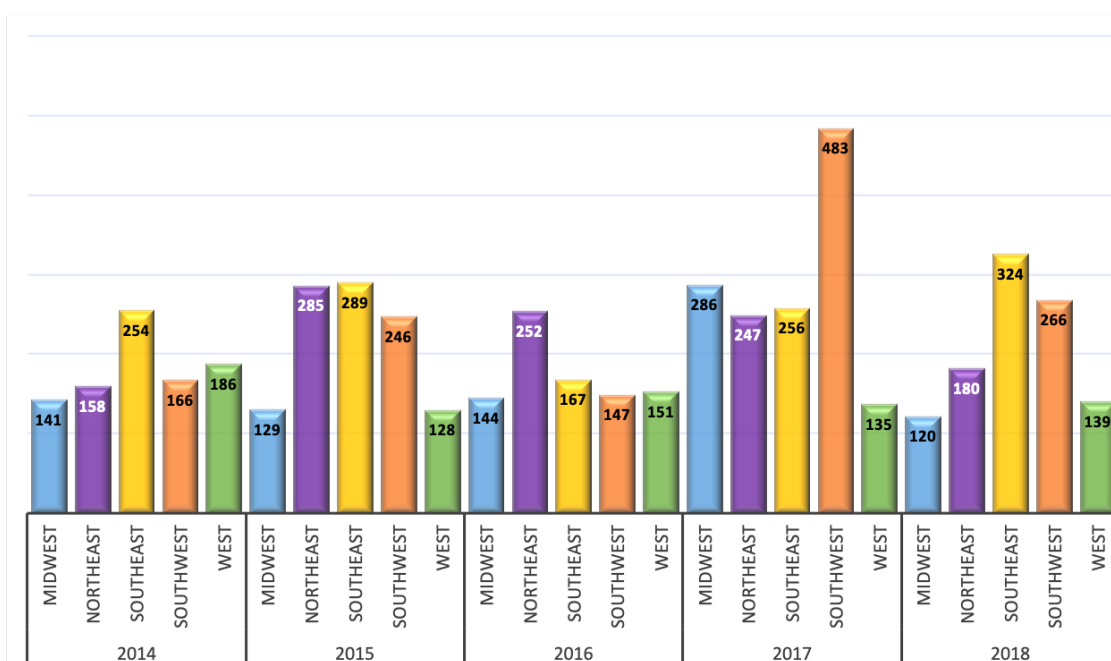


Figure 3.5: FDI capital investment per capita in the U.S. regions from 2014 to 2018. Source: fDi markets.

3.2 Industrial sector

The most important industrial productions concern aerospace vehicles, chemicals, pharmaceuticals and above all oil derivatives, household appliances, consumer electronics microelectronics, food, sportswear, tobacco and weapons. The United States is one of the first nations in the world for the value of annual mineral production, mainly concentrated in Texas, Louisiana, Alaska, Oklahoma and California. The main products are fuels, in order of value oil, natural gas and coal. Texas, Alaska and Louisiana are the top three oil-producing states, which supply approximately two thirds of the national crude annually. The largest natural gas deposits are located in Texas and Louisiana while the coal deposits are numerous especially in the Appalachian region, Wyoming and Kentucky. California, Utah and South Dakota are the first producers of gold.

The following map reporting the distribution of FDI in the coal, oil and gas during the observation time frame coherently reflects these territorial peculiarities, with Texas and Louisiana respectively first and second in attracting this kind of investments with 86 and 22 investments received.

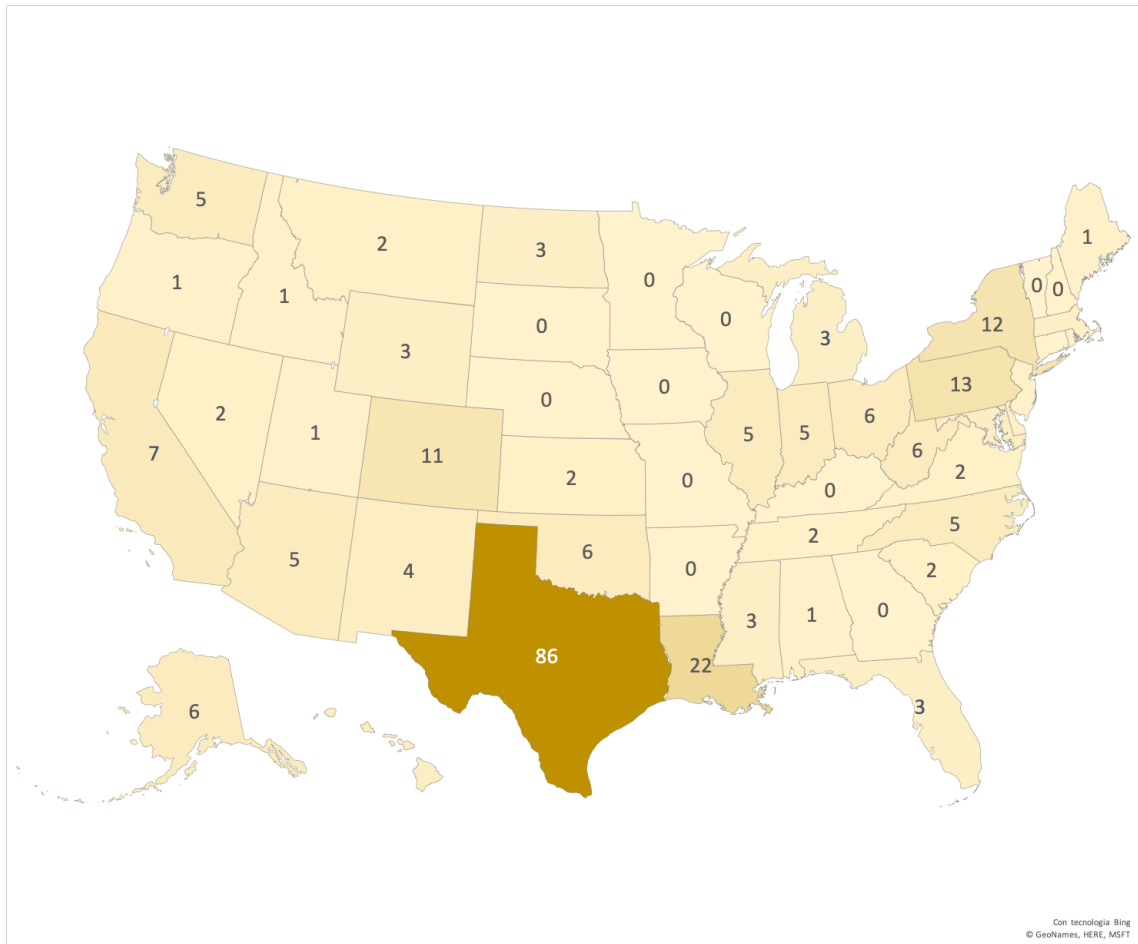


Figure 3.6: number of FDI undertaken in the coal, oil and gas sector. Source: fDi markets.

The heart of U.S. industrial production is represented by the Northeast and, in particular, by the states of New York, Ohio, Illinois, Michigan and Pennsylvania. The “manufacturing belt” extends across the Northeast but is also expanding south and west. The states in which there has been significant industrial development are, in the south, Texas and, in the west, California. In particular, Texas and California are the leading state in the production of industrial machinery, followed by Illinois, Ohio and Michigan.

