Outward FDI and its impact on the home country's employment: a focus on developed countries

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Date: 18-06-2018

Abstract

In this paper I investigate the effect of outward FDI on the employment in developed countries in the period 2005 up to and including 2011. Panel data from the OECD and the International Labor Organization is used to measure FDI outflows and employment for a sample of 24 western countries. After estimating OLS regressions I find supportive results for the existing literature were it is stated that FDI outflows result in higher employment via an interaction effect with a country's export. My results also suggest that the ratio of high-skilled labor to low-skilled increases after an increase in outward FDI, which means a change in the labor composition. However after a robustness check on country and year fixed-effects I conclude that all results are specific per country and depend on the conditions of the current time period.

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1. Introduction

Since the 1970's, companies riding the waves of globalization have increasingly sought to expand their activities beyond their own borders. This economic activity is largely summarized in the term foreign direct investment (FDI) and started off in developed countries. FDI consists of taking over, or investing in, foreign business activity (Moran, 2012). After the seventies, the amount of FDI by multinationals has grown sharply, causing a huge debate on FDI. Different stakeholders argue about the effect FDI has on the overall economic growth and employment within countries (Desai, Foley, & Hines Jr., 2005).

The view that FDI is able to cause a boost in the economy of host countries is held by a majority of economists and politicians. The focus in the literature here lies especially with developing countries. FDI is seen as an important source for technology transfer between countries (Borenszteina, De Gregorio, & Lee, 1998). This can actually help developing countries in the acceleration of their economic growth and, in turn, increase employment (Xu, 2002).

It turns out that not only developing countries can benefit from FDI inflows. Moudatsou (2003) found in his study that also countries from the European Union experience economic growth after an increase of inward FDI. However, other than for developing countries, this positive influence does not result from direct transfers of knowledge and technology. The positive effect in developed economies is indirect and results from other economic factors that are influenced by inward FDI.

The literature and theories above mainly focus on the effect of FDI on host countries. All results mainly point out a general positive effect from inward FDI on economies. The interest of this paper, however, lies in the impact of *outward* foreign direct investment, specifically the influence it exerts on the home country's employment. Much less research has been done on this part of the topic and where it does, a lot of different views and conclusions arise.

A major worry of politicians as well as labor unions in developed countries is that the foreign investments made by domestic multinational companies (MNC's) result in labor substitution. It is believed the MNC's try to save cost by employing cheaper labor abroad, which results in a decrease

in domestic labor opportunities. FDI outflows are seen as something negative and are thought to have a downward effect on employment and overall gross domestic product (GDP).

Negative economic effects are indeed confirmed by some scholars. Moran (2012) argues that FDI is a zero-sum phenomenon, which means that the investment made by companies in activities abroad substitutes the investment that would have been made domestically. In this latter case FDI harms the economy, and as a result employment, of the sending country.

In other research however, opposite effects were found. Here, it was stated that FDI is not a zero-sum phenomenon, but that FDI outflows go hand in hand with an overall increase in domestic investment (Desai, Foley, & Hines Jr., 2005). Desai et al. (2005) showed that multinationals with significant FDI activity became domestically more competitive and efficient. This would suggest that FDI outflows positively impact economic growth instead, probably resulting in more employment.

All the discussion led to the following research question: *What is the effect of FDI outflows on the employment of developed countries?*

Following the existing literature, I study this question using both variables of FDI outflow and an interaction effect between outward FDI and export. The variables are measured relative to a country's GDP as to correct for differences in size. Not only will I focus on the overall effect on employment, but also the complications for the composition of labor within countries. For this, the effects on the ratio of high to low-skilled labor are tested. Further reasoning behind these choices will be explained in the discussion of the literature in the next section.

In this study panel data is used containing a sample of 24 developed countries[1] during the period 2005-2011. It was found that FDI outflow has a positive effect on the employment of developed countries influenced by export. On top of that, FDI outflow also changes the composition of labor when it comes to skill type. More FDI outflows result in more high-skilled labor jobs compared to

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[1] The countries are marked as developed by the Organization for Economic Co-operation and Development (OECD)

low-skilled labor. However, the effects turn out to be highly dependent on a country's characteristics and the conditions of the time period.

This paper will continue with a discussion of the existing literature, which forms the basis of two stated hypotheses and empirical strategy of this study. In the section thereafter, the data and its transformations are described, followed by an overview of the used methodology. In section five, the empirical results are presented. Lastly, this paper finalizes with a conclusion and a discussion of the results.

2. Theoretical Framework

In this section I will present an overview of the former literature on outward FDI. I will start by addressing different views on FDI and the motives of firms to invest in activities abroad. The possible consequences of outward FDI are discussed and special focus is placed on the potential effects on employment. In the last part of this section two hypothesis will be introduced that will form the basis for the empirical analyses in this study.

During the 20th century, FDI used to be a poorly defined concept in the economic literature (Lipsey, 2001). In the last few decades, however, a consensus has been formed, which generally aligns with the definition as given by the International Monetary Fund (IMF, 1993). According to their definition, an investment is considered as FDI if an economic entity purchases an interest of at least 10% of a foreign entity, the aim of which is to construct a long-term relationship and involves decision power in the affairs of the affiliate.

Two views about the characteristics of FDI are generally held; the macro view and the micro view (Lipsey, 2001). The macro view looks at FDI as merely capital movement between entities that is translated to the balance of payments of both home and host country. In the micro view more focus is placed on the motives behind the direct investment and the consequences for both countries. Those motives and consequences are mainly defined in terms of employment, trade, production, and intellectual capital.

Since the micro view puts emphasis on the motives for FDI, it can provide better insight in why firms decide to become a multinational company. If the reasons behind FDI are understood, this will also shed light on its possible consequences.

The notion that FDI was more than the mere movement and enhancement of capital by an enterprise started to develop around 1970 (Lipsey, 2001). Several scholars observed that companies, generally, hardly took any capital with them when starting activities in a foreign affiliate. Instead firms tried to build up capital in their foreign entity itself (Kindleberger, 1969; Dunning, 1970). Kindleberger (1969) states that in order for FDI to exist, some market imperfections abroad need to be present. If foreign markets were to work perfectly, countries would only be served by domestic firms and there would be no opportunity for foreign MNC's to gain a share in the market. One might see this characteristic as a kind of pull factor for FDI. On the other hand, firms may face perfect competitive markets in their home country (Kindleberger, 1969). This incentivizes companies to start searching for profit opportunities outside their borders. The latter in turn, acts as a push factor for FDI practices. Kindleberger (1969) argues that two more motives exist for firms to become a MNC. The first one refers to the opportunity to employ economies of scale. Foreign expansion would make the company able to spread its fixed costs over a larger set of activities and would therefore face increasing returns (Krugman, 1980). The second reason follows from government regulation that limits the opportunity for, or increases the costs of domestic expansion and international trade (Kindleberger, 1969).

