



***The determinants of the location of multinational firms in developing countries: The British experience***

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# The determinants of the location of multinational firms in developing countries: The British experience

**Óscar Sánchez Lafuente**

**Abstract:** In this paper, we use firm-level data to analyse the key determinants of the location of British multinational firms (MNFs) in developing countries. We pay particular attention to the potential differences in this matter between manufacturing and services firms and across regions. With this aim, we estimate a set of mixed logit models, allowing us to account for the existence of different substitution patterns among alternative destinations. According to our expectations, the results confirm the relevance of agglomeration forces and market potential in the location of MNFs in developing countries. In addition, findings show that the distance between the home and the host country, the colony past as well as the inflation rate play a key role in the location choice of British MNFs. Finally, we also find empirical evidence that the effect of GDP per capita and the skilled labour differs considerably when considering different regions.

*Key words:* MNFs; Location choice; Developing countries; FDI; Mixed logit models

**JEL classification:** F21; F23; R39

## 1.INTRODUCTION

Recent globalization has been characterized by an abrupt increase in worldwide foreign direct investments (FDI). This has been highlighted by the literature as an important fact due to the beneficial expected effects of FDI in the economic behaviour of the countries involved (Leitão, 2012; Kuepper, 2016 and Chirila-Donicu, 2013). In particular, FDI can be a source of valuable technology and know-how while fostering linkages with local firms, which can help jump-start an economy (Alfaro et al., 2009). According to Breeze (2016), foreign direct investment increases the productive capacity of a country through not only increasing capital investment, but also through transfers of technology, skills and better management. It also promotes capital transfer from the home country to the host country in the shape of new productive plants or the participation in companies of the host country (UNCTAD, 2013).

Traditionally, both inward and outward FDI flows have mainly been limited to developed countries, which have been investing in other developed economies. Essentially, this means that investments have flowed between similar nations that are well-connected and/or located fairly close to each other (Martí et al., 2017). Nevertheless, during last years FDI is increasingly important to developing countries (Baykal, 2003). As can be seen in Figure A.1 in the Appendix, FDI to developing economies has been growing uninterruptedly.

For decades, FDI flows from high-income developed countries to other high-income developed countries have been an empirical regularity of cross-country investment. However, the tendency has changed, enhancing the relevance of developing countries as recipients of FDI flows (see Figure 1 in the Appendix). In addition, in 2014, inward FDI flows to developing countries reached their highest level accounting approximately 35 per cent more than developed countries, thus increasing their position in global FDI inflows (UNCTAD, 2015). Nevertheless, the evolution of FDI inflows in the last two years displays that the trend has shifted again in detriment of developing countries.

In addition, it is also important to note the shift in the sectoral pattern of FDI in recent years, with an increasing predominance of investments in the services sector in detriment of the manufacturing sector (Martí et al., 2017). According to the UNCTAD (2016), in 2014 the services sector accounted for 64 per cent of global FDI stock, followed by manufacturing (27 per cent). The trend suggests that service FDI is gradually supplanting the traditional manufacturing FDI (Doytch and Uctum, 2008). However, most researchers have focused on the determinants of FDI at an aggregate level. Some few expectations to this respect are the works by Walsh and Yu (2010), Doytch and Eren (2012) and Martí et al. (2017).

However, the determinants that stimulate foreign investment in services seem to differ from those behind investments in manufactures.

The main findings of the work of Doytch and Eren (2012) suggest that institutional quality has a greater and positive effect on attracting manufacturing FDI than for attracting services FDI. Walsh and Yu (2010) did not only take into account institutional factors but they also included development factors as financial depth and school enrollment between others. The results of Martí et al. (2017) reveals differences between manufacturing and services foreign direct investments in several local factors, such as the agglomeration forces, skilled labour and financial risk.

The location determinants of FDI may also vary across regions, as shown by the works of Addison and Heshmati (2003) and TeVelde and Bezemer (2006). In spite of this, there are only few empirical works that take into account the differences on the determinants in the location choice of MNEs across regions.

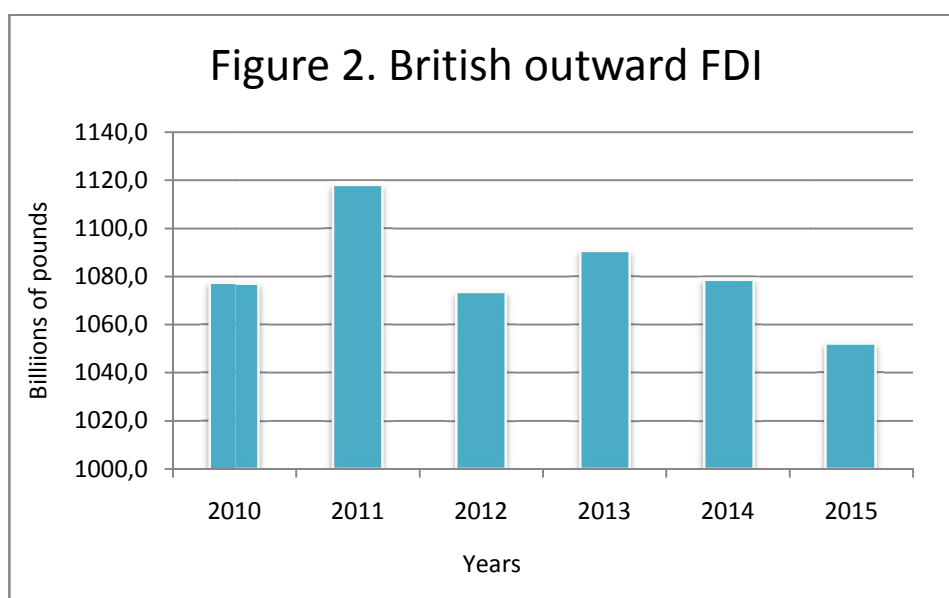
In this paper, we try to partially fill this gap by empirically analysing what drives British multinational firms to locate in a developing economy. In doing this, we take into consideration the differences across sectors and geographical regions. The evolution of British FDI outflows along this decade make the case of this country especially important for the study of the location determinants of affiliates in developing countries. The UK is one of the world's largest foreign direct investors. Furthermore, developing countries are becoming increasingly important to UK outward FDI with an outstanding position of BRICs countries as the main recipients of British FDI (HM Government, 2014). We attempt to find empirical evidence of the location choice of British multinational firms by estimating a set of mixed logit models using disaggregated data both at sectoral level (services and manufacturing) and a regional level (Central and Eastern Europe, Asia, Africa and Latin America). With this aim, we estimate a set of mixed logit models as this enables us to consider endogenously complex substitution patterns among different alternative destinations. Concerning to the local determinants, following the New Economic Geography, we pay particular attention to the influence of market potential and agglomeration economies as decisive determinants in the location choice of MNEs. We also include other location determinants, traditionally more associated to a vertical nature of FDI, as GDP per capita or human capital. Finally, following more recent works to this respect, we add the inflation rate to control for the deterrent effect of macroeconomic instability.

