I. ARTICLES

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LOCATION DETERMINANTS OF FDI: CONFRONTING THEORETICAL APPROACHES WITH EMPIRICAL FINDINGS

The increase of foreign direct investment (FDI) in recent decades has prompted a great deal of research into the phenomenon of multinational companies. A vast amount of empirical literature on FDI presents a long list of determinants that try to explain direct investment by multinational companies in a particular location, such as infrastructure, market size, human capital, openness of the economy, and political stability. It is noticeable, however, that the results are not always consistent. This article provides a review of the theoretical approaches to, and empirical studies on, FDI in an attempt to single out the most robust factors for explaining the geographic distribution of FDI flows worldwide. It also suggests paths for future research in this area.

Keywords: FDI, determinants of FDI, geographic distribution of FDI, multinational companies, literature review

JEL-codes: F21; F23.

1. INTRODUCTION

Foreign direct investment (FDI) is regarded as a factor that drives economic growth (Wang 2009). Many governments from developed and developing countries believe that FDI can help them get through stagnation and even circumvent the poverty trap (Brooks *et al.* 2010). In this context, detailed analysis of the determinants of FDI has provided invaluable information.

Various theories have been developed since the 1960s to explain FDI. These theories declare a number of determinants that could explain foreign direct investment flows, involving the micro (e.g. organizational aspects) and macro (e.g. resource allocation) dimensions (Dunning and Lundan

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2008). The micro dimension includes factors intrinsic to the company itself such as ownership advantages, cost reduction and economies of scale, whereas the macro dimension concerns market specific factors such as barriers to entry, availability of resources, political stability, country risk and market size, among others (Faeth 2009).

Several empirical studies have been published on the assessment of which key determinants explain the investment of multinational firms in a given location (macro dimension). However, there is no general agreement insofar as some studies have not found any statistically significant relation with respect to certain determinants. In this way, the main goal of this paper is to confront theoretical approaches regarding FDI location determinants with the results of empirical studies in order to identify which factors have been found to be most robust in terms of attracting FDI to a specific country, and so explain the geographic distribution of FDI worldwide.

The article is organized as follows. Section 2 briefly describes the various theoretical approaches that have tried to explain FDI flows over the years. Section 3 identifies the location determinants of FDI in the various empirical studies. The paper ends with conclusions and suggestions for future research, in Section 4.

2. THEORETICAL APPROACHES TO FDI

The strong growth of international trade and foreign direct investment (FDI) that we have witnessed in the past few decades (Mohamed and Sidiropoulos 2010) has inspired extensive research on the behaviour of multinational firms and determinants of FDI (Faeth 2006). Many authors (cf. Table 1) have concentrated on the issue of FDI determinants and put forward various (and complementary) theories to explain them.

As Faeth (2009) highlights, the first explanations of FDI were based on the models propounded by Heckscher-Ohlin (1933) and MacDougall (1960) and Kemp (1964), referred to as the MacDougall-Kemp model, according to which FDI was motivated by higher profitability in foreign markets enjoying growth and lower labour costs and exchange risks.

Table 1

Summary of theories of FDI determinants

Theory/Theoretical approach	Determinants		Author(s) (year)
Heckscher-Ohlin Model / MacDougall-Kemp Model	Higher return on investment, lower labour costs, exchange risk		Heckscher and Ohlin (1933), Hobson (1914), Jasay (1960), MacDougall (1960), Kemp (1964), Aliber (1970)
Market imperfections	Ownership benefits (product differentiation), economies of scale, government incentives		Hymer (1976), Kindleberger (1969)
Product differentiation	Imperfect competition		Caves (1971)
Oligopoly markets	Following rivals, responding to competition in domestic market		Knickerbocker (1973)
Product life cycle	Production function characteristics		Vernon (1966)
Behaviour theory	Fear of loss of competitive edge, following rivals and increased competition at home		Aharoni (1966)
Internalization	Market failures/inefficiencies		Buckley and Casson (1976)
	Know-how (leads to horizontal internalization), market failures (leads to vertical internalization)		Hennart (1982, 1991), Teece (1981, 1985), Casson (1987)
Eclectic paradigm (OLI – Ownership, location, internalization)	Benefit of owning productive processes, patents, technology, management skills		Dunning (1977, 1979)
	Advantage of locating in protected markets, favourable tax systems, low production and transport costs, lower risk		
	Advantage of internalization cutting transaction costs, lowering risk of copying technology, quality control		
New theory of trade	Market size		Dixit and Grossman (1982), Sanyal and Jones (1982), Krugman (1983), Helpman (1984, 1985), Markusen (1984), Ethier (1986), Horstmann, Markusen (1987, 1992), Jones, Kierzkowski (1990, 2001, 2005), Brainard (1993, 1997), Eaton and Tamura (1994), Ekholm (1998), Markusen, Venables (1998, 2000), Zhang and Markusen (1999), Deardorff (2001)
	Transport costs		
	Barriers to entry		
	Factor endowments		
Institutional approach	Political variables	Financial and economic incentives	Root and Ahmed (1978), Bond and Samuelson (1986), Black and Hoyt (1989), Grubert and Mutti (1991),
			Rolfe *et al.* (1993), Loree and Guisinger (1995), Haaparanta (1996), Devereux and Griffith (1998), Haufler and Wooton (1999), Haaland and Wooton (1999, 2001), Mudambi (1999), Barros and Cabral (2001), Bénassy-Quéré *et al.* (2001), Hubert and Pain (2002)
		Tariffs	
		Tax rate	