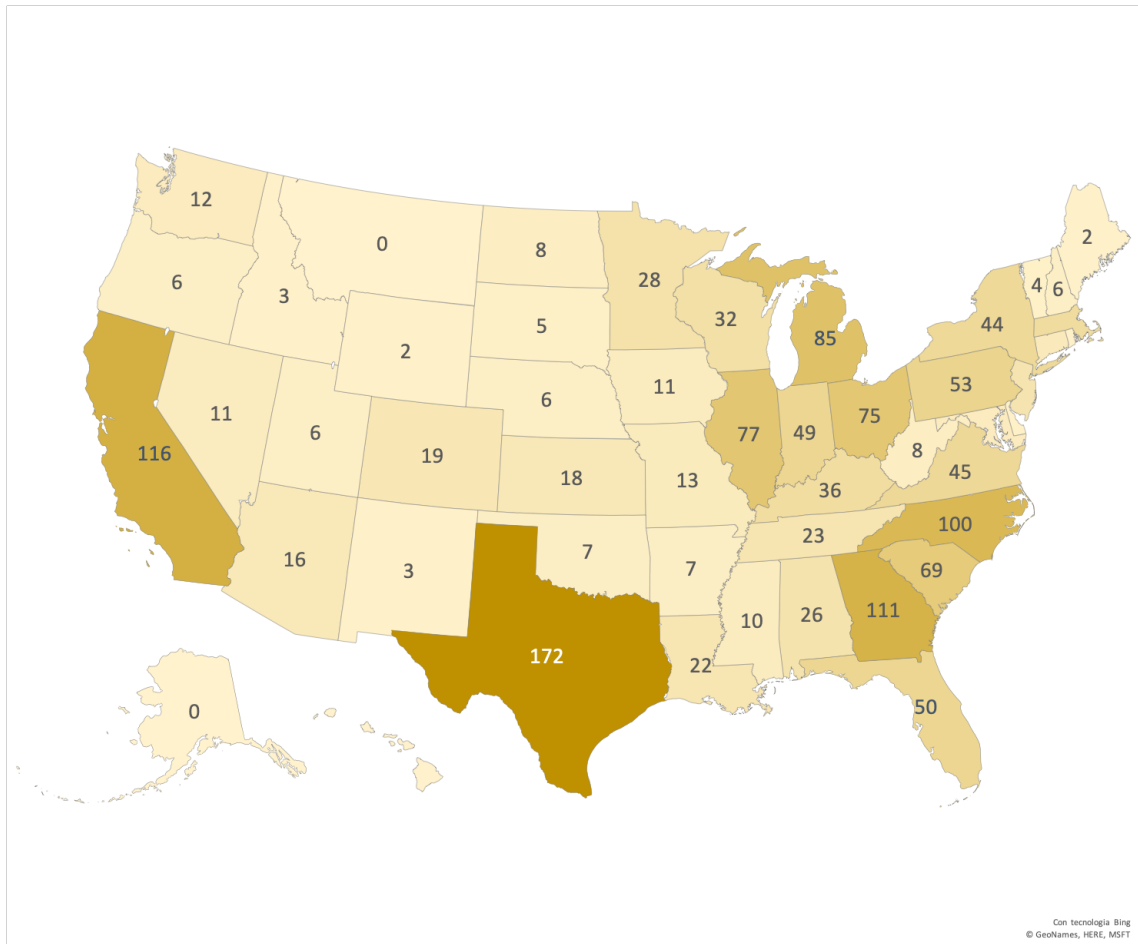


Figure 3.7: number of FDI undertaken in the industrial equipment sector. Source: fDi markets.

California (especially in the so-called Silicon Valley), Illinois, Indiana and Massachusetts are leaders in the production of electronic and computer equipment, one of the sectors of the American industry that has most rapidly developed. California is also the leader in aerospace vehicles and electronics, while Michigan the leader in the automotive industry.

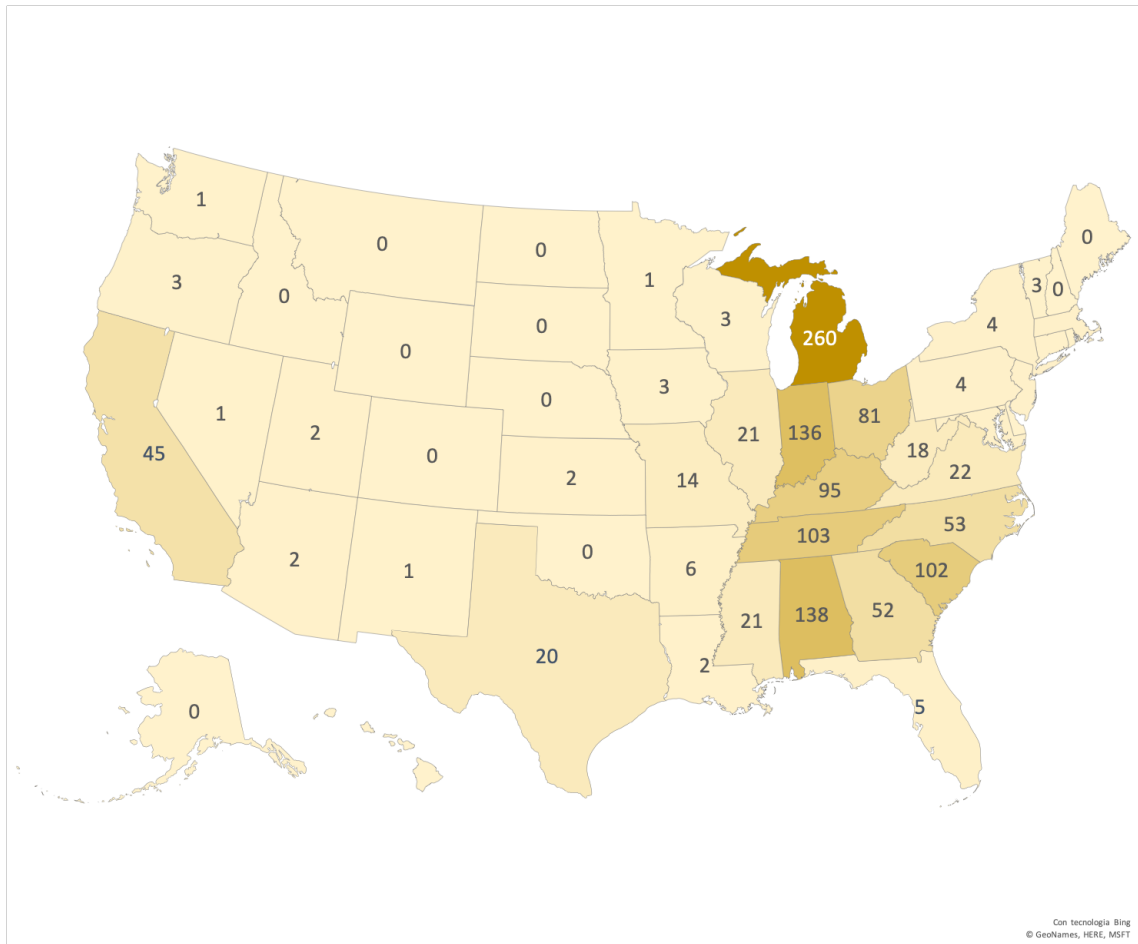


Figure 3.8: number of FDI undertaken in the automotive components sector. Source: fDi markets.

Southeast has a strong concentration of rubber and tire processing plants, and Ohio is the state leader in this sector.

