ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis {International Economics}

# “To stay, or not to stay?” – That is the question

## Home country employment effects of outward FDI in the European manufacturing- & service sector.

Name student: Ida Pellemans

Student ID number: 500643

Supervisor: Anna Baiardi

Second assessor: Megan Haasbroek

Date final version: 29-06-2021

# Abstract

After the 1970s, the amount of domestic firms that started to invest, produce and settle beyond their own borders, had risen rapidly. This phenomenon, combined with the beginning of the deindustrialization process and a sectoral shift in employment in Europe and the United States, have surged the debate on whether these trends are to some extent related to each other. In this thesis, I try to assess whether these concerns are valid, by measuring the home-country employment effects of outward foreign direct investment in 24 European countries, over the period 2002-2012. The effect of foreign direct investment is measured on total employment, before taking a closer look at potential differences between the service sector and manufacturing sector. Using an individual- and time fixed effects analysis, I find no significant effect of outward foreign direct investment on total employment. However, the effect of FDI on sectoral employment between North-western and South-eastern Europe differ substantially. North-western Europe experiences no effect of outward direct investment on manufacturing employment, yet a small positive effect on service sector employment. For South-eastern European countries, I find a positive effect in the manufacturing sector and no significant effect in the service sector.

# Table of contents

# 1. Introduction

Over the course of the past few decades, the amount of foreign direct investment (FDI) transfers have risen substantially, especially from Western areas to developing- and emerging economies. FDI – also known as offshoring or outsourcing - can be seen as an investment abroad made by a firm or an individual investor, in order to establish a foreign enterprise, start a joint venture or acquire a local firm in the receiving country (Moran, 2012). "At present, the consensus seems to be that there is a positive association between FDI inflows and economic growth, provided that receiving countries have reached a minimum level of educational, technological and/or infrastructure development" (Hansen & Rand, 2006, p.22). Furthermore, Mello (1997) states that receiving countries can take advantage from inward FDI in two ways, namely through the adoption of new technologies and the accumulation of capital. So, inward FDI can positively affect economic growth and thus, it can have a positive impact on, for example, employment.

Besides these two papers, a lot of research has been done already on the impact of inward FDI on receiving countries, but how about the impact of outward FDI on the home countries? In what way will economic activity within those countries be affected by increasing outflowing investments? Since more multinational corporations (MNCs) have engaged in offshoring, concerns have risen about potential job losses in the home countries, as it was feared that moving production to cheaper countries would lead to a reduction in domestic employment. On the other hand, some researchers believe that FDI outflows will positively influence home countries' employment, since firm size increases with foreign expansion and therefore, outward foreign direct investment will eventually lead to job creation at home. Yet, little research has been done on this particular subject (especially in Europe) and the opinions in the existing literature vary substantially from each other. Therefore, this thesis will try to answer the following main research question:

*What is the effect of FDI outflows on source countries' labour market outcomes in Europe?*

To answer the question above, this paper will look at the effect of FDI outflows on total employment in North-western (NW) and South-eastern (SE) Europe. It is expected that the results will somewhat differ between these areas. To elaborate on this, some SE European countries, like the Czech Republic, the Slovak Republic and Hungary, experienced trade liberalization later on than most of their NW neighbours. For example, these countries joined the European Union (EU) later, namely in 2004. And, according to the World Investment Report of the UNCTAD (2004), the amount of outward FDI in Central & Eastern Europe (CEE) increased substantially between 2001-2003, especially in countries like Hungary, Poland, Slovenia and the Czech Republic. It is expected that these countries, due to trade liberalization and the phenomenon of increasing returns to capital, will also experience increasing returns on outward direct investment. For these reasons, we expect the results to be larger for SE Europe,

compared to those of their NW European neighbours. This expectation will be explained in more detail in section 2.3. As noted before, far more studies have been conducted on rich western countries. However, studies on SE European countries are quite rare, which makes it an interesting topic for further investigation. Since some of these countries are at the beginning stage of their evolvement and differ in that sense from NW European countries, this thesis has made a distinction between these two areas.

Furthermore, most NW European countries already started their deindustrialization process back in the 1970s (see Table 8.7, 8.8, 8.9, 8.10 in the Appendix), meaning that – if there would still be an effect in the 21st century – the effect found in this study could be smaller than if this research were to be executed in previous decades. Something else that should be noted, is that most studies on this particular topic have been carried out in late 20th century, on singular countries, like Japan, Sweden and the United States. However, far less studies have been done on other NW European countries, like the Netherlands, Austria, and France. For these reasons, this thesis will take a look at fifteen NW European countries over the period 2002-2012, in order to see whether the results differ from earlier studies.

In addition, this thesis will also separate the effect of FDI on employment between the manufacturing sector and service sector. According to Bluestone & Harrison (cited in Alderson & Nielsen, 2002), foreign direct investment accelerated the process of deindustrialization in developed countries, in which a sectoral shift in employment occurred. Part of manufacturing employment was moved to the service sector, leading to increased income inequality as well. Since the aggregated effect on total employment within a country says little about potential mobility between different sectors, the effect of outward FDI on employment will thus be split up into effects on these two different sectors. It is expected that our results will indicate such a particular shift as well.

Using an individual (or country-) fixed effects methodology, I find no significant effect of outward FDI on total employment, both in NW Europe and SE Europe. However, when taking a look at potential differences between the manufacturing- and service sector, the results change. In the manufacturing sector, I find no significant effect of direct investment on employment for NW Europe and a positive large effect for SE Europe. In the service sector, I find a positive significant effect of outward direct investment on employment for both areas. However, the obtained coefficient is again larger for SE Europe than for NW Europe. As for policy, this would mean governments in SE European countries should encourage firms to engage in FDI, as these countries find themselves at the beginning of their trade liberalization and can experience increasing returns to capital. Furthermore, firms should be incentivised to invest more in Research & Development (R&D), as their capacity to absorb new information will increase with the amount of R&D they invest in (Cohen & Levinthal, 1989). In addition, this study shows that NW European countries nowadays should not fear the potential detrimental effect on manufacturing employment, since no significant relationship is found between the two in the period 2002-2012. However, these countries do experience a positive effect of outward direct investment on

service sector employment, implying the need for governments to encourage FDI within this sector. Policy makers could stimulate companies to engage in outward FDI, through implementing grants or subsidies for R&D and FDI, or through other liberal measures. Agreements to avoid double taxation and investment guarantees could also provide firms with incentives to invest abroad (Tan et al., 2016).

The structure of this paper will now be briefly discussed. Section 2 provides a summary of the written literature and Section 3 describes the data. Section 4 discusses the methodology that is used in order to come to the main conclusions and Section 5 presents the results. Lastly, Section 6 provides a conclusion and leaves room for discussion.

# 2. Literature Review

First of all, the reader is provided with an overview on the written literature that is relevant for this thesis. In order to get to the main research question, the following subjects will come to light. First, this paper zooms in on several characteristics of FDI and its main determinants. Then, this paper will look in more detail at the relationship between FDI and exports and lastly, its potential effects on employment will be discussed.

## 2.1. Definition and key determinants of FDI

Foreign direct investment can be seen as an investment made by a direct investor or parent enterprise in one economy, in order to gain control over a foreign enterprise in another economy and get involved in a long-term relationship (UNCTAD, 1999). In addition to this, the International Monetary Fund (IMF, 1993) states that relationship like this is certified when the foreign direct investor in the home country holds 10% or more of the voting shares of the enterprise in the foreign country. This definition can be narrowed down even further. According to Caves (1971) and Herger & McCorriston (2016), foreign direct investment can be split up into two main elements, namely horizontal- and vertical FDI. Horizontal FDI can act as a way to avoid trade costs, since high-income economies can move similar production processes to other rich countries, in order to gain access to local markets. In the case of horizontal FDI, the total supply chain is then moved to these foreign markets. Vertical FDI, on the other hand, can be seen as a way to fragmentate production and move some of these fragments to "cheaper" countries, with the intention to decrease production costs. Vertical FDI mostly takes place in developing and emerging economies, since input prices - like wages - are significantly lower in those countries compared to wages at home (Caves, 1971; Herger & McCorriston, 2016).

Furthermore, foreign direct investment flows consist of three major sections: equity capital, reinvested earnings and intra-company debt transactions, which will be explained in more detail. Equity capital can be defined as the amount of shares held or bought within a foreign affiliate, by a direct investor from

another country. Reinvested earnings are earnings from a foreign direct investment affiliate, which are pretended to be distributed and remitted to foreign direct investors as dividends, but instead are reinvested in the foreign direct enterprise. Lastly, intra-company debt transactions can be defined as loans between foreign enterprises and parent enterprises, and these can either be short- or long term (UNCTAD, 1999).

Now that we know a bit more about some key characteristics of direct investment, we can turn to the following question: why do some firms have an incentive to engage in FDI? To answer this question, a brief historical overview is provided. In the mid-20th century, as mentioned by Hymer (1976), FDI was mainly defined as long-term movements of international capital. A distinction was made between roughly two types of capital movements, namely portfolio investment and direct investment. The key difference between these types of investments, is that portfolio investment does not require the investor to have control over the foreign enterprise. The interest-rate theory (without barriers, risks and uncertainties) was mainly used to explain international movements of capital, and stated that capital flows from economies with low interest rates to economies with higher interest rates, in order to yield the highest return on investments. Yet, this theory fails to explain the need to have control over the foreign enterprise, which is, as mentioned before, a key feature of direct investment (Hymer, 1976).

So, what drives firms to invest abroad instead of staying at home and becoming an exporter? Hymer (1976) argues that imperfections in capital markets need to exist – like the fact that countries have different interest rates – in order for foreign direct investment to take place: if capital markets were perfect (with perfect information, no uncertainty and no barriers), no firm would have an incentive to invest elsewhere than at home, since returns would be the same in all countries. Other researchers like Dunning (1974), Kindleberger (1969) and Caves (1974) built on this particular vision. They too believed that market frictions needed to exist in order for certain companies to be incentivised to invest abroad.

Vernon (1966) provides another motive for companies to engage in FDI, based on the Product Life Cycle (or PLC-) Theory. This theory states that products – in their early stages – are initially produced in the country of origin, whereas later on in their life cycle, they are produced in other countries: demand for these products will then be large enough to cover the costs of producing locally. In the last stage of the PLC, the country of origin will thus become a net importer of the product. One of the main motives for these domestic firms to move their production abroad, are cheaper labour costs. Yet, PLC-theory cannot explain why it is still more profitable in later stages of the product to move production abroad, instead of exporting and staying at home (Vernon, 1966).

Later on, in the 1980s and 1990s, the OLI (or eclectic) paradigm was mainly used to explain the emergence of multinationals and increasing direct investment in foreign countries. The three main variables – ownership, location and internalization advantages – determine “the extent, geography and

industrial composition" of foreign direct investment (Dunning, 2000, p. 163). The first sub-paradigm, *ownership specific advantages*, states that multinational corporations are more likely to engage in FDI when they have a competitive advantage over other firms, all other things equal. This is especially the case when these MNCs have a competitive advantage over the companies established in recipient countries. The second sub-paradigm, *location specific advantages,* asserts that firms are more likely to invest abroad, when there are certain advantages tied to the location they invest in. The last sub-paradigm refers to *internalization specific advantages,* and this states that a firm is more likely to invest abroad and internalize trade of intermediate products - rather than licensing other firms to produce for them – in case the net advantages of internalizing these trade flows are higher. When all of these sub-paradigms are met, firms will engage in foreign direct investment (Dunning, 2000).

In addition, another classification of FDI is mentioned in the literature. According to Dunning (1993, 2000), foreign activity of multinational enterprises can be split up into four different categories, as will now be explained in more detail. Market seeking FDI is the first category, and refers to the preference of multinationals to serve one or multiple foreign markets. This category is also known as demand oriented FDI. Resource seeking - or supply oriented - FDI refers to the desire of firms to gain access to natural resources, like low-skilled labour and oil fields. Efficiency seeking or rationalized FDI can be referred to as "a more efficient division of labour or specialization of an existing portfolio of foreign and domestic assets by MNEs" (p. 164, Dunning, 2000). The last category that is discussed in the literature, is strategic asset seeking FDI. This kind of direct investment is made in order to protect or increase the multinational's ownership advantages, or reduce specific advantages of competitors (Dunning, 1993, 2000).

Lastly, Helpman (2006) mentions that - besides the theory of comparative advantage - differences in business characteristics are also one of the main drivers for firms to become foreign direct investors, which was also stated by Dunning (2000). Firms that are larger and produce more efficiently, are more likely to expand and also serve foreign markets, rather than just domestic markets. Organizational differences between firms also play a key role in determining FDI and trade patterns. However, these two factors are related to each other, since different levels of firm productivity also require different choices in the organisation of a firm (for example, choosing between producing at home or fragmenting production).

## 2.2. FDI & exports: substitutes or complements?

In this second part, we will get into further depth when it comes to the export-effects of FDI. When engaging in free trade, firms in high-income countries have an incentive to move production abroad, since wages - as mentioned before - are relatively cheaper in developing/emerging countries. The fall in manufacturing employment in developed economies in combination with increased FDI to low-cost economies have resurged this debate even more. It is namely feared that the output produced by foreign

affiliates will replace (or *substitute*) domestic exports, and therefore reduce domestic employment, when production is moved away from the home country (Moosa, 2002). This is one of the main arguments backed by opponents of outward FDI. However, proponents claim the opposite, arguing that FDI increases domestic employment, since these firms will experience spillover effects, grow bigger and thus, export more. Outflowing direct investment will then enhance (or *complement*) domestic exports, especially exports of intermediate products to these foreign enterprises (Moosa, 2002).