Source: compiled by the authors

Authors such as Hymer (1976)[1] (see: Dunning 1993) and Kindleberger (1969) (see: Cleeve 2008) believe that there must be imperfections in the markets for goods or factors of production for there to be FDI. Hymer (1976) also confirms that investment abroad involves high costs and risks inherent to the drawbacks faced by multinationals because they are foreign. These include the cost of acquiring information due to cultural and language differences and the cost of less favourable treatment by the governments of the host countries. The multinationals will thus have to have ownership advantages (e.g. innovative products, management skills, patents, and so forth) to offset the disadvantages (Dunning 1993).

In terms of ownership advantages, Caves (1971) focused his study on product differentiation in the belief that FDI has an advantage over export and licensing if product differentiation is based on the knowledge. Knickerbocker (1973) (in Hill 2007) based his study on the relationship between FDI and the oligopoly rivalry between firms. He asserted that FDI flows reflect the strategic rivalry between companies in the global market as a result of reactive behaviour to the entry of competitors in certain markets. In other words, firms often have imitative behaviour: they follow the internationalization of competitors so that they will not gain strategic advantage (Knickerbocker 1973).

But rivalry between firms also affects their decisions to cut production costs to become more competitive, which led Vernon (1966) to explore the theory of product life cycle. He found that firms choose to invest directly in a given place as an alternative to exporting, in so far as goods travel along the curve of their life cycle (growth, maturity and decline), and to the extent that as they decline they have fewer needs in terms of specialized labour and innovative technology. In the growth stage, companies invest in other developed countries where markets are growing and local production can be absorbed, while in the maturity and decline stages, production is shifted to developing countries in as much as markets become saturated and products are less innovative, thereby generating pressure to reduce costs (Hill 2007). Aharoni (1966) (in Faeth 2009) explained why companies opt for FDI through competition factors, such as the fear of loss of competitiveness, the need to follow rivals into foreign markets and increased competition in the domestic market.

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[1] Hymer's theory was only published in 1976 (after his death), even though it resulted from his PhD thesis completed in 1960 (Ietto-Gillies 2005).

Internalization theory was first broached by Buckley and Casson (1976) (in Ietto-Gillies 2005),[2] who argued that firms choose to internalize operations through FDI when transaction costs (such as information and negotiation costs, arising from recourse to the market) are higher than internalization costs (related to internal communication and organization). When market risk and uncertainty are high then transaction costs are high, and internalization of operations is preferred (undertaking FDI). Buckley and Casson (1976) (in Ietto-Gillies 2005) also consider that in certain markets (e.g. markets for knowledge) there is a particularly strong incentive to internalize. The authors say that knowledge is a public good within a company, and so it can be used in several corporate divisions at no extra cost, and is easy to transfer from country to country. Furthermore, the buyer's problem in establishing the true value of the knowledge to be acquired makes its transaction in the market rather problematic.

