Foreign Direct Investments, Distance and Production Costs in Latin-America

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Abstract

This research is focused on the determinants of foreign direct investments (FDI) in Latin-American countries and how production costs influence the relationship between these determinants and FDI. Specifically, the distance factors between two countries are investigated, which reflect the differences in certain aspects between a home and host country. In this paper, cultural, political and geographic distance are examined more closely. Production costs and all three distance factors were expected to have a negative effect on FDI. The data used is retrieved from the International Trade Centre for the period from 2009 until 2019. In order to check if the results are robust, also a dataset of other countries for the same period was used of the Coordinated Direct Investment Databank. The results show that lower production costs in the host country and a greater difference of production costs between a host and home country are associated with higher FDI flows to a host country from a home country. For the distance factors it is concluded that cultural distance has a significant positive relationship with FDI, political distance has no significant relationship with FDI and only geographic distance has an expected negative relationship with FDI. Moreover, lower production costs strengthen the positive relationship of cultural distance on FDI. Lower production costs do not influence the strength of the effect of political distance on FDI. At last, lower production costs strengthen the negative relationship between geographic distance and FDI. So, the relationship between cultural and geographic distance and FDI depends on the production costs in a host country. Lower production costs lead to an increase in the FDI a country receives. However, lowering production costs should be done with caution and consideration as this is not always the best case for social utility.

Keywords: Foreign Direct Investments; FDI; Production Costs; Cultural Distance; Political Distance; Geographic Distance

Table of contents

1. Introduction

The decisions of multinational enterprises (MNEs) to locate production plants or (head)offices around the world depends on multiple factors, which are extensively discussed in literature. Most of this research investigates the flows of foreign direct investments (FDI) from a home country to a host country. The home country is the country that invests their money into the host country, the one who hosts the money. The basic foundation of the research to determinants of FDI is laid by the OLI-paradigm, New Theories of Trade and Institutional Theory (Bond and Samuelson, 1986; Caves, 1971; Hymer, 1976; Dunning, 1979, 2002; Kindleberger, 1969).

The three location theories focus on different sets of determinants that attract FDI into a certain region or country. First, the OLI-theory divides these determinants into Ownership, Location and Internalization advantages and states that having an advantage in one of these characteristics attracts more FDI (Dunning, 1979, 2002). Second, the New Theories of Trade and the Institutional theories added some factors to the OLI-paradigm such as market size or tax rates, which also determine the flow of FDI (Bond and Samuelson, 1986; Caves, 1971; Kindleberger, 1969; Hymer, 1976).

Not only determinants that attract FDI have been investigated. Some papers focus on the differences between countries that are related to a decrease in FDI flows (Berry, Guillén & Zhou, 2010; Johanson and Vahlne, 1977). The differences between these countries are often referred to as distance factors. Distance factors can, amongst others, be studied in terms of cultural, political or geographical differences. When the distance increases between countries, the FDI flows between these countries are expected to decrease. This is because the greater the distance, the more barriers need to be overcome in order to invest for MNEs. For example, if the culture between two countries is different, conflicts about vision or certain standards can occur more easily. This results in more uncertainty for both parties, which leads to fewer investments than preferred (Whitley, 1992).

After analysing the previous literature on determinants of FDI, Assunção, Forte and Teixeira (2011) suggested the importance of examining the influence of production costs on FDI and Latin-American countries. The reason for this is that this factor and set of countries are less investigated than the other factors and countries. That is why the attention of this paper will focus on production costs and Latin-America, next to distance factors.

Earlier research suggests that lower production costs in a host country results in more FDI flows from other home countries (Botrić & Škuflić, 2006; Braconier, Norbäck & Urban, 2005). Lower production costs are directly related to lower costs for the MNEs, which can help them obtain a competitive

advantage (Agerwal, 1980; Schuler & MacMillan, 1984). Braconier et al. (2005) found that if the wage costs for low-skilled workers increases, the total sales, sales to the home country, sales to third parties and local sales decrease significantly.

As discussed, most research about location theory focuses on the determinants that attract FDI or on the distance factors. Other papers studied factors that moderate the effect of distance variables on FDI, like Bailey and Li (2015). They studied how market demand in a host country moderates the effect of distance variables on FDI. Moreover, Pessegueiro, Ferreira, Reis and Pinto (2018) studied distance variables as moderators. With corruption distance as moderator, they showed that if corruption distance between host and home country decreases, the corruption level of the country is less of a problem when deciding to invest or not. For so far as, no study has investigated whether production costs moderate the relationship between distance variables and FDI.

The main question of this research will be related to the distance between countries and production costs in host countries. In this study, the moderation effect of production costs on the relationship between distance variables and FDI will be studied. As mentioned before, lower wages can increase FDI into a country. FDI into countries with lower wages brings more sales to the MNEs (Braconier et al., 2005). Given that production costs are an important aspect of production, it is expected that they can moderate the relationship between the distance factors and FDI flows. Lower production costs are expected to decrease the uncertainty that is created due to the distances between countries, resulting in higher FDIs. Thus, the negative relationship between distance variables and FDI will be weaker when production costs are lower. This moderation effect will be tested with an interaction term of the distance variables and production costs. The research question is stated as:

Do lower production costs attenuate the distance in culture, politics and geography between a host and a home country and therefore increase FDI flows into Latin America?

The research question will be answered with inward FDI data into Latin American countries in the period from 2009 until 2020. The FDI are received from other countries all over the world (International Trade Centre, 2021; Coordinated Direct Investment Survey, 2021). The distance variables provided by Berry et al. (2010) are used and the production cost are defined by the minimum wage per year in a country, provided by CountryEconomy (2021). Models will be created with FDI as the dependent variable, the distance variables, production costs and control variables. At last, to test if the negative relationship between distance variables and FDI will be less negative when production costs are lower, an interaction term of the distance variables with production costs will be used.

This paper can be socially relevant due to several aspects. Firstly, FDI inflows are an important factor of financing in developing countries (Markusen, Venables, Konan and Zhang, 1996). FDI flows are more common between developing countries and there are differences in location determinants of MNEs between developing and developed countries, both as host and home country. To get to know the differences, this research can be helpful for multiple countries that want to attract FDI from developed countries. Secondly, the inflow of FDI brings several spill-overs for the host country. Caves (1974) states that FDI brings innovation and new technologies. Perez (1997) suggests that FDI creates new managerial skills for local businesses. FDI inflow also creates jobs, increases the work environment and increases capital (Haddad and Harrison, 1993). To profit from these spill-overs, countries need to know how to attract these FDI inflows. This research can help to obtain this knowledge. At last, FDI is known as a complicated aspect of the economy. It is dependent on many different and changing determinants, and therefore it is important to keep track of which variables for which countries attract FDI (Assunção et al, 2011).

The paper is structured as follows. Section 2 discusses the research that has been done about FDI determinants and the role of distance. In section 3, the methods and data that are used to obtain the results are described. In section 4 the results are presented. Section 5 will provide the limitations of this paper and future research suggestions. Section 6 will discuss certain outcomes and will conclude this research.

2. Literature overview

In this section an overview of the research that has been done to the determinants of FDI is provided. First, the location theories are described, which lay the foundation of the research about FDI determinants. Then a more detailed description of the factors that will be investigated in this paper is given, namely production costs, cultural distance, political distance and geographic distance. At last, the moderation of production costs on the relationship between distance factors and FDI is described.

2.1 Location Theories

The OLI-paradigm of Dunning (1979;2002) brought multiple overlapping theories of locating MNEs abroad together and bundled multiple variables into three specific characteristics, namely, ownership, locations and internalization advantages. Within this framework, several factors that attract FDI into the host country are explained with a clear overview. Dunnings framework is still present in several other papers and helps to explain FDI flows (Noorbakhsh, Paloni & Youssef, 2001; Storper, 1997). The first letter, O, is related to the ownership advantage of a firm. Ownership advantages are firm-specific competitive advantages, such as, specific management characteristics, innovative products or patents. Dunning states that if a firm has a greater competitive advantage, this MNE has a higher probability to

invest in a foreign country. The L of OLI stands for the location advantage of an MNE in a particular foreign country. Location advantages can be, for example relatively low tax rates. It can also be related to the need for specific labour. For instance, low wages are handy for certain low-knowledge production or the need for high-skilled labour that is only present in specific countries. The last aspect of the OLI paradigm is the internalization advantage. This advantage is related to the internal communication and organization of a firm. Transaction costs increase when uncertainty and market risk increases, resulting in the need for higher internalization of operations to lower these transaction costs.

Another location theory is The New Theory of Trade, which is based on Dunning's OLI paradigm. The New Theory of Trade explained the determinants of FID by adding new factors that affect FDI next to the already provided determinants by Dunning (1979). This theory added technological and factor endowments to the paradigm, such as the capital available in a country or transportation costs. The New Theories of Trade tries to correlate the variables of OLI with country-specific characteristics (; Caves, 1971; Hymer, 1976; Kindleberger, 1969). Country-specific characteristics that the New Theories of Trade introduced that affect FDI are, for example, knowledge (ownership), market size, transport cost, or entry barriers (location).

The last theory mentioned, the Institutional Theory, focuses on the political environment of a country and its influence on FDI (Bond and Samuelson, 1986). Briefly, this theory states that MNEs, which are already productive in a country with a complicated environment that is uncertain and disruptive , will more easily be productive in foreign countries with similar characteristics compared to an MNE that is active in less complicated environments (Francis, Zheng & Mukherji, 2009). Examples of institutional factors are the number of coups, level of corruption or tax regulations.

2.2.1 Production costs

As stated before, location theories use multiple variables that determine the FDI flows. Production cost is one of those. The wage per worker of material costs or minimum wage is often used to indicate production costs, but most papers use local wages of production workers, which is a country-specific factor. (Botrić and Škuflić, 2006; Schneider and Frey, 1985).