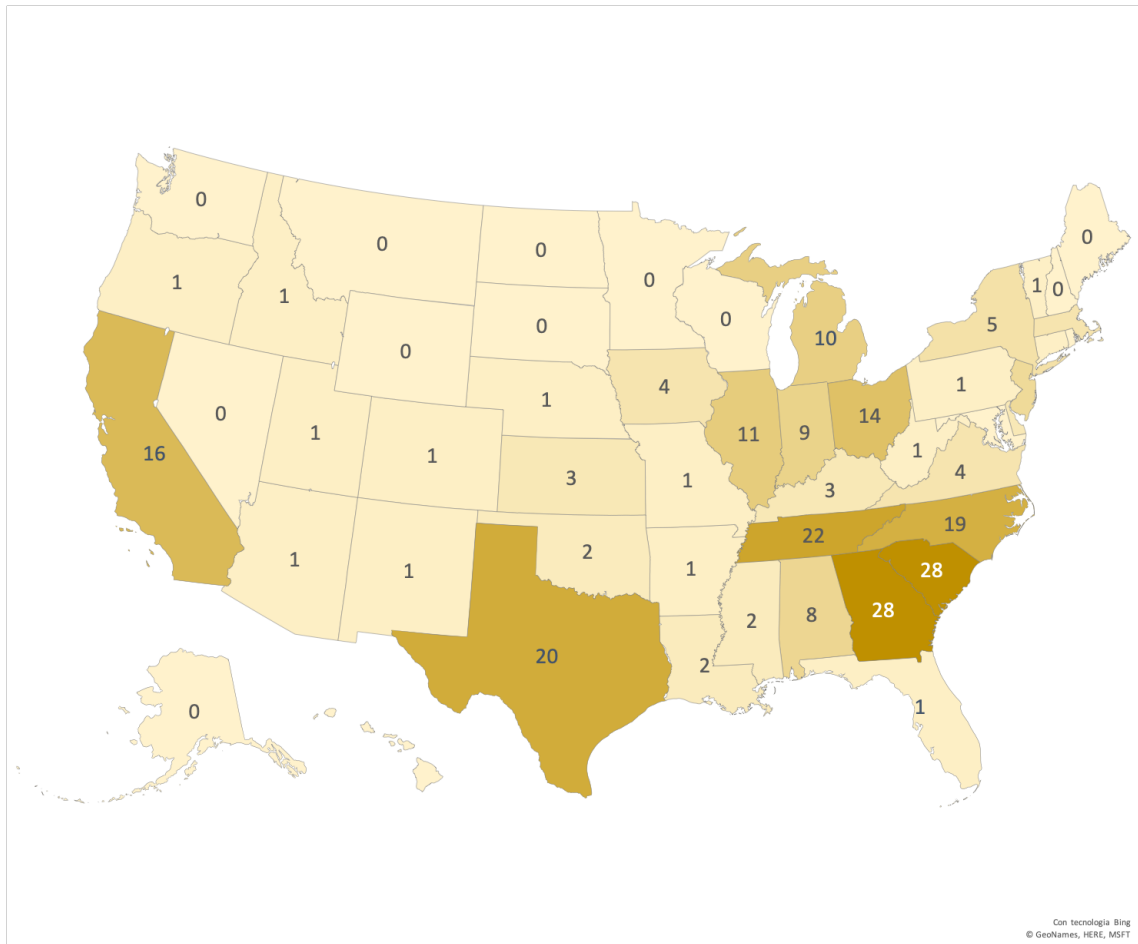


Figure 3.7: number of FDI undertaken in the rubber sector. Source: fDi markets.

The graphic and publishing industries are widespread; in this sector the state of New York, with its book industry, is ranked in the first place, but also California, Illinois and Pennsylvania play an important role. The paper industry is especially important in those states that have considerable forest resources that can be exploited for the production of paper: Wisconsin, Alabama, Georgia, New York, Washington, Maine, North Carolina and South Carolina (The USA Online).

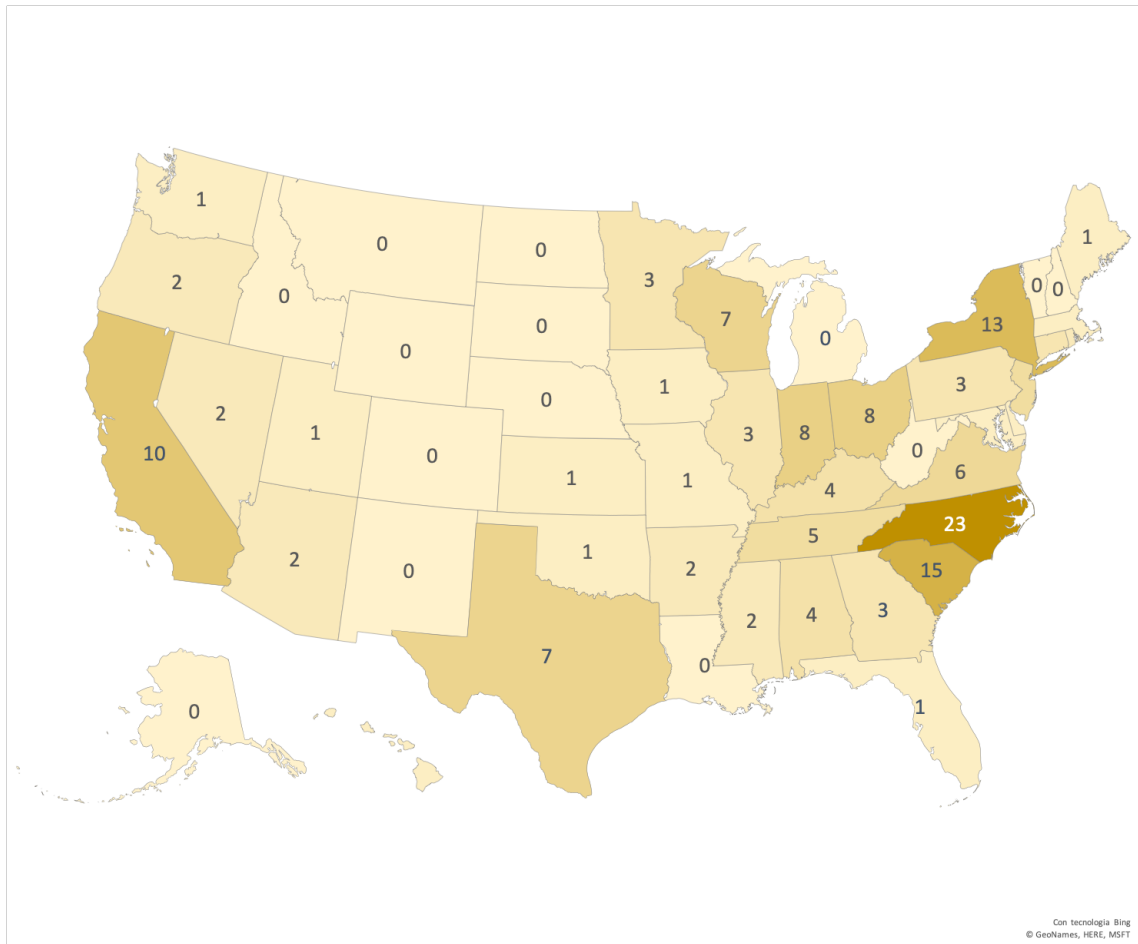


Figure 3.8: number of FDI undertaken in the paper, printing and packaging sector. Source: fDi markets.

3.3 Service sector

Within the service sector, great importance is given to transport, with the road and rail network that cover the whole territory favoring transport of goods and travel. The developed transport network has favored the creation of several commercial activities such as motels, insurance companies and service areas. Air transport, with more than 16,000 airports, is frequently used both for internal and international travel. Naval transport is also highly developed. Entertainment industry (TV, cinema, music, sport and cultural activities) plays a major role, and tourism is also very important, with over 30 million visitors every year. Tourists are attracted in particular by the metropolises of New

York, Chicago, Los Angeles and San Francisco and by the many places of great landscape interest, such as parks and nature reserves (The USA Online).