According to Lipsey (2004), concerns about potential negative effects of outward FDI first started in the United States, due to the fact that they were the main big direct investor and because of the balance of payments crisis that occurred back in the sixties. People feared that outward FDI would lead to decreasing exports and therefore have negative effects on domestic employment. However, most studies on the US show either a positive association or no significant relationship at all between outflowing FDI and exports. According to Lipsey & Weiss (1981), foreign activity by US manufacturing firms tends to be positively correlated with exports to the region where foreign activity takes place, if they are traded within the same industry. They also argue that there is no (net) significant detrimental effect of outward FDI on domestic employment and production. In a later study, Lipsey & Weiss (1984) discover that FDI has a stronger positive effect on exports of intermediate products - to the countries where the foreign affiliates are established - than on exports of final products, if there was a relationship at all in the latter case. This phenomenon was also explained by Kokko (2006). The reasoning behind it was that multinationals export more intermediate products to foreign countries than prior to the establishment of their foreign affiliates, in order to further process them.

Less significant research has been done on European countries, but over the years, Swedish firms have been an interesting topic of debate. To elaborate on this, a research done by Braconier and Ekholm (2000) stated that outward FDI to other high-wage countries would lead to export-substitution, while flows to developing/emerging economies would indicate no significant effect. Swedenborg (1979) was mostly positive in her study, and concluded the following: exports that are complementary to the production of Swedish foreign affiliates are positively influenced by FDI, while non-complementary exports are negatively influenced, although the latter result is smaller and less significant. Another study by Svensson (1996) – where he focused on the 1980s and 1990s - showed that foreign activity complements exports of intermediate products and substitutes exports of final goods. Previous studies on Swedish firms mostly stated that the net effect was positive (Blomström & Kokko, 1994; Swedenborg, 1979), however, the net effect by Svensson's research is found to be negative, meaning that the export-substitution effect overrules the complementary effect (Svensson, 1996). The fact that export-effects of FDI are decreasing over time in Swedish firms can be an explanation for these differences in outcomes (Blomström et al., 1997; Kokko, 2006). To elaborate on this, multinationals in Sweden have relied heavier on Mergers & Acquisitions (M&As) than on greenfield investments, as time passed. This could in turn mean that M&As – as they already had their existing local supply and

distribution – were less likely to receive inputs from their parent affiliates (Kokko, 2006). All things considered, studies on Swedish multinationals have produced some mixed results over the past few decades.

## 2.3. FDI and home country employment

Blomström et al. (2000) did a combined study on Japan, the US and Sweden, in which they implied that Japanese firms, operating within a certain region, tend to export a million yen more to that region when they also produce a million yen more in that particular area (controlling for level of income, area- and parent firm's size). Similar results have been found for the US and Sweden, although the export-effect is smaller for these countries. However, their research suggests different effects on employment. Swedish and Japanese firms tend to have increased home employment when producing more abroad. According to Blomström et al. (1997), parent employment in Swedish affiliates tends to increase, regardless of whether they operate in developing- or developed countries. However, this effect is in general decreasing over years. US firms experience the opposite when operating in developing countries, for a given level of parent output. This might be due to the fact that the US has shifted more of their low-skilled production abroad and kept their high-skilled production at home. (Blomström et al., 1997; Blomström et al., 2000). Brainard & Riker (1997) also concluded that there is some degree of substitution between affiliate employment and parent employment in US firms (within the manufacturing sector). However, they find that this negative net effect is very small.

From a theoretical point of view, it is very hard to determine in which direction FDI will leave its marks, since it can go either way. Therefore, it has to be tested empirically. One thing that should be noted, however, is that export and output effects can differ from employment effects, since output and exports can increase without a similar rise in domestic employment. This can happen, if increased capital intensity combined with a shift to more high-skilled production occur at the same time in the home country, while more labour-intensive production is moved to recipient countries (Lipsey et al., 1978; Kokko, 2006). This may be an explanation why some researchers find that employment in parent enterprises is substituted for employment in their foreign affiliates (Braconier & Ekholm, 2000; Blomström et al., 2000). To confirm this, Lipsey (1995) showed indeed that US parent employment decreases as affiliate production increases, when taking this phenomenon into account. He also looked at potential differences between manufacturing and non-manufacturing affiliate production. Lipsey (1995) concludes the following: "each million dollars of manufacturing affiliate production subtracts about 1.4 workers from parent employment, while each million dollars of nonmanufacturing affiliate production adds 1.2 parent employees" (p. 23). He concludes that the total negative effect on home employment is thus mainly due to manufacturing outsourcing, since the non-manufacturing sector shows a positive relationship. It is noted that the net effect of outsourcing on home employment is still in most cases dependent on changes in a country's labour market composition, as evidence suggests. Although,

Lipsey (1995) mentions that most of the US studies confirm an increase in total parent employment, when the share of overseas production, relative to the total production of the multinational, is higher.

In this study, we expect somewhat similar results for other Western areas, like Europe. However, as can be drawn from the earlier mentioned papers and their results, it is not very clear in which direction FDI will leave its marks. Thus, this paper has come to the following main research hypothesis:

*Hypothesis 1: outward FDI will have an ambiguous effect on total employment in Europe.*

Lipsey (2004) mentioned that differences in export-effects could also depend on the nature of the foreign activity, meaning that the effects could be different for goods and services. Most of the previously discussed studies have – so far – focused on the manufacturing sector. However, as Kokko (2006) noted as well, far less studies have been conducted on the potential outcomes of outward direct investment within the service sector. Since it is important to be close to customers within this sector, it can be argued that service-related activities will not substitute domestic service exports, and thus, have a small effect on employment (Kokko, 2006). As noted before, Lipsey (1995) also made a similar distinction in his study.

In addition to this, the first thought was that FDI – also known as a flight of capital – accelerated the process of deindustrialization in developed economies. "Deindustrialization has, in turn, produced rising inequality because it has entailed the movement of a portion of the labor force from the industrial sector, typified internally by higher average wages and a comparatively flat distribution of income, to the service sector, typified internally by lower average wages and a higher level of inequality" (Bluestone & Harrison, 1982, cited in Alderson & Nielsen, 2002, p.1251). It is therefore expected that our results will also indicate some shift between these sectors.

The literature suggests that it is important to make a distinction between these sectors and therefore, the following two sub-hypotheses have been established:

*Hypothesis 2: outward FDI in the manufacturing sector will have an ambiguous effect on manufacturing employment in Europe.*

*Hypothesis 3: outward FDI in the service sector will have either no significant effect or a small positive effect on employment within the service sector in Europe.*

As can be seen from the literature, most relevant studies have been carried out in the previous century, which is why not many recent papers have been included. Furthermore, this thesis covers the period 2002-2012, while most other studies have been focused on an earlier timeframe. This makes this research also more relevant, since it can be tested whether the results found in this study will be different from other decades.

On top of this, it is expected that the effects will in some way be different between NW Europe and SE Europe. As noted before, the amount of outward direct investment in CEE has increased between 2001-2003, especially in countries like Hungary, Poland, Slovenia and the Czech Republic (UNCTAD, 2004). These countries have also joined the European Union later on than most of its members. It is expected that these countries, due to trade liberalization and increasing returns to capital, will also experience increasing returns on outward direct investment.

The increasing returns on capital can be explained using the (conditional) convergence theory. This theory states that poorer countries grow faster than rich countries under free trade, since their initial growth level is lower. Countries should then eventually converge to the same growth path, conditional on the countries being the same in their fundamentals, like government policies, population growth and technologies (Galor, 1996). As SE countries are slightly less developed than NW European countries, but structurally alike, they can experience more returns to capital and increasing spillover effects when investing abroad, which can eventually lead to higher growth and employment. Furthermore, no relevant studies have been found for South-eastern Europe, which makes this distinguishment even more relevant and this part of Europe an interesting area to investigate.

# 3. Data

In this section, the variables used in this thesis and its sources will be clearly described and explained. First, a brief background on the databases is given and after that, the variables will be presented and illustrated.

## 3.1. Databases

This thesis uses data on 24 European countries, measured over the period 2002-2012, due to the availability of the data. Countries are classified into a North-western and South-eastern area, according to the United Nations geoscheme for Europe, established by the United Nations Statistics Divisions (UNSD, 1999). The classification is provided in Table 8.6 in the Appendix.

Most of the variables used in this thesis are extracted from the World Development Indicators (WDI) database of the World Bank. The WDI database covers annual data over the period 1960-2020, for more than 200 economies and it provides data on topics like economic growth, education, poverty and trade (World Bank, 2021). The following variables have been extracted from this database: the employment-to-population ratio, manufacturing- & service employment (percentage of total employment), total FDI outflows per country, trade (percentage of GDP), GDP per capita, total medium- and high-tech exports (percentage of manufacturing exports), manufacturing exports (percentage of merchandise exports), total merchandise exports, R&D expenditures and total GDP per country.

Secondly, data of the World Governance Indicators (WGI) database have been used, from the World Bank. This database reports worldwide governance indicators, measured over the period 1996-2019 for more than 200 countries (World Bank, 2020). Political stability, control of corruption, voice & accountability, government effectiveness, rule of law and regulatory quality have been taken from the WGI database.

In addition, data from the Organisation for Economic Co-operation and Development (OECD) are applied in this thesis. This organisation was established in 1961, and its members consist of fifty governments of several emerging, developing and developed economies, which cooperate in order to promote worldwide social- and economic welfare (OECDwatch, 2010). Two variables have been taken from this database, namely total FDI outflows in the manufacturing sector and total FDI outflows in the service sector.

Lastly, this thesis uses data from Human Development Reports of the United Nations Development Programme (UNDP). Human Development Reports was firstly introduced in 1990, and its main goal is to enhance richness of human life around the world, rather than just enhancing economic well-being (UNDP, 1990). The Human Development Index (HDI) has been taken from this database.

## 3.2. Variables

### 3.2.1. Employment

*Employment-to-population ratio*

The main dependent variable that is used in this study, is total employment. In order to test the first hypothesis, we use country level data on *total employment relative to population size*, from age 15 and older. This variable is measured in percentages. It is an estimate from the International Labour Organization (ILO), extracted from the WDI database.

*Manufacturing employment & service employment (relative to population)*

For testing the second and third hypothesis, data on *manufacturing employment and service employment (relative to population)* are used as the other two dependent variables, measured in percentages. In order to get manufacturing employment and service employment (relative to population), manufacturing employment and service employment (in percentages of total employment) are divided by 100 and then multiplied by the total employment-to-population ratio, used in the first hypothesis. Manufacturing employment and service employment (in percentages of total employment) are also taken from the WDI database.

As can be seen in Figure 8.1, 8.2 and 8.3 in the Appendix, employment within the manufacturing sector (in percentages of total employment) has been decreasing gradually over time, especially in Western

Europe and South-eastern Europe. In Northern European countries, it has declined as well, yet the trend seems to be relatively constant for Estonia, as can be seen in Figure 8.2.

Figure 8.4, 8.5 and 8.6 provided in the Appendix, show a gradual increase in service sector employment over the years within Northern, Western and South-eastern Europe. Again, as Figure 5 shows, only Estonia does not show a clear trend over the given time period.

The descriptive statistics of the variables mentioned above and below can be found in Table 8.1 in the Appendix. Total FDI outflows (per sector) and total medium- & high tech exports are divided by Gross Domestic Product (GDP), in order to account for a country's economic size.

### 3.2.2. FDI outflows & GDP

#### *Total FDI outflows (percentage of GDP)*

In order to test the first hypothesis, data on *FDI outflows (percentage of GDP)* are used as the main variable of interest. Total FDI outflows per country in US dollars are extracted from the WDI database. Then, as mentioned above, they are divided by total GDP and multiplied by 100, in order to get FDI outflows in percentages of GDP. Data on total GDP per country in US dollars is also taken from the WDI database.

#### *FDI outflows per sector (percentage of GDP)*

In the second and third hypothesis, *FDI outflows in the manufacturing sector and service sector (percentage of GDP)* are used in order to test the effect it has on employment in that particular sector. FDI outflows per sector are extracted from the International Direct Investment Statistics database from the OECD and are measured in millions of US dollars. In order to get total FDI outflows per sector as a percentage of GDP, the variables are multiplied by 1 million and then divided by total GDP. Thereafter, the variable is multiplied by 100 in order to get FDI outflows per sector in percentages of GDP.

### 3.2.3. Human Development Index

The first main control variable that is used in this study, is the *Human Development Index (HDI)*. This index measures human development within a country using three dimensions, namely good health, decent living standards and accessibility to information. Health is measured by looking at the life expectancy at birth. Furthermore, accessibility to knowledge is based on the expected years of schooling and its mean, and living standards are based on Gross National Income (GNI) per capita, measured in US dollars. Each dimension is also calculated as an index, and together they form the Human Development Index. The HDI is created as a separate measure for development within a country, apart from economic growth (UNDP, 2020). The higher the index, the more developed a country is. It is expected that human development is positively correlated with the amount of FDI outflows, since more advanced economies have more capital to invest abroad. Besides, Ranis et al. (2000) state that human

development and economic growth tend to reinforce each other, the rate of investment and income distribution being the most important drivers through which human development affects economic development. Therefore, it is expected that human development will also be positively correlated with total employment. However, this can differ per sector. As can be seen in Table 8.2 in the Appendix, HDI is positively correlated with employment in the service sector and negatively correlated with manufacturing employment. This indicates that more developed economies have a higher share of their employment in services than in manufacturing. One thing that should be noted, however, is that correlations do not prove the existence of a causal effect in the same direction, or any causal effect at all. The Human Development Index (HDI) per country is taken from the UNDP database.