The rest of the paper is organised as follows. In the next section, we present some stylized effects related with the evolution of British FDI outflows. In addition, we also underline the

distribution of British affiliates by region and sector. In Section 3, we review briefly the literature concerning to location determinants of FDI that has already been written about the FDI determinants. Section 4 presents the empirical approach. We describe the variables, data, model specification and the findings of our work. Finally, in Section 5, we conclude.

## 2.STYLIZED FACTS

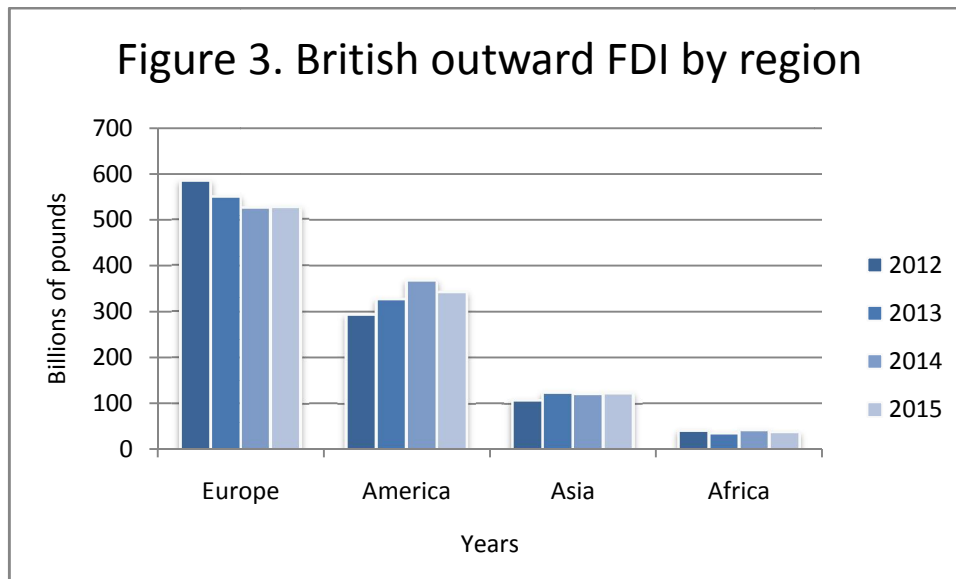
The United Kingdom has substantially played an important role as a worldwide investor for the last years. Figure 2 shows the evolution of British outbound FDI measured in billions of pounds for the last few years.



*Source:* Own elaboration based on Office for National Statistics(2016).

As can be appreciated in Figure 2, there are different fluctuations in British outflows for the period considered. In particular, in 2011 the highest value of British outward foreign investment was reached; 1,118 billions of pounds, becoming the fifth biggest investor around the world (Global Britain, 2014). However, British outward FDI positions have experienced a downtrend since that year, accounting in 2015 for a value of 1,052.1 billions of pounds.

Moreover, it is not only important to highlight the amount of total FDI outflows, but also where they are addressed. Figure 3 provides information about the main destinations of British outward FDI across regions for the period 2012-2015.



*Source:* Own elaboration based on Office for National Statistics (2016).

As we can see in Figure 3, the areas that have attracted the majority of FDI inflows are Europe and America<sup>1</sup>. In 2015, the last year for there are available data, these areas accounted for 50.1 and 32.6 per cent of total UK FDI outflows respectively.

Moreover, the UK's Office for National Statistics provides us more disaggregated data for every region. Within Europe, Netherlands and Luxembourg were the largest destinations for British outflows for that year. They obtained approximately 126 and 93 billions of pounds, respectively. The presence of these countries in the UK's outflows main recipients is mainly a result of British companies channelling funding through holding companies to take advantage of their local tax regimes (Lea, 2016).

Concerning America, the USA was the largest destination for British FDI accounting roughly to 237 billions of pounds in 2015. This position has been maintained despite a fall over 1 percent respect to the previous year.