The more holistic approach of Dunning, the eclectic or OLI (Ownership, Location, Internalization) paradigm embraces the internalization theory and traditional trade theories (Dunning 2002), and systematises the benefits for firms that operate internationally, connecting them to the chosen entry modes (Faeth 2009). For Dunning (1977) (in Ietto-Gillies 2005), there are advantages in choosing FDI when there are simultaneously ownership advantages – O, location advantages – L and internalization advantages – I. Ownership advantage concerns the importance of a firm owning assets such as pioneering technology, exclusive productive processes, patents, management skills and such like, that can generate profits in the future (Dunning and Lundan 2008). Location is important when a company gains from its presence in a given market by benefiting from conditions such as: special tax regimes; lower production and transport costs; market size; access to protected markets, and lower risk (Dunning and Lundan 2008). Market imperfections (e.g. the imbalance of international allocation of resources) can be reduced by internalising operations, allowing a reduction in transaction costs associated with risks of copying technology, for instance (Dunning 2002). The choice of a particular location is therefore based on specific conditions that are in its favour (Ietto-Gillies 2005).

The major contribution of Dunning's eclectic paradigm to the literature was to bring together several complementary theories, identifying a set of variables (ownership, location and internalization) that shape the activities of

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[2] As Ietto-Gillies notes (2005), internalization theory dates back to Coase (1937) and his theory of the firm, but it was extended to international firms by Buckley and Casson (1976).

multinational firms (Dunning and Lundan 2008). The essence of this approach is the application of these variables to trade, to international production and to the international organization of production, which means that the same analytical framework can cover the three main modes of internationalization (exports, FDI and licensing) (Ietto-Gillies 2005).

Based on Kindleberger's theoretical models (1969), along with those of Hymer (1976) and Caves (1971) (quoted in Faeth 2009), an alternative analytical framework emerges – a "new theory of trade" – that combines the advantages of ownership (knowledge) and location (market size and low transaction costs) with technology and the intrinsic characteristics of a country (factor endowments). This new theory is an addition to Dunning's eclectic paradigm in that it aims to correlate the three variables OLI (ownership, location, internalization) with technology and a country's characteristics in a coherent manner (Markusen 2002). Several empirical studies have been published on this (e.g. Helpman 1984, 1985; Markusen 1984, 1997, quoted in Faeth 2009).

To round off this analysis of the theoretical models, we should explain the influence of political variables on FDI from the institutional standpoint. Institutional theory suggests that firms operate in a complex environment that is uncertain and sometimes confrontational, and so a company's decisions will depend on the institutional forces that have an influence on it, especially on regulations and incentives (Francis *et al.* 2009). In this context, the strategies adopted by companies and their performance in international markets are largely determined by institutions, that is, by the "rules of the game" (Peng 2009). Foreign investment can thus be regarded as a 'game' in which the players are the multinational firm and the government of the host country, or as a contest between governments to attract FDI (Faeth 2009). Government policies that include tax breaks, subsidies and the easy repatriation of capital (Faeth 2009) can thus influence the choice between exporting, FDI and licensing. This issue has been examined by a number of authors, such as Bond and Samuelson (1986), Black and Hoyt (1989) and Hubert and Pain (2002) (in Faeth 2009), who have concluded that financial and fiscal incentives, tariffs and lower corporate tax rates have a positive effect on attracting FDI (Faeth 2009). Corruption is another, equally important, factor in firms' decisions to opt for a particular place. Bénassy-Quéré *et al.* (2007) and Cleeve (2008) are among those authors who say that low levels of corruption are linked to greater prosperity and have a considerable influence on the institutional quality of a country, and stimulate its development.

All in all, the various theories on FDI set out a number of determinants that could explain foreign direct investment flows, involving the micro (e.g. organizational aspects) and macro (e.g. resource allocation) dimensions (Dunning and Lundan 2008). Since this work aims to identify the factors that have been found to best explain FDI flows to a particular location, it concentrates on the macro dimension.

3. DETERMINANTS OF FDI: EMPIRICAL EVIDENCE

3.1. Initial considerations

At first on an a-theoretical basis (Robinson 1961; Behrman 1962; Basi 1966, quoted in Faeth 2009), and afterwards inserted into the theoretical approaches to FDI (cf. Section 2), several empirical studies have been undertaken in order to assess which key determinants explain the investment of multinational firms in a given location.