From the factors mentioned above that could engender a company to engage in FDI, it can be argued that outward FDI comes at the cost of the home country's economy. Governments and market structures form a limitation for firms to expand their operations and therefore they will seek new activities and opportunities abroad. However, the two motives referring to market imperfections in foreign markets and economies of scale suggest that positive returns might be possible. It is, therefore, expected that FDI does not necessarily comes at the cost of the home country and would maybe even have a positive contribution via potential spillovers.

2.1 Possible spillover effects

In the economic literature, a distinction is made between two different forms of FDI: horizontal and vertical FDI (Desai, Foley, & Hines Jr., 2005). Horizontal FDI implies a replication of the firms' domestic activities in another country. A company may choose to open stores in locations outside their home country's borders where it will sell the same kind of products. Similar practices can be done for services and other activities that the company already engaged in domestically. Vertical FDI, on the contrary, relates to vertical integration. The MNC invests in new relations abroad that will complement its domestic activities. Examples of this practice would be integrating a foreign supplier or, when the firm is a manufacturing entity itself, integrating affiliates that serve as buyers in the chain.

According to Smarzynska Javorcik (2004) the vertical type of FDI increases home country productivity by means of spillovers. This implies that the contact with, for instance, foreign customers, will result in the company producing more domestically with the purpose of exporting it to foreign markets. On the other hand, contact with foreign suppliers will possibly provide the MNC with more efficient resources and materials, which results in a better production process. However, the enhanced productivity effects were only found in cooperative relationships between the foreign affiliate and the MNC, rather than with full ownership by the latter (Smarzynska Javorcik , 2004).

Other studies produced similar results on FDI spillovers (Haskel , Pereira, & Slaughter, 2007; Keller & Yeaple, 2009). Keller and Yeaple (2009) found that in the years 1987 to 1996, spillovers resulting from FDI contributed to an average of 14% of the overall productivity growth in the United States. Productivity growth was not directly caused by spillovers between foreign affiliates and the MNC, but rather resulted from spillovers between the MNC and smaller competitors in the same domestic market. The latter were able to efficiently use the knowledge or copy the improved activities from the MNC; Making the overall domestic market more productive and competitive. These positive spillovers are most significant in technology intensive industries (Keller & Yeaple, 2009).

Haskel et al. (2007) found that UK plants had a compelling activity increase after an investment in a foreign affiliate was made. Spillover effects were significant when domestic plants used resources that were gained from the affiliate abroad.

A limitation of the former two studies is, however, the fact that they only focus on one particular country. The latter, in addition, focusses on the manufacturing industry only. This makes both studies not fully generalizable to other countries (Smarzynska Javorcik , 2004).

Contradictory results on positive spillover effects were found by Haddad and Harrisson (1993). According to their study, no significant spillover effects in exist in Moroccan firms that engaged in FDI. This suggests that FDI will not necessarily benefit the economies of home countries. Aitken and Harrison (1999) and Djankov and Hoekman (2000) found similar results in their studies of Venezuelan firms and firms in the Chech Republic.

One explanation for the results above is that the countries involved in those studies are developing countries. These countries might miss sufficient absorptive capacity to benefit from resources and knowledge that are gained via the foreign affiliate. Absorptive capacity is the extend to which a company is able to internalize new processes and knowledge that are acquired from outside the firm (Cohen & Levinthal, 1990). The absorptive capacity of a firm is determined by its own former Research and Development (R&D) expenses (Lane, Koka, & Pathak, 2006). The larger the knowledge base that was already build up in a firm and the more the firm was already used to adapt to new technologies developed by their own R&D, the easier it is to quickly adapt to and absorb knowledge from outside the firm. The firm namely, is already able to identify and exploit new types of knowledge (Cohen & Levinthal, 1989).

The institutional environment of a firm is a major determinant of their ability and willingness to invest in R&D and to internalize the newly developed technologies (Kostova & Roth, 2002). In general the institutional environment in developed countries is much more supportive for R&D than in developing countries. This is partly caused by the fact that governments in developed countries have a larger budget to support R&D in private firms. Besides, governments in developed countries, in general, see R&D as an important tool for the improvement of their economic growth (Bilbao-Osorio & Rodríguez-Pose , 2004).

A second factor that might cause a better R&D climate in developed compared to developing economies, is that developed economies posses a larger base of high-skilled human capital (Galor and Zeira, 1993). This higher skilled workforce might be better able to adapt to new types of knowledge and technology. Vinding (2007) found supporting evidence for this latter assumption in his study of Danish firms. He found that having high-skilled employees is positively correlated with the firms ability to innovate.

Because of the reasons mentioned above, it can eventually be expected that positive spillovers from outward FDI do exist in developed economies and that this also might be translated to employment.

2.2 Changing markets

The process of internationalisation caused firms not longer being able to expand enough in their home country markets in order to stay competitive (Kokko, 2006). According to Dunning (1980) a firm that aspires expansion abroad cannot be profitable by only making market transactions in the foreign market where it wants to operate. The firm needs some ownership advantages in order to compete against the companies that were already established in that market. Acquiring foreign assets by FDI has three advantages: ownership advantage, internalization advantage and location advantage. The ownership advantage implies that a firm acquires and develops certain skills, human capital, and technology which it can use without other competitors having access to these. This will shape the competitive advantage of the firm (Dunning, 1980). The internalization advantage results from the presence of market failures. These failures cause high transaction costs when the company opts a normal market transaction instead of FDI. Market failures make the firm decide to internalize an asset in order to protect their reputation. Finally the location advantage relates to the resources that are available in a specific country. It might be that a foreign country possesses resources that are not available in the home market. By acquiring the foreign resources instead of buying the company can use them in the most profitable way.

The main fear that governments and labor unions have about the outflows of FDI, is that employment will be reduced. MNC's not only invest in resources abroad because they are not accessible in the home country, but also because those resources have other characteristics. This may especially be true for human capital that can be acquired abroad against far lower costs than

in the home country. Two factors are known to engender these lower labor costs. First, wages in the developed home market of the MNC might be significantly higher than wages in other countries, especially in those that are still developing (Noorbakhsh, Paloni & Youssef, 2001). This make firms decide to move labor-intensive activities to these lower wage countries.