### 3.2.4. Trade Openness Index

The *Trade Openness Index (TOI)* is the second main control variable that is used in all of the regressions in this study. It is a measurement for the level of trade openness in a country and is calculated as follows: total exports plus total imports, divided by total GDP. The TOI is extracted from the WDI database and it is expected that this variable is positively correlated with FDI outflows, since a country can more easily invest abroad if it has more open borders. This is confirmed in Table 8.2 (see Appendix). The effect trade will have on employment, can be explained through the Heckscher-Ohlin model. Suppose that we have two countries in the world: the Netherlands and China. In this setting, the Netherlands is relatively abundant in high-skilled labour, and China in low-skilled labour. According to the Heckscher-Ohlin model, when two countries engage in free trade, they will both export the good in which they have a comparative advantage – the good that uses the abundant factor intensively in its production – and import the other good. This means that the Netherlands will export relatively high-skilled goods and China low-skilled goods. Therefore, in the Netherlands, it is expected that demand for high-skilled labour will increase, and demand for low-skilled labour will decrease. As can be concluded from this example, some groups will gain from trade and some groups will lose. However, a country as a whole will be better off. Therefore, increasing trade openness is expected to be positively correlated with aggregated employment. However, when looking at sectoral employment, this effect can differ, since some groups might benefit and others might not. The correlations between (sectoral) employment and trade are displayed in Table 8.2 in the Appendix.

### 3.2.5. GDP per capita (lagged value)

Furthermore, Gross Domestic Product (GDP) per capita, measured in current US dollars, is used as another control variable in this thesis. *GDP per capita* is calculated as total GDP divided by the total population within a country. It can be seen as a general measure of wealth and economic development. As a country becomes richer and has a higher GDP per capita, it is expected that investments abroad will increase, since these countries have more capital to spend. Thus, we expect it to be positively correlated with FDI outflows. As noted before, more advanced economies tend to have a higher share

of their employment in the service sector compared to the manufacturing sector. Thus, GDP per capita is positively correlated with service employment and negatively correlated with manufacturing employment. These correlations are again displayed in Table 8.2 (see Appendix).

One thing that should be noted, however, is that outward FDI could also influence home country economic growth, through productivity and knowledge spillovers (Globerman, Kokko and Sjoholm, 2000). If current values of GDP per capita are included in this research (as a proxy for economic growth), our estimation could be biased. To elaborate on this, the variable GDP per capita could be a so-called mechanism, since economic growth is then affected by foreign direct investment - through productivity spillovers - rather than the other way around. Mechanisms are bad control variables and should not be included into the model, since they cause the coefficient of the treatment variable to be biased. Economic growth should thus only affect FDI in one direction. In order to account for this problem, the one-year lagged value of GDP per capita is included in this study, as it is expected that current values of FDI do not affect past values of economic growth. Like most of the other variables, GDP per capita is taken from the WDI database of the World Bank.

### 3.2.6. Skill-biased technological change (lagged value)

As mentioned before by Lipsey (1995) and Kokko (2006), changes in home-country labour market compositions are an important factor for changes in employment. Berman et al. (1994) show that skill-biased technological change has created increased demand for high-skilled workers within the manufacturing sector in the United States. This technological change is an important factor for an overall decrease in low-skilled manufacturing employment in developed countries, even more than increased trade with developing- and emerging countries (Berman et al. 1998). Therefore, in the second regression, data on *medium- and high technology exports (percentage of GDP)* are included, as a proxy for skill-biased technological change. As shown in Table 8.2 in the Appendix, this variable is positively correlated with manufacturing employment. However, this does not necessarily indicate a positive causal effect on employment in the manufacturing sector, but it can indicate that the rise in demand for relatively more skilled workers outweighs the decrease in demand for less skilled workers within this sector.

In order to calculate this variable as a percentage of GDP, data on medium- and high tech exports (as a percentage of total manufacturing exports) are extracted from the WDI database. Then, total manufacturing exports are calculated: manufacturing exports (as a percentage of total merchandise exports) are divided by 100 and then multiplied by total merchandise exports, in order to get total manufacturing exports in current US dollars. The latter is then again divided by 100 and multiplied by total medium- and high tech exports (as a percentage of total manufacturing exports), in order to get total medium- and high tech exports in current US dollars. This variable is then divided by total GDP and multiplied by 100, for the purpose of calculating total medium- and high technology exports in

percentages of GDP. As explained before, exports per sector could be enhanced by foreign direct investment, rather than the other way around. It could potentially lead to bias if we include this variable in our regression, since exports can be considered a mechanism. Therefore, the one-year lagged value of total medium- & high tech exports is included in the model, as it is anticipated that current values of FDI in the manufacturing sector do not influence past values of technology exports. Data on manufacturing exports and merchandise exports are also taken from the WDI database.

### 3.2.7. Research & Development

As noted before, foreign direct investment can have positive spillover effects on productivity and growth in the home country, and therefore it can have a positive effect on employment (Globerman, Kokko and Sjoholm, 2000). However, the ability of a firm to absorb new information and benefit from these spillovers, is to a large extent determined by its own investment in learning-by-doing, or put otherwise, its own investment in research and development (Cohen & Levinthal, 1989). Foreign direct investment and Research & Development (R&D) are thus to some extent related with each other. Besides, R&D has a positive effect on economic growth and hence, it can positively influence employment as well. Therefore, *R&D expenditures (percentage of GDP)* are included in the regression models.

The variable R&D is positively correlated with total employment, as can be seen in Table 8.2 in the Appendix. However, the sign is again different between the service sector and manufacturing sector. Countries that invest more in R&D tend to have a larger share of employment in the service sector compared to the manufacturing sector. However, a correlation does not necessarily indicate any causal effect, as noted before. R&D expenditures are also extracted from the WDI database of the World Bank.

### 3.2.8. Governance indicators

According to Globerman & Shapiro (2002), economic development within a country is to a large extent determined by its governance infrastructure. This term includes a country's political, legal and institutional domain. "The results clearly indicate that governance infrastructure is an important determinant of both FDI inflows and outflows. Investments in governance infrastructure not only attract capital, but also create the conditions under which domestic multinational corporations emerge and invest abroad" (p. 1899). This positive correlation is displayed in Table 8.2 (see Appendix). Globerman & Shapiro (2002) use six governance indicators in their study, namely political stability, rule of law, government effectiveness, regulatory quality, voice & accountability and control of corruption, designed by Kaufmann, Kraay & Zoido-Lobaton (1999). They are all estimates, ranging from -2.5 to 2.5, in which a higher value indicates a stronger government performance. Since it is less convenient to account for all of them in the regression analyses, the average of all the indicators is calculated and defined under

*governance indicator*[1]. Since governance is an important factor FDI and economic growth, it is also expected to be positively correlated with total employment and therefore, this variable is included in our model. However, the signs of the correlation coefficients are again expected to differ between service sector employment and manufacturing employment. Countries with a well developed governance infrastructure have a higher share of service sector employment, compared to manufacturing employment, as confirmed in Table 8.2 (see Appendix). The governance indicators have all been extracted from the Worldwide Governance Indicators (WGI) database of the World Bank.

Now that all the data and its sources are described and substantiated, this thesis turns to the following section, in which the main methodology and its assumptions will be clarified.

# 4. Methodology

In this section, the main methodology that is used in this thesis will be discussed and explained. I will provide the reader with the main regression formulas and shed a light on the main assumptions of the method used.

## 4.1 A fixed effects approach

The main method that is used to test the three formulated hypothesis, is the individual fixed effects method, or in this case, the country- and time fixed effects model. This methodology has several key assumptions, which will be elaborated on and discussed in this subsection. This method uses within-country variation, meaning that each country is compared to itself over time. So, it automatically accounts for country characteristics that do not change over time. Since this study only looks at a relatively short period of time, there are relatively more factors that are time-invariant, compared to a longer timeframe. Some time-invariant factors, for example, are culture and geographical size. Furthermore, this method accounts for general characteristics that vary over time, provided that they do not vary between countries. An example may be the entrance to the WTO in 1995, for Northern and Western Europe. So, one does not need to control for these variables, since they are eliminated when taking differences over time and between countries. This in turn means that this method can only estimate variables that vary over time. Variables that change over time, are correlated with FDI outflows and influence employment as well, should therefore be included in the regression model, otherwise the estimated coefficient of the treatment variable could be biased. Furthermore, by dividing most of the variables by GDP, one can control for differences in economic size among countries. Total employment

[1] The average of all the governance indicators is calculated by adding political stability, rule of law, regulatory quality, control of corruption, government effectiveness and voice & accountability together and thereafter, dividing the total sum by 6.

and employment per sector are also divided by total population, in order to control for differences in country size with respect to the number of residents.

One thing that should be noted, is that including lags with respect to some of the independent variables (in this case GDP per capita and medium- & high technology exports) could be tricky. Therefore, in all of the main hypotheses, one main regression is added with the one-year-lagged variables, and one is added without, in order to see if including these variables is problematic and to test whether the results are robust. This will be elaborated on in more detail in section 5.

## 4.2. Hypotheses

### 4.2.1. Hypothesis 1

For the first hypothesis, the main effect of outward FDI on total employment in NW and SE Europe will be tested. Therefore, the following fixed effects regression model is estimated:

$$Employment_{it} = \alpha_i + \rho * FDIoutflows_{it} + \beta * HDI_{it} + \delta * TOI_{it} + \partial * R\&D + \varphi * Governance + \mu * GDPpercapita_{i(t-1)} + \gamma t + \varepsilon_{it} \quad \textbf{(1)}$$

$$Employment_{it} = \alpha_i + \rho * FDIoutflows_{it} + \beta * HDI_{it} + \delta * TOI_{it} + \partial * R\&D_{it} + \varphi * Governance_{it} + \mu * GDPpercapita_{i(t-1)} + \rho * FDIoutflows_{it} * region_i + \beta * HDI_{it} * region_i + \delta * TOI_{it} * region_i + \partial * R\&D_{it} * region_i + \varphi * Governance_{it} * region_i + \mu * GDPpercapita_{i(t-1)} * region_i + \gamma t + \varepsilon_{it} \quad \textbf{(2)}$$

First, the variables and its subscripts in regression (1) are described and explained. $\alpha_i$ represents the constant and it captures all the time-invariant characteristics of country $i$. $Employment_{it}$ is measured as total employment relative to population size and $FDIoutflows_{it}$ capture the total FDI outflows per country, measured as a percentage of GDP. Furthermore, $HDI_{it}$ and $TOI_{it}$ represent respectively the Human Development Index and the Trade Openness Index. All the previously mentioned variables are measured in country $i$ in period $t$. The variable $GDPpercapita_{i(t-1)}$ is calculated by dividing total GDP by total population, in country $i$ in period $t-1$. Lastly, $Governance_{it}$ and $R\&D_{it}$ are included in the model. They represent respectively the average of all the governance indicators and total R&D expenditures as a share of GDP, in country $i$ in period $t$. $\gamma t$ are included as time dummies in the regression. These time dummies as measured per year, over the period 2002-2012. The effect in regression (1) is measured for Europe as a whole, without making a distinction between NW and SE Europe. In regression (2), the effect is measured separately for NW Europe and SE Europe, to see if there are any differences between these two areas. This is done so by including an interaction term

between every independent variable described above and the dummy variable $region_i$ (measured for each country $i$), in which the value 1 denotes South-eastern Europe and 0 denotes North-western Europe. $\varepsilon_{it}$ represents the error term in both models.