Adapting the organization of the determinants in the relevant theoretical approaches described above, specifically those associated with the location aspect of the OLI paradigm (infrastructure, human capital, economic stability and production costs – cf. Table 2, to the institutional approach (corruption, political instability and institutional quality, and financial and fiscal incentives – cf. Table 3), and to the 'New Trade Theory' – market size, market growth, openness of the economy and factor endowments – cf. Table 4)[3] the relations between these determinants and FDI flows as reported in the empirical literature will be described next. Note that even though all these determinants could be embraced by the location dimension of the OLI paradigm, we have chosen to arrange them differently since these approaches, which have been developed afterwards (Institutional approach and 'New Trade Theory') focus on them.

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[3] Root and Ahmed (1978), in their study on the influence of government policy instruments on FDI in the industrial sector of the developing countries, propose a separate category for FDI determinants, though with elements in common with the submission associated with this study, based on four aspects: economic, social, political and government policy. So as to remain consistent with the theoretical synthesis described in Section 2, it was decided to group the empirical determinants using the same conceptual framework.

3.2. Location dimension of the OLI paradigm

Because a country that has good quality infrastructure attracts more FDI, (Vijayakumar *et al.* 2010), it may be expected that there is a strong relationship between this determinant and FDI. But the conclusions are not unanimous (cf. Table 2), since some authors find a significant positive relation (Biswas 2002; Asiedu 2006; Mhlanga *et al.* 2010; Vijayakumar *et al.* 2010), whilst others do not find any statistical evidence that infrastructure attracts FDI (Cleeve 2008; Mohamed and Sidiropoulos 2010). The latter finding may be due to the fact that the authors were working with a small sample made up of countries with fairly similar features (e.g. SSA; MENA; SE).[4] Using the number of internet connections as a proxy Botrić and Škuflić (2006) concluded that the relationship between infrastructure and FDI is negative, and explain this with the fact that the internet only became widespread in these countries after 2000.

Table 2

Summary of FDI determinants associated with the location dimension of the OLI paradigm

Determinant	FDI destination [a]	Proxy	Method	Effect	Author(s) (year)
Infrastructure	16 SSA countries	No. phone lines per 1000 inhabs	Multivariate regression	0	Cleeve (2008)
	12 MENA; 24 DCs		Panel data	0	Mohamed and Sidiropoulos (2010)
	22 SSA countries			+	Asiedu (2006)
	44 countries			+	Biswas (2002)
	14 SADC			+	Mhlanga *et al.* (2010)
	14 SADC	No. landline and mobile subscribers per 1000 inhabs	Multivariate regression	+	Mhlanga *et al.* (2010)
	6 SE European countries	No. internet connections	Panel data	–	Botrić and Škuflić (2006)
	BRICS	Infrastructure index[b]		+	Vijayakumar *et al.* (2010)
	44 countries	Installed net electricity generation capacity per capita		+	Biswas (2002)
Human capital	16 SSA countries	Secondary education index	Multivariate regression	+	Cleeve (2008)
	80 DCs			0	Schneider and Frey (1985)
	16 SSA countries	Adult illiteracy		0	Cleeve (2008)
	22 SSA countries	% adult literacy		+	Asiedu (2006)
Economic stability	BRICS	Inflation rate	Panel data	0	Vijayakumar *et al.* (2010)
	14 SADC		Multivariate regression	0	Mhlanga *et al.* (2010)
	80 DCs			–	Schneider and Frey (1985)

[4] SSA: Sub-Saharan Africa; MENA: Middle East and North Africa; SE: South-East Europe

	12 MENA; 24 DCs		Panel data	–	Mohamed and Sidiropoulos (2010)
	22 SSA countries			–	Asiedu (2006)
	12 MENA; 24 DCs	Supply + reserve currency	Panel data	0	Mohamed and Sidiropoulos (2010)
	14 SADC	Currency/GDP	Multivariate regression	–	Mhlanga *et al.* (2010)
	12 MENA; 24 DCs	Financial sector development index		+	Mohamed and Sidiropoulos (2010)
	6 SE European countries	Unemployment rate	Panel data	+	Botrić and Škuflić (2006)
	12 MENA 24 DCs	Government spending/GDP		0	Mohamed and Sidiropoulos (2010)
Economic stability	80 DCs	BP deficit	Multivariate regression	–	Schneider and Frey (1985)
	6 SE European countries	Weight of private sector in economy		+	Botrić and Škuflić (2006)
		No. privatizations	Panel data	–	
	BRICS	Weighted average of main currencies adjusted for inflation		–	Vijayakumar *et al.* (2010)
	16 SSA countries	Nominal exchange rate adjusted GDP deflator		+	Cleeve (2008)
	80 DCs	% external aid Communist countries	Multivariate regression	–	Schneider and Frey (1985)
		% external aid Western countries		+	
		% economic and political multilateral aid		+	
Production costs	44 countries	Wage/worker	Panel data	0	Biswas (2002)
	6 SE European countries		Panel data	–	Botrić and Škuflić (2006)
	80 DCs	Worker remittances and wages	Multivariate regression	+	Schneider and Frey (1985)
	BRICS		Panel data	+	Vijayakumar *et al.* (2010)