The second cause for lower labor costs comes from differences in taxes. MNC's tend to locate their labor-intensive activities in countries where income taxes and other taxes related to their workforce are the lowest (Desay, Foley & Hines Jr., 2004). One may argue that this might come at the cost of developed economies since their tax rates are generally higher.

2.3 FDI effects on employment

The large variety of factors at work raises the question what overall effect FDI outflow will have on a home country's employment. The last motive discussed, suggests that labor-intensive activities will leave the country. This might have a negative effect on employment.

On the other hand, spillover effects might make a firm more competitive and efficient and will have a positive effect on exports, resulting in more economic activity and employment.

The main effect of FDI outflow on employment will for a large part result from the effect that FDI has on a country's import and export (Kokko, 2006; Rizvi & Nishad, 2009). The overall outcome depends on whether the production in the home country is complemented by outward FDI, which results in more exports, or substituted, resulting in a higher level of imports (Kokko, 2006). Moving production to a foreign affiliate will, on the level of the firm, certainly increase imports and lower exports. This may harm employment in the home country. However, it is often not taken into account that the MNC will also supply its foreign affiliates with resources from the home country (Kokko, 2006). This supply mostly takes the form of intermediate goods.

The higher competitiveness of a firm, mentioned before, will take place in both the home country as well as in foreign markets. This enhances production in the home country and also increases its export to markets abroad (Kokko, 2006).

Earlier, Lipsey, Ramstetter and Blomström (2000) found evidence that supports these findings. In an empirical study that was focussed on Japan, it was found that the larger the amount of investments made in foreign affiliates, the larger the exports of the country. The same

relationship was observed for employment. This suggests that FDI outflows influences exports in a positive way. Eventhough lower levels of employment in domestic affiliates of single firms were observed, the overal employment in the country tended to grow. Similar results were obtained when doing the same test for Sweden (Lipsey, Ramstetter, & Blomström, 2000).

So, even though fears exist that outward FDI may precipitate a decrease in a country's exports and employment, existing evidence on complementary effects suggest otherwise. Emperical studies conclude that this complementary effect outweighs the substitution effect (Bergsten, Horst & Moran, 1978; Lipsey & Weiss, 1981). The findings of these studies apply to markets in the US. One supporting explanation for the outweighing complementary effect is given by Liu and Lu (2011). These researchers state that most FDI outflows relate to services, which are often non tradable. This means that activities in foreign affiliates won't crowd out similar activities in the home country. Therefore employment is not affected, at least in the short run.

These results of the aforementioned empirical studies suggest a net positive effect of FDI outflows on a country's employment. This would be caused via exports from intermediate goods and increased exports due to higher competitiveness of the MNC's in both domestic and foreign markets. When investigating the relation between outward FDI and employment, this interaction between FDI outflows and exports need to be taken into account. The first hypothesis is therefore stated as follows:

Hypothesis 1. There is a positive effect of FDI outflows on home country's employment that is enhanced by a country's export.

However, from the study of Kokko (2006) it is clear that there might be a significant difference between the effects that export of goods and export of services, resulting from FDI, have on employment. Services, namely, must often be provided close to a customer. Service activities provided to customers in the home country, therefore, are not likely to be substituted. Therefore, outward FDI is expected to have a small effect on employment provided by service activities. This different character of service exports compared to export of goods in their relation to FDI

was earlier stressed out by Lipsey (2004). To take these different effects into account, a distinction is made in this study between export of services and export of goods.

2.4 Differences between high- and low-skilled labor

It is expected that most of the labor activities that are transferred abroad have a low-skill characteristic.

A large part of FDI is invested in developing countries which often have human capital with a lower skill base then the developed home countries (Noorbakhshs, Palloni & Youssef, 2001). Lipsey (2004) suggests that MNC's use the comparative advantage of both countries when it comes to human capital. Here, the developed country has a large base of high-skilled labor and the foreign affiliate in the developing country has access to a larger low-skilled labor force. It will be more profitable and efficient to use the type of labor in the country where it is abundant (Hall, 2001). According to Lipsey (2004), most of the labor that is substituted by foreign affiliates is low-skilled manufacturing labor. As mentioned before, this labor substitution does not necessarily result in employment decrease in the home country (Lipsey, Ramstetter & Blomström, 2000; Lipsey, 2003). It was found that higher levels of production abroad have a positive relation to home country employment since more supervision is needed. This forms the expectation that outward FDI will change the structure of employment in the home country. Therefore, a second, and last hypothesis is constructed:

Hypothesis 2. FDI outflow has a positive relation to the ratio of high-skilled to low-skilled labor in a developed country.

The rest of this paper will be continued by an empirical analysis of the two stated hypotheses.

3. Data

In this section, a description will be provided of the data and its sources used for this research.

In this study I use panel data representing 24 different developed countries. The major database used comes from the Organization for Economic Co-operation and Development (OECD). The OECD is an organization that gathers data about many topics related to economics and the well-

being of people. The data collected covers many different countries all over the world over a wide range of years. In order to gather this data the OECD cooperates with governments and labor unions. On top of that, the OECD supports governments by providing policy recommendations and setting general standards, derived from the obtained data (OECD, 2018).

For this study, data about FDI, import, export, gross domestic product (GDP), unit labor costs (ULC), the education level of countries, and the level of human skills per occupation type, is derived from the OECD.

The second source of data is the International Labor Organization (ILO). The ILO is an organization that is attached to the United Nations (UN). The agency measures and gathers data about workers, employers and overall country employments for countries from all over the world. The ILO also sets different standards concerning employment and supports governments by providing policy recommendations (International Labor Organisation, 2018).

In this study data from both databases was derived for the years 2005 up to and including 2011. For these years the most recent plenary data for the countries of interest was provided. Where the databases contain data from many different countries, a smaller selection was made, since developed countries are of only interest for this paper.

In 2014, the UN (2014) composed a list of all countries, that are marked as being developed. This list consists of 36 countries in total. Not all of these countries, however, are relevant for this study, in the sense that circumstances for MNC's in the major developed economies are different from the average developed country (Kokko, 2006). MNC's originating from those major economies are to a much larger extent reliant on their home markets. MNC's in smaller and more general developed economies, on the other hand, are sometimes forced to start operations abroad in order to expand and enhance revenues. Therefore, it is expected that the effect of outward FDI on employment will be different in big economies and is not representative for the average developed economy.

According to the list of the UN (2014), Major developed economies are Canada, Japan, Germany, France, the United Kingdom and the United states. It was decided to leave these countries out of

the sample. This makes results from this study generalizable to the average developed country. Due to missing data the sample size consisted of 24 countries.