### 4.2.2. Hypothesis 2

In order to test the second hypothesis, employment in the manufacturing sector (relative to population size) is regressed on total FDI outflows in the manufacturing sector. Regression (3) is measured over Europe, before splitting it up again into NW and SE Europe in equation (4). This is executed in the same way as before, by including an interaction term between $region_i$ and the other independent variables. The variables $HDI_{it}$, $TOI_{it}$ and $GDPpercapita_{i(t-1)}$, $Governance_{it}$ and $R\&D_{it}$ in equation (3) and (4) are the same as in equation (1) and (2). $\alpha_i$ and $\gamma t$ represent again respectively the constant term of country $i$ and time (or year-) dummies. The other variables will be explained briefly. $Employment\ manufacturing_{it}$ represents total employment in the manufacturing sector, as a percentage of total population, in country $i$ in period $t$. $FDImanufacturing_{it}$ capture total FDI outflows in the manufacturing sector as a percentage of GDP, from country $i$ in period $t$. Lastly, $Medhightechexports_{i(t-1)}$ represent total medium- and high technology exports as a percentage of GDP, in country $i$ in period $t-1$. $\varepsilon_{it}$ again denotes the error term in both equations.

$$Employment\ manufacturing_{it} = \alpha_i + \rho * FDImanufacturing_{it} + \beta * HDI_{it} + \delta * TOI_{it} + \theta * medhightechexports_{i(t-1)} + \partial * R\&D_{it} + \varphi * Governance_{it} + \mu * GDPpercapita_{i(t-1)} + \gamma t + \varepsilon_{it} \quad \textbf{(3)}$$

$$Employment\ manufacturing_{it} = \alpha_i + \rho * FDImanufacturing_{it} + \beta * HDI_{it} + \delta * TOI_{it} + \theta * medhightechexports_{i(t-1)} + \partial * R\&D_{it} + \varphi * Governance_{it} + \mu * GDPpercapita_{i(t-1)} + \rho * FDImanufacturing_{it} * region_i + \beta * HDI_{it} * region_i + \delta * TOI_{it} * region_i + \theta * medhightechexports_{i(t-1)} * region_i + \partial * R\&D_{it} * region_i + \varphi * Governance_{it} * region_i + \mu * GDPpercapita_{i(t-1)} * region_i + \gamma t + \varepsilon_{it} \quad \textbf{(4)}$$

### 4.2.3. Hypothesis 3

The last two regressions will test whether FDI outflows in the service sector affect the level of employment within this sector, and if so in which direction it does. In order test hypothesis 3, equation (5) is estimated, with $HDI_{it}$, $TOI_{it}$ and $GDPpercapita_{i(t-1)}$, $Governance_{it}$ and $R\&D_{it}$ being the same variables as before. $FDIservices_{it}$ represents total FDI outflows in the service sector as a percentage of GDP, in country $i$ in period $t$. Equation (5) measures the effect over all the European countries that are

included in this sample, while equation (6) measures the effect separately for NW Europe and SE Europe, in the same way as mentioned before. The error term is again denoted as $\varepsilon_{it}$ in both regression equations.

$$Employment\ services_{it} = \alpha_i + \rho * FDIservices_{it} + \beta * HDI_{it} + \delta * TOI_{it} + \partial * R\&D_{it} + \varphi * Governance_{it} + \mu * GDPpercapita_{i(t-1)} + \gamma t + \varepsilon_{it} \quad \textbf{(5)}$$

$$Employment\ services_{it} = \alpha_i + \rho * FDIservices_{it} + \beta * HDI_{it} + \delta * TOI_{it} + \partial * R\&D_{it} + \varphi * Governance_{it} + \mu * GDPpercapita_{i(t-1)} + \rho * FDIservices_{it} * region_i + \beta * HDI_{it} * region_i + \delta * TOI_{it} * region_i + \partial * R\&D_{it} * region_i + \varphi * Governance_{it} * region_i + \mu * GDPpercapita_{i(t-1)} * region_i + \gamma t + \varepsilon_{it} \quad \textbf{(6)}$$

# 5. Results

In this section, the main results of the fixed effects analysis will be presented and interpreted. First, the effect of outward FDI on total employment will be discussed. Secondly, we will discuss the effect of outflowing investments on manufacturing employment and lastly, the results of outflowing investments on employment in the service sector will be presented.

## 5.1. Total employment

In order to test the first hypothesis, total employment was regressed on total outward FDI, including the earlier mentioned control variables. The results are depicted in Table 5.1. Model 3 and Model 5 in Table 5.1 represent the two main equations described in section 4.2.1. Furthermore, Model 1-3 includes country- and time fixed effects (but no interaction term) and represent the results of FDI outflows on employment, measured over total Europe. Model 4 and 5 include an interaction term between the independent variables and the dummy variable region. Both country- and time fixed effects are included as well. The main difference between Model 4 and 5 is that the former does not include the potential problematic variable (the one-year-lagged value of GDP per capita). This is done so in order to test whether the results are robust across the two models.

As can be seen in Model 3, when measuring the effect of total FDI outflows on employment, no significant result is obtained. When making a distinction between NW and SE Europe, the results stay the same, as can be seen in Model 5. The coefficients are negative, yet insignificant at the 10% level. If the coefficient of NW Europe in Model 5 would have been significant, it could have been interpreted in the following way: when total FDI outflows increase by 1 percentage point of GDP, total employment (relative to population) would decrease by -0.003, ceteris paribus. However, as noted, the coefficient is insignificant, meaning that it cannot be interpreted properly. To give an idea about its magnitude, it will

be calculated in total number of persons. In Table 8.1, the summary statistics are displayed. The average population size of all the countries combined is also displayed in Table 8.1, for both NW Europe and SE Europe. Since we look at the employment-to-population ratio in percentages, the coefficient of -0.003 is thus equal to a decrease of around 563 people[2] in NW Europe. In SE Europe, this decrease is larger, as can be seen in Model 5. The coefficient of -0.023 in SE Europe would then be equal to a decrease of around 4872 persons[3] more than in NW Europe. However, this coefficient too is insignificant, meaning this result can also not be interpreted correctly.

One thing that should be noted as well, is that the results stay robust across Model 4 and Model 5. Model 4 did not include the potentially problematic variable (the one-year-lagged value of GDP per capita) and as can be drawn from the results, the coefficient of the main variable of interest remains insignificant in both models.

**Table 5.1**

Regression results of the effect of total outward FDI (as a percentage of GDP) on the employment to population ratio.

| | **Employment** | | | | |
|---|---|---|---|---|---|
| **Variables** | (1) | (2) | (3) | (4) | (5) |
| **FDIoutflows** | -0.002 | -0.004 | -0.008 | -0.006 | -0.003 |
| | (0.012) | (0.009) | (0.007) | (0.010) | (0.009) |
| **HDI** | | 107.188*** | 105.240*** | 110.464** | 133.671*** |
| | | (33.988) | (33.309) | (44.150) | (38.358) |
| **TOI** | | -0.021 | -0.026 | -0.028 | -0.040 |
| | | (0.027) | (0.023) | (0.033) | (0.027) |
| **R&D** | | | -0.910 | -1.669 | -1.528 |
| | | | (0.742) | (1.568) | (1.183) |
| **Governance** | | | 8.571*** | 8.878** | 5.480* |
| | | | (2.258) | (3.157) | (2.809) |
| **GDPpercap(t-1)** | | | 0.00006* | | 0.00007** |
| | | | (0.00003) | | (0.00003) |
| **Region*FDIoutflows** | | | | -0.007 | -0.023 |
| | | | | (0.024) | (0.021) |
| **Region*HDI** | | | | -30.156 | -119.819** |
| | | | | (38.093) | (54.259) |
| **Region*TOI** | | | | 0.024 | 0.070* |
| | | | | (0.033) | (0.037) |
| **Region*R&D** | | | | 0.877 | 0.255 |
| | | | | (1.891) | (1.458) |

[2] All the variables used can be found in Table 8.1 in the Appendix: (-0.003/100)*mean population NW Europe

[3] All the variables used can be found in Table 8.1 in the Appendix: (-0.023/100)*mean population SE Europe

| | | | | | |
|---|---|---|---|---|---|
| **Region*Governance** | | | | -0.471 | 5.494 |
| | | | | (4.365) | (3.909) |
| **Region*GDPpercap(t-1)** | | | | | 0.00026** |
| | | | | | (0.0001) |
| **Country fixed effects** | Yes | Yes | Yes | Yes | Yes |
| **Time fixed effects** | Yes | Yes | Yes | Yes | Yes |
| **Constant** | 55.045*** | -34.610 | -44.861 | -37.577 | -30.068* |
| | (0.321) | (27.781) | (26.226) | (28.777) | (25.913) |
| **Number of observations** | 264 | 264 | 230 | 250 | 230 |
| **Within R-squared** | 0.2188 | 0.3347 | 0.5259 | 0.4778 | 0.5696 |

p-value***<0.01, p-value**<0.05, p-value*<0.10

## 5.2. Employment in manufacturing

In order to test the second hypothesis, the effect of total outward FDI in the manufacturing sector on manufacturing employment was measured. Model 3 and 5 in Table 5.2 represent the two main equations described in section 4.2.2. Again, Model 1-3 include country- and time fixed effects (but no interaction term) and display the results of FDI outflows on employment in the manufacturing sector in total Europe. Model 4 and 5 include an interaction term between the independent variables and the dummy variable region. Both country- and time fixed effects are included as well. The main difference between Model 4 and 5 is that the former does not include the potential problematic variables (the one-year-lagged value of GDP per capita and total medium- & high tech exports), as discussed before. This is again executed in this manner in order to test whether the results are robust across the two models.

As can be seen in Model 3, no significant effect of FDI outflows in the manufacturing sector on manufacturing employment was found in total Europe. However, as can be seen in Model 5, the effect differs between NW and SE Europe. In NW European countries, the coefficient is still insignificant, meaning that FDI outflows do not generate an effect on employment in the manufacturing sector over the period 2002-2012, all other things equal. To again give some idea about the magnitude of the sign, the coefficient is calculated in total number of persons. The coefficient of 0.007 in NW Europe would then be equal to an increase of around 1,313 persons[4] (if FDI outflows in the manufacturing sector would increase by 1 percentage point of GDP). The insignificant result in NW Europe is in line with Lipsey & Weis (1981), since they also found no significant net detrimental effect of direct investment on home employment. Another explanation could be that most of the advanced economies, especially North-western European countries and the United States, already started their deindustrialization process in the early 1970s, in which manufacturing employment declined sharply until the mid 1990s. Trends of this phenomenon in France, Germany, the Netherlands and the United Kingdom are presented in respectively Figure 8.7, 8.8, 8.9 and 8.10 in the Appendix. This could certify the insignificant effect

[4] All the variables used can be found in Table 8.1 in the Appendix: (0.007/100)*mean population NW Europe

over the period 2002-2012 for NW Europe, since these countries already experienced most of their decline in the previous century. Data on manufacturing employment is extracted from the Federal Reserve Economic Data (FRED).

However, this phenomenon does not explain the large positive result obtained for SE European countries. When total outward FDI in the manufacturing sector increases by 1 percentage point of GDP, employment in the SE European manufacturing sector increases by 0.897 more than in NW Europe, ceteris paribus. When the magnitude of the sign is calculated in total number of persons, this would indicate an increase in SE European employment of 190,010 persons[5] more than in NW Europe, as total FDI outflows in the manufacturing sector increase by 1 percentage point of GDP, all other things equal. The conditional convergence theory, as described in Section 2.3, could provide a suitable explanation for the relatively large coefficient obtained for SE Europe. As countries like the Czech Republic, the Slovak Republic and Hungary have experienced rapid economic liberalization in the last years due to, for example, their later entry in the EU, their growth levels could increase more rapidly than those of countries with already high growth levels, like NW European countries. In this framework, SE European countries could also experience increasing returns to capital. This could in turn induce more positive spillover effects from outward direct investment, leading to higher employment in SE European parent enterprises within the manufacturing sector. On top of this, the coefficient of the one-year-lagged value of GDP per capita for SE Europe is positive, significant and larger than the coefficient for NW European countries, as shown in Model 5. Thus, this variable can also be considered as an indicator for increased growth potential in SE Europe.

One thing that should be mentioned, is that the result for NW Europe differs when comparing the main Model 5 to Model 4. Model 4 excludes the one-year-lagged variables GDP per capita and total medium- & high tech exports, in order to check for robustness of the results. As can be drawn from Model 4, the coefficient of NW Europe is now significant at the 10% level, when excluding these particular variables. Thus, it is now more uncertain whether the result obtained in Model 5 represents the actual unbiased beta. The coefficient of 0.010 can be interpreted as follows: if FDI in the manufacturing sector increases by 1 percentage point of GDP, manufacturing employment relative to population size would increase by 0.010, all other things equal. This result is in line with Blomström et al. (1997), as they found a small positive effect of outward FDI in the manufacturing sector on Swedish parent employment. In their study, they found that an increase in *affiliate sales* of 1 million US dollars would lead to an increase of approximately 1 employee in Swedish parent firms in 1990, ceteris paribus. However, this study does not have data on foreign affiliate net sales, so to compare the coefficients directly, would be somewhat difficult. However, we can rewrite our interpretation more or less, making it a bit more comparable and intuitive: if *FDI outflows* in the manufacturing sector would increase by 1 million US dollars, this would

[5] All the variables used can be found in Table 8.1 in the Appendix: (0.897/100)*mean population SE Europe

lead to an average increase of 0.240 persons[6] in the North-western European parent firms, ceteris paribus. However, Blomström et al. (1997) mention that their effect is lower as the years pass, meaning that the result found in this study could be more similar to theirs, if their research would have been focused on a more recent timeframe.

Furthermore, the result obtained for SE Europe is more or less the same in Model 4 and 5: the coefficient has increased from 0.897 to 0.993 in Model 4 compared to Model 5, is less significant and can be interpreted in the following way: when FDI in the manufacturing sector increases by 1 percentage point of GDP, manufacturing employment relative to population size increases by 0.993 more than in NW Europe. This would coincide with an increase of 210,345 people[7]. Thus, the results obtained for SE Europe stay more or less robust, with and without the potentially problematic variables.