Legend: + positive and statistically significant effect; – negative and statistically significant effect; 0 no statistically significant effect; DCs – developing countries; SADC – Southern African Development Community

Note: [a] Country was the unit of analysis for all the studies listed; [b] Indexing for electricity consumption (kWh per capita), energy use (kg of oil equivalent per capita), no. phone lines per 100 inhabitants.

Source: compiled by the authors

From a more social angle, human capital is found to be a relevant determinant, basically in skilled labour intensive sectors where the level of education improves productivity and facilitates technological innovation (Brooks *et al.* 2010). So a significant positive relation with FDI can be expected. But for this determinant, too, the conclusions do not fully agree (cf. Table 2). Significant positive effects have been found (e.g. Asiedu 2006; Cleeve 2008), and so have inconclusive effects (e.g. Schneider and Frey 1985; Cleeve 2008).

Cleeve (2008) used the secondary school education index (which represents the weight of enrolled pupils in the total population of secondary school age) to measure human capital. But he found that this proxy did not show the accumulated stock of human capital, and he deemed it essential to use adult illiteracy, too, as an indicator of the education and skills level of the population. But he did not obtain conclusive results for this indicator either, maybe because of the small variability in the illiteracy rates of the countries in the sample.

A country with stable economic and financial circumstances presupposes general price stability, the maintenance of full employment and balance of payments equilibrium, and a country enjoying all these conditions will tend to receive greater FDI inflows (Cleeve 2008). Several indicators are used to measure this determinant (economic and financial stability), with the inflation rate being one of the most usual measures since it can gauge price stability, which is a condition of economic equilibrium. In this context, high or volatile inflation rates are a clear sign of economic instability and may become an impediment to FDI (Botrić and Škuflić 2006). Balance of payments deficits, likewise, denote instability and can lead to restrictions on the free movement of capital, thereby hampering the repatriation of profits (Schneider and Frey 1985).

Botrić and Škuflić (2006), in a study focused on a group of underdeveloped South-East European countries (SE)[5] whose economies were in transition (from being centrally planned), had to use proxies that fit these circumstances in order to measure economic stability. So they used the weight of the private sector in the economy or the number of privatizations, which tend to show the speed of transition of the economies and indicate that the market mechanisms are better developed. They achieved statistically significant results on both proxies; the effect was found to be positive for the weight of the private sector and negative for the number of privatizations, which the authors ascribe to investors being more interested in small scale privatizations in these countries.

In their analysis of FDI in eighty developing countries (DCs), Schneider and Frey (1985) used some other proxies, such as the percentage of external aid from communist or Western countries and economic and political multilateral aid, which sought to explain how far the origin of external aid to those countries could influence their attractiveness. It was found that

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[5] Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Serbia and Montenegro and Macedonia.

countries nearest to Western economies tended to attract more FDI. On the whole the conclusions suggest, as might be expected, that economic stability has a significant positive effect on FDI (cf. Table 2). The most surprising conclusion was drawn by Botrić and Škuflić (2006) when they used the unemployment rate as a proxy for economic stability, for which a negative effect on FDI was expected. The positive effect found by the authors may be related to the fact that the proxy is more adjusted to a measure of cheap labour, which does attract more FDI, than a measure of economic stability, thus distorting the result.

However, according to Dunning and Lundan (2008), factors such as economic stability are often ignored by firms to the detriment of the goal of trying to improve their competitiveness by transferring all or some of their production to places where production costs, especially wages, are lower.

So it may be expected that low wage costs, measured by wage per worker, have a significant positive effect on attracting FDI since this leads to lower production costs (Dunning and Lundan, 2008). This effect was confirmed by two of the studies examined (cf. Table 2). Contrary to expectation, Botrić and Škuflić (2006) found a negative relation of this determinant with FDI, which the authors think might be explained by the sectoral distribution of FDI, since, with the services sector being attractive in the South-East European countries and wages being higher in this sector, investors may be willing to tolerate higher wages. Biswas (2002) did not obtain conclusive results about the relevance of low wage costs to attracting FDI.