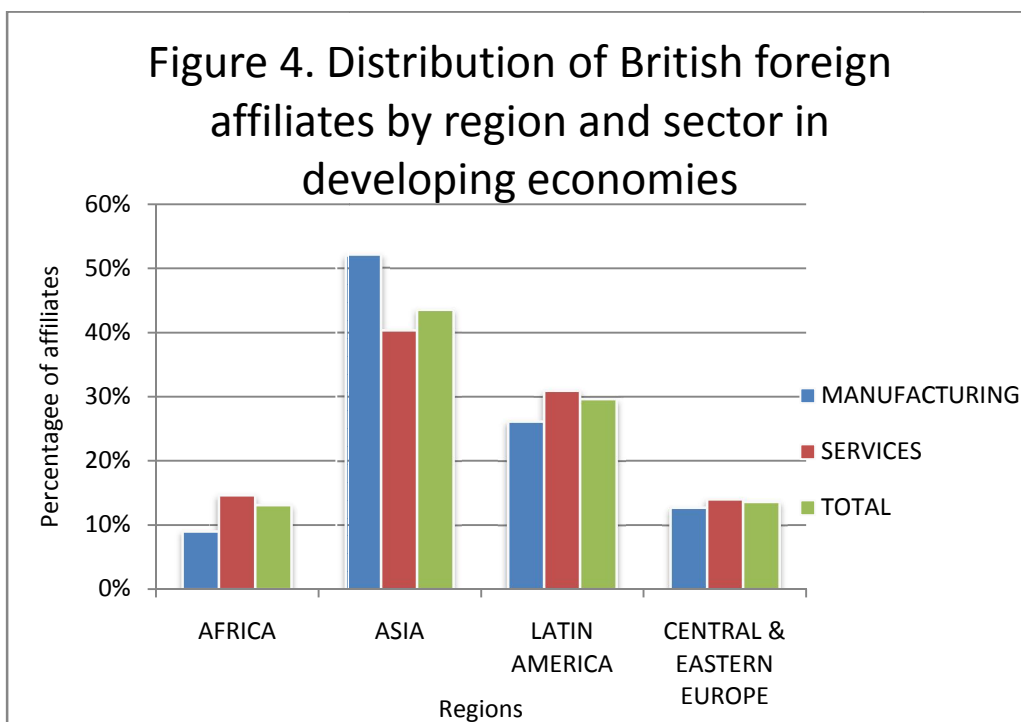
Regarding the developing countries, according to Her Majesty's Government (2014), they are attractive destinations for British multinational firms to engage in FDI. Besides, within this category, BRICs (Brazil, Russia, India and China) economies are the countries where they invest the most. Nevertheless, the relatively low levels of investment towards these group of economies might reflect worries about the presence and enforcement of property rights, inefficient bureaucracy or restrictions on the type, level and location of investment (HM Government. 2014). Despite these concerns, these countries are becoming

<sup>1</sup> America encompass both North America and South America.



increasingly relevant to British outward FDI. In concrete, the UK's stock of outward investment to BRICs has grown every year since 2003.

It is also interesting to analyze the British investment abroad by taking into account the number of affiliates in every geographical area as well as their distribution in manufactures and services. Figure 4 displays this issue.



Source: Own elaboration based on Investment Map database.

In accordance with Figure 4, the region which attracts the largest percentage of British affiliates is Asia, about 44 per cent of the total. It is followed by Latin America, whose share of affiliates is 30 per cent; Central and Eastern Europe, 14 per cent; and Africa, 13 per cent. In addition, at a sectoral level, Asia receives the highest number of British affiliates belonging to the manufacturing and services sector, accounting for 52 and 40 per cent respectively. Furthermore, we can appreciate the importance of services sector on outward FDI as the majority of British affiliates belong to this industry. This is consistent with the idea that sales in services are more likely to require a direct presence in the market. In particular, within the service industry, financial services and information and communications sub-sectors are the most important sub-categories on FDI (HM Government, 2014).

### 3. LITERATURE REVIEW

The studies that attempt to investigate the determinants which stimulate multinational enterprises to outsource their activities have changed considerably from developed countries to developing countries. This is mainly due to globalization that has accelerated the growth of developing markets. Consequently, in the last years researches have focused on developing economies and their contribution on attracting FDI inflows<sup>2</sup>.

In addition, most of the works that analyse the causes of the location choice of multinational firms in developing economies focus on two groups of countries as the main destinations of FDI. They are, on the one hand, BRICS (Brazil, Russia, India, China and South Africa) countries, and on the other hand, MINT (Mexico, Indonesia, Nigeria and Turkey) countries.

According to the UNCTAD (2013), FDI stock in BRICS economies is increasing, standing at 11 per cent of global FDI stock and catching up with developed countries. Furthermore, these countries are considered as the most developed economies from the developing economies (Nistor, 2015). As a result, the number of studies that analyse the FDI towards this group of countries has gone in increase since the first years of the decade (see for instance Labes, 2015; Shah and Ali, 2016; Gupta and Singh, 2016 and Jadhav, 2012).

However, in recent years investors are shifting to the new economic grouping acronym, the MINT (Mexico, Indonesia, Nigeria, and Turkey) countries for better future prospects of FDI destination. The reason for that is that BRICS's growth has slowed down and MINTs are expected to growth rapidly because of all the favourable features they share. Their populations are large and youthful and they can also take advantage from their strategical locations. In concrete, Mexico borders the US and links it to the rest of Latin America and Indonesia is at the core of South-East Asia. Moreover, Nigeria is close to some prosperous African countries, while Turkey spreads over Europe, Central Asia and the Middle East (Phylaktis, 2014). Indeed, MINT countries are forecasted to be the next economic powerhouses (Wright, 2014), so most of the studies of FDI determinants in developing countries have paid their attention to this group of fast growing countries (see Göstas and Fanbasten, 2016 and Uduak et al., 2014).