A few variables derived from the data were transformed. All relevant independent variables are taken as a percentage of GDP to account for size heterogeneity between countries. For the same purpose, employment is taken as a ratio of total population. Lastly, the variable high-skilled labor was divided by the variable low-skilled labor to obtain their ratio.

From several variables I took the logarithms. The logarithms were needed in order to approach a normal distribution. The normal distribution is a necessary condition for performing Ordinary Least Squares (OLS) regressions. All logarithms that appear in this research, are taken for this purpose.

In Table 1, an overview of summary statistics on the main variables of interest are given. It is clear that the variables contain large differences between years and/or countries. The negative numbers in FDI in- and outflow show some cases of disinvestment.

3.1 Correlations

In order to get a first impression of the relationships between the different variables, some correlations are shown on the next page. From Table 2 it becomes clear that the correlation between FDI outflows and the employment ratio is positive. The FDI outflow-export and employment-export correlations both show the same directions. An idea was already formed, that a positive relation between outward FDI and employment is present, and that there might be an effect via export as well. An overview of all results in the next section, will clarify whether these relations are significant.

Table 3 shows a positive correlation between the ratio of high- to low-skilled labor in a country's workforce and FDI outflows[2]. This propounds a relation where higher outward FDI goes hand in hand with a growing level of high-skilled workers relative to low-skilled workers, as suggested by the second hypothesis.

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[2] A more extended correlation table and a table with other descriptive statistics of the data can be found in appendix B of this paper.

Table 2 Correlations related to employment and FDI outflows

	Employment ratio	FDI outflow	FDI inflow	Export services	Export goods	Import services	Import goods
Employment ratio	1.000						
FDI outflow	0.122	1.000					
FDI inflow	-0.055	0.524	1.000				
Export services	0.053	0.709	0.521	1.000			
Export goods	0.015	0.680	0.486	0.819	1.000		
Import services	0.152	0.657	0.447	0.938	0.861	1.000	
Import goods	-0.173	0.698	0.517	0.821	0.957	0.785	1.000

Table 3 Correlations related to the ratio of high to low-skilled labor and FDI outflows

Kolom1	High/Low-skilled labor	FDI outflow	FDI inflow	Export services	Export goods
High/Low-skilled labor	1.000				
FDI outflow	0.176	1.000			
FDI inflow	-0.003	0.542	1.000		
Export services	0.118	0.721	0.543	1.000	
Export goods	0.033	0.685	0.509	0.837	1.000

In figure 1 and 2[3] scatterplots are presented with employment rate as dependent and the FDI outflow per unit of GDP as independent variable. Two categories are made within these figures. The first category represents observations that have values for export of goods or services that are below the median of total observations in this variable. The second category consists observations with above median observations. Figure 1 shows the results for export of goods whereas figure 2 shows the results for export of services. It is to be observed in both figures that outliers with a high value for employment rate are all in the category that represents an above median value for export. At first sight, this category also seems to have a higher value for employment rate on average than observations with below median export. This already suggests that an interaction effect between FDI outflow and export of goods and services might have a positive effect on the employment rate.

Another observation from figure 1 and 2 that may seem striking is the fact that all observations containing an above median value for export are all centered at a low value for FDI outflow per GDP. An explanation for this can partly be given by table 4[4]. In this table a positive correlation is to be observed between GDP and export of goods and services. A higher export value thus goes hand in hand with a higher value for GDP. The value for GDP lowers the FDI outflow/GDP ratio and therefore lower values of this ratio can be observed for higher export values.

4. Methodology of Empirical Strategy

In this part of the research the methods used to test the two hypotheses will be discussed. Hereafter, a description of the used variables will be given, together with an overall overview of the data by means of correlations between the variables.

Before testing the stated hypotheses, an analysis is done that checks whether lag variables of FDI outflow need to be added to the models. Lag variables would show if FDI investments in former years still have influence on employment change today. This might be the case when a company uses several years to transfer activities from the home country to a new foreign affiliate. Furthermore, positive spillover effects on employment might not occur right after the investment,

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[3] Figure 1 and 2 can be found in appendix C.
[4] Table 4 is presented in appendix B.

but slowly appear later on. In this research I will investigate the effect of the first two lags of outward FDI, which represent the former past two years. The lag variables that are significant need to be included in the models that are used for testing the hypotheses. By these means, the full effect of outward FDI on employment will be measured.

To analyze the need for lags, the following OLS regression is estimated:

$$Log\_empl\_rate_{ij} = \alpha + \sum_{k=j-m}^{j} \beta Log\_fdiOUT_{ij} + \gamma X_{ij} + \varepsilon_{ij} \qquad (1)$$

$Log\_empl\_rate_{ij}$ is the natural logarithm of the employment rate in country i and year j. α is a constant, $\sum_{k=j-m}^{j} \beta Log\_fdiOUT_{ij}$ are the lags of FDI outflow until and including the *mth* lag of outward FDI in country i and year j. X_{ij} is a vector of covariates including FDI inflow, import of services and goods, export of services and goods, GDP, unit labor costs, and year/country dummies. ε_{ij} is the error term.

4.1 Testing the hypothesis

The first hypothesis is tested, using an OLS regression:

$$Log\_empl\_rate_{ij} = \alpha + \sum_{k=j-m}^{j} \beta Log\_fdiOUT_{ij} + \beta fdiOUT * ExpG_{ij} + \beta fdiOUT * ExpS_{ij} + \gamma X_{ij} + \varepsilon_{ij} \qquad (2)$$

Compared to the first model, model 2 adds two variables to the function; $\beta fdiOUT * ExpG_{ij}$ is an interaction term between FDI outflow and export of goods in country i and year j. $\beta fdiOUT * ExpS_{ij}$ is a similar interaction term including export of services. X_{ij} is a vector of covariates including FDI inflow, import of services and goods, export of services and goods, GDP and unit labor costs.

From the first regression results whether lag variables for FDI outflows are to be included in this model.

The second hypothesis is tested by using another OLS regression model:

$$HL\_ratio_{ij} = \alpha + \sum_{k=j-m}^{j} \beta Log\_fdiOUT_{ij} + \gamma X_{ij} + \varepsilon_{ij} \qquad (3)$$

HL_ratio_{ij} is the ratio of high-skilled to low-skilled labor in country i in year j. X_{ij}, in this model, is a covariate including FDI inflow, import of services and goods, export of services and goods, GDP, unit labor costs, the amount of people with a secondary education level, and tertiary education level.