As firms try to reduce their costs, they are looking for the cheapest wages per worker. This way a firm can create a competitive advantage and produce less expensive compared to the competition (Schuler & MacMillan, 1984; Agerwal (1980). Therefore, for companies, low wages are an important aspect when deciding where to invest. Previous research studying the inward FDI, most often found a negative effect of wage per worker and the FDI inflows in a host country (Botrić & Škuflić, 2006; Braconier et al., 2005; Schneider and Frey, 1985). Fan, Lin and Tang (2018) found that there is indeed a positive

relationship between minimum wage and the outward FDI in China. The results indicate substantial effects of the increase in the local minimum wage on the probability of conducting outward FDI. In other words, if the minimum wage in a country increases substantially, MNEs search for cheaper foreign alternatives. Agerwal (1980) made a literature overview and described labour costs as an important factor for FDI and creating a competitive advantage. Riedel (1975) found, for the export-orientated FDI in Taiwan, that relatively lower wage costs are one of the most important determinants. Donges (1976; 1980) found similar results for Spain and Portugal.

The relationship between lower production costs and attracting FDI is also expected to be present in Latin-American countries. This is because Latin-American countries often have low wages per worker (Nations Master, 2021). Based on this the first hypothesis can be formed:

Hypothesis 1: Lower production costs in a host country increases the FDI flows from a home country

2.2.2 relative production costs

Thus, low wages are an important factor for MNEs that invest in host countries. It is expected that therefore a bigger difference in wage between the host and home country results in more FDI flows (Braconier et al., 2005). Broconier et al. pointed out that US and Swedish companies invested more in countries where the wage of low-skilled workers was relatively cheap. This is because the bigger difference creates a higher opportunity for MNEs to obtain a competitive advantage. Agarwal (1978) shows that this is indeed the case. His study yielded a significant positive correlation between German FDI and relative wage costs in Brazil, India, Iran, Israel, Mexico and Nigeria. Studying outward FDI from China, Fan, Lin and Tang (2018) support this relationship. They state that an increase in operating costs associated with the employment of labour in the home country implies a decrease of the relative variable costs abroad, which leads to larger cost savings and stronger incentive to conduct outward FDI. In practice, several Chinese firms left China to reduce the costs for production. For example, China's largest auto glass manufacturer, Fuyao Glass Industry Group, moved out of China and stated that the rising labour costs were the main reason for this move. Also a shoe exporter, Huajian, build a factory in Ethiopia because of the lower labour costs there (Wallis, 2013). Therefore, if the gap in wage costs increases between a home and host country, it is expected that FDI flows will increase between these countries.

Hypothesis 2: Relative lower production costs in a host country compared to the home country increases the FDI flows from the home country even stronger

2.3 Distance factors

Investing in a host country brings for MNEs uncertainty about the business environment and future expansions (Barkema, Bell & Pennings, 1996). Attention has been given to the differences between countries and the FDI flows between these countries. The differences between countries are often called distance. Distance is not just the absolute distance between MNEs of a home country that invest in the host country. Distance is the difference between countries. These differences can be informal, like differences in norms and values. It can also be formal, for example, political systems or tax rates that differ.

A bigger distance can create the so-called liability of foreigner's. The liability of foreigner's states that MNEs that invest in a host country experience several conflicts or problems when the distance increases (Zaheer, 1995). Problems and conflicts that can occur are for example, miscommunication because of language barriers or not understanding the laws of a country. Commonly used factors that indicate distance are cultural distance, political distance and geographic distance. The three factors will be elaborated on below.

2.3.1 Cultural distance

Cultural distance has different definitions in the literature. Hofstede's cultural differences are often used by other researchers for calculating cultural distance. According to Hofstede (1980) cultural distance is the difference in individualism, power distance, uncertainty avoidance and masculinity between countries, which can affect the way how working practices and methods are exchanged and applied from one country to another. In distance studies Hofstede's cultural distance definition and calculations are often used to point out certain specific (dis)similarities (Berry et al., 2010; López-Duarte & Vidal-Suárez, 2010). Berry et al. (2010) define culture distance as "the differences in attitudes toward authority, trust, individuality, and importance of work and family". Therefore, they divide the cultural distance into four categories. The difference in power (obedience and respect for authority), uncertainty avoidance (trusting people and job security), individualism (independence and the role of government in providing for its citizens) and masculinity (the importance of family and work). This definition of cultural distance is also used in this research. Also, others consider the differences in corruption as cultural distance (Godinez & Liu, 2015). The greater distance in corruption makes an MNE struggle more with the institutional environment, compared to an MNE that is used to deal with corruption. Cultural distance is considered a major barrier for MNEs which try to gain normative legitimacy in host countries, thus affecting FDI decisions (Kang & Jiang, 2011). The cultural distance can lead to higher costs to gather information or to communicate. Also, for the company in the host country, it leads to difficulties to integrate certain processes, routines or for the product to be adapted (Hofstede, 1980). The home country MNE also has to take into account the norms and values that play

a role in the host environment, as this gives the same problems as mentioned before, creating more distance (Cui & Jiang, 2010). Hofstede (1980) concluded that when the cultural distance increases, FDI flows between these countries decrease. This is confirmed by several other researchers, like Berry et al. (2010). Berry et al. (2010) used the Hofstede (1980) culture distance approach as well as their distance approach and found with both distance approaches the same negative effect of increasing distance resulting in decreasing FDIs for US companies. For Chinese companies, the same effect is found of locating more FDI in countries where the cultural distance is the smallest (Cui & Jiang, 2010; Kang & Jiang, 2011). López-Duarte and Vidal-Suárez (2010) found that if the cultural distance increases between Latin American countries, MNEs preferred to create joint-venture rather than investing through a wholly-owned subsidiary. Godinez & Liu (2015) found in Latin America that if the corruption distance, which they consider as cultural distance, between the host country and home country increases, the FDI flows to the host country decreases. On the contrary, Subasat and Bellos (2013) found that high levels of corruption in Latin America are associated with high levels of FDI. The reason for this is that with low governance quality, corruption can compensate for poor governance. For example, by overcoming bureaucratic environments or giving the right incentives to MNEs. Altogether, most literature and research describe a negative relationship between cultural distance and FDI flows, which results in the following hypothesis:

Hypothesis 3: The greater the Cultural distance between a home and host country, the less FDI flows between these two countries

2.3.2 Political distance

The political distance is related to the difference regarding several factors, which are assessed by different papers. Delios and Henisz (2003) used the political system, Brewer (2007) used trade relationships and Jensen (2003) pointed out that democratic characteristics define political distance. For this paper, the political distance is defined as Berry et al. (2010) described. Political distance is the difference in political stability, democracy and trade bloc membership between countries.

Earlier research stresses the importance of political systems in a country for the economy. Henisz and Williamson (1999) argue that if the formal institutional environment is the same or very similar between the host and home country, the MNEs have the same trade-off with suppliers in the host country as in the home country. In other words, if the distance is zero or close to zero between countries, MNEs challenge the same problems and uncertainty as in the home country. Henisz (2000) argues that potentially arbitrary and frequent changes in taxation, regulatory or other relevant economic policies increase the uncertainty for MNEs. This leads to investors demanding higher and more immediate returns, change the nature of the investment or not investing at all. Henisz and

Williamson (1999) give two reasons for this increasing uncertainty. Firstly, the host government can more easily make decisions for its benefit. Secondly, a host-country competitor can approach the government more effectively with requests that hurt the MNE from a home country. In both cases, the MNE from the home country faces additional hazards compared to the host country MNEs, which increases the uncertainty and therefore decreases the FDI from the home country. The politics can thus influence the business environment for MNEs. Tax breaks, subsidies and easy repatriation of capital can attract FDI into host countries (Bond and Samuelson, 1986; Black and Hoyt, 1989; Hubert and Pain, 2002). On the other hand, higher levels of corruption can discourage FDI flows (Cleeve, 2008).

For all four political distance factors that has been used by the earlier mentioned research, political system, political stability, trade relationships and democratic characteristics, a negative relationship was found by the researchers between FDI flows and political distance (Berry et al., 2010; Brewer, 2007; Delios and Henisz, 2003). If the distance in politics increases, firms are more uncertain about the environment and therefore willing to invest less in this particular country. Based on these previous findings on the political distance the following hypothesis can be formed.

Hypothesis 4: The greater the political distance between a home and host country, the less FDI flows between these two countries

2.3.3 Geographic distance

The last distance factor is related to the distance as the crow flies, the geographic distance. Berry et al. (2010) describe that the further apart countries are located the more differences in, for example, culture, administrative, economic, financial or political systems are expected. It is already widely known that geographic distance influences different types of economic activities, such as trade and investments (Anderson, 1979; Deadorff, 1998). The greater distance also brings higher costs, such as transportation or communication costs.

Hamilton and Winters (1992) used geographic distance to measure the natural obstacles to trade. They tried to predict future trades between eastern Europe and other countries and found that if the countries are located further away from each other, the natural obstacles to trade increase. Fratianni and Oh (2009) find strong evidence for the regionalization strategy, which they explain by the presence of regional trade agreements Therefore, just like the other two distance factors, a greater geographic distance is expected to decrease FDI flows between countries, which is the basis for the fifth hypothesis.