3.3. Institutional approach

Since the late 1990s the literature on economic development has focused on institutional quality as the chief factor explaining the differences in development between countries, being the low levels of corruption associated with greater prosperity (Bénassy-Quéré *et al.* 2007). So variables such as corruption, political instability and weak institutional quality are included in the 'institutional' dimension, and they are expected to have a negative effect on FDI determinants (cf. Table 3).

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Table 3
Summary of FDI determinants associated with the 'Institutional approach'

Determinant	FDI destination[a]	Proxy	Method	Effect	Author(s) (year)
Corruption, political instability and institutional quality [b]	16 SSA countries	Corruption index	Multivariate regression	–	Cleeve (2008)
	55 emerging and developing economies		Panel data	–	Mudambi *et al.* (2012)
	12 MENA; 24 DCs			–	Mohamed and Sidiropoulos (2010)
	22 SSA countries			–	Asiedu (2006)
	80 DCs	Type of regime	Multivariate regression	0	Schneider and Frey (1985)
	44 countries		Panel data	+	Biswas (2002)
		Duration of regime		–	
	14 SADC	IIM [c] country risk rating	Multivariate regression	–	Mhlanga *et al.* (2010)
		∑ political freedom index, civil liberty		0	
	16 SSA countries	Average of political and civil freedom		0	Cleeve (2008)
	22 SSA countries	No. of coups d'état	Panel data	–	Asiedu (2006)
		No. of assassinations		–	
		No. of insurrections		–	
	80 DCs	No. of strikes and insurrections	Multivariate regression	–	Schneider and Frey (1985)
	44 countries	Protection of copyright index [d]	Panel data	+	Biswas (2002)
	22 SSA countries	Effectiveness of rule of law (ICRG)		+	Asiedu (2006)
	12 MENA; 24 DCs	Investment profile [e]	Panel data	+	Mohamed and Sidiropoulos (2010)
Financial and economic incentives	70 DCs	Corporate taxation	Multiple discriminant analysis	–	Root and Ahmed (1978)
		Tax incentives (complexity vs. simplicity; liberality)		0	
	16 SSA countries	Temporary tax incentives	Multivariate regression	0	Cleeve (2008)
		Profit repatriation		0	
		Tax concessions		0	
	8 Central and East European host countries (CEECs)	Bilateral effective average tax rates	Panel gravity-model	–	Bellak and Leibrecht (2009)

Institutional reforms are particularly relevant in that they help reduce corruption and offer more transparency and security to investors (Bénassy-Quéré *et al.* 2007). Most analyses find that the effect of corruption, measured by the corruption index, is statistically and significantly negative in attracting FDI (Asiedu 2006; Cleeve 2008; Mohamed and Sidiropoulos 2010; Mudambi *et al.* 2012). That is, higher level of corruption is associated with lower levels of FDI inflows. Asiedu (2006) and Mohamed and Sidiropoulos (2010) used the corruption index taken from the ICRG (International Country Risk Guide), whilst Cleeve (2008) and Mudambi et al. (2012) used the CPI (Corruption Perceptions Index) calculated by Transparency International. However, Mudambi *et al.* (2012) argue that the negative influence of corruption on FDI occurs only when the level of corruption is treated as exogenous. If the level of corruption is treated as endogenous, determined by the extent of regulation, the authors find that its relationship with FDI is no longer statistically significant.

With respect to political instability, most studies bear out the negative result expected for this determinant in relation to FDI. Nonetheless, Cleeve (2008) and Mhlanga *et al.* (2010) used the political and civil freedom indexes but did not obtain any conclusive results, probably because of the small size of the samples. Schneider and Frey (1985) and Biswas (2002) used measures such as the type and duration of political regimes, considering that left-wing regimes will tend to attract less FDI, given that investors, on average, see them as a greater risk and that their duration will tend to have a negative effect, suggesting that the longer-lasting the political regime in the country, the less attractive it will be for foreign investors.

Using the country risk rating, Mhlanga *et al.* (2010) obtained different findings from those expected: higher risk countries attract more FDI. According to the authors this conclusion can be explained by the fact that there were some countries in the sample, such as Angola, which has a high risk but attracts a large amount of FDI, mostly because of its vast endowments of natural resources (oil and natural gas, for example).