5. Results

After having explained the used methods, this section continues by giving an overview of the results obtained.

Table 5[5] represents the results obtained from the lag test of FDI outflow. It shows that the variable for this years' FDI outflow is the only significant variable of interest ($p < .10$). This implies that no lags of FDI outflow will be included in the models used to test the hypotheses.

The first hypothesis states that FDI outflow has a positive effect on employment, running via export. Table 6 presents the OLS regression analysis results. The first model includes no interaction effects between FDI outflow and export. This basic models shows a significant coefficient for FDI outflow ($p < .05$) and a positive direction. Hypothesis 1, however, states that this effect is enhanced by a country's exports. To test this, interaction terms between outward FDI and different forms of export are added in the second model. Results show a significant positive relation in interaction with export in services ($p < 0.01$) though, no such relation is observed via export in goods. The last relation is positive, but not significant. The results therefore partly support the first hypothesis. FDI outflows result in an increase in employment because of increased export in services. This implies that the jobs created by FDI outflow probably mainly are within the service sector just as was found in the study of Liu and Lu (2011).

A meaningful positive relation is still present for the single variable for FDI outflow, although less significant than in the first model ($p < .10$). This means that FDI outflows not only contribute to employment increase via exports, but that also other factors of outward FDI result in job creation. The interaction effects prove to be a relevant addition to the model, as showed by an increase in the adjusted R² from 0.568 to 0.695.

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[5] Table 5 is to be found in appendix D.

In this study I also checked results for the case where I use only one aggregate variable for export. These results can be found in section 3 of Table 6. When measuring export as one variable, FDI outflow and the interaction effect are both no longer significant. The effect of export of services is cancelled out by the export of goods and therefore it seems that the latter is stronger. This means I can only state, very specifically, export of services to be an influencing factor. Export of goods instead moderates the effect of outward FDI. Still, I am holding on to the first suggested model since the model in section 3 has less explanatory power (adjusted R^2 of 0.507).

The second hypothesis states that FDI outflow has a positive relation with the ratio of high- to low-skilled labor. Results from the test of this hypothesis are to be found in Table 7. Here, significant relations can be observed as well. Model 1 shows a meaningful positive relation between the ratio of high- to low-skilled workers in a country and its FDI outflow ($p < .01$) which supports my second hypothesis. A higher amount of FDI outflows thus results in an increase in high-skilled jobs compared to low-skilled jobs. This may imply that outward FDI mainly contributes to the creation of high-skilled jobs. At the same time it may be that FDI outflows result in a decrease of low-skilled employment, but that this is compensated by a larger creation of high-skilled jobs, contributing to an increase in total employment. In this case, low-skilled-employees could experience negative effects of outward FDI. To investigate this I estimated two extra OLS regressions. In the first one, the amount of low-skilled labor serves as the dependent variable, whereas the amount of high-skilled labor takes that role in the second one. In both models, FDI outflow is the main independent variable. Results are presented in Table 8[6]. I observe that the influence of FDI outflow on both dependent variables is positive and significant ($p < 0.1$; $p < 0.01$). Outward FDI thus increases the amount of both job types, however, the high-skilled jobs are influenced to a larger extent.

Although the second hypothesis does not explicitly state an effect of FDI outflow and export, as for the first hypothesis, I checked whether such a relation can be observed as well. The second model indicates that such a relation is not significant. The sole observable relation of interest still remains with the single variable for FDI outflow ($p < .01$).

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[6] Table 8 is to be found in appendix E.

Table 6 Result from the OLS regression that was used to test the effect of FDI outflow on employment, using an interaction term between FDI outflow and export.

	Log_empl_rate		
	(1)	(2)	(3)
VARIABLES	No Interaction	Interaction	Overall export
log_fdiOUT	0.0183**	0.0169*	0.00581
	(0.00883)	(0.00998)	(0.0164)
logfdiIN	-0.0132	-0.00819	-0.00234
	(0.00864)	(0.00923)	(0.0132)
log_ImpS	-0.0414	-0.102**	
	(0.0472)	(0.0477)	
log_ImpG	-0.0918**	-0.0374	
	(0.0390)	(0.0378)	
log_ExpS	-0.0528	-0.0282	
	(0.0471)	(0.0430)	
log_ExpG	0.128***	0.112***	
	(0.0313)	(0.0261)	
log_export			0.277**
			(0.108)
log_import			-0.286***
			(0.103)
fdiOUT_ExpS		0.235***	
		(0.0500)	
fdiOUT_ExpG		0.0218	
		(0.0205)	
fdiOUT_Exp			0.0750
			(0.0535)
Interaction variables between FDI outflow and import	No	Yes	Yes
Interaction effects with FDI inflow	No	Yes	Yes
log_gdp	Yes	Yes	Yes
ulc	Yes	Yes	Yes
Constant	1.946***	1.703***	2.843***
	(0.367)	(0.389)	(0.409)
Observations	130	130	130
R-squared	0.568	0.695	0.507

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7 Results of the OLS regression that was used to test the relation between the ratio of high-skilled to low-skilled labor in a country and FDI outflow.

	HL_ratio	
	(1)	(2)
VARIABLES	No Interaction	Interaction
log_fdiOUT	0.0325***	0.0408***
	(0.00763)	(0.00943)
logfdiIN	-0.0367***	-0.0245***
	(0.00664)	(0.00731)
log_ImpS	-0.0127	-0.121***
	(0.0360)	(0.0434)
log_ImpG	0.0204	0.0698*
	(0.0354)	(0.0375)
log_ExpS	-0.0183	0.0477
	(0.0395)	(0.0427)
log_ExpG	0.00838	0.00368
	(0.0264)	(0.0262)
fdiOUT_ExpS		-0.0478
		(0.0450)
fdiOUT_ExpG		-0.0206
		(0.0166)
Interaction variables between FDI outflow and import	No	Yes
Interaction effects with FDI inflow	No	Yes
log_gdp	Yes	Yes
ulc	Yes	Yes
log_secondary	Yes	Yes
log_tertiary	Yes	Yes
Constant	0.246	-0.121
	(0.321)	(0.344)
Observations	119	119
R-squared	0.652	0.725

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

5.1 Robustness check

The sample used in this study contains of panel data representing various different countries and observations of several different years. Each country and each year has its own characteristics and events that happened. These so called fixed effects might influence the results obtained so far. One hint for this is given when looking at the scatterplots in Figure 1 and 2.