Hypothesis 5: The greater the geographical distance between a home and host country, the less FDI flows between these two countries

2.4 The moderation effect

The last hypothesis will focus on the moderation effect between production costs and the distance variables. As the earlier mentioned hypotheses state, the greater the distance in culture, politics and geography, the less FDI flows between countries are expected. However, for the first hypothesis, FDI flows are expected to increase when the production costs decrease. This leads to the question of this increase is enough to compensate for the uncertainty that is formed by the distances. Companies try to produce as cheaply as possible and are always actively making cost-benefit analyses. If the competitive advantage that can be achieved in the host country due to the wage is great enough, it is expected that the distance variables will have a less negative impact on FDIs. Although Agerwal (1980) and Schuler & MacMillan (1984) explained that lower production costs can lead to a competitive advantage, it is not yet researched if this can decrease the effect of distances between host and home countries on FDI. However, the expectation is that production costs negatively moderate the relationships between the distance variables and FDI. The corresponding hypothesis that are related to the moderation effect are:

Hypothesis 6a: Lower production costs of the host country attenuates the negative relationship between cultural distance and FDI

Hypothesis 6b: Lower production costs of the host country attenuates the negative relationship between Political distance and FDI

Hypothesis 6c: Lower production costs of the host country attenuates the negative relationship between Geographic distance and FDI

3. Data and Methodology

3.1 Data

In this section, the dependent, independent and control variables that are used will be described. It is also explained where the data is retrieved from. Variable names are in italic letters.

3.1.1 Dependent variable

Foreign Direct Investment (FDI): the dependent variable is the value in million dollars of foreign direct investments into a country between 2009 and 2019. The data for the countries Argentina, Chile, Colombia, Ecuador, El Salvador, Guatemala, Mexico and Paraguay are retrieved from the International Trade Centre (ITC) (2021). The second Data Source is the Coordinated Direct Investment Survey (CDIS) (2021). This data source is used for the countries: Bolivia, Brazil, Costa Rica, Honduras, Panama, Peru, Uruguay and Venezuela. The databases are calculating the foreign direct investment flows differently. For this reason, two separate analyses will be conducted for the two different datasets. The main analyses are conducted with the dataset retrieved from the International Trade Centre, which contains the most observations compared to the CDIS dataset. The CDIS dataset its purpose is used for a robustness check.

The countries that invested in the Latin-American countries can be all countries over the world. For the ITC dataset, this comes down to a total of 200 countries that invested in the countries mentioned above. The number of FDIs received by all countries is 5,063 with a total value of 823,923.6 million dollars (see Table 1). The minimum investment has a negative sign because of one of three reasons. First, direct investment positions are negative when a direct investor's claims (equity and/or debt) on its direct investment enterprise are less than the direct investment enterprise's claims (equity and/or debt) on its direct investor. Secondly, direct investment positions also could be negative due to net negative positions with fellows. Thirdly, direct investment positions also can be negative due to negative retained earnings (which may result from the accumulation of negative reinvested earnings).

For the CDIS dataset, the country receiving the most FDI flows on average is Brazil, with 2,841,95 million dollars. The second country receiving the most FDI flows is Panama, receiving 1,894.18 on average, while for the ITC dataset, Chili received the highest amount of FDI, 395.94 million dollars. This can explain why the average of the CDIS dataset of 726.77 million dollars is way higher than for the ITC dataset, which is 162.73. Excluding these countries from the data is not done, as this high of received FDI could be explained due to the low distance in culture or politics. For the descriptions of the variables used in the next section, only the ITC dataset is considered.

3.1.2 Independent variables

Production cost: Production costs will be defined in the research as the yearly minimum wage (in US dollars) that is present in the country retrieved from CountryEconomy (2021). For every Latin American country for the period 2009-2019 data is available.

RelativeCosts: The *RelativeCosts* variable is calculated as the absolute difference of the average minimum wage between a host and home country. For example, the average minimum wage for Argentina is 503.39 dollars and the average minimum wage in the Netherlands is 1,701.50 dollars. Then the difference variable is 1.198.11 dollars.

Cultural Distance: To calculate the cultural distance the differences in individualism, power distance, uncertainty avoidance, and masculinity is taken (Berry et al., 2010). For the differences, the database of Berry et al. (2010) will be used, as they update the distances annually. To create the distances, the public opinion data from four waves of the World Values Survey (2021) world is used. This has an advantage compared to the Hofstede cultural distances (Hofstede, 1980). The WVS data is updated every three to four years, making the data more relevant compared to Hofstede. An average of these four characteristics will be used to create one *CulturalDistance* variable. After calculating the individual cultural value, the two values of the countries are subtracted to create the difference between the two countries.

Political distance: Data from Berry et al. (2010) is used to define the political distances between Latin-American countries and the home countries. They used multiple indicators to define political distance. Firstly, political stability, which is the number of independent institutional actors with veto power retrieved from The Political Constraint Index (2021). Secondly, government size relative to its overall economy is measured by government consumption as a percentage of its gross domestic product (GDP) (World Bank, 2021). Thirdly, the number of world and regional trade agreements active by the government (World Trade Organization, 2021). Fourthly, Democratic character, measured with the democracy score of the Freedom House database (2021). At last, a Regional trade agreement is used, which stands for the Dyadic membership in the same trade bloc (World Trade Organization, 2021). An average of these five factors will be created. Then for the political distance variable of two countries, these averages are subtracted and the political distance variable is created.

Geographic distance: Geographic distance is calculated using the great circle method, meaning that the absolute distance between the home and the host countries is measured from the country's border. These geographic distances are provided by the CIA Factbook and also calculated and provided by Berry et al. (2010).

Control variables: In deciding on which control variables to include, previous literature is followed (Berry et al., 2010; Coughlin, Terza, & Arromdee, 1991; Fan, Morck, Xu & Yeung, 2009). These control variables capture other economic characteristics of the host country that are likely to influence the FDI inflows from other home countries. Fist, *Income*, measured by Gross Domestic Product (GDP) per capita is included. Secondly, models control for the annual economic growth of a host country, measured by GDP growth indicated with the *GDPGrowth* variable. Thirdly, the models also control for market size, defined by the *populationgrowth* of a country, to control for scale economies achievable in each country. Fourthly, Openness to trade is controlled for, which is measured by total exports and imports as a percent of GDP. The *TradeOpeness* of a country can reduce the effort of FDI for jumping trade barriers or can reduce information asymmetry. Additionally, *Infrastructure,* which is measured by the percentage of people using the internet. The better the quality of infrastructure, the more easily barriers are overcome by MNEs. Moreover, *Mineral rents* (% of GDP): the difference between the value of production for a stock of minerals at world prices and their total costs of production is also used to control for the MNEs that locate their FDI because they need local minerals for production. At last, *Inflation* is controlled for. All this data is found in the world databank (World Bank, 2021) and in US dollars.

3.2 Descriptive Statistics

An overview of the descriptive statistics can be found in Table 1. The mean FDI flow between countries is 162.73 million dollars per year. In this dataset, on average, Chili received the highest amount of FDI (395.94 million dollars) and Ecuador received the lowest amount of FDI on average (5.86 million dollars) over the whole period. The mean minimum wage of the dataset is 287.88$. The lowest minimum wage is 109.10$ for Guatemala and the highest minimum wage is 265.84$ for Argentina. The distance variables cannot be negative, as there is always a difference in one of the measurements for the distance variables between two countries.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	5063	162.734	990.252	-3952.67	19466.11
ProductionCosts	16893	287.877	126.116	109.1	605.2
RelativeCosts	6631	417.23	529.32	0	3969.51
CulturalDistance	3412	9.562	6.341	0	45.997
PoliticalDistance	13917	7.77	16.392	0	450.102
GeographicDistance	28050	9885.206	4413.863	0	19878
PopulationGrowth	26507	.907	.899	-4.048	1.881
TradeOpeness	24107	64.329	23.018	22.486	115.177
LnInflation	23504	1.155	1.006	-2.586	3.981
Internet	21299	43.59	19.576	7.3	83.559
LnMinerals	17074	-.795	1.296	-3.398	2.44
Income	24307	8.829	.73	7.275	10.4
GDPGrowth	26507	2.426	3.141	-5.919	11.144

3.3 Model Specification

All linear regression models have FDI as the dependent variable and include the same control variables, which are mentioned in section 3.1.2. Model 1 will include the minimum wage, which proxies for the production costs. To confirm that indeed minimum wage is important for receiving FDIs, Model 2 will include the differences in production cost between host and home countries. Models 3, 4, and 5 will include the distance variables. Specifically, Model 3 with the Cultural distance, Model 4 with Political distance and Model 5 with the geographic distance variable. Models 6, 7 and 8 will then include the interaction term of the distance variables with the production costs variable in the same order as Models 3,4,5. Model 9 will include all variables, using all production cost data, and the interaction terms. So, Model 9 will be the full model. Formula 1 gives an overview of the Model 9:

(1) $$FDI = \alpha + \beta_1 * ProductionCosts + \beta_2 * CulturalDistance + \beta_3 * PoliticalDistance + \beta_4 * GeographicDistance + \delta_1 * CulturalDistance * ProductionCost + \delta_2 * PoliticalDistance * ProductionCost + \delta_3 * GeographicDistance * ProductionCost + PopulationGrowth + TradeOpeness + LnInflation + Internet + LnMinerals + LnIncome + GDPgrowth + \varepsilon$$

To test if lower production costs of the host country attenuate the negative relationship between cultural distance and FDI an interaction term is used, namely distance variables * production costs. The variable *ProductionCosts* is a variable involved in an interaction with another variable in the model such that the effect of the other variable depends upon the value of the moderator variable, i.e., the effect of the other variable changes depending on the value of the moderator Hayes (2013). In a model where the interaction term is used, also its individual variable is included. For example, Model 3 with the cultural distance variable will have the variables: *CulturalDistance, ProductionCosts* and *CulturalDistance*ProductionCosts*. To see if lower production costs indeed do weakens the effect of Distance on FDI, the interaction effect should be negative and significant. This way, if the production costs decrease, the negative effect of distance on FDI decreases too. In this case, when the production costs of an MNE decrease, the effect of cultural distance on FDI flows becomes less negative. Meaning that Production costs attenuate the effect of distance on FDI. With graphs will be made clear what the effect is of production costs on the relationship of distance factors and FDI.