In addition, it is important to mention the works that analyse empirically some country cases. On the one hand, the studies which analyse the FDI determinants towards a single country often use time series data (Ang, 2008 and Obwona, 2001). This could be due to the

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<sup>2</sup> See, for instance, the works by Flores and Aguilera (2007); Amighini, Rabellotti and Sanfilippo (2013); Abbas and EL Mosallamy (2016); Elkomy, Ingham and Read (2016).

fact that time series data provides relevant information about the evolution of the variables' effect on the amount of FDI flows to a certain country during the considered period.

On the other hand, the studies that focus on a large sample of countries often use panel data (Vijayakumar et al., 2010 and Mina, 2007). For instance, Pusterla and Resmini studied the location of foreign manufacturing plants in four Central and Eastern European Countries, while Rasciute et al. (2014) also tried to analyse the FDI location decisions to thirteen alternative Central and Eastern European Countries. In addition, we find some papers that examine the determinants of FDI throughout the years used a conditional logit model or a nested logit (Cheng and Stough, 2006 and Spies, 2010). The issue of the location of FDI is receiving a renewed interest in the literature since developing countries have now started to compete for the attraction of foreign capital. interest. In particular, many works stressed the agglomeration forces and market potential as the new decisive local factors of FDI.

The agglomeration factors provide benefits to both domestic and foreign firms and they also act as the main drivers of FDI inflows (see Driffield, 2002). According to He (2002), agglomeration economies refer to the positive externalities and economies of scale associated with spatial concentration of economic activities and co-location of related production facilities. Bonds between companies, institutions and infrastructures within the same geographical location result in a significant amount of externalities. There is strong evidence that the agglomeration of firms in a specific region is a strong pull factor on regional FDI with a positive effect on it (see for instance Hilber and Voicu, 2010; Pelegrín and Bolancé, 2008; Crozet et al., 2004; Basile et al., 2008). Nevertheless, according to Shaver and Flyer (2000), firms with the best technologies and human capital will gain little, yet competitively suffer when they spill over to competitors. Therefore, these firms are less motivated to geographically cluster despite the existence of agglomeration economies.

Regarding the attractiveness of the host markets and the chance to enter other markets closed to them, recent literature also focus on the role that market potential has on inward FDI. In concrete, market potential helps to understand the behaviour of the location decisions of MNFs. However, it cannot account for the trend of companies in the same sector to agglomerate (Head and Mayer, 2004).

Concerning the traditional determinants, we can also mention those characterized vertical FDI. In this sense, Nonnemberg and de Mendonça (2004) prove the importance of GDP in capturing the attention of multinational firms. They tested the causality relation between FDI and GDP and their findings led to the conclusion that the size of the market has a positive and strong effect on FDI. Some statistical analyses also add the economic growth of the

host country proxied by GDP's growth rate with a positive effect on FDI (Mottaleb, 2007; Mottaleb and Kalirajan, 2010).

Moreover, it is also necessary to underline the relevance of the human capital in the location choice of MNEs. It plays a key role on inward FDI but it also depends on the level of political (civil) rights fact that can enhance human capital resources or deteriorate them (Dutta and Osei-Yeboah, 2010). Finally, following Blomström and Kokko (2002:20), "there is a potential for significant spillovers benefits from foreign direct investment, with training and human capital development as a particularly important channel for these positive externalities".

Furthermore, it is important to remark other factors that exert a significant influence on the location choice of MNEs. To control for the macroeconomic instability, many works have surveyed how inflation rate affects the location decisions of multinational firms. In accordance with numerous studies, the level of inflation has a negative impact on the amount of FDI inflows received by the host country (Valli and Masih, 2014; Sayek, 2009). This effect is because of the fact that great levels of prices in the host country results in rising production costs. In particular, this is due to the raise in the value of inputs, costs of raw material, wages of labor, land prices and cost of capital. As a consequence, the business benefits are reduced thus discouraging FDI in the recipient country (Singh and Giri, 2016).

In addition, several researchers have proved the importance that cultural factors has on drawing attention to multinational enterprises (Rihab and Lotfi, 2011). For instance, Lucke and Eichler (2016) demonstrated that the language the home and the host country share as well as their colonial past results in increasing FDI inflows. Hence, their outcomes also indicated that investors are more willing to invest in countries with less diverse societies than their own.

Emphasis is also placed on the role of institutional factors in encouraging or deterring MNEs to invest in developing countries such as the economic freedom. Kahai (2011) defined economic freedom as "the absence of government restrictions on production, distribution or consumption of goods and services beyond the extent necessary for the citizens to protect and maintain liberty itself". According to this author, the level of corruption and openness to trade can be used as proxy variables of the economic freedom between others.

Concerning the political environment, the level of corruption in the host country has been introduced as one factor among the determinants of FDI location. It makes bureaucracy less transparent and reduces inward FDI. Besides, corruption decreases the effective

protection of investor's intangible assets and reduces the likelihood that disputes between foreign and domestic partners will be adjudicated fairly (Javorcik and Wei, 2009; Smarzynska and Wei, 2000). Nevertheless, other studies have found empirical evidence of a positive effect of corruption in inward FDI. Helmy's work (2013) highlighted this relationship for the Middle East and North Africa (MENA) region. This finding could suppose that; first, corruption is a means of economic growth by surpassing bad and restrictive laws or; second, there are other determinants that are more relevant than corruption.

Finally, some works have also emphasized the relevance of the degree of openness of a country to locate foreign affiliates (Kinoshita and Campos, 2003 and Quazi, 2007).