The scatterplots give an impression that lower values of employment rate are observed together with higher values of FDI/GDP. Higher values of the outward FDI to GDP rate might result from lower levels of GDP in a country. When the values of GDP are actually the major cause for changes in employment rate my results might not be valid. Therefore a robustness check is needed. For this, fixed effect regressions are performed for the main models of this study[7]. This type of regression controls for the changes, in for example economic conditions, that happen from year to year in each specific country. The results are presented in Table 9 and 10[8][9].

The fixed effect regression on the first hypothesis, clearly changes the results obtained before. The direction of the relation changed to being negative, however results are no longer significant as either. Yet, significant results are obtained for the year coefficients. Furthermore, the reported intercept increased significantly, which represents the mean of the country fixed effects. These results imply that the effects outward FDI has on employment are dependent on the characteristics of the country and the conditions of the current time period. Positive effects of outward FDI on employment may therefore only exist when countries are in a period of positive economic conditions.

The fixed effects regression used for the second hypothesis, changed the results as well. The direction of the relationship remained positive, however, the coefficient is no longer significant. Here, a significant increase in the intercept is to be observed again, as well as some significant time coefficients, although modest ($p < .10$). This means the former results are as well mainly dependent

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[7] The main models are model 2 for the first hypothesis and model 1 for the second hypothesis.
[8] Table 9 and 10 are to be found in appendices F and G.
[9] Fixed effects regressions were also estimated using normal variables instead of logarithms. Results, however, did not differ.

on country specific characteristics and the conditions of the current time period, albeit the latter to a lesser extent.

6. Discussion and Conclusion

In this paper I sought to quantify the effect of FDI outflows on employment in developed countries. I found that outward FDI has a positive effect on employment, mainly due to an increase in export of services. This supported the thought of Liu and Lu (2011) who stated that most jobs are likely to be created in the service sector. The different results found between export of goods and export of services confirmed the need for separating these variables as was already indicated by the literature. Still, the positive relation between outward FDI and employment is not fully explained by its interaction with export of services. Other factors of FDI outflow contribute to the increase in employment as well. All in all, this research supports the thoughts that FDI outflows have a positive impact on employment and that this is mainly caused by increased exports. However, the results turn out to be largely dependent on the specific characteristics of a country, such as the political system, and the economic conditions in the current time period. Those fixed effects turn out to be a dominant factor in this study and therefore it cannot be stated that FDI outflow has an impact on employment in developed countries. The positive influence that FDI has on employment seems rather explained by good economic periods within countries than the investing practice itself.

One suggestion for future research is to test the effect of FDI outflow on employment on a regional basis within countries and within a specific time period. It then might be possible to provide recommendations for local governments on their FDI policies.

Another note needed to be made is that the scatterplots presented in this research suggest a negative relation between the amount of outward FDI and the level of export in a country whereas the obtained general correlations contradict this. Since a potential negative relationship also is in contrast with existing literature, it is suggested here to exercise future research on this relation.

Furthermore, results from this paper suggest that outward FDI changes the composition of jobs in a country in terms of skills. FDI outflow goes hand in hand with an increase in the ratio of high-

to low-skilled labor. This would mean that FDI outflow creates more high-skilled jobs than low-skilled jobs. Lipsey (2004), however, suggested the possibility that MNC's transfer low-skilled activities abroad and instead hire more high-skilled labor in their domestic affiliates. In this case low-skilled employment would decrease, but this decrease will be offset by a larger increase of high-skilled jobs. Yet, from this study I conclude that outward FDI enhances the amount of both types of jobs, but the high-skilled ones to a larger extent. This could be caused by the fact that more foreign affiliates require more coordination within the company. The firm therefore needs more high-skilled people who can supervise and coordinate the communication between affiliates. This is in line with the thoughts and findings of Lipsey, Ramstetter and Blomström (2000) and might therefore be a topic of interest for future research.

Nevertheless, again it was found that the effects of FDI outflow on the ratio of high-to low-skilled labor are dominated by country and time fixed effects. Further research needs to look into other economic and social conditions to determine causes of change. A suggestion for this is looking at changes in the particular industries where the MNC's operate.

A limitation of this study is that the major developed economies in this world were left out. Results from this study are therefore not generalizable to these countries. Besides, the robustness check gave awareness of the fact that we cannot state a general effect for every average developed country. It was found that outward FDI has a positive impact on employment and that is effect is mainly strengthened by exports. I also found support for the thought that outward FDI supports the creation of more high-skilled jobs compared to low-skilled jobs. Yet, only studying single countries and specific time periods will enable us to derive valid implications.

A.

Table 1 descriptive statistics related to employment and FDI outflow in 1000 US dollars.

Variable	Obs	Mean	Std. Dev.	Min	Max
Employment ratio	168	56.3	8.4	41.16	80.79
FDI outflow	168	17244.3	25331.0	-35692.4	144478.2
FDI inflow	168	13806.3	20314.0	-31670.4	119733.1
Export services	168	46288.7	36103.4	2211.2	137108.8
Export goods	168	135435.3	124829.7	2892.4	554458.9
Import services	168	41093.2	35899.5	1975.5	151037.6
Import goods	168	135359.7	121676.3	3266.8	532506.4
High/Low skilled labor ratio	158	0.644	0.120	0.314	0.897

B.

Table 4 Correlations between used variables

|	employ-ment ratio	FDI outflow	FDI inflow	Export services	Export goods	Import services	Import Goods	GDP	ULC	High/Low skilled labor	Secon-dary	Tertiary
employment ratio	1.000											
FDI outflow	0.122	1.000										
FDI inflow	-0.055	0.524	1.000									
Export services	0.053	0.709	0.521	1.000								
Export goods	0.015	0.680	0.486	0.819	1.000							
Import services	0.152	0.657	0.447	0.938	0.861	1.000						
Import goods	-0.173	0.698	0.517	0.821	0.957	0.785	1.000					
GDP	0.479	0.263	0.133	0.404	0.111	0.393	0.003	1.000				
ULC	0.100	-0.088	-0.099	-0.134	-0.115	-0.153	-0.090	-0.001	1.000			
High/Low skilled labor	0.532	0.294	0.078	0.328	0.198	0.307	0.162	0.311	0.087	1.000		
Secondary	0.027	-0.334	-0.243	-0.491	-0.224	-0.378	- 0.31	-0.224	-0.042	-0.644	1.000	
Tertiary	0.555	0.193	0.184	0.285	0.044	0.305	-0.074	0.542	-0.011	0.394	-0.173	1.000