The five assumptions of an ordinary least squares (OLS) regression are kept in mind when creating the models. Assumption two, homoscedasticity, is tested with a White test and heteroscedasticity is found in the model (Appendix A, Table 2). Therefore, robust standard errors are used in all analyses. Multicollinearity appears not to be a problem for the ITC dataset by looking at the correlation matrix and a variance inflation factor (VIF) test (Appendix A, Table 1 and 3). However, for the CDIS dataset multicollinearity is present if the same set of variables is used as in the model for the ITC dataset. A VIF test above the threshold of 10 is associated with high collinearity and therefore appropriate measures must be carried out. Therefore in the models with the CDIS dataset, the control variables *LnIncome* and *Internet* are dropped. With the new set of variables, the threshold of 10 is not violated (See Appendix B, Table 2). At last, control variables are used to control for specific country-specific characteristics. Because some variables are highly skewed (*Population, Inflation, Minerals, GDPperCap* and *GDPGrowth*), these variables are transformed into logarithmic functions to minimize errors.

4. Results

In this section the results of the multiple regressions are presented. First, the effect of absolute and relative production costs are described. Second, the effect of the distance factors, cultural, political and geographical distance on FDI are reported. Third, the moderation effect of production costs on the relationship of distance factors on FDI is described. The models are showed in Table 2. At last, a robustness check is presented with the CDIS dataset.

4.1 Production costs

4.1.1 Absolute Production costs

For the first hypothesis, the link between production costs and FDI is analysed. It was stated that higher production costs will result in lower FDI flows into a specific host country. This hypothesis is tested in Model 1 and Model 9 of Table 2. Model 1 includes only the effect of production costs without the distance factors and model 9 includes all available variables. Looking at model 2 in Table 2, the variable *ProductionCosts* is negative but insignificant. While this effect is not significant in model 1, the first hypothesis is supported in the Model 9, production costs are negatively and significantly related to FDI flows (Beta (β)=-7.12; Robust Standard Error (SE)=2.52; Significance Level (*p)*=0.01). This suggests that if the minimum wage in a country increases by 1 dollar, the FDI flows into these countries will decrease by 7.12 million dollars, ceteris paribus. Model 9 is used to conclude as this model includes all relevant variables and has the highest adjusted R-squared (Model 1: 0.01 vs. Model 9: 0.15). A high adjusted R-squared suggests that this model fits the data the best. In conclusion, the first hypothesis is supported by the significant results found in model 9. When production costs in a host country increase, MNEs are less likely to invest in this country.

4.1.2 Relative production costs

To show that the relative difference in production costs between the host and home country is also important for an MNE when deciding where to invest, the relative production costs are taken into account. Hypothesis 2 states that relative higher differences between host and home countries result in more FDI flows to the host country. This hypothesis is tested in Model 2 of Table 2, which includes only the relative costs and the control variables. The variable relative costs included in model 2 is significant and positively related to FDI (β= 0.31; SE=0.06; *p*=0.01). This indicates that higher relative differences in the minimum wage between a host and home country significantly attract more FDI flows into the host country. When the difference increases by 1 dollar, the FDIs into the host country increase by 0.29 million dollars, ceteris paribus. This is in line with hypothesis 2, which predicted that higher relative differences in production costs would have a positive effect on FDI flows into the host country from the home country.

4.2 Distances

4.2.1 Cultural Distance

Hypothesis 3 states that if cultural distance between two countries increases, FDI flows between these countries will decrease. Looking at Table 2 and Model 3, the model including cultural distance with the control variables is presented. It shows a significant positive effect of cultural distance on FDI (β= 15.00; SE=4.83; *p*=0.01). This suggests that when the cultural distance between a host and home country increases by 1 point, the FDI flows between these countries increase by 15 million dollars, ceteris paribus. Looking at model 9, where the production costs with all other variables are included, the cultural distance is still significantly positive with a greater magnitude (β= 135.08; SE=42.88; *p*=0.01). So, hypothesis 3 is not supported. Instead of an expected negative relationship, the results show a significant positive relationship between cultural distance and FDI.

4.2.2 Political Distance

In Models 4 and 9, the fourth hypothesis is tested. In Model 4 political distance is included with the control variables and in Model 9 with all other variables. Political distance seems to have no significant effect on FDI in both models. Therefore, hypothesis 4 is not supported, when political distance increases between two countries, FDI flows between these countries do not decrease or increase significantly.

4.2.3 Geographic Distance

Hypothesis 5 states that when the geographic distance increases, the FDI flows between countries should decrease. This hypothesis is tested in Model 5, where only geographic distance and control variables are included, and in Model 9 with all other variables. Model 5 shows a significant and negative relationship between geographic distance and FDI inflows (β= -0.03; SE=0.01; p=0.01), which suggests that indeed a greater geographic distance is associated with less inward FDI. Model 9 shows the same results but with a higher magnitude. Model 9 of Table 2 suggests that if the geographic distance increases by 1 kilometre, the FDI flows between the host and home country decreases with 0.30 million dollars, ceteris paribus. Hypothesis 5 is therefore supported, a negative relationship between geographic distance and FDI flows between host and home countries is found.

4.3 Moderation Effect

The interaction effects of the different distance factors and production costs are included in Models 6-9. In Model 6 where only the interaction term of cultural distance and production costs is included, production costs negatively moderate the positive relationship between cultural distance and FDI, this relationship is significant at 1%. The interaction effect suggests that if production costs decrease in a host country, the effect of cultural distance is greater on FDI flows. In Model 9, where all the variables and interaction effects are included, the same conclusion with other magnitudes can be stated.

Figure 1 shows the effect of different levels of production costs on FDI for different levels of cultural distance of Model 9. Figure 1 illustrates that if production costs in a host country are low, there is a positive relationship between cultural distance and FDI. This is illustrated with the blue line in Figure 1. When production costs increases in a country, this positive effect earlier described changes into a negative effect. Both for the red and green line, where production costs are relatively high, the relationship between cultural distance and FDI is negative. This indicates that the relationship between cultural distance and FDI strongly dependent is on the production costs in a host country. For example, if the cultural distance between country X and country A, B and C is the same, 22.5 points. However, for country A production costs is only 100$, for country B it is 355$ and for country C it is 600$. In this case, country A receives around 3000 million dollar, country B receives around zero and country C receives around -3000 million dollar from country X.

Hypothesis 6a, which states that lower production costs of the host country attenuate the negative relationship between cultural distance and FDI is not accurate anymore for countries with low production costs. Earlier results show that this relationship between cultural distance and FDI is positive. However, lower production costs do now strengthen this positive effect, which is in line with expectations. This needs some further explaining, as it seems odd that this observed effect is still in

line with expectations. First, it was expected that the negative relationship between cultural distance and FDI would be negative and lower production costs would attenuate this negative relationship and result in more FDI flows. Now that the relationship is positive, lower production costs strengthen this effect, which still results in more FDI flows between the host and home country.

Hypothesis 6a is still accurate for countries with high production costs, where the relationship between cultural distance and FDI is negative. This negative relationship between cultural distance and FDI is weaker when production costs decrease. In Figure 1, the slope of the green line is higher compared to the red line. This indicates that lower production costs attenuate the relationship between cultural distance and FDI, which is in line with hypothesis 6a. Therefore, hypothesis 6a is accepted, lower production costs attenuate the relationship between cultural distance and FDI.

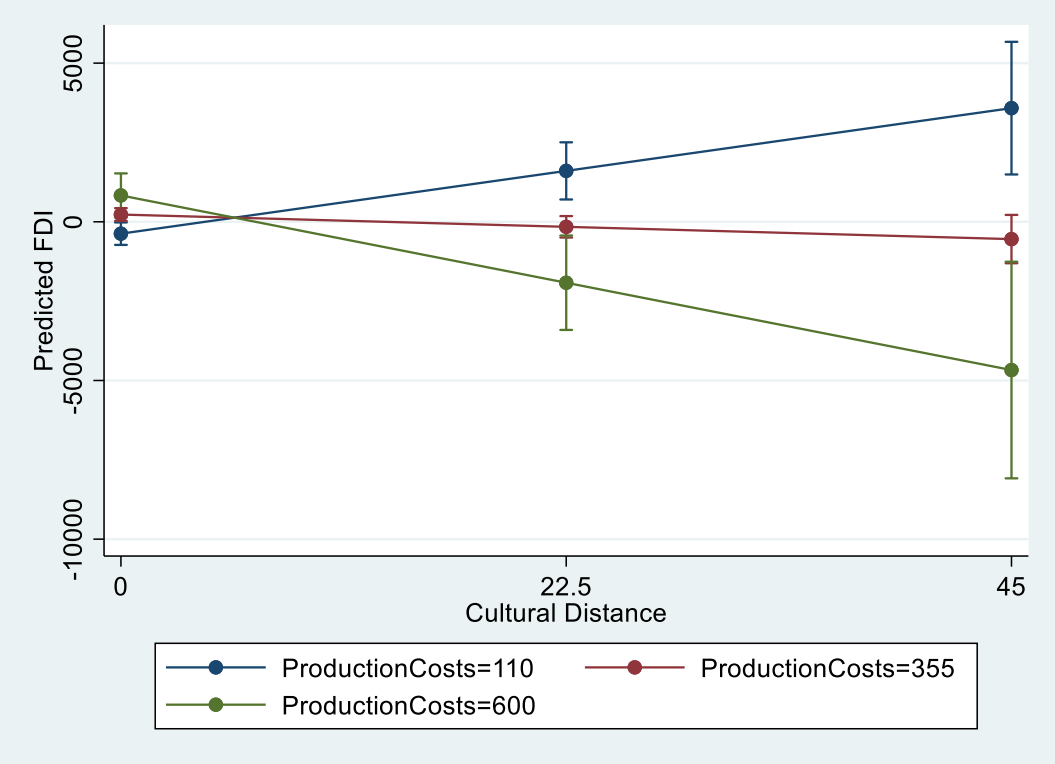

Figure 1: predictive margins of FDI with different levels of cultural distance and production costs with 95% confidence level

Production costs do not weaken the effect of political distance on FDIs into host countries. In both Model 7 and 9, the interaction term between *ProductionCosts* and *PoliticalDistance* is insignificant. This is not unexpected after the earlier results that political distance does not significantly influence the FDI flows from a home to a host country.