The level of corruption and political instability has a considerable influence on a country's institutional quality, since corruption (defined as the abuse of power for a person's own benefit) (Cleeve 2008) affects the quality of institutions, and political instability limits its development. This is because when resources are distributed unequally it tends to generate revolt (Sahu 2008) and to restrict the development of more efficient political and economic institutions, which constrains FDI. Asiedu (2006) used an indicator taken from the ICRG (International Country Risk Guide) to measure institutional quality, which makes it possible to assess the impartiality of the legal system and the effective application of the law (effectiveness of the rule of law). Biswas (2002) and Mohamed and Sidiropoulos (2010) used composite indexes that contain risk factors for investors, such as bureaucracy, corruption, risk of expropriation or profit repatriation policies. All these studies found a significant positive relation between institutional quality and FDI.

Authors such as Halvorsen (1995), Wilson (1996), Osman (2000) and Wells *et al.* (2001) (quoted in Cleeve 2008) argue that corruption problems may be aggravated by the granting of tax concessions which lead to costs to the receiving country that may outweigh the benefits of attracting FDI. The vast literature that focuses on the role of incentives in attracting FDI presents results that are not consistent. Using corporate taxation (expressed as percentage of profit) as a proxy for financial and economic incentives, Root and Ahmed (1978) concluded that it is a significant determinant of FDI in manufacturing. However, using another proxy to measure this determinant, the authors found that tax incentives fail systematically to attract FDI. Root and Ahmed (1978) explain this seemingly surprising result by the fear that such incentives will be removed by host governments once the investment is made. Additionally, Cleeve (2008) found no statistically significant effects of financial and fiscal incentives on FDI. Cleeve (2008) used three proxies to measure that variable: temporary tax exemptions (which are very popular, since lower tax rates translate into higher return); the repatriation of profits (indicating that the more liberal this policy, the more FDI will be attracted), and tax concessions for certain

sectors of activity (showing whether the receiving country is selective in the type of FDI it wants to attract). Regardless of the proxy, Cleeve (2008) found no statistically significant effects of these variables on FDI for the sample of countries studied. Finally, Bellak and Leibrecht (2009) conclude that countries with a lower tax rate attract more FDI. However, the authors underline that the relative importance of the corporate tax rate must not be overemphasized, as their results reveal that during the period from 1995 to 2003 the tax burden had no exceptional influence on FDI when compared to other determinants.

3.4. New Theory of Trade

With regard to FDI determinants associated with the 'New Theory of Trade' (cf. Table 4), according to the literature (e.g. Asiedu 2006; Cleeve 2008; Mohamed and Sidiropoulos 2010), it is expected that market size and growth have a positive effect on FDI. That is to say, everything else being given, a larger market and that is growing more will receive larger inflows of FDI.

As a rule, market size has a positive relation with FDI (Vijayakumar *et al.* 2010), though Mohamed and Sidiropoulos (2010) did not get conclusive results when they measured the size through number of inhabitants. Using the same proxy, Botrić and Škuflić (2006) found a significant negative effect, because the sample of countries was small. As far as market growth is concerned, the empirical results are mixed. Most studies (e.g. Schneider and Frey 1985; Cleeve 2008; Mohamed and Sidiropoulos 2010) found a positive relation, whereas Mhlanga *et al.* (2010) and Vijayakumar *et al.* (2010) achieved inconclusive results.

At the same time, some empirical studies (e.g. Asiedu 2006; Vijayakumar *et al.* 2010) argue that the countries which receive smaller FDI inflows would be more attractive if they implemented reforms that liberalize their economies (Choong and Lam 2010), showing the importance of an open economy to attracting FDI. So a positive, statistically significant, effect is expected for the variable 'openness of the economy' on FDI (Vijayakumar *et al.* 2010). This was corroborated by virtually all the studies (Asiedu 2006; Botrić and Škuflić 2006; Cleeve 2008; Mhlanga *et al.* 2010), whilst in the rest (Mohamed and Sidiropoulos 2010; Vijayakumar *et al.* 2010) the results were not conclusive.