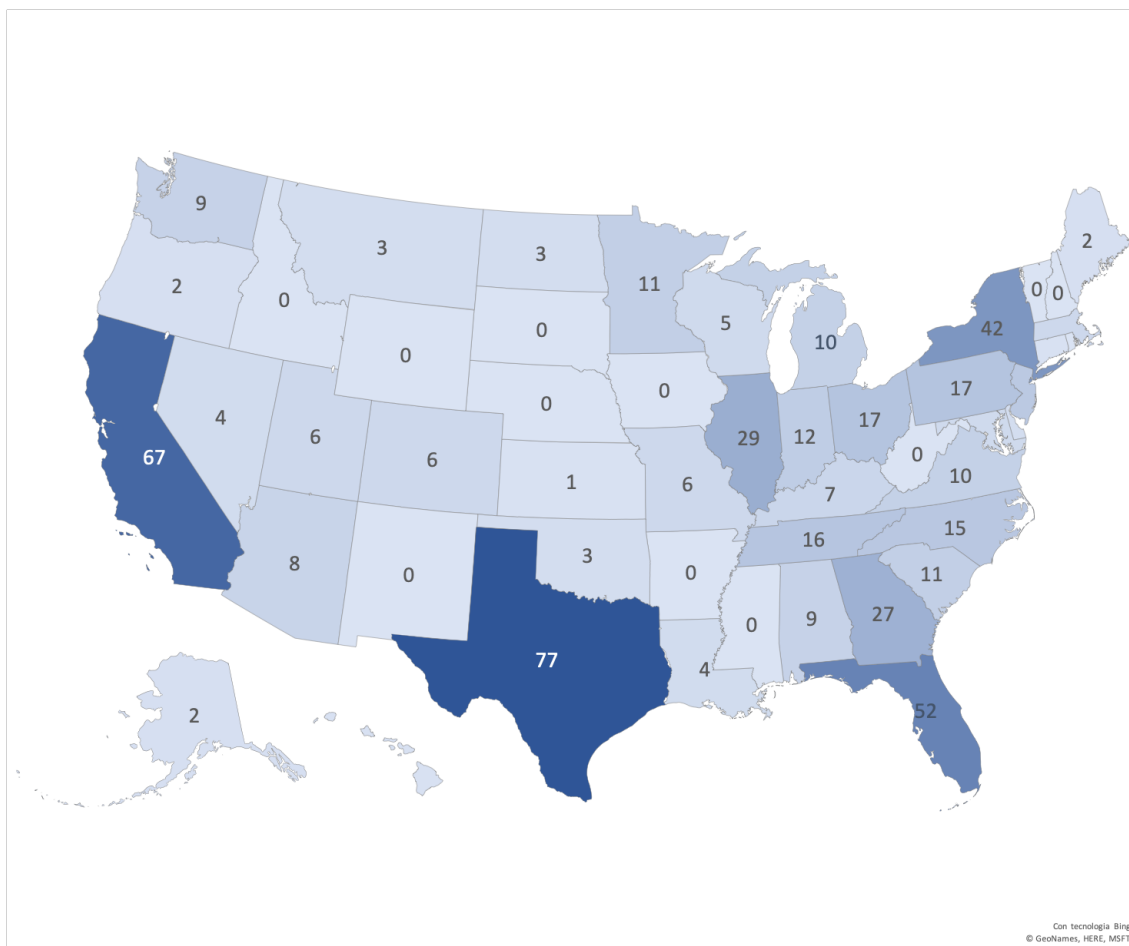


Figure 3.9: number of FDI undertaken in the transportation sector. Source: fDi markets.

3.4 Agricultural sector

Although the agricultural sector does not contribute much to the gross domestic product, the United States lead in many sectors of agricultural production, and agricultural products represent a very important item in the export market. The crops are varied and distributed in characteristic regions (called belts) specialized depending on the

environmental conditions and production organization. The main ones are wheat, corn, tobacco and cotton. Tobacco is mainly produced in North Carolina and Kentucky. Other notable products are peanuts in Georgia, tomatoes in Florida and pineapples in Hawaii. Alaska is the first state both in terms of quantity and value of fishing. Other states that have good fish stocks are, in order of economic importance, Massachusetts, Louisiana, Texas, Maine, California, Washington, Florida and Virginia. Another very important item for the economy is represented by breeding. The breeding areas include Texas and the western mountains where there is a large availability of grasslands for grazing (The USA Online).

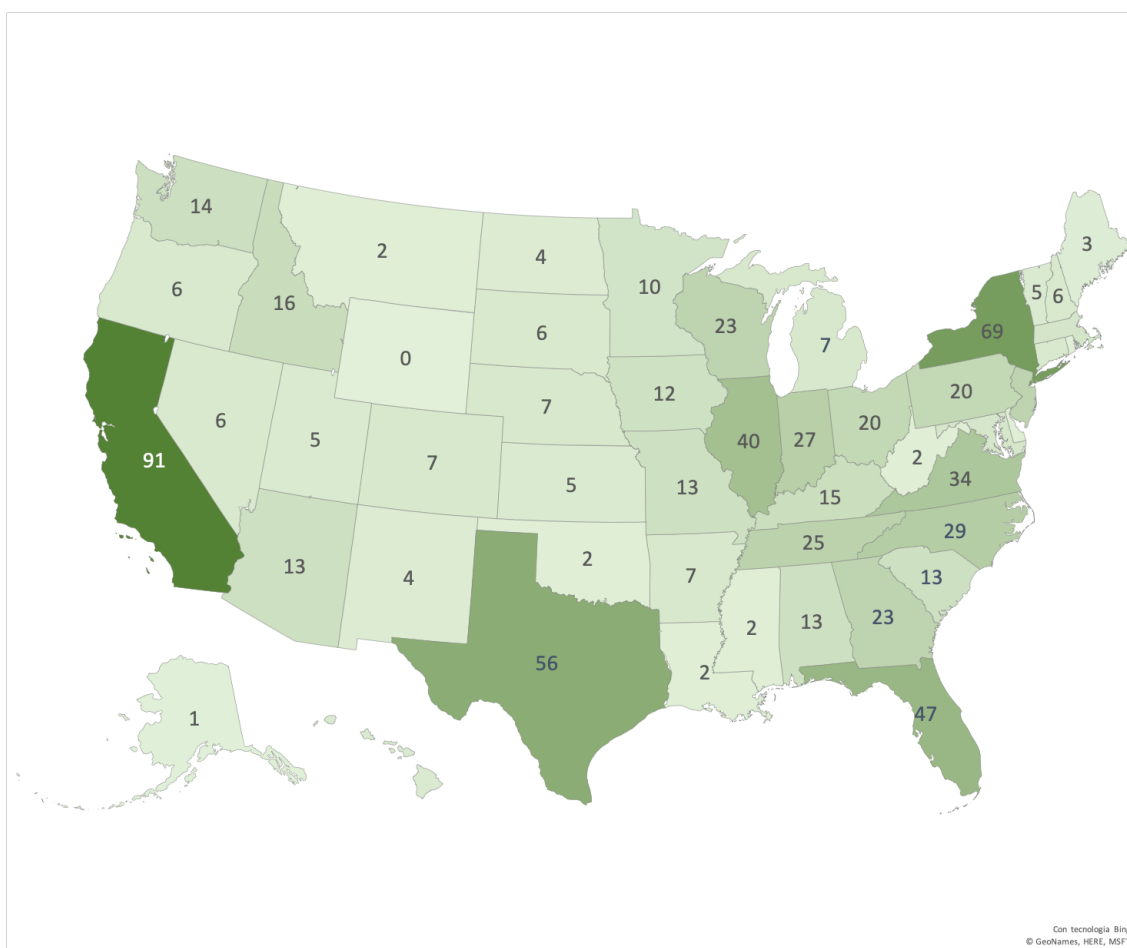


Figure 3.10: number of FDI undertaken in the food and tobacco sector. Source: fDi markets.

3.5 Research and Development (R&D)

R&D in the United States is funded by different sources, such as private businesses, the federal government, nonfederal government agencies, academia and nonprofit organizations. Based on the work that it supports, it is possible to categorize R&D in basic research, applied research and development. Total estimated U.S. 2018 expenditures in R&D were \$580 billion. Of this amount, the 63.5% was destined to development, 19.8% to applied research and 16.7% to basic research (FAS). The business sector is the most important source of funding with more than \$404 billion expenditure in 2018 (69.7% of total U.S. expenditure), followed by the federal government that contributed with more than \$127 billion (21.9% of total U.S. expenditure).

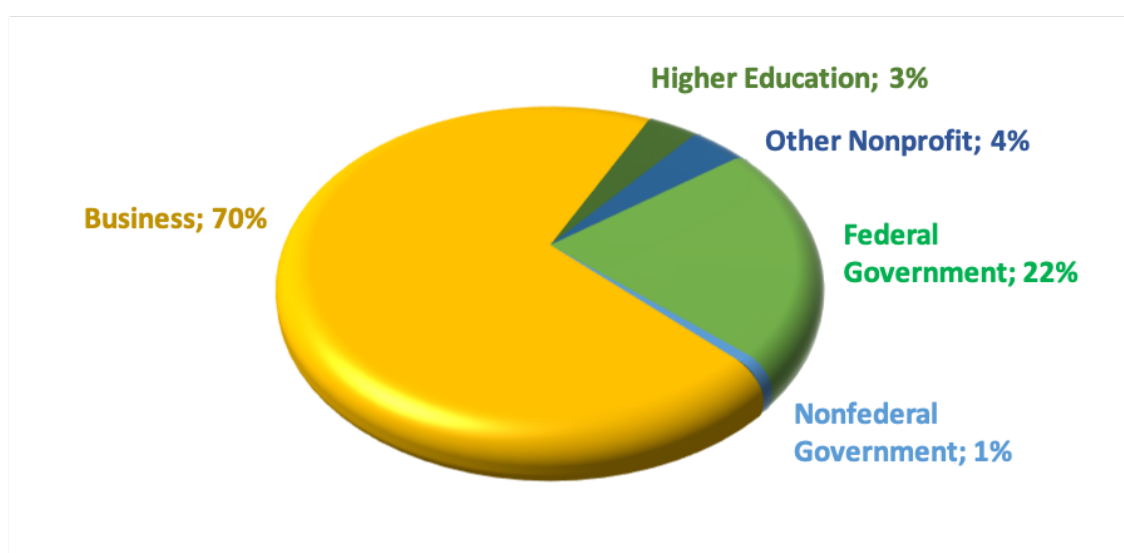


Figure 3.11: 2018 U.S. R&D funding by sector. Source: CRS analysis of National Science Foundation. Source: fDi markets.