For the interaction term between production costs and geographic distance in Model 8, a significant effect is found. However, the sign is positive, meaning that when production costs decrease the negative effect of geographic distance on FDI is stronger. This same effect is found in Model 9. Therefore, hypothesis 6c, which suggests that lower production costs of the host country attenuate the negative relationship between geographic distance and FDI, is not supported. The opposite is found, lower production costs of the host country strengthen the negative relationship between geographic distance and FDI.

Figure 2 illustrates the effect of different levels of production cost on FDI for different levels of geographic distance of Model 9. In this figure, you can see that the production costs in a host country result to the lowest FDI flows between two countries and the lowest geographic distance leads to the highest FDI flows, keeping geographic distance at its minimum (0). Figure 2 shows that production costs affect the relationship between geographic distance and FDI. When production cost are low (110$), which represents the blue line, the relationship between geographic distance and FDI is negative. This is in line with hypothesis 5, which suggests that higher geographic distance results in lower FDI flows between two countries. However, when production cost increase, the red and green line, this relationship between geographic distance and FDI becomes positive. So, production costs have a high impact on the relationship between geographic distance and FDI. This positive relationship is stronger for higher amounts of production costs, indicated by the green line.

Hypothesis 6c, which states that lower production costs of the host country attenuate the negative relationship between geographic distance and FDI is rejected. It is found that lower production costs strengthen the negative relationship between geographic distance and FD and higher production costs attenuate the negative relationship between geographic distance and FDI.

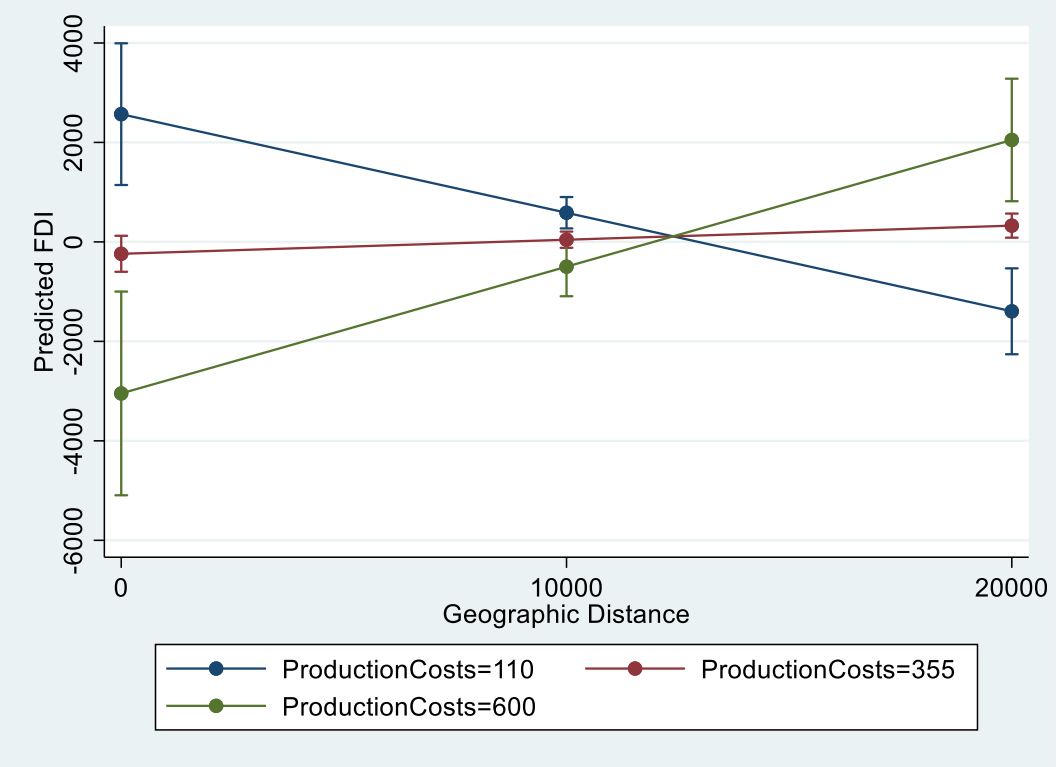

Figure 2: predictive margins of FDI with different levels of geographic distance and production costs with 95% confidence level

Table 2: Regression results with FDI as dependent variable

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
ProductionCosts	-0.26					1.17	-0.25	-2.14*	-7.12***
	(0.40)					(0.76)	(0.41)	(1.12)	(2.52)
RelativeCosts		0.31***							
		(0.06)							
CulturalDistance			15.00***			84.79***			135.08***
			(4.83)			(26.01)			(42.88)
PoliticalDistance				-0.20			-1.70		-2.85
				(0.34)			(1.43)		(4.66)
GeographicDistance					-0.03***			-0.09***	-0.30***
					(0.01)			(0.03)	(0.09)
Cultural*ProductionCosts						-0.30***			-0.43***
						(0.09)			(0.14)
Political*ProductionCosts							0.01		0.01
							(0.01)		(0.02)
Geographic*ProductionCosts								0.00**	0.00***
								(0.00)	(0.00)
PopulationGrowth	-291.45*	-554.18***	-199.63	-308.17**	-364.66**	-223.61	-441.43	-300.51*	-223.09
	(176.19)	(194.96)	(193.87)	(155.06)	(142.42)	(202.73)	(274.54)	(175.67)	(367.59)
TradeOpeness	-4.70*	6.18*	7.81*	-0.96	-2.20	4.63	0.43	-2.95	8.93
	(2.41)	(3.49)	(4.07)	(2.51)	(2.07)	(3.63)	(3.46)	(2.34)	(6.90)
LnInflation	24.20	42.41	50.02	66.64*	51.96	-20.89	101.66*	25.34	7.57
	(57.14)	(124.02)	(72.21)	(34.69)	(46.35)	(97.82)	(56.78)	(57.49)	(85.92)
Internet	2.75	-5.31	-1.90	-0.80	1.18	1.29	-1.05	1.74	0.63
	(2.32)	(4.29)	(3.47)	(2.39)	(1.96)	(3.94)	(2.97)	(2.31)	(5.15)
LnMinerals	30.86	-52.80	5.01	48.68**	11.02	25.31	58.90**	3.86	-26.24
	(34.19)	(47.99)	(33.13)	(23.82)	(25.20)	(43.30)	(24.87)	(35.44)	(46.43)
LnIncome	76.51	344.48*	271.35	138.29	167.37*	136.37	73.50	183.33	435.93*
	(112.66)	(201.65)	(210.03)	(109.99)	(99.38)	(218.52)	(130.58)	(115.96)	(258.83)
GDPGrowth	1.22	-36.17	-14.80	-4.22	-1.39	8.04	-2.05	-0.25	6.23
	(8.50)	(24.73)	(13.17)	(7.83)	(6.49)	(16.74)	(9.88)	(8.51)	(16.94)
Constant	124.71	-2,291.56	-2,464.65	-565.95	-468.84	-1,439.77	131.12	-87.17	-1,724.01
	(1,039.98)	(1,691.32)	(1,866.28)	(1,001.40)	(888.78)	(2,000.88)	(1,296.22)	(1,053.32)	(2,243.56)
Observations	3,036	1,387	1,198	2,554	3,430	1,065	2,197	2,979	871
R-squared	0.01	0.05	0.02	0.02	0.03	0.04	0.02	0.04	0.16
Adjusted R-squared	0.01	0.04	0.02	0.02	0.03	0.03	0.01	0.03	0.15

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.4 Robustness check: CDIS Dataset

As mentioned in section 3.1.1, two datasets are used to test the hypotheses. The dataset of ITC containing the countries Argentina, Chile, Colombia, Ecuador, El Salvador, Guatemala, Mexico and Paraguay is already discussed. In this section, the similarities and differences between the ITC dataset and the CDIS dataset containing Bolivia, Brazil, Costa Rica, Honduras, Panama, Peru, Uruguay and Venezuela are reviewed. The results of the second dataset should be interpreted with caution, as the observations are not always sufficient. Also, the second dataset does not contain the same control variables, as these caused multicollinearity in the models. See Appendix C, Table 1 for the regressions with the CDIS dataset. The differences between the ITC and the CDIS dataset are displayed in Table 3. In this table, the coefficients and significance of Model 9 are showed.

Hypothesis 1 is tested in the first model of the Table. In Model 1, where only production costs and the control variables are included, the relationship between production costs and FDI is insignificantly negative. For Model 9 an insignificant but positive effect is found. This is for the ITC dataset differently, in Model 1 the coefficient is insignificant but in Model 9, the production costs has a significantly negative effect on FDI. Therefore, hypothesis 1 is not supported with the CDIS dataset. However, with the ITC dataset, hypothesis 1 is supported.

Hypothesis 2 states that higher relative difference in production costs between a home and host country results in more FDI flows between those countries. This hypothesis is tested in Model 2, where only the relative production costs and the control variables are included. The coefficient of *RelativeCosts* is significant and positive (β= 4.73; SE=0.55; *p*=0.01), suggesting that an increase in the difference of production costs between a host and home country by 1 dollar results in an increase in FDI flows from the home to the host country by 4.73 million dollars, ceteris paribus. So, like the results of the ITC dataset, hypothesis 2 is supported with the CDIS dataset. An increase in the relative difference in production costs between host and home country results in more FDI flows between those two countries.