## 4. Empirical Approach

### 4.1. Model specification

In this section, we analyse the location choice of MNFs taking into consideration the specific characteristics of the alternative destinations. To do this, we employ a mixed logit model to estimate the location determinants of foreign affiliates by British multinational enterprises. The dependent variable ( $Y_{ij}$ ) in our regression represents the binary response of multinational firms' location decision. In concrete,  $Y_{ij}$  takes the value of one when the multinational firm  $i$  decides to set up an affiliate in the country  $j$  and zero for any other alternative.

We consider the following model:

$$Y_{ij}(0, 1) = \beta_i' X_{ij} + \varepsilon_{ij}$$

Here,  $X_{ij}$  is a vector of the independent variables that are observed by firm  $i$  and includes host country features;  $\beta_i$  is a vector of the coefficients of the explanatory variables, that is to say, the effect that every independent variable has on the probability that multinational firm  $i$  takes the decision to establish an affiliate in country  $j$ ;  $\varepsilon_{ij}$  accounts for the influence of unobservable phenomena on the location choice of MNFs.

In the MXL model, the error term is composed of two terms:  $U_{ij}$ , which is assumed to be iid (with type I extreme value distribution), and  $\alpha'_{i,h} Y_{ij}$ , which induces heteroscedasticity and correlation across alternatives (thus relaxing the IIA assumption). Accordingly, the profit from location  $j$  can be denoted as  $\pi_{ij} = \beta'_{i,h} X_{ij} + \alpha'_{i,h} Y_{ij} + U_{ij}$ , where  $Y_{ij}$  is a vector of

observed variables of each location choice and  $\alpha$  is a vector of randomly distributed parameters. In this, the variances of the error components capture the magnitude of the correlations across alternatives.

#### **4.2. Scope, data and variables**

The data used to perform our empirical analysis are cross sectional data. Thus, we have a unique observation for each individual which refers to a particular time, more specifically to 2015. In our case, the individuals are the alternative destinations of FDI, and the covariates refer to the value that each explanatory variable takes for the different host countries. As our sample refers to developing economies, we could not have obtained information of the independent variables for certain countries<sup>3</sup>.

The data related to the British firms used in this survey were compiled from the Investment Map database<sup>4</sup>. This source provides us firm-level data about foreign affiliates of multinational firms and the location of their affiliates. In concrete, our empirical study uses information on the location choice of 14,034 British affiliates towards 150 developing countries of Asia, Africa, Latin America and Central and Eastern Europe. The number of British firms that decide to establish their affiliates in other territories are divided in firms that belong to the manufacturing sector and those that belong to the services sector.

As explanatory variables, following previous empirical works we include those specific features of the different host countries which may attract or discourage foreign investments in developing countries (for their source see Table A.1 in the Appendix). We introduce the GDP per capita to prevent the difficulty of having a homogeneous wage cost series for the entire sample, as well as its high correlation with GDP per capita. It accounts for labour costs and the purchasing power level. In particular, Alshamsi et al. (2015) stated that GDP per capita could be interpreted as a measure of the purchase power of the citizens of a country which could encourage MNFs to invest in a particular country over another.

Moreover, to capture the influence that both transport costs and transaction costs on the entry of FDI, we insert a distance variable which measures the geographical distance between the capitals cities of the home and host countries. Indeed, the nature of the effect will depend critically on the specific motives to invest abroad. On the one hand, a positive effect may reflect the willingness of investors to replicate production across countries

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<sup>3</sup> Anguilla, Bermuda, Cayman Islands, Eritrea French Guyana, Guadeloupe, Martinique, Montserrat, Reunion, Serbia-Montenegro and Taipei.

<sup>4</sup> The Investment Map Database is compiled by the International Trade Center and collects yearly FDI statistics for about 200 countries and detailed FDI sectoral and/or country breakdowns.

(horizontal FDI) instead of exporting to avoid transportation costs and transaction costs. On the other hand, a negative effect may reflect the intention of firms to engage in vertical-FDI strategy, that is to say, to better exploit cross-country cost differences.

Additionally, to account for the different impacts of the concentration of British-owned and foreign-owned firms on FDI we include two agglomeration variables for British and non-British affiliates. According to Alfaro and Chen (2017), agglomeration economies stress the profits that could appear when firms and workers cluster. These benefits include lower transport costs between input suppliers and final good producers, labor-market and capital-good-market externalities because of the proximity of firms with same demand for labor and capital good. Therefore, the effect of the two agglomeration factors will depend on the characteristics of firms and their motivations.

Concerning the role played by the host markets, we also take into consideration the market potential computed by Head and Mayer (2004) 's method to account for the attractiveness of the host markets as a means to enter other markets closed to them. It is important to highlight that there is a relationship between the market potential and the agglomeration forces. In particular, they will concentrate on those countries whose markets are more attractive and the externalities obtained from the agglomeration are more significant (see Hanson, 2015; Head and Mayer, 2004; Mayer, 2008)

To measure the impact that macroeconomic instability have on the multinational firms' location choice, we introduce the inflation rate. In line with recent studies, countries that experience high levels of inflation also suffer great levels in prices. As a consequence, production costs get expensive thus deterring MNFs to invest in countries which have a great a great level of inflation. In addition, we have added the non-income Human Development Index<sup>5</sup> (HDI) from the United Nations Development Programme to account for the availability of skilled.