**Table 5.2**

Regression results of the effect of total outward FDI (as a percentage of GDP) in the manufacturing sector on the employment to population ratio in the manufacturing sector.

| | | | **Empl. Manuf.** | | |
|---|---|---|---|---|---|
| **Variables** | (1) | (2) | (3) | (4) | (5) |
| **FDImanufacturing** | -0.001 | 0.0004 | 0.005 | 0.010* | 0.007 |
| | (0.002) | (0.003) | (0.004) | (0.006) | (0.004) |
| **HDI** | | 53.962** | 37.317* | 54.245 | 53.539* |
| | | (24.195) | (20.937) | (33.088) | (26.099) |
| **TOI** | | -0.035 | -0.035 | -0.038 | -0.050* |
| | | (0.027) | (0.025) | (0.027) | (0.027) |
| **Techexports(t-1)** | | 0.091** | 0.111** | | 0.141*** |
| | | (0.042) | (0.052) | | (0.046) |
| **R&D** | | | -0.435 | -0.359 | -0.371 |
| | | | (0.506) | (0.809) | (0.677) |
| **Governance** | | | 4.602*** | 3.644** | 2.930* |
| | | | (1.527) | (1.627) | (1.692) |
| **GDPpercap(t-1)** | | | -0.00002 | | 0.00002 |
| | | | (0.00002) | | (0.00002) |
| **Region*FDImanufacturing** | | | | 0.993* | 0.897** |
| | | | | (0.484) | (0.431) |
| **Region*HDI** | | | | -6.286 | -67.149 |

[6] All the variables used can be found in Table 8.1 in the Appendix:

(1/mean GDP NW Europe)*obtained coefficient = 0.000000013

0.000000013*mean population NW Europe = 0.240

[7] All the variables used can be found in Table 8.1 in the Appendix:

(0.993/100)*mean population SE Europe

| | | | | | |
|---|---|---|---|---|---|
| | | | | (25.229) | (39.216) |
| **Region*TOI** | | | | 0.044 | 0.050* |
| | | | | (0.028) | (0.026) |
| **Region*Techexports(t-1)** | | | | | -0.047 |
| | | | | | (0.064) |
| **Region*R&D** | | | | -0.412 | -0.627 |
| | | | | (1.080) | (0.847) |
| **Region*Governance** | | | | 1.737 | 3.093 |
| | | | | (2.435) | (2.797) |
| **Region*GDPpercap(t-1)** | | | | | 0.00012** |
| | | | | | (0.00005) |
| **Country fixed effects** | Yes | Yes | Yes | Yes | Yes |
| **Time fixed effects** | Yes | Yes | Yes | Yes | Yes |
| **Constant** | 15.173*** | -29.727 | -21.558 | -31.761 | -13.664 |
| | (0.268) | (19.870) | (16.487) | (21.891) | (18.533) |
| **Number of observations** | 252 | 230 | 220 | 239 | 220 |
| **Within R-squared** | 0.4621 | 0.5940 | 0.6698 | 0.6543 | 0.7216 |

p-value***<0.01, p-value**<0.05, p-value*<0.1

## 5.3. Employment in services

For testing the last hypothesis, the employment to population ratio in the service sector was regressed on total outward FDI within this sector. The results are depicted in Table 5.3. Model 3 and Model 5 represent respectively the two main equations described in section 4.2.3. Furthermore, country- and time fixed effects are included in Model 1-3 and the results of FDI outflows on employment in the service sector are displayed, measured over total Europe. Model 4 and 5 include an interaction term between the independent variables and the dummy variable region. Both country- and time fixed effects are included as well. The main difference between Model 4 and 5 is again that the former does not include the potential problematic variable (the one-year-lagged value of GDP per capita). These models will then be compared to one another to see if the results are robust across the two models.

As can be seen in Model 3, the coefficient of total outward FDI in the service sector is positive and significant at the 1% level. However, the estimated coefficient is very small. One explanation was provided by Kokko (2006), as he stated that services needed to be performed close to the customer. Therefore, it could be argued that outflowing FDI would not replace domestic service exports and hence, it would have a small effect on employment. The result obtained is also in line with the study of Lipsey (1995), since he found a positive effect of outward FDI on parent employment in the non-manufacturing sector. However, these studies do not explain the large difference between NW and SE Europe. In NW European countries, as showed in Model 5, the coefficient of FDI in the service sector is positive and statistically significant at the 1% level, yet the effect is again small. An increase of 0.006 would coincide

with an average increase of 1,125 people[8], when FDI outflows in the service sector increase by 1 percentage point of GDP, ceteris paribus. As noted before, Lipsey (1995) found an increase in parent employment of 1.2 employees, if *foreign affiliate production* would increase by 1 million US dollars, all other things equal. Again, this study does not have data on foreign affiliate production, so to compare our coefficient with the result obtained by Lipsey (1995) would be more or less difficult. However, as done before, our result can be rewritten, making it more interpretable: if *FDI outflows* in the service sector would increase by 1 million US dollars, this would lead to an average increase of 0.144 persons[9] in the North-western European parent enterprises, ceteris paribus. One explanation for the smaller result, could again be due to the fact that most NW European countries experienced most of their deindustrialization process earlier on, in which a shift from the manufacturing to the service sector occurred.

When looking at SE Europe, the coefficient is 0.175 larger than in NW Europe, and significant at the 10% level. This coefficient coincides with an increase of 37,070 persons[10] in total. This difference could once more be explained by the (conditional) convergence theory, as noted in Section 5.2. Since SE European countries can experience increased growth potential compared to NW European countries, they can benefit more from increasing returns on capital. Thus, it can be argued that they also benefit from increasing returns on outward direct investment in the service sector, which eventually leads to higher growth and employment.

In addition, the result obtained for NW Europe is in line with the expected shift discussed by Alderson & Nielsen (2002). Outward direct investment namely triggered the process of deindustrialization in rich countries, leading to a shift from manufacturing employment to service employment (Bluestone & Harrison, 1982, cited in Alderson & Nielsen, 2002). Thus, it can be argued that the positive result obtained in the service sector provides some confirmation on this phenomenon.

Lastly, when comparing Model 4 to Model 5, we can see that the coefficients of the variable of interest change modestly. Model 4 excludes the one-year-lagged value of GDP per capita, to see whether the results would stay robust across the two models. As can be seen in Model 5, the coefficient of NW Europe has decreased from 0.008 to 0.006, while the coefficient of SE European countries increased from 0.171 to 0.175. Both coefficients are still significant. Thus, it can be confirmed that the results stay roughly the same, with and without the potentially problematic variable.

[8] (0.006/100)*mean population NW Europe

[9] All the variables used can be found in Table 8.1 in the Appendix:

(1/mean GDP NW Europe)*obtained coefficient = 0.000000008

0.000000008*mean population NW Europe = 0.144

[10] (0.006/100)*mean population SE Europe

**Table 5.3**

Regression results of the effect of total outward FDI in the service sector (as a percentage of GDP) on the employment to population ratio within the service sector.

| | | | Empl. Services | | |
|---|---|---|---|---|---|
| **Variables** | (1) | (2) | (3) | (4) | (5) |
| **FDIservices** | 0.009*** | 0.009*** | 0.006*** | 0.008*** | 0.006*** |
| | (0.001) | (0.0008) | (0.001) | (0.001) | (0.001) |
| **HDI** | | 51.915*** | 45.672*** | 46.308*** | 54.059*** |
| | | (12.356) | (8.638) | (12.425) | (10.077) |
| **TOI** | | -0.030*** | -0.023*** | -0.025** | -0.022** |
| | | (0.008) | (0.007) | (0.010) | (0.011) |
| **R&D** | | | 0.057 | -0.246 | -0.305 |
| | | | (0.487) | (0.641) | (0.579) |
| **Governance** | | | 4.091** | 2.674 | 2.197 |
| | | | (1.582) | (1.952) | (1.986) |
| **GDPpercap(t-1)** | | | 0.00003 | | 0.00004* |
| | | | (0.00002) | | (0.00002) |
| **Region*FDIservices** | | | | 0.172* | 0.175* |
| | | | | (0.085) | (0.087) |
| **Region*HDI** | | | | 2.913 | -26.231 |
| | | | | (21.278) | (20.889) |
| **Region*TOI** | | | | -0.016 | -0.005 |
| | | | | (0.019) | (0.015) |
| **Region*R&D** | | | | 1.559* | 1.590* |
| | | | | (-0.899) | (0.771) |
| **Region*Governance** | | | | 1.928 | 3.486 |
| | | | | (2.584) | (2.516) |
| **Region*GDPpercap(t-1)** | | | | | 0.00008 |
| | | | | | (0.00007) |
| **Country fixed effects** | Yes | Yes | Yes | Yes | Yes |
| **Time fixed effects** | Yes | Yes | Yes | Yes | Yes |
| **Constant** | 36.446*** | -5.065 | -7.234 | -6.215 | -5.231 |
| | (0.302) | (10.757) | (7.761) | (8.371) | (8.142) |
| **Number of observations** | 235 | 235 | 212 | 224 | 212 |
| **Within R-squared** | 0.4912 | 0.5710 | 0.6500 | 0.6481 | 0.6809 |

p-value***<0.01, p-value**<0.05, p-value*<0.10

## 5.4. Reverse causality

One problem that may arise in the regressions, is the problem of reverse causality, in which the dependent variable affects the main variable of interest. If wealthier countries are more likely to invest

abroad, reverse causality can occur, since these rich countries already experience higher levels of employment in the first place. In order to account for this problem, lags of the independent variables are included in the main regression models, since it is believed that current values of employment do not affect past levels of FDI. The results are summarized in Table 8.3, 8.4 and 8.5 in the Appendix. All the models include one-year lagged values of the independent variable, except for GDP per capita and medium- & high technology exports. These variables are included with two lags, since they were already added with one lag in the previous models.

As can be seen in Table 8.3 in the Appendix, the regression coefficients for both NW Europe and SE Europe are still negative, yet the result for SE Europe is now significant at the 10% level. The coefficient for SE Europe decreased from -0.023 to -0.037. This means that, ceteris paribus, the employment to population ratio in SE European countries decreases by 0.037 more than in NW Europe, as foreign direct investment outflows increases by 1 percentage point of GDP. This result could be due to the fact that SE European countries invest a smaller share of their budget in Research & Development. According to the data, NW European countries spend on average 2.17% of GDP on R&D over the period 2002-2012, while SE European countries spend only 1.04% on average. As stated before by Cohen & Levinthal (1989), parent firms can learn faster and benefit more from potential FDI spillovers, if these firms already invested more in innovation before. However, this can also work the opposite way. When firms have invested smaller amounts in R&D, the learning curve is steeper and hence, parent firms can benefit less from potential international spillover effects.

Second, the regression of the lagged independent variables on employment in the manufacturing sector are somewhat similar to the results obtained in Table 5.2. The coefficient of NW Europe decreased from 0.007 to -0.004, but is still insignificant, as can be seen in Table 8.4 in the Appendix. This means that the one-year lagged value of FDI in the manufacturing sector does not affect the current value of manufacturing employment. Although, the coefficient of SE European countries has decreased from 0.897 to 0.804, when comparing it to the value in Model 4 of Table 5.2, and is now significant at the 1% level. This result can be interpreted as follows: if direct investment outflows in the manufacturing sector increase by 1 percentage point of GDP, manufacturing employment in SE Europe increases by 0.804 more than in NW Europe, all other things equal.

Lastly, when Model 4 in Table 5.3 is reproduced with the one-year-lagged independent variables, the results differ as well. As can be shown in Table 8.5 in the Appendix, the coefficient of service sector FDI in NW Europe has decreased by 0.002 compared to the initial model, and is now only significant at the 10% level. This result indicates that service sector employment increases by 0.004, when foreign direct investment outflows within this sector increase by 1 percentage point of GDP, ceteris paribus. The variable of interest in SE Europe has also decreased, from 0.175 to 0.130, but is now insignificant at the 10% level.

One thing that should be noted as well, is that the differences in the size of the obtained coefficients compared to those of the main models, could also be due to the fact that it takes *time* for FDI to have a certain impact on employment: it could maybe take a few months, one year or even a few years before we see an effect. Ergo, if we take one-year-lagged values of FDI and measure its effect on employment, the effect could be bigger or smaller than the effect of FDI on employment if it would be measured within the same year.

Another important comment to make, however, is that the number of observations decreased as the lagged variables were added to the regressions. The number of observations are important when it comes to the significance of the coefficients. If the number of observations is lower, for a given t-statistic, the P-value is will increase, hence, this would lead to a decrease in the significance of the obtained coefficients. Thus, it is hard to conclude whether the lagged coefficients obtained for the service sector, for example, would be the same as the coefficients obtained in the previous model, since the number of observations is lower.

# 6. Conclusion & Discussion

This section will provide a critical assessment of the data and method that were used in order to construct the main results. Thereafter, the overall conclusion of this thesis is provided to the reader.

## 6.1. Limitations

First, the limitations and characteristics of the sample will be discussed. The selected sample in this study consists of 24 European countries, measured over the period 2002-2012. This relatively short time period was used in this thesis, since FDI flows per sector were only available for the given timeframe. However, since eleven years can be considered a short period, the results obtained might not be valid for a longer period of time. Furthermore, only 24 European countries were included, since no data was available for other countries in Europe. For these reasons, the total sample contained only a small number of observations. However, as noted before, the number of observations are important when looking at the significance of the coefficients. If more countries could have been added and a larger timeframe could have been used, for a given t-statistic, the P-value obtained would have been lower. Hence, a higher number of observations in the sample would make the obtained coefficients more significant.