Hypothesis 3 predicts that higher cultural distance leads to lower FDI flows between a host and home country. Cultural distance is included in the CDIS dataset in Model 3, where only cultural distance and the control variables are included. Cultural distance has a significant and positive effect on FDI (β= 237.58; SE=87.29; *p*=0.01). In Model 9 cultural distance is negative and significant (β= -4,399.51; SE=2,049.18; *p*=0.05). Model 3 presents the same results for both datasets. For the ITC dataset, Model 9 of the ITC dataset shows a significant positive relationship between cultural distance and FDI, while the CDIS dataset shows that this relationship is significantly negative, which is more in line with

hypothesis 3. Regarding hypothesis 3, no clear conclusion can be made as the two datasets give contradicting outcomes.

The fourth hypothesis, a greater political distance between a host and home country leads to less FDI between those countries, is tested in Model 4 and Model 9. In Model 4, only political distance and the control variables are included and in Model 9 political distance with all other variables are included. For the ITC dataset, political distance between a host and home country does not affect the FDI flows between those countries in Model 4 and Model 9. However, for the CDIS a significant positive effect is found between political distance and FDI in Model 4 (β= 36.08; SE=12.36; *p*=0.01). In Model 9 where political distance with all other variables is included, this significant effect is not present anymore and the effect becomes negative. The positive effect is not in line with hypothesis 4, which suggested that an increase in political distance between a host and home country would lead to fewer FDI flows between these countries. The fact that with the ITC dataset no significant effect of political distance is found and for the CDIS dataset only a significant effect is found for Model 4, it is concluded that political distance has no influence on the amount of FDI between a host and a home country.

The fifth hypothesis states that a greater geographic distance has a negative effect on the amount of FDI between a host and home country. This fifth hypothesis is tested with Model 5, where only geographic distance and the control variables are included and with Model 9, where geographic distance and all other variables are included. The relationship between Geographic distance and FDI is in the ITC dataset in all models significantly negative. In the CDIS dataset, in Model 5 this same significantly negative relationship between geographic distance and FDI is found (β= -0.13; SE=0.02; *p*=0.01). However, in the Model ,9 this effect of geographic distance on FDI is significantly positive (β= 4.27; SE=1.88; *p*=0.05). Therefore, no clear conclusion can be formed about hypothesis five when comparing the two datasets.

Hypothesis 6a, 6b and 6c state that production costs attenuate the effect of the distance variables on FDI. For answering this hypothesis, Model 6-8 are used, where only the interaction effect of a single distance variable is included with production costs and control variables. Also, Model 9 is used where all variables and all interaction effects are incorporated. For the interaction effects in Model 6-8, no significant effect of the moderator is found. However, in Model 9 a significant effect is found for the interaction effect of cultural distance and geographic distance with production costs. These two interaction effects are elaborated below.

Figure 3 shows the effect of different levels of production costs on FDI for different levels of cultural distance of Model 9. This graph illustrates that the lowest production costs in a host country lead to the highest FDI flows between two countries and the lowest production costs lead to the lowest FDI flows, keeping cultural distance at its minimum (0). Figure 3 shows that if production costs in a host country is at its lowest, 110$, there is negative relationship between cultural distance and FDI. However, when production costs in a country is higher, indicating the red and green line, this positive relationship transforms into a negative relationship. Just like the ITC dataset, with the CDIS dataset, the relationship between cultural distance and FDI is dependent on the production costs in a host country.

Hypothesis 6a, which states that lower production costs of the host country attenuate the negative relationship between cultural distance and FDI is not supported. Lower production costs strengthen the negative effect between cultural distance and FDI. For the ITC dataset, lower production costs strengthen the positive effect that was found between cultural distance and FDI. Regarding those two results, no clear conclusion about hypothesis 6a can be formed.

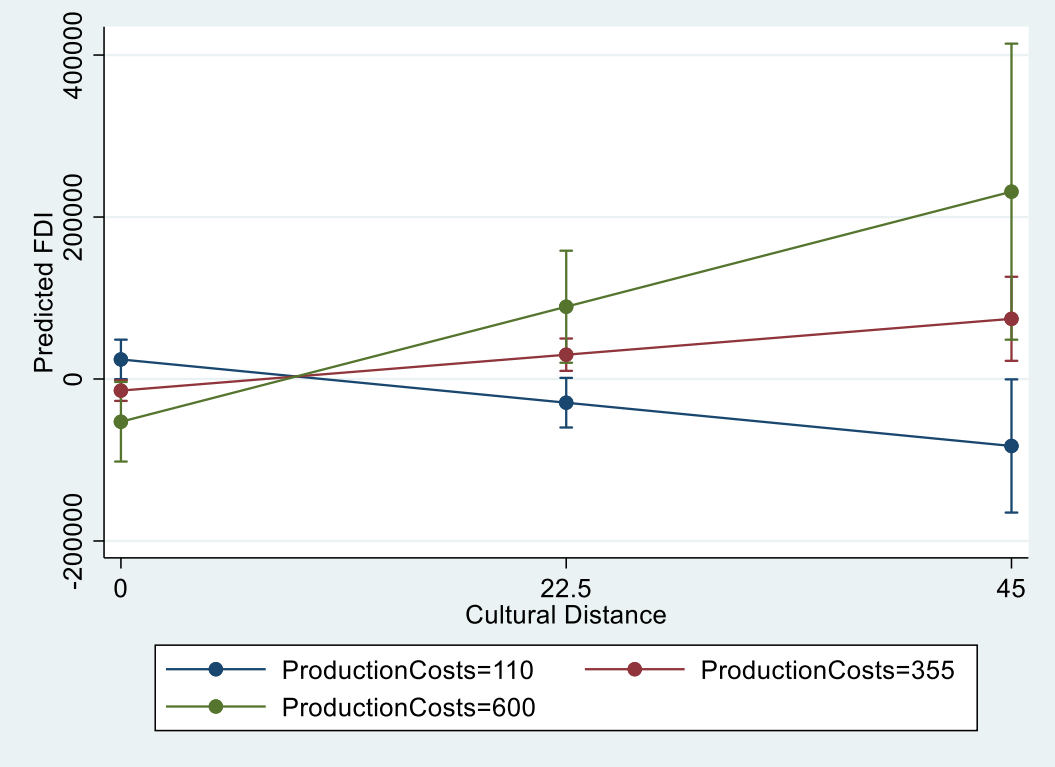

Figure 3: predictive margins of FDI with different levels of cultural distance and production costs with 95% confidence level

Figure 4 illustrates the effect of different levels of geographic distance on FDI for different levels of production costs of Model 9 with the CDIS dataset. This figure displays that the lowest production costs leads to the lowest FDI flows between two countries and the lowest geographic distance leads to the lowest FDI flows, keeping geographic distance at its minimum (0). Figure 4 shows that production costs affect the relationship between geographic distance and FDI differently. When the production costs in a host country is low, which represents the blue line, a positive relationship between geographic distance and FDI is present. However, when production costs are higher, representing the red and green line, this positive relationship between geographic distance and FDI becomes negative. Once again this shows that the relationship between geographic distance and FDI depends on the production costs in a host country.

Hypothesis 6c, which states that lower production costs of the host country attenuate the negative relationship between geographic distance and FDI is rejected. First of all, with the CDIS dataset, a positive relationship of geographic distance on FDI is found instead of an expected negative relationship. Now, for low levels of production costs, a positive relationship between geographic distance and FDI. This indicates that lower production costs strengthen the positive relationship between geographic distance and FDI. This result is still in line with expectations, when a new more accurate hypothesis is formed. Now that the relationship between geographic distance and FDI is positive, lower production is expected to strengthen instead of weaken this effect. An explanation for this is given in section 4.3, hypothesis 6a. For the ITC dataset, it is found that lower production costs strengthen the negative relationship between geographic distance and FD and higher production costs attenuate this negative relationship. Therefore, for hypothesis 6c, no clear conclusion can be stated with both the datasets.

By comparing the two datasets no clear conclusions can be drawn, except for relative difference in production costs because in both datasets signs are equal (See Table 3). One possible explanation can be that the observations are not always sufficient with the CDIS dataset and results are therefore not robust. Regarding this, the ITC dataset is the leading dataset when concluding. The CDIS dataset only serves for control. As Model 9 has the highest adjusted R-squared for both datasets, it can be stated that this model is leading when concluding. However, these conclusions must be done with caution, as for both datasets this is the model with the least observations. For the ITC dataset, the number of observations is 871 and for the CDIS dataset, it is 505. Still, the CDIS gives useful results and functions as a robustness check.