Finally, we take into account the cultural distance between the home country and host countries by including a dummy variable which accounts for the influence that the colonialpast has on the entry of FDI. In concrete, this variable takes value 1 if the host country has been a British colony and 0 in any other case. Moreover, many empirical studies have pointed out the relevance of cultural differences on the decision-making process of firms (see for instance Wei, 2005; Ebrahim, 2016 and Dumitru et al., 2014).

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<sup>5</sup> It is a summary measure of average achievements in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living.

### 4.3. Estimation results

Table 1 shows below the results of our model for manufacturing firms. In Column 1, we present the estimates for the whole sample, while Columns 2 to 5 depict the outcomes for the four regional areas considered in our work: CEE (Central and Eastern Europe), Asia, Latin America and Africa.

Table 1. Regression results for manufacturing sector

	TOTAL	CEE	ASIA	LATIN AMERICA	AFRICA
	(1)	(2)	(3)	(4)	(5)
Market	0.118***	2.045***	0.266***	-0.860***	0.747***
Potential	(0.016)	(0.288)	(0.032)	(0.117)	(0.089)
British	0.268***	1.858***	0.534***	1.538***	0.840***
Agglomeration	(0.032)	(0.567)	(0.150)	(0.228)	(0.110)
Foreign	2.147***	-3.405***	2.146***	5.647***	0.843***
Agglomeration	(0.090)	(0.844)	(0.193)	(0.302)	(0.140)
Distance	0.155***	-2.257**	-0.812***	-1.030	0.101
	(0.031)	(1.085)	(0.241)	(0.804)	(0.234)
GDP per	-0.088***	-0.413***	0.207***	-0.094**	0.280***
capita	(0.008)	(0.116)	(0.044)	(0.038)	(0.060)
non-income	1.009***	0.096	1.369***	13.874***	-1.086
HDI	(0.206)	(4.325)	(0.508)	(1.270)	(0.775)
Inflation	-0.003***	0.023**	0.163***	-0.029***	-0.019
rate	(0.001)	(0.011)	(0.023)	(0.002)	(0.024)
Colony	0.380***	-5.351***	2.560***	4.084***	2.030***
	(0.045)	(0.587)	(0.242)	(1.080)	(0.301)

Note: \*\*\*, \*\*, and \*, denote significance levels at the 1%, 5% and 10% respectively. Robust standard errors are in parentheses.



Similar to previous empirical studies, findings shows clearly that market potential plays a key role on the location choice of MNFs. The coefficient on this variable is strongly significant and positive in all the regressions except for Latin America which may imply that there is a certain difficulty to access to other nearby markets so the incentives to locate an affiliate in this region could be reduced. This result reveals that the attractiveness of the host market and the opportunity to access other potential markets encourage British MNFs' location choice. Consistent with our expectations and in line with previous empirical works (Jones, 2016), we find empirical evidence of a positive and highly significant impact of the agglomeration forces in all the regressions except for CEE in the case of foreign firms. It seems that the positive spillovers arising from agglomeration are stronger than the negative influence of increasing firm competition for most regions. Furthermore, the outcomes also display that for manufacturing FDI these positive externalities are greater when considering foreign-owned affiliates. This result could suggest that foreign affiliates located in this region could have better technologies, human capital, training programs, suppliers or distributors than British firms so the benefits of externalities are more than offset by these competitors.

Location choice also seems to be positively influenced by the geographical distance between the home and host countries, as shown by the coefficient on distance for the whole sample. This result is in line with the horizontal FDI hypothesis, major distance implies great transportation and transaction costs thus encouraging MNEs to integrate horizontally in order to avoid these costs. Nevertheless, the effect of this variable on the location patterns of MNEs is not significant for Latin America and Africa. On the other hand, Table 1 also reveals that the sign of distance is negative for CEE and Asia which seems to agree more with the efficiency-seeking FDI hypothesis than the market-seeking FDI hypothesis. This negative sign is consistent with the results obtained in previous studies, as it is the case of Duanmu and Guney( 2009) for China.

Furthermore, as can be seen, GDP per capita is strongly significant in all cases, but with a different sign depending on the area under consideration. For CEE and Latin American the influence of this variable on the location of MNEs is negative (see Wanjiru, 2013), while the opposite occurs for Asia and Africa, where its effects is positive (see for instance Rogmansand Ebbers, 2013). This factor accounts for both the effect of higher labour costs and the level of purchasing power in the host country. Therefore, a negative impact suggests that the positive effect of a greater purchasing power level is more than offset by higher labour costs and, a positive sign denotes the opposite. We can also appreciate that the impact of the non-income HD, as a proxy of human capital, when significant, is positive,

consistent with several empirical works (Naanwaab and Diarrassouba, 2016). In the case of CEE and Africa, however, this variable has not a relevant impact. It is also necessary to note that the coefficient of this variable for Latin America is incredibly high which indicates the great importance of human capital when explaining FDI flows in manufacturing activities.

Concerning the role that macroeconomic environment plays, the outcomes indicate that the inflation rate is a key determinant of the MNEs' location choice. Findings show that this determinant is strongly significant in all the regressions except in Africa, as it is observed in many studies (Oman Khanlen, 2011). The negative coefficient of the whole sample indicates that the probability of a firm investing in a developing country is reduced when considering countries with great levels of inflation. However, for CEE and Asia its effect is positive. This result might suggest that the consumers are increasingly expending more money so the inflation rate increases thus, British firms could see them as a significant number of potential customers to whom sell their products.

Finally, the results further reveal that the colony variable is positive and strongly significant in all regressions except for CEE. The positive sign reflects that sharing the same colonial past between the home and the host countries increase the probability of MNEs' location choice. Nevertheless, the effect of the colony past is negative for CEE which is consistent with our expectations as the majority of the countries included in this region have not British colonies in the past. However the significant coefficient for Latin America is not the expected sign since this region does not contain any British colony. In particular, we have included this variable for this region because we expected to obtain a non-significant impact.