In ensuring internal validity, the individual fixed effects method encounters two major challenges, namely omitted variable bias and reverse causality. Reverse causality occurs when Y affects X instead of the other way around. If you run a regression of Y on X in the presence of reverse causality, the effect of Y on X is then captured by the coefficient of X, meaning that the estimated coefficient is biased. This problem has been taken care of by including lagged values of the control variables and the main variable of interest, since it is expected that current values of Y do not affect past values of X. However, the

problem of omitted variable bias still remains. Omitted variable bias occurs when certain factors, that are correlated with both X and Y, are not included in the model. For example, if the level of trade openness was not incorporated in the first regression model, the coefficient of FDI outflows would be upward biased. To elaborate on this, the estimated coefficient of FDI outflows then captures part of the effect of trade on employment, since trade is positively correlated with both X and Y. It is also important to note that only relevant variables should be included in the model. Variables that are correlated with either X or Y should be left out, just as mechanisms or colliders. Colliders are variables that are affected by both X and Y. Mechanisms are variables that are affected by X and then, in turn, they affect Y. For example, data on exports (per sector) were not included into the regression models: exports could be enhanced or reduced by FDI, rather than the other way around, as discussed in section 2.2. Now, the individual fixed effects method can account for differences *within* individuals – in this case countries – that stay constant over time and it can account for time-varying shocks, but only if these shocks do not vary *between* countries. However, the fixed effects method cannot account for shocks that vary over time and vary between countries. All the relevant time-varying control variables that differ between countries should be covered, in order for the issue of omitted variable bias to be resolved. Even though this research has accounted for some of the most important omitted variables, the assumption that we have controlled for all of the relevant confounders, is a very hard one to make.

## 6.2. Concluding remarks

In this thesis, I sought to answer the question the following research question:

*What is the effect of FDI outflows on source countries' labour market outcomes in Europe?*

Three hypotheses were formulated in order to answer this question, in which the effect between NW and SE Europe was separated, to see if there were any differences. Furthermore, a distinction was made between effects on total employment, manufacturing employment and service sector employment, since the aggregated employment effect is not able to not capture potential mobility between the manufacturing and service sector, as noted before.

In the first hypothesis, no significant detrimental net effect of outward FDI on total employment was found, also when taking differences between SE and NW Europe into account. However, the results changed when distinguishing between the service sector and manufacturing sector. In NW Europe, I found no significant effect of outward manufacturing FDI on employment. This was in line with the study of Lipsey & Weis (1981), as they found no significant effect on parent employment in the manufacturing sector. Another explanation was provided by Braconier & Ekholm (2000), as they found that flows to developing countries did not affect home-country exports in Sweden. If this would also be the case for other NW European economies, it could be argued that home employment would be unaffected as well. In SE Europe, the obtained coefficient was larger and highly significant, indicating a positive effect of FDI on employment within the manufacturing sector. Several explanations were

provided, like conditional convergence, increasing returns to capital and rapid trade liberalization that occurred later on for countries like Slovenia, the Czech Republic and Hungary. In the service sector, a small positive effect in NW Europe was found and a larger positive effect in SE Europe, although the latter was less significant. These outcomes are supported by several studies. Kokko (2006) expected a small positive effect of FDI on service sector employment, since services needed to be performed close to the customer. Furthermore, Lipsey (1995) found a positive effect of outward direct investment on parent employment in the US nonmanufacturing sector, which also includes the service sector.

The results obtained for NW Europe could be relevant for policy, in the sense that most countries there already experienced most of their trade liberalization and deindustrialization, meaning that promoting outward FDI would not lead to a detrimental effect on domestic employment in the manufacturing sector. Thus, if restrictive measures on outward FDI within this sector were implemented, they would not have valid reasons to be sustained. Furthermore, we saw a positive effect in the NW European service sector, meaning that it would be beneficial for these countries to have liberal FDI policies. In South-eastern European countries, it would be wise for governments to encourage firms to engage in outward direct investment, as this would lead to more employment growth at home within both the service sector and manufacturing sector: firms that engage in FDI can, for example, benefit from foreign technology and experience increasing returns to capital. This encouragement could be carried out through subsidizing firms to invest abroad and invest in R&D, as we saw that firms more easily experience spillover effects – also from FDI - if they have already invested a lot in R&D before (Cohen & Levinthal, 1989). Agreements to avoid double taxation and investment guarantees could also provide firms with incentives to invest abroad, as noted before (Tan et al., 2016).

Again, I tried to explain the relative large effect in the service sector for SE Europe, through conditional convergence, increasing returns to capital and trade liberalization. However, most relevant studies were done on individual rich economies, like Japan, the US and Sweden. Thus, it can be argued that these studies and its outcomes are not generalizable for Europe as a whole. They are to some extent relevant for North-western Europe, as these countries have more or less the same levels of trade openness and GDP per capita. However, the question remains whether these findings can be compared to South-eastern Europe, especially since the results obtained in this thesis vary substantially between the two areas. Countries like the Czech Republic, Hungary and the Slovak Republic experienced trade liberalization later on than most countries in North-western Europe, which would make it an interesting topic for future research. Furthermore, effects per country could be very different from the results obtained in this study, even though this study already divided Europe into two different areas. Thus, a further recommendation is to study the effect of outward FDI on sectoral employment per country in Europe, using an area- and time fixed effects model, as this would provide more valid estimates.

# 7. References


Alderson, A. S., & Nielsen, F. (2002). Globalization and the great U-turn: Income inequality trends in 16 OECD countries. *American Journal of Sociology*, *107*(5), 1244-1299.

Berman, E., Bound, J., & Griliches, Z. (1994). Changes in the demand for skilled labor within US manufacturing: evidence from the annual survey of manufactures. *The Quarterly Journal of Economics*, *109*(2), 367-397.

Berman, E., Bound, J., & Machin, S. (1998). Implications of skill-biased technological change: international evidence. *The quarterly journal of economics*, *113*(4), 1245-1279.

Blomström, M., Fors, G., & Lipsey, R. E. (1997). Foreign direct investment and employment: home country experience in the United States and Sweden. *The Economic Journal*, *107*(445), 1787-1797.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth?. *Journal of international Economics*, *45*(1), 115-135.

Bluestone, B., & Harrison, B. (1982). *The deindustrialization of America: Plant closings, community abandonment, and the dismantling of basic industry* (Vol. 312). New York: Basic Books.

Braconier, H., & Ekholm, K. (2000). Swedish multinationals and competition from high-and low-wage locations. *Review of International Economics*, *8*(3), 448-461.

Brainard, S. L., & Riker, D. A. (1997). Are US multinationals exporting US jobs?. *NBER working paper*, (w5958).

Caves, R. E. (1971). International corporations: The industrial economics of foreign investment. *Economica*, *38*(149), 1-27.

Caves, R. E. (1974). Economic Analysis and Multinational Enterprise. George Allen and Unwin, London.

Cohen, W. M., & Levinthal, D. A. (1989). Innovation and learning: the two faces of R & D. *The economic journal*, *99*(397), 569-596.

De Mello Jr, L. R. (1997). Foreign direct investment in developing countries and growth: A selective survey. *The journal of development studies*, *34*(1), 1-34.

Dunning, J. H. (1974). The Distinctive Nature of Multinational Enterprise. George Allen and Unwin, London.

Dunning, J. H. (1993). Multinational Enterprises and the Global Economy. Wokingham: Addison-Wesley.

Dunning, J. H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International business review*, *9*(2), 163-190.

FRED (1997). Federal Reserve Economic Data [Data file]. Retrieved from: https://fred.stlouisfed.org/

Galor, O. (1996). Convergence? Inferences from theoretical models. *The economic journal*, *106*(437), 1056-1069.

Globerman, S., Kokko, A., & Sjöholm, F. (2000). International technology diffusion: evidence from Swedish patent data. *Kyklos*, *53*(1), 17-38.

Globerman, S., & Shapiro, D. (2002). Global foreign direct investment flows: The role of governance infrastructure. *World development*, *30*(11), 1899-1919.

Hansen, H., & Rand, J. (2006). On the causal links between FDI and growth in developing countries. *World Economy*, *29*(1), 21-41.

Helpman, E. (2006). Trade, FDI, and the Organization of Firms. *Journal of economic literature*, *44*(3), 589-630.

Herger, N., & McCorriston, S. (2016). Horizontal, vertical, and conglomerate cross-border acquisitions. *IMF Economic Review*, *64*(2), 319-353.

Hymer, S.H. (1976). The International Operation of National Firms: A Study of Direct Foreign Investment. MIT Press, Cambridge, MA, United States.

Kaufmann, D., Kraay, A., & Zoido-Lobatón, P. (1999). *Aggregating governance indicators* (Vol. 2195). World Bank publications.

Kindleberger, C. P. (1969). American Business Abroad: Six Lectures on Direct Investment. London: Yale University Press.

Kokko, A. (2006). The home country effects of fdi in developed economies (225 ed.). Stockholm: European Institute of Japanese Studies.

Lipsey, R. E., & Weiss, M. Y. (1981). Foreign production and exports in manufacturing industries. *The review of Economics and Statistics*, 488-494.

Lipsey, R. E., Kravis, I. B., & Roldan, R. A. (1978). *Do multinational firms adapt factor proportions to relative factor prices?* (No. w0293). National Bureau of Economic Research.

Lipsey, R. E. (1995). *Outward Direct Investment and the US Economy* (pp. 7-42). University of Chicago Press.

Lipsey, R. E., Ramstetter, E., & Blomström, M. (2000). Outward FDI and parent exports and employment: Japan, the United States, and Sweden. *Global Economy Quarterly*, *1*(4), 285-302.

Lipsey, R. E. (2004). Home-and host-country effects of foreign direct investment. In *Challenges to globalization: Analyzing the economics* (pp. 333-382). University of Chicago Press.

Markusen, J. R., & Venables, A. J. (2000). The theory of endowment, intra-industry and multi-national trade. Journal of International Economics, 52(2), 209-234.

Moosa, I. (2002). *Foreign direct investment: theory, evidence and practice*. Springer.

Moran, T. H. (2012). Foreign direct investment and development. *The Wiley-Blackwell Encyclopedia of Globalization*.

OECD (2020). International Direct Investment Statistics [Data file]. Retrieved from: https://stats.oecd.org/index.aspx?DatasetCode=FDI_FLOW_INDUSTRY

OECDwatch. (2010). About the OECD. Retrieved from: https://www.oecdwatch.org/oecd-ncps/about-the-oecd/

Ranis, G., Stewart, F., & Ramirez, A. (2000). Economic growth and human development. *World development*, *28*(2), 197-219.

Svensson, R. (1996). Effects of overseas production on home country exports: evidence based on Swedish multinationals. *Weltwirtschaftliches Archiv*, *132*(2), 304-329.

Swedenborg, B. (1979). The multinational operations of Swedish firms: An analysis of determinants and effects. Stockholm: Industriens Utredningsinstitut.

Tan, B. W., Goh, S. K., & Wong, K. N. (2016). The effects of inward and outward FDI on domestic investment: Evidence using panel data of ASEAN–8 countries. *Journal of Business Economics and Management*, *17*(5), 717-733.

UNCTAD (1999) World Investment Reports. *United Nations Conference on Trade and Development.* New York and Geneva.

UNCTAD (2004). World Investment Report. *United Nations Conference on Trade and Development*. New York and Geneva.

UNDP (1990). About Human Development. Retrieved from: http://www.hdr.undp.org/en/humandev

UNDP (2020). Human Development Index (HDI). Retrieved from: http://hdr.undp.org/en/content/human-development-index-hdi

UNDP (2020). UNDP Human Development Index (HDI) [Data file]. Retrieved from: https://gateway.euro.who.int/en/indicators/hfa_42-0500-undp-human-development-index-hdi/

UNSD (1999). United Nations geoscheme for Europe. Retrieved from: https://unstats-un-org.eur.idm.oclc.org/unsd/methodology/m49/

Vernon, R. (1966). International trade and international investment in the product cycle. *Quarterly journal of economics*, *80*(2), 190-207.