R&D is often performed by sectors different from the funding ones. However, the business sector is also by far the largest performer of U.S. R&D (\$422.1 billion in 2018) while the higher education sector is the second (more than \$74.7 billion in 2018) (FAS). The ratio of total national R&D expenditure to GDP is often reported as a measure of the

intensity of the R&D effort of a nation and it is widely used as an international benchmark for comparing the size of countries' R&D systems (National Science Foundation). The ratio of U.S. R&D expenditures to GDP was about 2.71% in 2018.

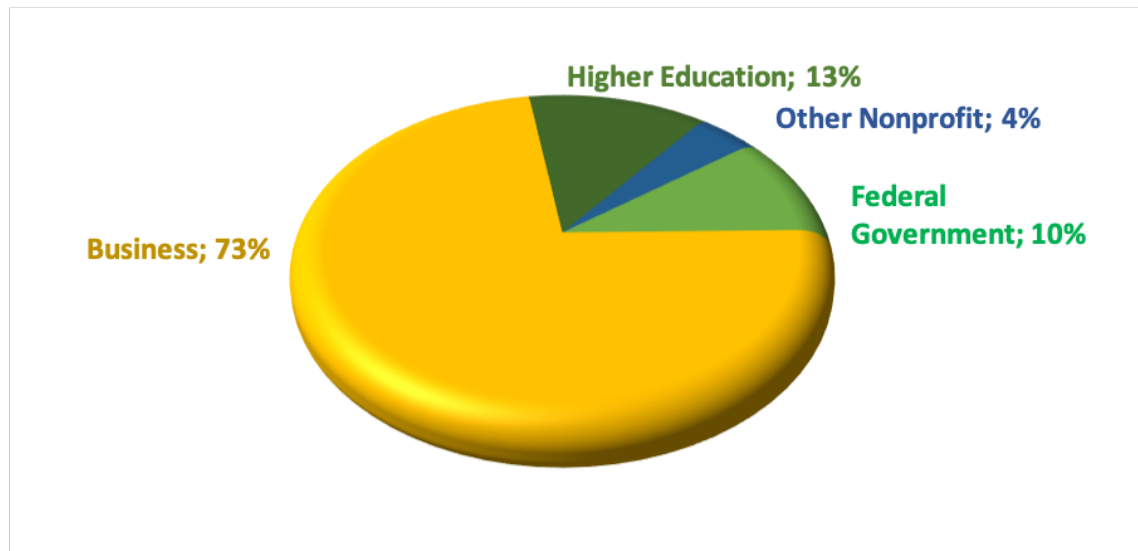


Figure 3.12: 2018 U.S. R&D performance by sector. Source: CRS analysis of National Science Foundation. Source: fDi markets.

4 Determinants selection

Foreign companies investing in the United States have fifty potential options to evaluate when deciding about the location of their investments. Literature review allows to identify the characteristics, also called determinants, that are recognized as the most influential in driving multinationals' choices. Some of these determinants are strictly related to state specific characteristics, others depend on the investment decisions made in the past by other firms or by the company itself.

4.1 State specific determinants

When deciding where to undertake an investment, multinationals evaluate which location offers the highest expected profitability. Obviously, the expected profitability of an FDI is strongly affected by the host state specific characteristics, which assume more or less importance depending on the reasons that move the investors: clearly, companies that are investing moved by resource seeking reasons will evaluate state specific characteristics in a different way with respect to a foreign company that invest because of market seeking goals. Typically, FDI inflow is assumed to be function of those destinations' characteristics that can affect both the revenues generated and the costs incurred. For this research, the following state specific determinants were examined.

4.1.1 Local market size

Market demand is typically one of the main drivers of FDI, and the size of the local market can be evaluated as a measure of the market demand in the country. Foreign firms are usually attracted by large markets; that is especially true for those firms that are driven by market-seeking behavior whose main purpose is to serve foreign customers (Coughlin, Terza and Arromdee, 1989; Kornecki and Ekanayake, 2012).

4.1.2 Market growth

Investors are not only interested in the current size of the host market, but also in its potential growth. In fact, a fast-growing market increases the expected profits of the companies and guarantees more growth opportunities. Future growth expectation represents a key element especially for companies that are investing with long-term targets (Chung and Alcácer, 2002; Kornecki and Ekanayake, 2012).

4.1.3 Unemployment

The unemployment level of the destination state plays an important role in the decision process of MNE deciding where to undertake a foreign investment. Anyway, it is not sure whether the unemployment affects positively or negatively the attractiveness of a location. For example, a high unemployment rate of a state is likely to positively influence the foreign investors which consider it as an indicator of high availability of potential workforce. However, it could have a negative influence when considering some related issues, such as the higher amount that a firm must pay in unemployment insurance premiums (Kornecki and Ekanayake, 2012).

4.1.4 Educational attainment

Different types of FDI attach different importance to the existence of available well educated and trained human capital in the potential host country (Strat, 2015). Different studies have been carried out about the influence of aspects related to the educational system of the destination countries on FDI inflows, usually demonstrating that foreign investors are more inclined to invest where there is a higher presence of a well-educated force, in order to reduce training cost for local workers that turn out to be more able to learn and more skilled at adopting new technologies (Axarlogou, 2004; Kornecki and Ekanayake, 2012).

4.1.5 Research and development effort

FDI and R&D are mutually dependent, are positively related and reinforce each other (Lin and Yeh, 2006). However, the weight attributed to the R&D expenditure in the host country during the location decision process depends on the importance that local investments in innovation assumes for foreign companies. Previous studies show that low-tech industries are expected to locate their foreign investments in low R&D intensity states, while firms in research-intensive industries are likely to prefer countries which guarantee a greater innovation effort (Hennart and Park, 1994; Kornecki and Ekanayake, 2012).

4.1.6 Taxation

High taxation rates negatively influence the FDI inflow. In the United States, corporate income taxes are levied in 44 states, with rates from 2.5% in North Carolina to 12% in Iowa. Nevada, Ohio, Texas and Washington impose gross receipts taxes instead of corporate income taxes. Thirty-four states adopt a single-rate corporate tax system, instead fourteen states apply tax brackets. South Dakota and Wyoming are the only states that do not levy a corporate income or gross receipts tax. These evident differences among the fifty states necessarily impose to consider the effect of the taxation for this study (Morisset and Pirnia, 2002; Axarlogou, 2005).

4.2 Agglomeration determinants

Traditional theories based on the principle that foreign firms choose the location that allows them to minimize production costs or to increase revenues do not perfectly fit with the geographic concentration of economic activities. In fact, such a concentration is expected to lead to an increase of input prices and to the resulting dispersion of those firms which try to find lower input prices (Jordan, 2004). Most recent studies, taking note of this inconsistency, suggest that agglomeration economies represent another important

phenomenon that should be necessarily considered to properly explain the geographical distribution of FDI.

We talk about agglomeration economies when new investors mimic past investment decisions made by other investors in choosing the location of their investments (Kinoshita and Campos, 2003). Agglomeration economies are due to the fact that the information asymmetry problem that arises from not being familiar with local laws, culture and customers' behavior, affects the foreign investors decision to direct their business to regions with an already settled base of foreign MNEs. In such a situation, not only past investments are interpreted as a sign of favorable environment, but new investors realize that, by locating their facilities next to other firms already in place, they can benefit from positive externalities, such as knowledge spillovers, specialized labor and intermediate inputs. Furthermore, the presence of foreign investors from different industry sectors can also facilitate the sharing of technology spillovers and technical information about how to efficiently operate in the host country. Econometric results obtained by Head et al. (1995) suggest that agglomeration economies have a dominant influence on investors' decisions.