Table 2 presents the results of the location choice determinants for service firms. Similar to previous empirical works and in line with manufacturing firms, we find strong evidence of a significant effect of the agglomeration forces and the market potential in the location of British multinational firms in developing countries. In particular, the attractiveness of the host market as a means to access other nearby markets seems to enhance the probability of firms investing in developing countries except for Latin America as manufacturing firms. Furthermore, the estimates provide similar coefficients of the market potential for both manufactures and services.

Table 2. Regression results for service sector

	TOTAL	CEE	ASIA	LATIN AMERICA	AFRICA
	(1)	(2)	(3)	(4)	(5)
Market	0.160***	1.000***	0.362***	-0.630***	0.773***
Potential	(0.007)	(0.098)	(0.016)	(0.555)	(0.035)
British	-0.373***	-5.133***	1.364***	1.021***	1.581***
Agglomeration	(0.041)	(0.506)	(0.203)	(0.277)	(0.250)
Foreign	-2.907***	10.814***	-3.990***	-10.075***	-3.575***
Agglomeration	(0.050)	(0.727)	(0.158)	(0.214)	(0.237)
Distance	0.635***	-1.275***	0.964***	-1.137**	0.014
	(0.023)	(0.281)	(0.115)	(0.516)	(0.085)
GDP per	-0.149***	-0.141***	0.115***	-0.086***	0.122***
capita	(0.006)	(0.039)	(0.023)	(0.016)	(0.018)
non-income	2.724***	18.814***	-0.197	13.196***	-0.717***
HDI	(0.131)	(2.291)	(0.304)	(0.858)	(0.181)
Inflation	-0.003***	0.062***	0.026***	-0.025***	0.014
rate	(0.001)	(0.004)	(0.005)	(0.002)	(0.008)
Colony	-0.226***	-3.033***	2.152***	1.098	1.029***
	(0.030)	(0.303)	(0.140)	(0.724)	(0.097)

Note: \*\*\*, \*\*, and \*, denote significance levels at the 1%, 5% and 10% respectively. Robust standard errors are in parentheses.

Concerning the clustering of British-owned firms and foreign-owned firms, the estimations for the whole sample reveal that both variables deter British multinational enterprises to engage in FDI. This negative impact on the location choice of MNEs demonstrate that the positive spillovers of being concentrated in a certain area are not strong enough to offset the potential negative effects of spatial clustering on increased firm competition. Indeed, the

outcomes also indicate that the negative impact of being surrounded by potential firm competitors increases even more when considering foreign-owned firms.

In agreement with Table 2, the geographical distance between the home country and host countries seems to exert a positive influence on the MNEs' location choice for the entire sample. For many sectors as services, exporting might not be feasible for practical reasons, that is to say, these industries have a low degree of tradability. Therefore, major distance between the home and host country drives firms to engage in horizontal-FDI allowing them to sell to customers overseas who would not be accessible otherwise (HM Government, 2014). In addition, while the effect of the distance is not strongly significant for Africa, its impact is negative for CEE and Latin America that highlights the significant presence of efficiency-seeking motivation in the offshore activity of British multinational firms.

In the case of GDP per capita, the estimates provide empirical evidence that the effect of this variable is strongly significant at 1 per cent significance level in all the regressions. Moreover, whereas its effect is negative for the whole sample, it changes across regions. This result demonstrates the regional aspect of FDI, which shows a positive impact of this variable for Asia and Africa and, a negative for Latin America and CEE.

Moreover, we can note that the non-income HDI's impact in the regional subsample of CEE is not only significant but its coefficient is also very high. This suggests that unlike the manufacturing sector, service firms value very positively the human capital of the countries belonging to this area whereas in case of Asia this variable has not a relevant effect on FDI. Furthermore, for Africa the effect of human capital is negative which could suggest that the potentials for human capital are very small and cannot attract FDI. Notwithstanding, when we consider the complete sample, the coefficient of the non-income HDI is positive and strongly significant as the manufacturing sector. A similar result is found by Lucke and Eichler (2016) for the importance of human capital and its regional aspect on FDI.

The estimations also reveal the importance of the macroeconomic safety (proxied by the inflation rate) since this variable is very significant in all the regressions except in Africa. It must be underlined that for CEE and Asia the inflation has a positive influence on investment which is not the expected sign as for manufacturing firms. Despite these surprising outcomes in some subsamples, if we take into account the whole sample, it acts as a deterrent element of the investment and its effect is strongly significant. Therefore, findings prove that transnational corporations both in manufacturing and services are more reluctant to set up an affiliate in an economy which has a great level of inflation.

Finally, unlike the manufacturing sector, cultural distance proxied by the colonial past is not a key determinant for Latin America which is pretty reasonable since most of the countries included in this sample have not been British colonies. Besides, the effect of sharing the same colonial past for CEE is strongly significant and negative what is not consistent with our expectations if we follow the same argument. As regards for the whole sample, the sign of this variable is the same, fact that does not make sense either. This result could be owed to the fact that the negative impact of the variable for CEE might have altered the coefficient for the complete sample providing a not very reliable estimation.

## **5. CONCLUSION**

The main purpose of this paper has been to analyze how British multinational enterprises' location choice are influenced by different host country characteristics in developing countries. In this work, we have paid special attention to the sectoral and regional patterns taking also into account local factors recently pointed out by the NEG, as agglomeration forces and market potential. Other determinants, traditionally included in empirical works on location choice of FDI (both with an horizontal and vertical nature) have also been analyzed, as well as the relevant role of business environment.