World Bank. (2010). World Development Indicators. [Data file]. Retrieved from: https://databank-worldbank-org.eur.idm.oclc.org/source/world-development-indicators

World Bank. (2020). Worldwide Governance Indicators. Retrieved from: https://datacatalog-worldbank-org.eur.idm.oclc.org/dataset/worldwide-governance-indicators

World Bank. (2010). Worldwide Governance Indicators [Data file]. Retrieved from: https://databank.worldbank.org/source/worldwide-governance-indicators

World Bank. (2021). World Development Indicators. Retrieved from: https://datacatalog-worldbank-org.eur.idm.oclc.org/dataset/world-development-indicators

# 8. Appendix

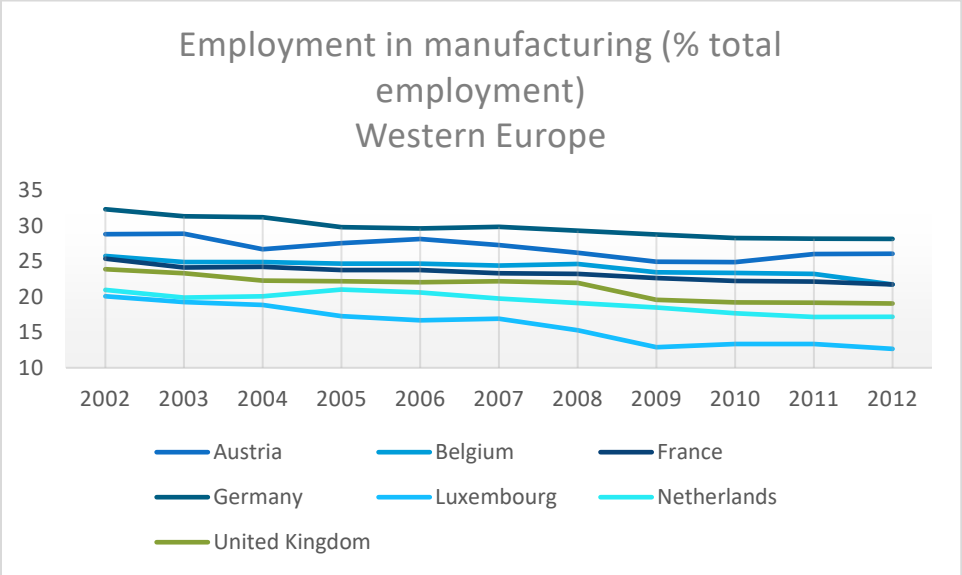


**Figure 8.1**

*Employment in the manufacturing sector of Western European countries, measured as a percentage of total employment.*

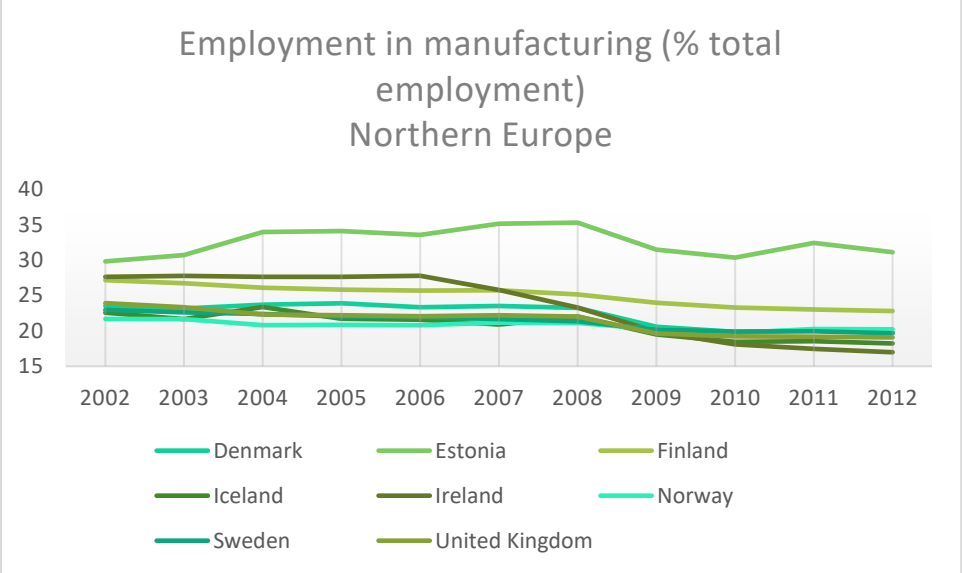


**Figure 8.2**

*Employment in the manufacturing sector of Northern European countries, measured as a percentage of total employment.*

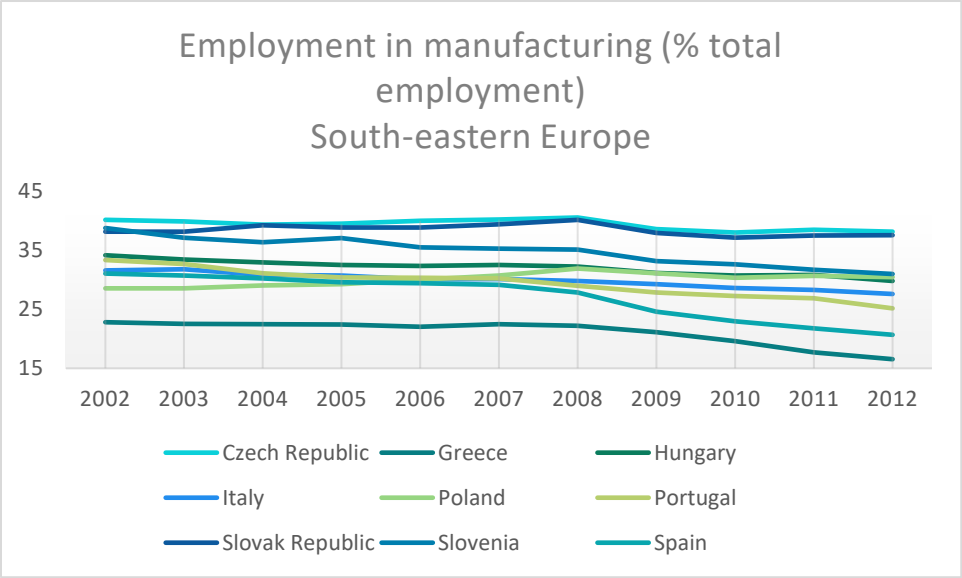


**Figure 8.3**

*Employment in the manufacturing sector of South-eastern European countries, measured as a percentage of total employment.*

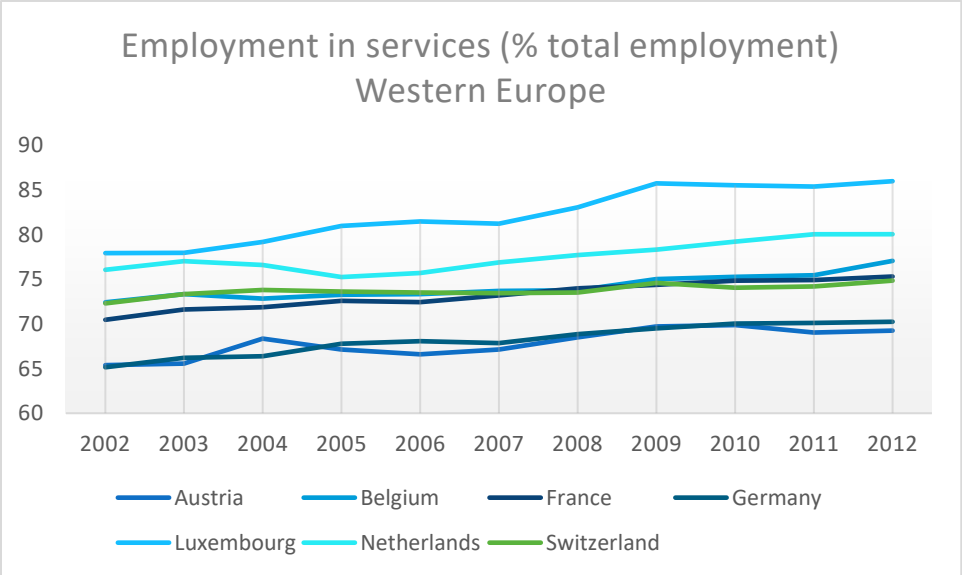


**Figure 8.4**

*Employment in the service sector of Western European countries, measured as a percentage of total employment.*

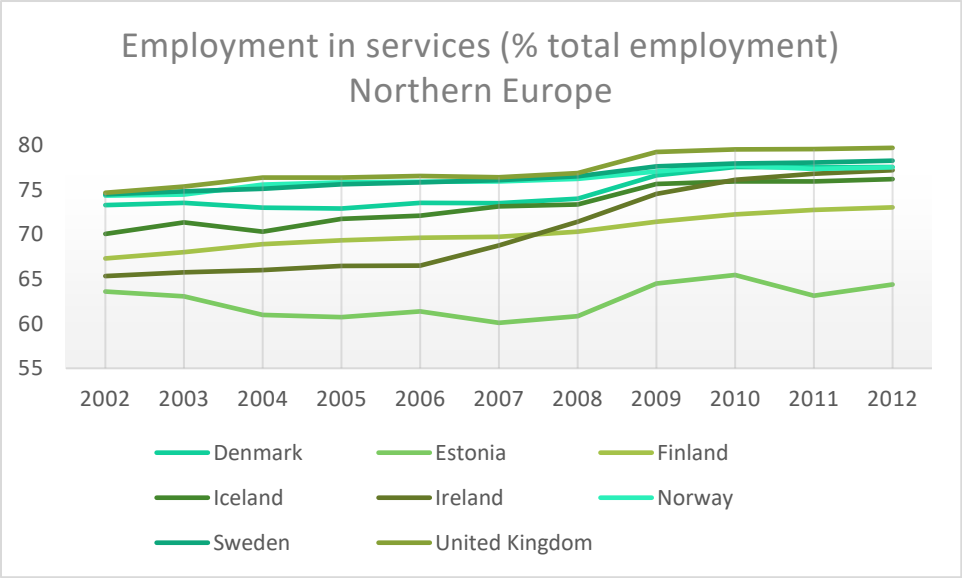


**Figure 8.5**

*Employment in the service sector of Northern European countries, measured as a percentage of total employment.*

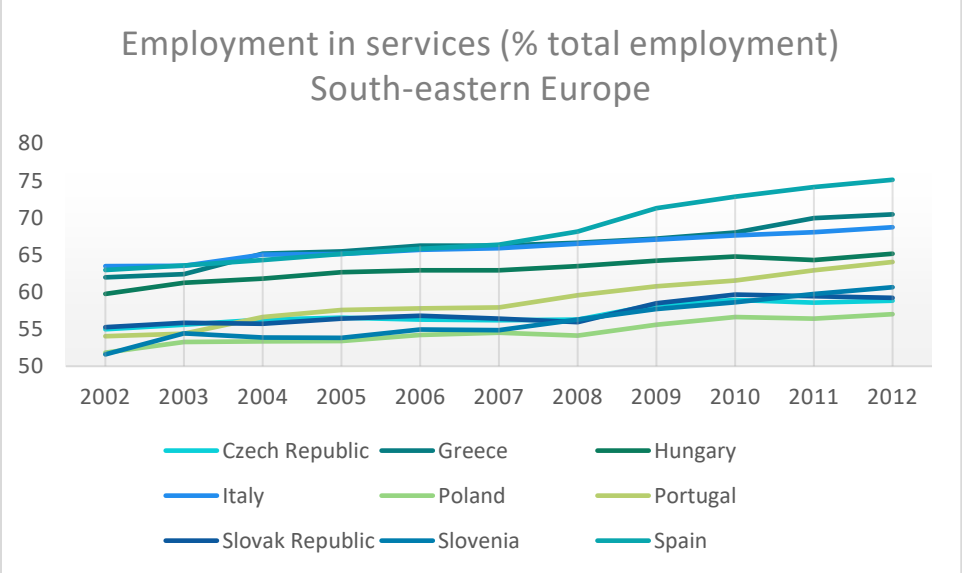


**Figure 8.6**

*Employment in the service sector of South-eastern European countries, measured as a percentage of total employment.*

**Table 8.1**

Descriptive statistics of variables used in this thesis.

| Variables | Observations | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| **Employment (relative to population)** | 264 | 55.14 | 6.72 | 39.78 | 74.99 |
| **Employment in manufacturing (relative to population)** | 264 | 14.37 | 3.22 | 6.58 | 22.66 |
| **Employment in services (relative to population)** | 264 | 38.01 | 7.51 | 23.07 | 54.88 |
| **FDI outflows (% of GDP)** | 264 | 7.52 | 14.21 | -21.77 | 140.10 |
| **FDI outflows manufacturing (% of GDP)** | 252 | 1.53 | 7.15 | -2.39 | 108.68 |
| **FDI outflows services (% of GDP)** | 235 | 16.45 | 80.00 | -39.03 | 645.77 |
| **HDI** | 264 | 0.877 | 0.040 | 0.771 | 0.944 |
| **TOI** | 264 | 104.94 | 55.79 | 45.42 | 343.56 |
| **Medium- & high technology exports (% of GDP)** | 264 | 17.20 | 11.51 | 0.874 | 48.88 |
| **GDP per capita** | 264 | 38,093 | 22,126 | 5,207 | 115,762 |
| **R&D (% of GDP)** | 250 | 1.727 | 0.829 | 0.448 | 3.749 |
| **Governance** | 264 | 1.294 | 0.423 | 0.261 | 1.970 |
| **Population (if region = 0, NW Europe)** | 165 | 18,755,327 | 25,879,477 | 287,523 | 82,534,176 |

| | | | | | |
|---|---|---|---|---|---|
| **Population (if region = 1, SE Europe)** | 99 | 21,182,778 | 19,273,864 | 1,994,530 | 59,539,717 |
| **GDP (if region = 0, NW Europe, in millions dollars)** | 165 | 780,864 | 1,005,830 | 7,372 | 3,744,410 |
| **GDP (if region = 1, SE Europe, in millions dollars)** | 99 | 501,806 | 649,487 | 23,490 | 2,398,860 |

**Table 8.2**

Correlation matrix of the variables used in this thesis.