In order to take agglomeration externalities into account, the following determinants have been taken into account for the study.

4.2.1 Industrial specialization

Foreign investors may decide to locate their FDI in areas with a strong presence of other firms belonging to the same industry sector or engaged in the same industry activity, taking advantage of the so-called "Marshall externalities" (Smith and Florida, 1993; Bronzini, 2004). According to Marshall (1890), external economies of scale depend on the general development of a firm's industry. Firms in industries that exhibit a high degree of regional concentration may benefit from industry-specific externalities that arise from geographical agglomeration, gaining competitive advantages over those firms located elsewhere. For example, same-industry concentrated firms can exploit several benefits such as a rich pool of specialized workers, the emergence of specific secondary services,

an easy access to intermediate inputs and the spread of technological or knowledge spillovers among firms (Baltzopoulos, 2009). Another advantage is represented by the shared use of the infrastructures provided by host countries, including highways, pipes, power systems, internet and network connection, that enables the creation of scale economies and leads to productivity increase. The possibility to enjoy the several advantages linked to the Marshall externalities suggests that the industrial specialization could play a key role in the location decision process.

4.2.2 Home country activity

Agglomeration phenomena can also be favored by proximity to firms with the same country of origin, that might simplify the adapting process towards local environment, culture and institutions (Smith and Florida, 1993). In fact, the presence of other multinationals from the same country helps to reduce entry costs generated by asymmetric information, as well as language, cultural and bureaucratic barriers. When moving abroad, firms have to adapt their routines to the local environment; country-of-origin agglomeration provides an effective channel for the sharing of sensitive and tacit knowledge about local business environments (Tan and Meyer, 2011), therefore foreign investors in need of such knowledge are more likely to locate their foreign businesses in areas with a strong presence of firms from their same origin. For these reasons, it is necessary to investigate how much multinationals' location choice is influenced by the presence of an already existing population of firms from the same country.

4.2.3 Parent company activity

The asymmetric information problem that arises from not knowing the host countries markets and their characteristics might persuade foreign investors to opt for the co-location, by choosing to conduct further investments where they have previously invested rather than in a new country, taking advantage of familiarity and insights already obtained in order to reduce the entry cost (Smith and Florida, 1993). However, despite the presence of activities of the parent company in a country could stimulate additional investments

due to a decrease in information asymmetry, it could also lead the parent company to select a different location if it is seeking for new market opportunities or if the past outcomes of operating in that region were not sufficiently rewarding.

5 Firm location decision

5.1 Regression variables

A company will decide to locate its new business in the state which should guarantee a potential profit that is expected to exceed the potential profits generated in all the other available alternatives. Hence, a model in which the dependent variable expresses the “probability” of investing in a state and not in the others has been constructed.

Based on the determinants selected, it is possible to write the following function in which the probability of investing is given by the values of nine variables selected to represent the determinants:

$$\begin{aligned}\Pi_{cit} = F (& \alpha_1 GDPPC_{it} + \alpha_2 GDPPC_VAR_{it} + \alpha_3 UN_RATE_{it} + \alpha_4 EDU_{it} \\ & + \alpha_5 RES_DEV_{it} + \alpha_6 TAX_{it} + \alpha_7 SPEC_{cit} + \alpha_8 ORIG_{cit} \\ & + \alpha_9 PARENT_{cit})\end{aligned}$$

Π_{cit} is the “probability” that the company c decides to invest in the state i at year t .

$GDPPC_{it}$ is the real per capita GDP of the state i in the year t . The GDP per capita is used in the regression model to assess the local market size, and its coefficient is expected to have positive sign. Data on the real per capita GDP of the fifty states are provided by the Bureau of Economic Analysis.

$GDPPC_VAR_{it}$ is the yearly per capita GDP variation of the state i in the year t . It is used to assess the host market attractiveness, since it provides information about market growth and future opportunities. Its coefficient is expected to have positive sign.

UN_RATE_{it} is the unemployment rate of the state i in the year t . Because of the uncertainty of its influence, the sign of this variable in the regression model can be either positive or negative. Data on the unemployment rate of the fifty states are provided by the Bureau of Labor Statistics.

EDU_{it} is the percentage of population at least high school graduated of the state i in the year t . Based on past studies, this variable is expected to have a positive impact. Data on the educational attainment for the fifty states are provided by the United States Census Bureau.

RES_DEV_{it} is the R&D expenditure in the state i in the year t expressed as percentage of annual real GDP. Based on past studies, the coefficient of this variable is expected to have positive sign. Data on the annual R&D expenditure of the fifty states are provided by National Science Foundation.

TAX_{it} is the state corporate income tax rate for a \$150,000 income in the state i in the year t . High taxation rates usually deter FDI inflows, therefore the sign of this variable in the regression is expected to be negative. Data on the state corporate income tax rate of the fifty states are provided by Tax Foundation.

$SPEC_{cit}$ is the number of the initial stock of FDI undertaken in the state i to perform the same industry activity that the company c wants to perform by investing at year t . This variable has the purpose to verify the effect of Marshall externalities, so the sign of its coefficient is expected to be positive.

$ORIG_{cit}$ is the number of the initial stock of FDI undertaken in the state i by companies that come from the same country of the company c that wants to invest at year t . This variable is used to verify the effect that past investments made in a foreign state by same-origin companies has on the location choice for new investments. The effect of this variable is expected to be positive.

$PARENT_{cit}$ is the sum of the number of investments undertaken in the state i by the company c before the year t . This variable is used to verify the effect that past investments made in a foreign state by the company itself has on the location choice for new investments. The effect of this variable can be either positive or negative.

Variable	Definition	Source
GDPPC	Per capita GDP of the state i in the year t	Bureau of Economic Analysis
GDPPC_VAR	Yearly percentage variation of per capita GDP of the state i in the year t	Bureau of Economic Analysis
UN_RATE	Unemployment rate of the state i in the year t	Bureau of Labor Statistics
EDU	Percentage of population of the state i in the year t at least high school graduated	United States Census Bureau
RES_DEV	R&D expenditure in the state i in the year t as percentage of the real GDP	National Science Foundation
TAX	Corporate income tax rate for a \$150,000 income in the state i in the year t	Tax Foundation
SPEC	Number of investments undertaken by foreign companies in the state i during the initial stock period 2003-2004 related to the same industry activity of the tested investment	fDi markets, Financial Times Ltd.
ORIG	Number of investments undertaken by companies from the same country of company c in the state i during the initial stock period 2003-2004	fDi markets, Financial Times Ltd.
PARENT	Sum of the number of investments undertaken by company c in the state i before the year t	fDi markets, Financial Times Ltd.

Table 5.1: regression variables description.

5.2 Conditional Logit model results

After the selection of the regression variables representing the determinants, the next step was to execute the regressions performing the Conditional Logit Model. The Conditional Logit regressions were generated by using the software Stata, so it was at first necessary to upload the database containing all the information about the FDI and the data concerning the regression variables. In order to correctly execute the regressions, some preliminary operations were performed to perfectly structure the dataset. Some of these operations were aimed at creating information related to the initial FDI stock, used to take into consideration the agglomeration economies. It was decided to use the FDI undertaken in 2003 and 2004 as initial stock, so the observations pertaining to these years were subsequently removed from the dataset, and the regressions have been executed on a starting total of 19,111 observations.

Several regressions have been carried out, different both in terms of number of observations and variables considered. By doing so, it was possible to better assess the effects that each variable, individually or along with others, might have either overall or just on particular kinds of investments. The results that were judged most remarkable are presented below.

5.2.1 Results obtained for the whole population

The first set of regressions describe the effects of the regression variables when considering the whole number of observations composing the dataset. The results are reported on *Table 5.2* and *Table 5.3*. The variables chosen for the regressions are listed in the first columns of the tables, while in the following columns it is reported the value of the coefficient of the variables that are considered on each occasion. *Table 5.2* contains the results obtained for regressions not including the agglomeration variables, whereas *Table 5.3* reports the outcomes of the regressions that include them. A similar structure is repeated for all the following sets of regressions. Moreover, the significance level of the results, provided by the p-value, is indicated by a certain number of *.