The econometric model was performed using a mixed logit model which enables us to test for the existence of different substitution patterns among alternative destinations. Overall, our results show that British multinational firms present differences and similarities location patterns depending on the sector and the region considered.

On the one hand, market potential, distance, GDP per capita, human capital and inflation exert the expected influence for both manufacturing and services in the whole sample. However, we obtain different signs for the agglomeration effects and the colony variable for services and manufacturing FDI.

Market potential drives investors to locate their affiliates in all the regions except for Latin America which may imply certain difficulties to access other nearby potential markets such as political or institutional barriers. Regarding the influence of transportation and transaction costs, results display that the distance encourage British multinational firms to invest in developing countries which confirms the horizontal nature of this variable. However, its effect is negative for CEE, Asia and Latin America. Moreover, concerning the GDP per capita, labour costs are more important than the purchasing power level for CEE and Latin America and, the opposite for Asia and Africa. In addition, the macroeconomic stability deters British firms' location choice for Latin America while its effect is positive for CEE and

Asia. The outcomes also reveal that the effect of the human capital is positive in the location choice of British multinational firms but negative for Africa and CEE.

On the other hand, in manufacturing, the presence of British-owned firms in the host country seems to be as an opportunity to take profit of the positive spillovers. This result holds in Asia, Latin America and Africa for both sectors. Nevertheless, for CEE, the externalities to spillover competitors are not enough to offset the negative effect of the existence of more competition for services. Moreover, the impact of the existence of foreign-owned firms is completely different for manufactures and services. Whereas the agglomeration of foreign firms provides mostly profits to manufacturing firms except for CEE, the effect of this variable is negative for services except for CEE.

Finally, consistent with our expectations, for manufacturing FDI, the colony variable has a positive effect except for CEE. The effect of sharing the same colonial past between the home and host country encourage British firms to invest as these areas include British colonies so the cultural differences are reduced when they locate an affiliate in these regions. Moreover, the effect for CEE is the expected as only two countries included in this region have been British colonies<sup>6</sup>. However, the colony past exerts a negative effect in services FDI, which is not consistent with our expectations as it does not contain British colonies but its impact is positive for Asia and Africa.

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<sup>6</sup> Cyprus and Malta

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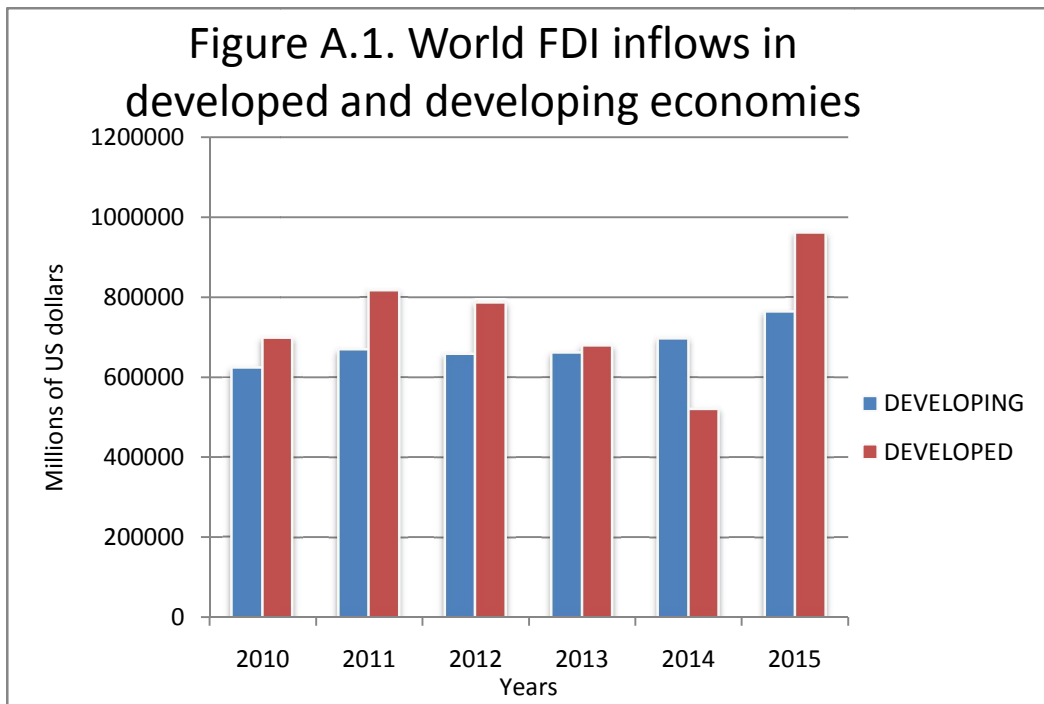
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## APPENDIX

Table A.1 Sources of the explanatory variables

Variable	Source
<i>GDP per capita</i>	WDI database (World Bank).
<i>Distance</i>	Centre d'Etudes Prospectives et d'Informations Internationales (CEPII)
<i>Inflation rate</i>	WDI database (World Bank).
<i>British agglomeration</i>	Own elaboration based on Investment Map database (International Trade Center).
<i>Foreign agglomeration</i>	Own elaboration based on Investment Map database (International Trade Center).
<i>non-income HDI</i>	United Nations Development Programme (UNDP).
<i>Market Potential</i>	Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).
<i>Colony</i>	Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

*Note:* All variables, except dummy variables, are estimated in log.



Source: Own elaboration based on World Investment Report (see UNCTAD 2016).