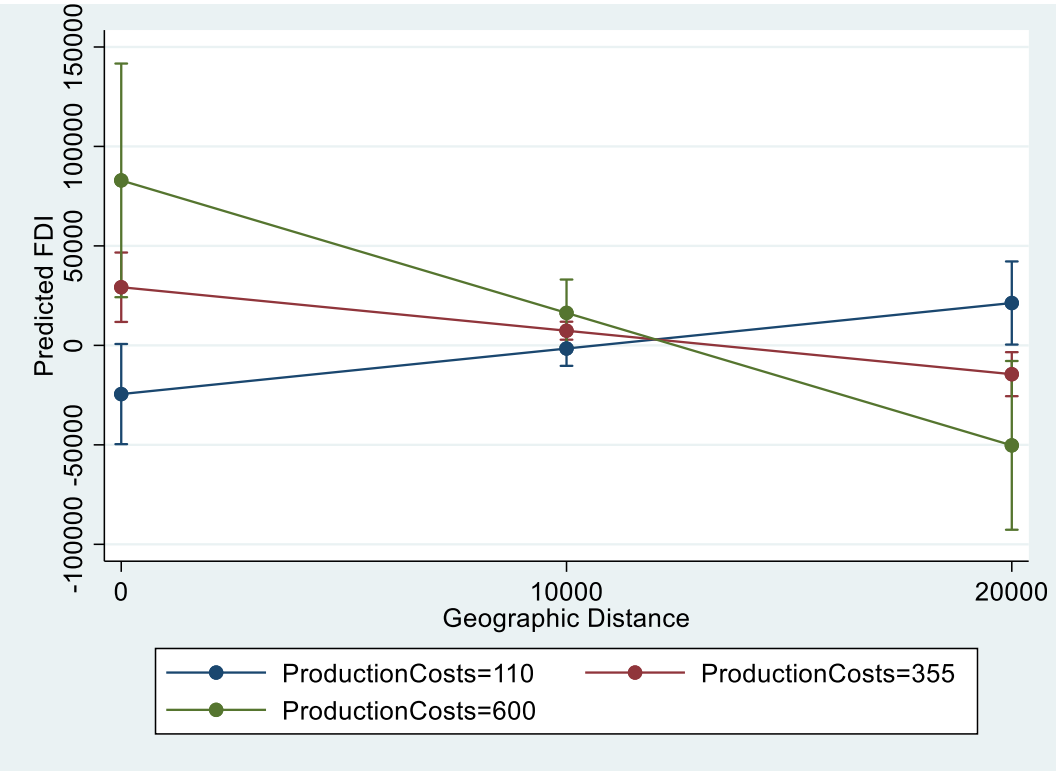

Figure 4: predictive margins of FDI with different levels of geographic distance and production costs with 95% confidence level

Table 3: ITC vs CDIS dataset sign and significance

Variable	ITC		CDIS	
	Sign	Significance	Sign	Significance
ProductionCosts	-	***	+	Non
RelativeCosts	+	***	+	***
CulturalDistance	+	***	-	**
PoliticalDistance	-	Non	-	Non
GeographicDistance	-	***	+	**
CulturalDistance*ProducionCosts	-	***	+	**
PoliticalDistance*ProductionCosts	+	Non	+	Non
GeographicDistance*ProductionCosts	+	***	-	**

5. Conclusion and Discussion

In this section, first the results are discussed. Secondly, limitations of this research and suggestions for future research are given. At the end, the main results are conferred and a conclusion of this research is provided.

5.1 Discussion

This paper tried to show whether distance factors explain foreign direct investment flows between home and host countries and how production costs influence the effect of these factors. This paper expands the literature on distance variables and contributes to the empirical literature as it used production costs as a mediator for the effect of distance variables on FDI. Also, the set of countries that has been studied was not explored enough according to Assunção et al. (2011). The results obtained in this paper can be used to show how political, cultural and geographic distance influence FDI flows into Latin-American countries. Most of the earlier conducted research found a negative effect of higher production costs and greater distance in culture, politics or geography on the FDI flows between two countries. However, this study does not fully corroborate the outcomes of previous studies. In this study, multiple models were used to determine the effect of the different factors on FDI. Where for absolute and relative production costs expected results are found, for the distance factors this was not always the case.

For production costs, it shows that it negatively influences FDI flows from a home country to a host country. If production costs, in this research the minimum wage, increase in the host country, this country receives less FDI from another country. This same effect is found for the relative difference in production costs between a host and a home country. If the gap in production costs of a home and host country increases, the flows of FDI between these two countries decrease. Hypothesises 1 and 2 are therefore supported. These founding's are in line with previous papers studying the effect of production cost on inward FDI (Botrić & Škuflić, 2006; Braconier, Norbäck & Urban, 2005; Schneider and Frey, 1985).

Earlier research most often found a negative effect of cultural distance on the amount of FDI flows between countries (Berry et al., 2010; Cui & Jiang, 2010; Godinez & Liu, 2015; Hofstede, 1980; Kang & Jiang, 2011; López-Duarte & Vidal-Suárez, 2010). However, in this research a significant positive effect was found. If the distance in culture that is defined as the differences in individualism, power distance, uncertainty avoidance and masculinity increases between two countries, the FDI flows between these countries will increase. A possible explanation is provided by Subasat and Bellos (2013). In their paper, cultural distance is defined by corruption levels in a country. They found that high levels of corruption in Latin America are associated with high levels of FDI. The reason for this is that with low governance

quality, corruption can compensate for poor governance. For example, by overcoming bureaucratic environments or giving the right incentives to MNEs. Furthermore, Levitt (1983) argues that the preferences and tastes of consumers in different nations are converging to a global norm. This can be an indication that differences in culture, politics or geography is less important when deciding where to invest. MNEs are therefore more likely to invest in locations where other important FDI determinants are present. It can be the case that such determinants are present in Latin-American countries, but are not included in the model. In conclusion, hypothesis 3 is not supported, because a greater cultural distance between two countries results in more FDI flows between these countries. However, if the production costs are low in a host country, hypothesis 3 is supported. This indicates that the relationship between cultural distance and FDI depends on the production costs in a host country.

Political distance, which is defined as the difference in political stability, democracy and trade bloc membership between countries, seems to not affect the decision of MNEs to invest in a country. This is not in line with the expected negative relationship between political distance and FDI. A possible explanation for this is provided by Berry et al. (2010). Their results suggest that when firms are investing with intentions to distribute in a country, political distance does not influence this decision. However, when an MNE intends to manufacture in a host country, greater political distance decreases the FDI flows of MNEs to the host country. It could be the case that MNEs are investing in Latin-American countries with more intentions to distribute rather than manufacture. However, in this dataset it is not possible to distinguish between the two reasons. Hypothesis 4 is therefore not supported, a greater political distance between two countries does not increase or decrease the FDI flows between two countries.

Geographic distance between two countries is the absolute distance of the two country borders. The results show that if this distance increases, the FDI flows from the home country to the host country are expected to decrease. This is in line with earlier research (Hamilton and Winters, 1992; Fratianni & Oh, 2009; Berry et al., 2010). So hypothesis 5 is supported, a greater geographic distance between two countries results in less FDI flows between these two countries.

Hypothesis 6a, which states that lower production costs of the host country attenuate the negative relationship between cultural distance and FDI is not accurate anymore. Earlier results show that there is a positive relationship between cultural distance and FDI. The new hypothesis that must be used should be that lower production costs of the host country strengthen the positive relationship between cultural distance and FDI. Indeed this is the case, lower production costs do now strengthen the positive effect, which is in line with expectations of the effect of production costs. This indicates that

in countries with low production costs, the relationship between cultural distance and FDI is stronger compared to countries with high production costs.

Regarding the relationship between political distance and FDI, no significant moderation effect of production costs is found. So, hypothesis 6b is not supported. Lower production costs do not influence the relationship between political distance and FDI. Again, a possible explanation is given by Berry et al. (2010). Their results suggest that political distance does not influence FDI flows from MNEs when these MNEs intend to distribute. However, when an MNE intends to manufacture in a host country, greater political distance negatively influences the FDI flows into a host country. It could be the case that MNEs are investing in Latin-American countries with more intentions to distribute rather than manufacture. If this is indeed the case, production costs are less important for these home MNEs and therefore have no significant influence on the relationship between political distance and FDI.

The last interaction term that has been investigated is the influence of production costs on the relationship between geographic distance and FDI. Hypothesis 6c suggested that lower production costs of the host country attenuate the negative relationship between geographic distance and FDI. This hypothesis is not supported with the outcomes of this research. It is found that lower production costs strengthen the negative relationship between geographic distance and FD and higher production costs attenuate the negative relationship between geographic distance and FDI. A possible explanation for this is that if countries are not far apart, MNEs can more easily outsource their production or other activities. Countries that are closer located to each other tend to have more in common (Berry et al., 2010). Also, if the geographic distance is less between countries, MNEs tend to have more related economic activities (Anderson, 1979). When the MNEs have more in common and know how to operate in another country, because economic activities and ways of doing are more similar, MNEs are looking for little differences to maximize their profits. MNEs are maybe not looking for the same (specialized) workers in a host country, as they have already similar workers at their disposal in the home country. This can result in the fact that higher production costs attenuate the negative relationship between geographic distance and FDI. MNEs are looking for more skilled, specialized workers, which have higher costs (Katz & Murphy, 1992).

5.2 Limitations

This paper tried to examine several determinants of FDI in Latin-America in the best way possible. However, there are some limitations regarding the research which will be discussed below. First of all, two different datasets were used with two different sets of countries. The best way would be to merge the two datasets and create a dataset with all Latin-American countries with more observations. This was not possible due to the difference in calculations and available data. The two different datasets

gave different conclusions for almost every hypothesis, except hypothesis 2, which is rather confusing than helping as a robustness check. Secondly, this research did not allow for industry specific or firm specific differences. Therefore, certain questionable results cannot be explained and more specific and extensive research cannot be performed. Other data that could be used but was missing was the reason why MNEs invested in a certain country. This could maybe answer unexpected outcomes or contradicting results of the different datasets. Thirdly, this paper tried to explain FDI with several factors. However, the study of FDI and its determinants is a difficult area and a lot of different factors are involved. There are still factors influencing FDI flows between countries that are not included in the model, even though they can be necessary for explaining why certain outcomes are obtained. Including all determinants is almost impossible, so it is tried to include the most important determinants. Still no certainty can be given that these are (still) the most important, as FDI is known as a complicated aspect of the economy. It is dependent on many different and changing determinants (Assunção et al., 2011).