The first regression uses only the variables that represent the characteristics of the host market; they are per capita GDP (*gdppc*) and per capita GDP annual variation (*gdppc_var*). The outcome is reported on the column *r1*. The coefficients of these variables are all greater than zero, indicating a positive effect on the location choice. The results are significant and consistent with what was foreseen a priori. In fact, these variables represent for foreign investors an important indicator of the local market size, and this aspect is extremely relevant especially for investors moved by market seeking objectives.

For the second regression (*r2*) the unemployment rate (*un_rate*) was added to the model. The significance level is high, and the coefficient of the variable is positive, reflecting a positive impact of the unemployment level of the destination state on the location decision. The positive sign of the coefficient can be explained assuming that most foreign investors consider a relatively high unemployment rate as a sign of labor force availability.

For the third regression (*r3*) the variable indicating the educational attainment (*edu*) was added, hence this regression takes into account the determinant related to the level of instructions in the host state. The result is significant, and the coefficient obtained presents negative sign, revealing the negative impact of the educational level. This result can be explained considering that a low level of education implies low wages. This result is in line with what emerged in the previous regression, considering that also a high availability of labor force allows companies to keep down the wages.

The variable added in the fourth regression (*r4*) is the one related to the expenditure in research and development (*res_dev*), which allows to verify the importance of the research effort for the investing companies. The result is again significant, and the coefficient is positive. This coefficient and the coefficient related to the educational attainment present opposite signs, so these two results might be considered contradicting each other. Anyway, this inconsistency might be due to the fact that this set of regressions is performed without distinguishing the activities for which the investments are undertaken. The negative influence of the educational attainment is typical of those

industry activities that do not much care of high innovation levels, as the set of regressions in the next chapter is going to confirm.

In the fifth regression (*r5*) the taxation (*tax*) came in. Of course, it was normal to assume that a higher tax rate negatively impacts the multinationals' location decisions, and in fact the coefficient of this new variable is negative, as expected. Here too, the level of significance is high.

Variable	r1	r2	r3	r4	r5
gdppc	.0279798***	.03575723***	.05014487***	.0422682***	.04926728***
gdppc_var	3.0562301***	8.5067591***	8.8321817***	8.4253123***	8.1570066***
un_rate		40.924154***	26.179234***	23.164842***	32.07928***
edu			-17.931884***	-17.945048***	-16.811219***
res_dev				14.699892***	13.473919***
tax					-4.4456925***
spec					
origin					
parent					

legend: * p<.1; ** p<.05; *** p<.01

Table 5.2: results of the first set of regressions without agglomeration variables.

From the sixth regressions the variables representing agglomeration economies were added. In the sixth regression (*r6*) the specialization variable (*spec*) is added to those previously analyzed. The inclusion of this variable has the effect of slightly reduce the significance level of the taxation. The positive effect of this variable shows the importance assigned by investing companies to the uncertainty reduction resulting by the fact that other firms performing the same activity signal the possibility to well perform in the examined destination.

The seventh regression (*r7*) includes the presence of companies from the same country (*orig*). The coefficient is again positive, and the result is significant, revealing that this factor is well regarded by new investors. This is due to the information asymmetry

reduction generated by the presence of same-origin firms that signal ease of environmental adaptation.

Finally, in the eighth regression (*r8*) all the variables are considered together. The last variable added is the one related to the past activities of the parent company (*parent*). The coefficient is positive, and the result is significant. The positive coefficient of the variable related to the parent company activity suggests that investing companies might be attracted by states in which they have already invested, consequently choosing to co-locate their new investments, especially in order to reduce possible entrance costs incurred when locating in a new destination.

Variable	r6	r7	r8
gdppc	.02462508***	.01948515***	.02075943***
gdppc_var	3.3743056***	2.5953155***	1.9816833***
un_rate	18.849002***	16.565215***	16.120889***
edu	-5.8392778***	-4.6043726***	-4.188281***
res_dev	6.0622443***	5.1553463***	3.231071***
tax	-1.3325837**	-1.4119024**	-1.1437906**
spec	.06712185***	.06107485***	.05970809***
origin		.04027632***	.03613118***
parent			.6507***

legend: * $p < .1$; ** $p < .05$; *** $p < .01$

Table 5.3: results of the first set of regressions with agglomeration variables.

5.2.2 Results obtained for the main industry activities

The previous set of regressions was carried out to generate overall results, without making any distinction between the features of each investment. In the FDI database each observation is associated to one of eighteen industry activities. It is expected that the

results obtained when considering only investments related to a particular activity might present some differences with respect to the results generated by entering in the regression model all the observations included in the dataset.

The second set of regressions was then conducted analyzing individually the observations linked to the most represented industry activities: business services (*BS*), headquarters (*HQ*), logistics, distribution and transportation (*LOG*), manufacturing (*MANU*), research and development (*ResDev*) (composed by the activities of research and development and design, development and testing), and sales (*SALES*) (composed by the activities of retail, customer contact center and sales, marketing and support).

Table 5.4 and *Table 5.5* report the results obtained without inserting the variables related to the agglomeration economies. These tables allow to see the different impact of the determinants when considering the various investment activities. There are three main interesting results that confirm some of the findings emerged from the literature review: the first is that the effect of taxation is extremely influential, with negative sign, when considering manufacturing investments (Coughlin et al., 1989), while for business services, headquarters and R&D investments this variable results not significant or significant at 10%; the second is that the highest values of the coefficients of the GDP per capita and GDP per capita growth occur for business services and sales activities (O'Meara, 2015); the third is that the highest value of the coefficient of the variable related to the R&D effort is recorded for the group that includes the activities of research and development and design, development and testing (Chung and Alcácer, 2002).

Another important outcome worthy of attention is the negative sign assumed by the coefficient of the variable *gdppc* in the regression involving the manufacturing activity. This result, that at first sight might seem not consistent, can be explained considering that the separation among industry activities could result not exhaustive for those activities that vary widely according to the affiliated industry sector, as in this case. For similar reasons, the negative sign assumed by the variable *tax* is arguably caused by the influence of other state specific characteristics that are not included in this model.

Variable	BS	HQ	LOG
gdppc	.09468638***	.03427384***	.00418426
gdppc_var	9.4230185***	3.8865524***	7.2688069***
un_rate	31.620179***	30.997667***	27.693643***
edu	-23.35984***	-11.806224***	-13.281507***
res_dev	2.7730452	26.158311***	9.4941066***
tax	-3.1021571*	-2.048092	9.747667***
spec			
origin			
parent			

legend: * p<.1; ** p<.05; *** p<.01

Table 5.4: results of the second set of regressions without agglomeration variables.

Variable	MANU	ResDev	SALES
gdppc	-.01698939***	.01781876***	.08569696***
gdppc_var	4.9806777***	8.875979***	9.3042228***
un_rate	26.021358***	32.493825***	36.306761***
edu	-8.407435***	-13.162317***	-22.912736***
res_dev	8.2184038***	58.203243***	10.986096***
tax	-8.5035896***	-.72022964	-4.6128583***
spec			
origin			
parent			

legend: * p<.1; ** p<.05; *** p<.01

Table 5.5: results of the second set of regressions without agglomeration variables.

Table 5.6 and *Table 5.7* report the results obtained with the inclusion of the agglomeration variables. The effect of this kind of variables is really strong and their inclusion causes various alterations both in terms of the coefficients' sign and the significance level. Major differences can be observed with regard to the impact and the significance level of the GDP per capita and its variation, that are strongly modified by the agglomeration variables. This marked change can be explained by the fact that the importance given to the determinants reflecting the market size, which is high at the time of the first investment, is replaced by the importance attached to the fact that other companies, or the company itself, have already invested in that specific activity or state.

Variable	a_BS	a_HQ	a_LOG
gdppc	.00225273	.0100423***	.00744805
gdppc_var	1.275371	-3.4387242**	2.3067732
un_rate	12.698572***	13.269949***	15.300233***
edu	-8.3808472***	-.22032599	-3.9140821**
res_dev	26.243561***	11.641091***	-7.0915814*
tax	8.377802***	-3.6560657**	.84804423
spec	.08034094***	.1948996***	.20481705***
origin	.02666449***	.01178443**	.0321286***
parent	.18882033***	2.0965451***	.72625119***

legend: * p<.1; ** p<.05; *** p<.01

Table 5.6: results of the second set of regressions with agglomeration variables.