| | EMPL | EMPL MAN | EMPL SERV | FDI | FDI MAN. | FDI SER. | HDI | TOI | TECH EXP. | GDP CAP. | R&D | GOV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EMPL | 1.0000 | | | | | | | | | | | |
| EMPL MAN. | 0.1420 | 1.0000 | | | | | | | | | | |
| EMPL SER. | 0.8281 | -0.3832 | 1.0000 | | | | | | | | | |
| FDI | 0.2086 | -0.2150 | 0.3164 | 1.0000 | | | | | | | | |
| FDI. MAN. | 0.0703 | -0.1627 | 0.1588 | 0.6858 | 1.0000 | | | | | | | |
| FDI SER. | -0.0027 | -0.3689 | 0.2131 | 0.3561 | 0.3555 | 1.0000 | | | | | | |
| HDI | 0.5421 | -0.4005 | 0.7794 | 0.1783 | 0.0858 | 0.0885 | 1.0000 | | | | | |
| TOI | 0.0166 | -0.0871 | 0.1079 | 0.4243 | 0.3252 | 0.7057 | 0.0021 | 1.0000 | | | | |
| TECH EXP. | -0.2138 | 0.4236 | -0.3293 | 0.0827 | -0.0281 | -0.0833 | -0.1950 | 0.4701 | 1.0000 | | | |
| GDP CAP. | 0.4889 | -0.5413 | 0.7796 | 0.3854 | 0.2992 | 0.5719 | 0.7512 | 0.3717 | -0.2967 | 1.0000 | | |
| R&D | 0.4615 | -0.1859 | 0.5880 | 0.0244 | 0.0382 | -0.0450 | 0.7110 | -0.1100 | -0.0835 | 0.4531 | 1.0000 | |
| GOV | 0.7180 | -0.2466 | 0.8417 | 0.2720 | 0.1495 | 0.1963 | 0.7236 | 0.1488 | -0.1496 | 0.6837 | 0.7644 | 1.0000 |

**Table 8.3**

Effect of lagged values of total outward FDI (percentage of GDP) and additional control variables on the employment to population ratio.

| Variables | Employment |
|---|---|
| **FDIoutflows(t-1)** | -0.003 |
| | (0.015) |
| **HDI(t-1)** | 144.943*** |
| | (44.749) |
| **TOI(t-1)** | -0.024 |
| | (0.036) |
| **R&D(t-1)** | -2.324 |
| | (1.431) |
| **Governance(t-1)** | 2.272 |
| | (3.479) |
| **GDPpercap(t-2)** | 0.00005 |
| | (0.00004) |
| **FDIoutflows(t-1)*region** | -0.037* |
| | (0.016) |
| **HDI(t-1)*region** | -130.615** |
| | (54.687) |
| **TOI(t-1)*region** | 0.081* |
| | (0.040) |
| **R&D(t-1)*region** | 0.116 |
| | (1.675) |
| **Governance(t-1)*region** | 9.333** |
| | (4.408) |
| **GDPpercap(t-2)*region** | 0.0002* |
| | (0.0001) |
| **Constant** | -33.125 |
| | (26.880) |
| **Observations** | 207 |
| **Within R-squared** | 0.5432 |

p-value***<0.01, p-value**<0.05, p-value*<0.10

**Table 8.4**

Effect of lagged values of outward manufacturing FDI (percentage of GDP) and additional control variables on the employment to population ratio in the manufacturing sector.

| Variables | Employment Manufacturing |
|---|---|
| **FDImanufacturing(t-1)** | -0.004 |
| | (0.006) |
| **HDI(t-1)** | 51.849** |
| | (22.229) |
| **TOI(t-1)** | -0.047 |
| | (0.028) |
| **Techexports(t-2)** | 0.227*** |
| | (0.051) |
| **R&D(t-1)** | -0.535 |
| | (0.627) |
| **Governance(t-1)** | 2.346 |
| | (1.865) |
| **GDPpercap(t-2)** | 0.000001 |
| | (0.00002) |
| **FDImanufacturing(t-1)*region** | 0.804*** |
| | (0.244) |
| **HDI(t-1)*region** | -81.307** |
| | (38.334) |
| **TOI(t-1)*region** | 0.072*** |
| | (0.025) |
| **Techexports(t-2)*region** | -0.154** |
| | (0.067) |
| **R&D(t-1)*region** | -0.648 |
| | (0.743) |
| **Governance(t-1)*region** | 3.901 |
| | (2.589) |
| **GDPpercap(t-2)*region** | 0.00012* |
| | (0.00006) |
| **Constant** | -8.156 |
| | (15.102) |
| **Observations** | 199 |
| **Within R-squared** | 0.7441 |

p-value***<0.01, p-value**<0.05, p-value*<0.10

**Table 8.5**

Effect of lagged values of outward FDI in the service sector (percentage of GDP) and additional control variables on the employment to population ratio within the service sector.

| Variables | Employment Services |
|---|---|
| **FDIservices(t-1)** | 0.004* |
| | (0.002) |
| **HDI(t-1)** | 76.572*** |
| | (17.458) |
| **TOI(t-1)** | 0.004 |
| | (0.017) |
| **R&D(t-1)** | -1.081 |
| | (0.705) |
| **Governance(t-1)** | 1.203 |
| | (1.185) |
| **GDPpercap(t-2)** | 0.00004 |
| | (0.00003) |
| **FDIservices(t-1)*region** | 0.130 |
| | (0.145) |
| **HDI(t-1)*region** | -42.760* |
| | (27.394) |
| **TOI(t-1)*region** | -0.007 |
| | (0.015) |
| **R&D(t-1)*region** | 2.000* |
| | (0.984) |
| **Governance(t-1)*region** | 4.793** |
| | (2.243) |
| **GDPpercap(t-2)*region** | 0.00006 |
| | (0.00007) |
| **Constant** | -19.406 |
| | (11.989) |
| **Observations** | 191 |
| **Within R-squared** | 0.6084 |

p-value***<0.01, p-value**<0.05, p-value*<0.10

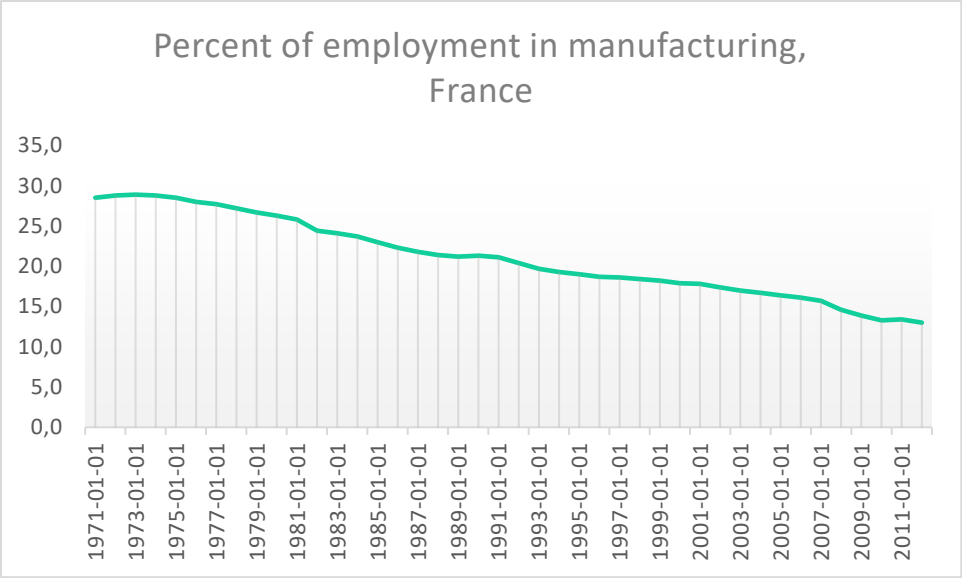


**Figure 8.7**

*Percent of total employment in manufacturing in France, over the period 1971-2011.*

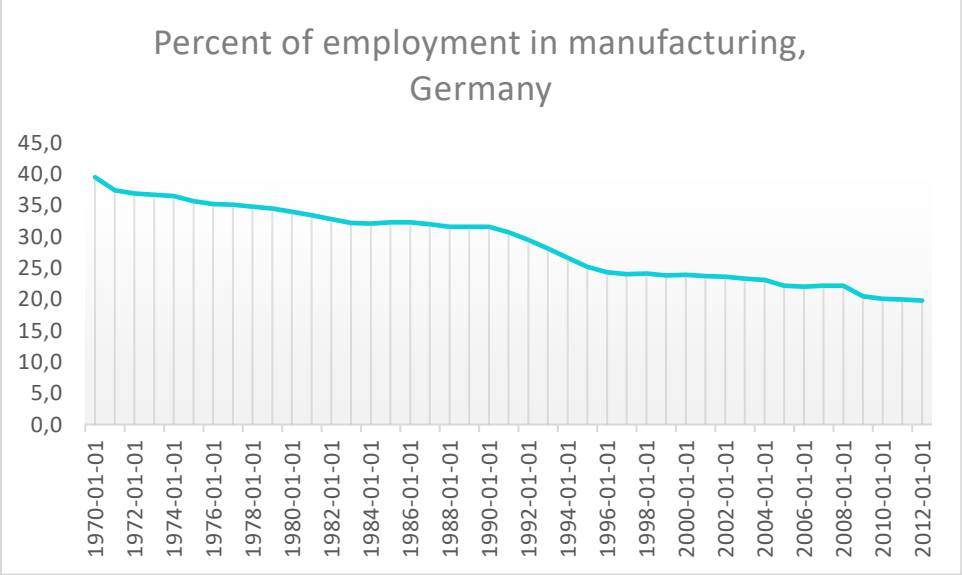


**Figure 8.8**

*Percent of total employment in manufacturing in Germany, over the period 1970-2012.*

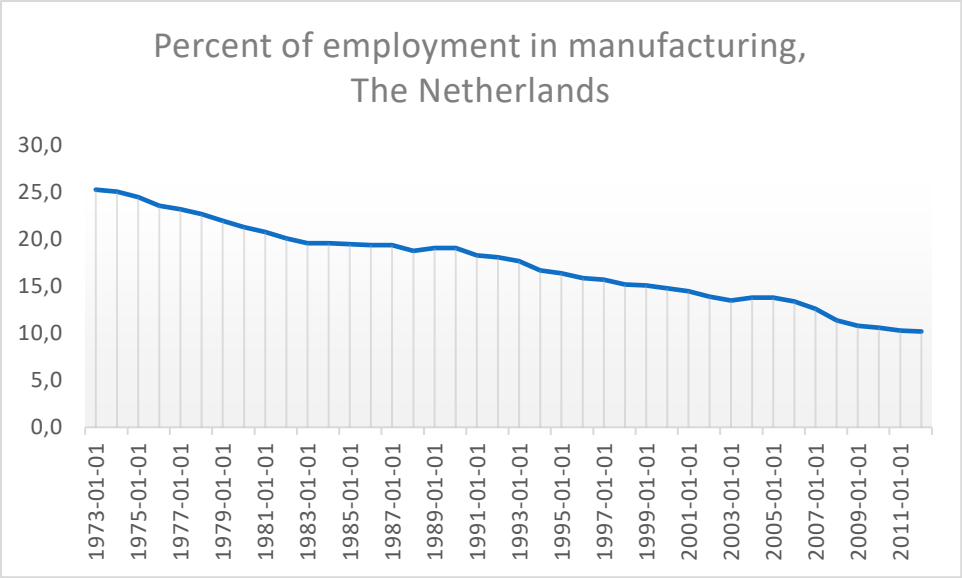


**Figure 8.9**

*Percent of total employment in manufacturing in the Netherlands, over the period 1973-2011.*

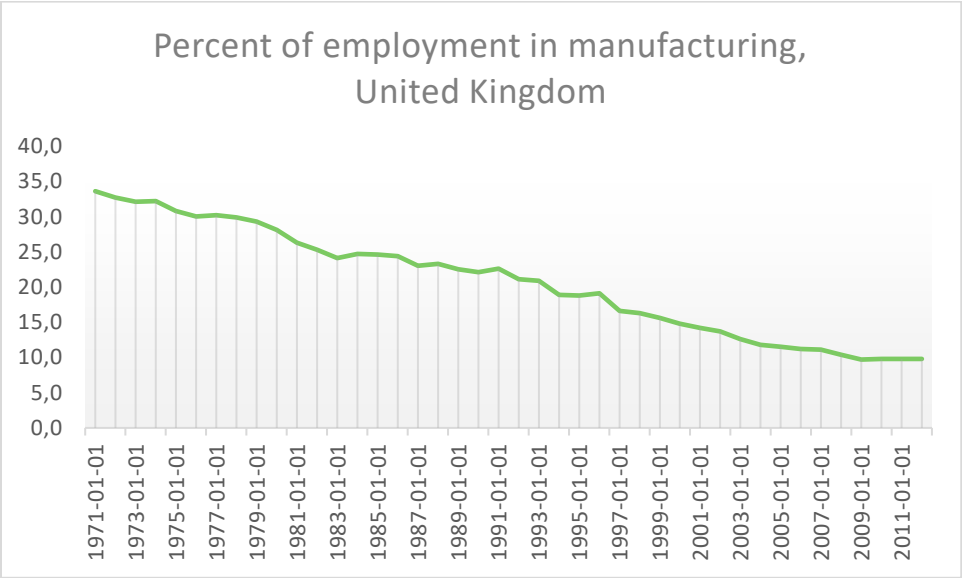


**Figure 8.10**

*Percent of total employment in manufacturing in the United Kingdom, over the period 1970-2011.*

**Table 8.6**

Country classification according to the United Nations geoscheme for Europe.

| **North-western Europe** | | **South-eastern Europe** | |
|---|---|---|---|
| Austria | Ireland | Greece | Slovak Republic |
| Belgium | Luxembourg | Italy | |
| Denmark | The Netherlands | Portugal | |
| Estonia | Norway | Slovenia | |
| Finland | Sweden | Spain | |
| France | Switzerland | Czech Republic | |
| Germany | United Kingdom | Hungary | |
| Iceland | | Poland | |