5.3 Future research

In this section some recommendations for future research about this topic are provided. Future research about this topic is still relevant and interesting. The inflow of FDI brings several spill-overs to the host country, such as innovation, new technologies, new managerial skills, job creation and better work environments (Caves, 1974; Haddad & Harrison, 1993; Perez, 1997). If countries want to attract FDI and profit from these spill-overs, more research must be conducted to determine what attracts FDI.

Looking at the limitations of this research, a first recommendation is that the dataset could be expanded. When the data is available, more countries can be included. Differences in high-skilled and low-skilled labour could be included to determine if companies want to invest because of the wage rates or something else. It can be that MNEs are looking for highly educated workers and specifically skilled workers. These workers often demand higher salaries and are located further away, which can be an explanation for the unexpected results of the effect of production costs on the relationship between the distances and FDI. Other data that could be used is MNE specific characteristics to show if, for example, host country experience or the R&D intensity of an MNE influences certain outcomes. When you have more detailed data on which MNEs invest where and why, better explanations can be given why certain distance factors matter for these MNEs and why not. Secondly, this study showed that a greater cultural distance increased FDI flows between countries, which is not often found. More research to this unexpected outcome can be performed. The same is advised for the insignificant effect of political distance on FDI. A possible reason for these outcomes is that the world is more globalized, resulting in distance factors to have less impact on FDI decisions of MNEs. At last, this research with

production costs as the moderator can be applied to other countries to see if these obtained results will be confirmed or contradicted. It is useful to obtain results of other sets of countries to see if indeed the results that are found for Latin-American countries are also applicable for other countries. If there are no similar results found, we can still learn from this research that other factors determine FDI flows into Latin-American countries.

5.4 Conclusion

This study aims to answer the research question "Do lower production costs attenuate the distance in culture, politics and geography between a host and a home country and therefore increase FDI flows into Latin America?". Individually, lower absolute and relative production costs in a host country do increase FDI flows into this country. The distance factors were expected to have a negative relationship with FDI. However, a greater cultural distance results in more FDI flows between countries, while political distance has no significant relationship with FDI. Geographic distance has indeed a negative relationship with FDI flows between two countries. The question still to solve was how do lower production costs in the host country influence the relationship between distance factors and FDI? In conclusion, the relationship between cultural and geographic distance and FDI depends on the production costs in a host country. Lower production costs strengthen the positive relationship between cultural distance and FDI. Furthermore, lower production costs have no significant influence on the relationship between political distance and FDI. At last, for the negative relationship between geographic distance and FDI, lower production costs strengthen this relationship.

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Appendix

A: ITC dataset statistics

Table 1: Variance inflation factor

	VIF	1/VIF
PopulationGrowth	6.972	.143
LnIncome	5.951	.168
TradeOpeness	3.878	.258
LnMinerals	3.285	.304
Internet	3.243	.308
ProductionCosts	2.356	.425
LnInflation	1.711	.584
GDPGrowth	1.454	.688
CulturalDistance	1.363	.734
GeographicDistance	1.297	.771
PoliticalDistance	1.034	.967
Mean VIF	2.958	.

Table 2: White test for heteroscedasticity

White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity
chi2(65) = 248.73
Prob > chi2 = 0.0000

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	248.73	65	0.00
Skewness	37.70	11	0.00
Kurtosis	2.78	1	0.09
Total	289.21	77	0.00

Table 3:Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) FDI	1.000												
(2) CulturalDistance	0.087	1.000											
(3) PoliticalDistance	0.077	0.263	1.000										
(4) GeographicDistance	-0.128	0.333	0.189	1.000									
(5) ProductionCosts	0.077	-0.128	0.013	0.195	1.000								
(6) RelativeCosts	0.235	0.243	-0.049	-0.103	-0.226	1.000							
(7) PopulationGrowth	-0.098	0.000	-0.081	-0.051	-0.231	-0.025	1.000						
(8) TradeOpeness	-0.184	-0.097	-0.263	-0.052	-0.180	0.072	0.506	1.000					
(9) LnInflation	0.098	0.055	0.207	-0.013	-0.039	0.025	-0.129	-0.649	1.000				
(10) Internet	0.071	-0.132	0.044	0.087	0.423	0.018	-0.664	-0.267	0.037	1.000			
(11) LnMinerals	-0.003	0.005	-0.088	0.161	0.388	-0.167	-0.369	0.121	-0.510	0.268	1.000		
(12) LnIncome	0.123	-0.120	0.079	0.027	0.447	0.033	-0.742	-0.393	0.056	0.877	0.256	1.000	
(13) GDPGrowth	-0.010	0.023	-0.118	-0.066	-0.031	-0.028	-0.108	0.199	-0.455	-0.294	0.399	-0.049	1.000

B: CDIS dataset statistics

Table 1: Descriptive Statistics of CDIS dataset

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	20029	726.768	6970.42	-2796	204157
CulturalDistance	4799	9.589	6.238	0	45.997
PoliticalDistance	22885	7.465	16.334	0	450.102
GeographicDistance	45739	9950.267	4442.625	0	19878
ProductionCosts	30275	303.044	120.245	65.3	693.1
RelativeCosts	11983	187.236	641.586	-690.87	3969.51
PopulationGrowth	45976	1.002	.857	-4.075	6.068
TradeOpeness	48510	65.572	27.528	22.106	162.488
LnInflation	47845	1.356	1.05	-2.586	5.541
LnMinerals	39826	-1.232	2.09	-8.708	2.44
GDPGrowth	51119	2.819	3.008	-10.894	18.287

Table 2: Variance Inflation Index

	VIF	1/VIF
LnInflation	7.205	.139
LnMinerals	4.361	.229
TradeOpeness	2.333	.429
GDPGrowth	2.331	.429
PopulationGrowth	1.838	.544
ProductionCosts	1.818	.55
GeographicDistance	1.631	.613
CulturalDistance	1.581	.633
PoliticalDistance	1.042	.96
Mean VIF	2.682	.

Table 3:Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) FDI	1.000										
(2) CulturalDistance	0.087	1.000									
(3) PoliticalDistance	0.077	0.263	1.000								
(4) GeographicDistance	-0.128	0.333	0.189	1.000							
(5) ProductionCosts	0.077	-0.128	0.013	0.195	1.000						
(6) RelativeCosts	0.235	0.243	-0.049	-0.103	-0.226	1.000					
(7) PopulationGrowth	-0.098	0.000	-0.081	-0.051	-0.231	-0.025	1.000				
(8) TradeOpeness	-0.184	-0.097	-0.263	-0.052	-0.180	0.072	0.506	1.000			
(9) LnInflation	0.098	0.055	0.207	-0.013	-0.039	0.025	-0.129	-0.649	1.000		
(10) LnMinerals	-0.003	0.005	-0.088	0.161	0.388	-0.167	-0.369	0.121	-0.510	1.000	
(11) GDPGrowth	-0.010	0.023	-0.118	-0.066	-0.031	-0.028	-0.108	0.199	-0.455	0.399	1.000

Table 1: Regression results with FDI as dependent variable

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
ProductionCosts	-1.16					-35.60	8.86***	-0.82	41.36
	(1.00)					(22.77)	(2.63)	(1.43)	(31.16)
RelativeCosts		4.73***							
		(0.55)							
CulturalDistance			237.58***			-1,305.15			-4,399.51**
			(87.29)			(957.80)			(2,049.18)
PoliticalDistance				36.08***			63.51		-125.72
				(12.36)			(53.77)		(302.78)
GeographicDistance					-0.13***			-0.13***	4.27**
					(0.02)			(0.04)	(1.88)
Cultural*ProductionCosts						5.54			18.00**
						(3.58)			(7.76)
Political*ProductionCosts							-0.09		0.52
							(0.14)		(1.07)
Geographic*ProductionCosts								0.00	-0.02**
								(0.00)	(0.01)
PopulationGrowth	-1,236.94***	-2,712.65***	3,881.80**	619.64	609.00***	2,979.18	-432.99	-1,442.08***	5,304.43
	(277.93)	(661.43)	(1,599.29)	(383.62)	(221.54)	(3,083.65)	(411.59)	(302.48)	(4,452.11)
TradeOpeness	12.13	25.12	-119.46***	-1.61	1.53	-92.28*	13.64	13.69*	-126.67**
	(7.65)	(16.34)	(37.20)	(9.59)	(5.27)	(53.40)	(10.55)	(7.95)	(64.40)
LnInflation	273.55**	458.83**	1,665.31	39.19	-267.92*	3,581.89	469.73**	183.02	336.79
	(126.17)	(229.40)	(1,296.43)	(252.70)	(151.22)	(2,843.26)	(203.56)	(129.30)	(5,727.52)
LnMinerals	211.93***	334.14***	-707.88**	73.35***	160.12***	-257.80	416.85***	239.55***	-462.42
	(47.64)	(74.95)	(284.81)	(28.00)	(21.46)	(538.03)	(94.21)	(50.75)	(1,127.84)
GDPGrowth	-109.94	-261.39	316.90	-42.30	-71.75	309.27	-142.46	-112.54	248.36
	(68.72)	(161.98)	(245.81)	(76.30)	(50.62)	(358.51)	(93.30)	(70.39)	(406.07)
						169.63	-57.97	-47.82	76.20
Constant	2,748.01***	3,608.99***	-1,212.66	1,062.80*	3,641.37***	4,930.89	-1,334.44	4,066.34***	-6,383.83
	(510.17)	(929.10)	(3,493.08)	(547.40)	(481.90)	(6,924.92)	(895.84)	(710.19)	(13,092.64)
Observations	6,311	2,775	789	4,241	8,145	659	3,433	6,139	505
R-squared	0.01	0.06	0.03	0.01	0.01	0.03	0.01	0.01	0.11
Adjusted R-squared	0.01	0.04	0.02	0.01	0.01	0.03	0.01	0.01	0.15

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

C: Regressions of the CDIS dataset