C.
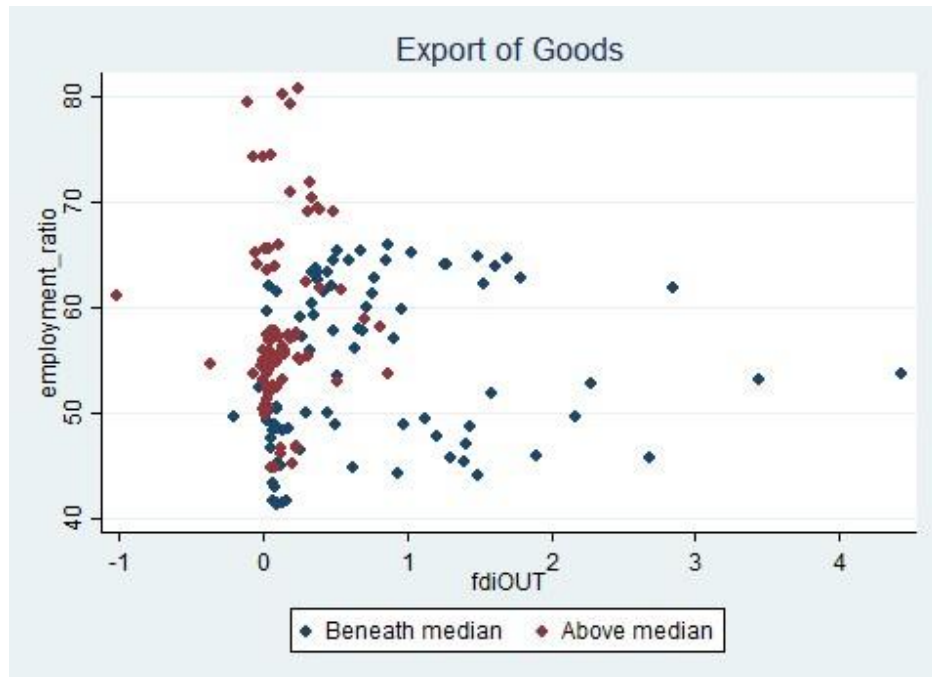
Figure 1 Scatterplot between employment rate and FDI outflow per unit of GDP, with a distinction in observations where export of goods below its median and above
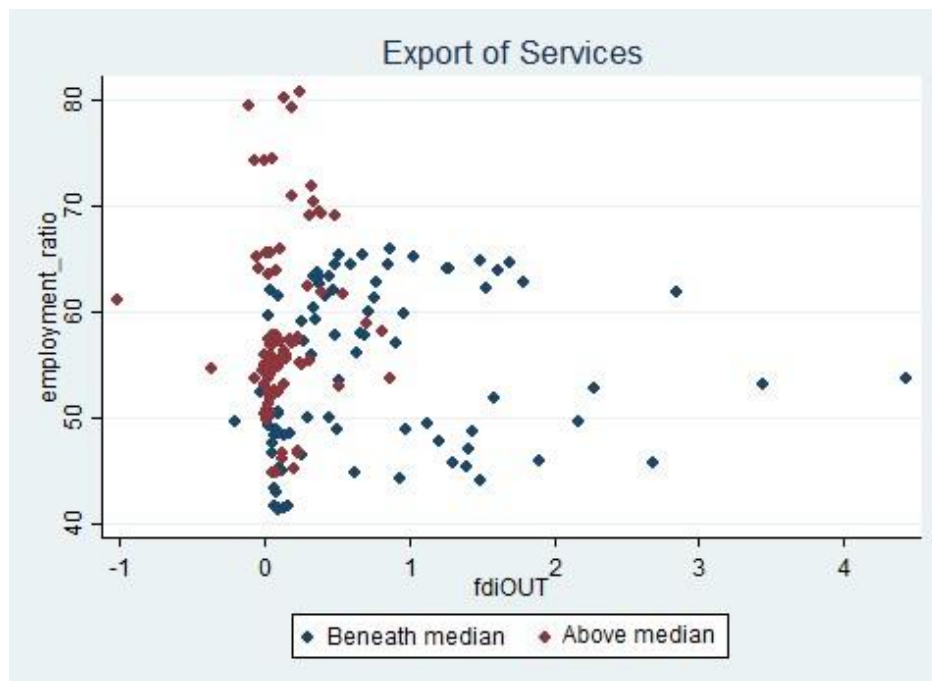

Figure 2 Scatterplot between employment rate and FDI outflow per unit of GDP, with a distinction in observations export of services below its median and above

D.

Table 5 Results of OLS regression testing the need of including lags of FDI outflow

	Log_empl_rate
	(1)
VARIABLES	Lags test
log_fdiOUT	0.00579*
	(0.00331)
log_lag1_OUT	-0.00346
	(0.00355)
log_lag2_OUT	0.000928
	(0.00201)
logfdiIN	-0.00783*
	(0.00464)
log_ImpS	0.0717
	(0.0547)
log_ImpG	0.224***
	(0.0575)
log_ExpS	-0.0194
	(0.0489)
log_ExpG	-0.181***
	(0.0414)
log_gdp	Yes
ulc	Yes
Time dummies	Yes
Country dummies	Yes
Constant	0.950*
	(0.555)
Observations	113
R-squared	0.982

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

E.

Table 8 Effect of outward FDI on low-skilled labor and high-skilled labor individually

VARIABLES	(1) Low-skilled	(2) High-skilled
log_fdiOUT	0.612*	3.157***
	(0.330)	(0.793)
logfdiIN	-0.0827	-3.238***
	(0.267)	(0.645)
log_ImpS	-3.623**	-3.454
	(1.726)	(3.832)
log_ImpG	0.244	1.430
	(1.370)	(3.569)
log_ExpS	0.168	-1.361
	(1.919)	(4.128)
log_ExpG	1.572	2.238
	(1.131)	(2.701)
log_gdp	Yes	Yes
ulc	Yes	Yes
log_secondary	Yes	Yes
log_tertiary	Yes	Yes
Constant	7.277	-26.73
	(13.21)	(33.57)
Observations	119	119
R-squared	0.554	0.616

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

F.

Table 9 The effect of outward FDI on employment. with export interaction effects.