Variable	a_MANU	a_ResDev	a_SALES
gdppc	−.00642945**	.03205695***	.02143487***
gdppc_var	1.2239367	2.1403926	.55117145
un_rate	8.7789266***	12.913216***	16.486807***
edu	−.47957198	−6.6674793***	.16752545
res_dev	−10.552185***	22.588577***	−1.6617667
tax	.8157527	−3.3937895	−7.8894088***
spec	.05004495***	.24917913***	.07104049***
origin	.02732127***	.02043394***	.02446275***
parent	1.2778983***	1.1856304***	.27470301***

legend: * p<.1; ** p<.05; *** p<.01

Table 5.7: results of the second set of regressions with agglomeration variables.

5.2.3 Results obtained for the main investing country

After having separated the observations on the basis of their industry activity, another interesting differentiation can be done on the basis of the investing countries. In fact, it is likely that the characteristics of the source country affect the objectives of the FDI and, consequently, the effects of the determinants.

It is already been said that more than the half of the investments undertaken in the period 2003-2018 were performed by only five countries: United Kingdom (*UK*), Germany (*GER*), Japan (*JAP*), Canada (*CAN*) and France (*FRA*). Hence, the third set of regressions aimed at inspecting the differences that emerge when the Conditional Logit Model is executed including only the investments originating from these five countries and from Italy (*ITA*).

Analyzing the results from *Table 5.8* and *Table 5.9*, it results that the coefficient of the variable representing the effort in research and development provided by the destination state assumes its lowest value in the regression involving investments from the U.K, whereas the variable results even not significant for companies from Italy. Indeed, about

a third of the total number of investments analyzed coming from the U.K. are related to business services and financial services, and about a third of those coming from Italy are related to the textile sector; these are sectors not much affected by the expenditure in R&D.

It is also interesting to notice that taxation significantly affects the decisions taken by firms from all the countries investigated with the exception of France and Japan. On the other hand, Japan is strongly influenced by the approach of the host countries to research and development (its coefficient is the second highest among the other coefficients related to this variable). This result is in line with the results obtained by Hennart and Park (1994), who highlighted the importance given to innovation effort by Japanese investors by noticing that the larger a Japanese firm's R&D expenditures, the greater the probability it will manufacture in the United States.

Variable	UK	GER	JAP
gdppc	.08140713***	.0165545***	.00966172***
gdppc_var	8.9694554***	5.4541138***	8.7928752***
un_rate	31.943091***	33.398156***	37.929653***
edu	-19.908045***	-11.794437***	-14.750836***
res_dev	7.1905067***	23.526834***	17.987328***
tax	-3.6542788**	-6.7656468***	.26892153
spec			
origin			
parent			

legend: * p<.1; ** p<.05; *** p<.01

Table 5.8: results of the third set of regressions without agglomeration variables.

Variable	CAN	FRA	ITA
gdppc	.04113586***	.06470101***	.04879489***
gdppc_var	8.1222558***	8.7044828***	6.7857702***
un_rate	28.355156***	32.764257***	34.843589***
edu	-12.821213***	-17.290649***	-13.830184***
res_dev	13.124702***	10.196727***	1.1537997
tax	-9.469656***	-2.5181613	-9.8046181***
spec			
origin			
parent			

legend: * $p < .1$; ** $p < .05$; *** $p < .01$

Table 5.9: results of the third set of regressions without agglomeration variables.

Table 5.10 and *Table 5.11* report the results of this set obtained with the inclusion of the agglomeration variables. All the three variables present a positive coefficient and a high level of significance. Again, their effect proves to be dominant, modifying values and signs of some coefficients and the significance level of some variables.

Among the variables reflecting the destination state characteristics, *un_rate* is the one that is less affected by the inclusion of the agglomeration variables, showing the major importance that is given to the labor force availability in any scenarios.

As in the previous set of regressions, it could be possible that some of the results that are more difficult to understand are generated by factors which depend on state-specific characteristics not considered in this analysis.

Variable	a_UK	a_GER	a_JAP
gdppc	.01705355***	.01672764***	.00260304
gdppc_var	1.1466553	.25952893	1.1954612
un_rate	11.668103***	10.282558***	18.476813***
edu	-1.2576086	-3.9917369***	-.30355597
res_dev	6.16294***	-.73518633	-7.4224045**
tax	-1.5871805	5.2993286***	-.11733396
spec	.04434674***	.04805358***	.05412041***
origin	.06334176***	.09364909***	.03289509***
parent	1.2718112***	.60219749***	.64773811***

legend: * p<.1; ** p<.05; *** p<.01

Table 5.10: results of the third set of regressions with agglomeration variables.

Variable	a_CAN	a_FRA	a_ITA
gdppc	.0117225***	.00047282	.00040254
gdppc_var	2.6049205*	-1.0429025	1.4040094
un_rate	12.039123***	11.674725***	19.718972***
edu	-3.3906834***	2.8757882**	-.67321375
res_dev	3.1892431	.07383922	1.7747283
tax	-4.8602816***	3.8496358*	1.2185685
spec	.04307323***	.04913772***	.06278494***
origin	.09900401***	.15764431***	.04979136***
parent	.45425778***	.33835874***	1.9047448***

legend: * p<.1; ** p<.05; *** p<.01

Table 5.11: results of the third set of regressions with agglomeration variables.

6 Conclusions

This study has examined the effect of some of the main determinants of inward greenfield Foreign Direct Investments in the United States for the period 2003-2018, determining a function to obtain a measure of the probability that a multinational enterprise chooses one federal state over the others when deciding the location for a new investment. The analysis of the determinants extracted from the literature allowed to compare the results obtained by applying the Conditional Logit Model with those obtained in the past by using other methodologies and other investment databases. In some cases, this comparison showed consistency with what had been previously discovered, but in other occasions, many new interesting results emerged.

At first, it is important to notice that the many differences obtained with the various sets of regressions prove that a diversification by industry activity and by home country of the investing firm is necessary to deeply understand the effects of the determinants, because an overall evaluation might lead to overestimate or underestimate the importance of some decision drivers.

A second important finding is that, despite the variations caused by the progressive introduction of the determinants, the inclusion of the agglomeration variables turned out to be very impactful in every regression, showing a high level of significance and a positive influence in attracting new investments. This important result can be explained considering that the United States offer to foreign investors a stable economic and political environment which generally make investing in each of the fifty federal states highly profitable. Consequently, determinants that are less related to the state specific characteristics and more related to other phenomena such as the agglomeration economies result to play a major role in the location decision process.

Another conclusive observation is that technological and process innovation, extremely fast especially in the United States, will inevitably lead to the rise of new investment determinants and to the resulting adjustments in the impact of the more traditional ones. It is therefore normal that the results obtained analyzing the most recent databases could

present discrepancies with respect to those obtained by studying past observations, just as it is predictable that this kind of research could potentially come to new evidences in the future.

The results of this research can be interesting not only for the scientific world, but also and especially for investors that want to evaluate the opportunity to invest soon in greenfield projects in the United States, and for the United States policy makers that are accounted for attracting FDI. In fact, this study highlights the importance of many characteristics that could be considered by the policy makers as a powerful tool to leverage on when considering attracting further investments recognized as necessary to the local economy growth.

This research can be considered rather exhaustive, thanks to the comprehensiveness of the FDI database and the use of a fair number of variables. Moreover, many of the outcomes generated validate the quality of the constructed model, such as the fact that the highest values of the coefficients related to the R&D expenditure are obtained in the regressions investigating the investments linked to R&D activities.

However, the fact that the number of determinants and of the related variables impacting the location decision is very large, and the fact that in the future the impact of these determinants can change, leaves rooms for further in-depth analysis. Furthermore, the Conditional Logit Model features some drawbacks, such as the limitation of the Independence of Irrelevant Alternatives (IAA) that implies that the odds ratio of two alternatives, j and k , does not depend on other alternatives (Haan, 2005).

Therefore, it might be interesting for future research to approach this study also by applying a different model, and by verifying the effect of other determinants and variables together with the variation of the effect of those already considered.

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