	Log_empl_rate	
	(1)	(2)
VARIABLES	Interaction	Fixed Effects
log_fdiOUT	0.0169*	0.0039
	(0.00998)	(0.00361)
logfdiIN	-0.00819	-0.0059*
	(0.00923)	(0.00304)
fdiOUT_ExpS	0.235***	-0.725
	(0.0500)	(1.307)
fdiOUT_ExpG	0.0218	-0.724
	(0.0205)	(0.441)
Export control variables	Yes	Yes
Import control variables	Yes	Yes
Interaction variables between FDI outflow and import	Yes	Yes
Interaction effects with FDI inflow		
	Yes	Yes
gdp	Yes	Yes
ulc	Yes	Yes
Time dummies	No	Yes
Constant	1.703***	43.78***
	(0.389)	(2.985)
Observations	130	153
R-squared	0.695	0.584
Number of countryN		23
Country FE		YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

G.

Table 10 The effect of outward FDI on the ratio of high-to low-skilled labor.

	HL_ratio	
	(1)	(2)
VARIABLES	No Interaction	Fixed Effects
log_fdiOUT	0.0325***	0.0038
	(0.00763)	(0.00313)
logfdiIN	-0.0367***	-0.0006
	(0.00664)	(0.00256)
Export control variables	Yes	Yes
Import control variables	Yes	Yes
Gdp	Yes	Yes
Ulc	Yes	Yes
secondary	Yes	Yes
tertiary	Yes	Yes
Time dummies	No	Yes
Constant	0.246	0.809***
	(0.321)	(0.0919)
Observations	119	138
R-squared	0.652	0.553
Number of countryN		21
Country FE		YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

8. References

Aitken, B. J., & Harrison, A. E. (1999). Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. The American Economic Review(89), 605-618.

Bergsten, C. F., Horst, T., & Moran, T. H. (1978). American multinationals and American interests. Washington D.C.: Brookings.

Bilbao-Osorio, B., & Rodríguez-Pose , A. (2004). From R&D to Innovation and Economic Growth in the EU. Growth and Change, 35(4), 434-455.

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

Cohen, W. M., & Levinthal, D. A. (1989). Innovation and Learning: The Two Faces of R & D. Economic Journal, 99(397), 569-596.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 35(1), 128-152.

Desai, M. A., Foley, F. C., & Hines Jr., J. R. (2004). A multinational perspective on capital structure choice and internal capital markets. The Journal of Finance, 59(6), 2451-2487.

Desai, M. A., Foley, F. C., & Hines Jr., J. R. (2005). Foreign Direct Investment and the Domestic Capital Stock. The American Economic Review, 95(2), 33-38.

Djankov, S., & Hoekman, B. (2000). Foreign Investment and Productivity Growth in Czech Enterprises. World Bank Economic Review, 14(1), 49-64.

Dunning, J. H. (1970). Studies in International Investment. London: George Allen & Unwin, Ltd.

Dunning, J. H. (1980). Toward an eclectic theory of international production: Some empirical tests. Journal of international business studies, 11(1), 9-31.

Galor, O., & Zeira, J. (1993). Income distribution and macroeconomics. The review of economic studies, 60(1), 35-52.

Haddad, M., & Harrison, A. E. (1993). Are there positive spillovers from direct foreign investment?: Evidence from panel data for Morocco. Journal of Development Economics, 42(1), 51-74.

Hall, P. A. (2001). Varieties of capitalism: The institutional foundations of comparative advantage. Oxford: Oxford University Press.

Haskel , J. E., Pereira, S. C., & Slaughter, M. J. (2007). Does Inward Foreign Direct Investment Boost the Productivity of Domestic Firms? Cambridge: National Bureau of Economic Research.

IMF. (1993). Balance of Payments Manual, 5th Edition. Washington D.C.: International Monetary Fund.

International Labor Organisation. (2018). About the ILO. Opgehaald van ilo.org: www.ilo.org/global/about-the-ilo/lang--en/index.htm

Keller, W., & Yeaple, S. R. (2009). Multinational Enterprises, International Trade and Productivity Growth: Firm Level Evidence from the United States. The Review of Economics and Statistics, 91(4), 821-831.

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.

Kostova, T., & Roth, K. (2002). Adoption of an Organizational Practice by Subsidiaries of Multinational Corporations: Institutional and Relational Effects. The Academy of Management Journal, 45(1), 215-233.

Krugman, P. (1980). Scale economies, product differentiation, and the pattern of trade. The American Economic Review, 70(5), 950-959.

Lane, P. J., Koka, B. R., & Pathak, S. (2006). The Reification of Absorptive Capacity: A Critical Review and Rejuvenation of the Construct. The Academy of Management Review, 31(4), 833-863.

Lipsey, R. E. (2001). Foreign direct investment and the operations of multinational firms: concepts, history, and data . New-York: National Bureau of Economic Research.

Lipsey, R. E. (2003). Foreign production by US firms and parent firm employment. In Multinational Firms and Impacts on Employment, Trade and Technology (pp. 19-39). Routledge.

Lipsey, R. E. (2004). Home-and host-country effects of foreign direct investment. In Home-and host-country effects of foreign direct investment (pp. 333-382). Chicago: University of Chicago Press.

Lipsey, R. E., & Weiss, M. Y. (1981). Foreign production and exports in manufacturing industries. The review of Economics and Statistics, 63(4), 488-494.

Lipsey, R. E., Ramstetter, E. D., & Blomström, M. (2000). Outward FDI and Parent Exports and Employment: Japan, the United States, and Sweden. Global Economy Quarterly, 1(4), 285-302.

Liu, H., & Lu, J. (2011). The home-employment effect of FDI from developing countries: in the case. Journal of Chinese Economic and Foreign Trade Studies, 4(3), 173-182.

Moran, T. (2012). Foreign direct investment. In The Wiley-Blackwell Encyclopedia of Globalization. (pp. 121-139).

Moudatsou, A. (2003). Foreign direct investment and economic growth in the European Union. Journal of Economic Integration, 689-707.

Noorbakhsh, F., Paloni, A., & Youssef, A. (2001). Human capital and FDI inflows to developing countries: New empirical evidence. World development, 29(9), 1593-1610.

OECD. (2018). About the OECD. Derived from OECD.org: www.oecd.org/about/

Rizvi, S. Z., & Nishat, M. (2009). The impact of foreign direct investment on employment opportunities: panel data analysis: empirical evidence from Pakistan, India and China. The Pakistan Development Review, 48(4), 841-851.

Smarzynska Javorcik , B. (2004). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages. American Economic Review, 94(3), 605-627.

United Nations. (2014). Country classification. Derived from un.org: www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf

Vinding, A. L. (2007). Absorptive capacity and innovative performance: A human capital approach. Economics of Innovation and New Technology, 15(4-5), 507-517.

Xu, B. (2002). Multinational enterprises, technology diffusion, and host country productivity growth. Journal of development economics, 62(2), 477-493.