Table 4

Summary of FDI determinants associated with the 'New theory of trade'

Determinant	FDI destination [a]	Proxy	Method	Effect	Author(s) (year)
Market size	16 SSA countries	GDP per capita	Multivariate regression	+	Cleeve (2008)
	80 DCs	GNP per capita		+	Schneider and Frey (1985)
	14 SADC			+	Mhlanga *et al.* (2010)[b]
	22 SSA countries			+	Asiedu (2006)
	12 MENA; 24 DCs	GDP	Panel data	+	Mohamed and Sidiropoulos (2010)
	BRICS			+	Vijayakumar *et al.* (2010)
	6 SE European countries			+ −	Botrić and Škuflić (2006)
	12 MENA; 24 DCs	No. of inhabitants	Panel data	0	Mohamed and Sidiropoulos (2010)
Market growth	14 SADC	GDP growth rate	Multivariate regression	0	Mhlanga *et al.* (2010)
	16 SSA countries			+	Cleeve (2008)
	12 MENA; 24 DCs	Real GDP growth rate	Panel data	+	Mohamed and Sidiropoulos (2010)
	80 DCs	Real GNP growth rate	Multivariate regression	+	Schneider and Frey (1985)
	BRICS	Industrial production index	Panel data	0	Vijayakumar *et al.* (2010)
Openness of the economy	16 SSA countries		Multivariate regression	+	Cleeve (2008)
	14 SADC			+	Mhlanga *et al.* (2010)
	6 SE European countries	(X+M)/GDP		+	Botrić and Škuflić (2006)
	12 MENA; 24 DCs			0	Mohamed and Sidiropoulos (2010)
	BRICS		Panel data	0	Vijayakumar *et al.* (2010)
	22 SSA countries	Openness index ICRG[c]		+	Asiedu (2006)

Factor endowments in natural resources	22 SSA countries	X fuels+minerals/total X	Multivariate regression	+	Asiedu (2006)
	12 MENA; 24 DCs	X fuels/total X		+	Mohamed and Sidiropoulos (2010)
	14 SADC	Investment in extractive industry (dummy)		0	Mhlanga *et al.* (2010)
	50 largest receiving countries	X fuels+ores+minerals Total X		+	Cheung and Qian (2009)
	25 Eurasian countries	Variable= - weak NR endowment; =1 - moderate; =2 - high		+	Deichmann *et al.* (2003)
	Ex-Soviet Union	Industrial production index oil+gas	Panel data	+	Ledyaeva (2009)
	n/a	n/a	Descriptive	n/a	Kumar and Chadha (2009)

Legend: + positive and statistically significant effect; – negative and statistically significant effect; 0 no statistically significant effect.

Notes: [a] The country was the unit of analysis for all the studies listed; [b] This study considers five other determinants that influence FDI, in addition to those mentioned in most other studies. These five are: geographic location; return on investment; origin of FDI; mode of entry, and sector of activity. A significant (positive) effect was only found for geographic location and sector of activity, with none of the other determinants showing any statistical significance; [c]ICRG (International Country Risk Guide) openness index, includes: operating risk, taxes, repatriation of profits and labour costs.

Source: compiled by the authors

Even though the empirical literature suggests the weight of external trade in GDP as a proxy for openness of the economy, Asiedu (2006) argues such this relation means that countries that want to attract greater FDI inflows ought to increase foreign trade, too. This author feels that that recommendation is not constructive, since politicians have no control over trade volume. So it was decided to use an openness index based on information from the ICRG (International Country Risk Guide) reports that take into account factors such as operating risk, level of corporation tax, profit repatriation and labour costs, with a statistically significant positive effect.

Firms can increase their competitiveness by investing in certain locations that offer access to particular natural resources of better quality and for a lower real cost than in the country of origin (Dunning and Lundan 2008). This motivation is especially important in the case of industrial firms since this policy can ensure minimization of production costs and security of sources of supply (Dunning and Lundan 2008). A statistically significant

positive relation is thus expected for factor endowments of natural resources and FDI (cf. Table 4). This was confirmed by most of the empirical studies (Deichmann *et al.* 2003; Asiedu 2006; Cheung and Qian 2009; Ledyaeva 2009; Mohamed and Sidiropoulos 2010). However, to Mhlanga *et al.* (2010), who used a dummy variable to measure natural resource endowments in SADC countries, the results were not conclusive.

Asiedu (2006), Cheung and Qian (2009) and Mohamed and Sidiropoulos (2010) used very similar proxies to measure natural resource endowments, and the differences are explained by the type of natural resources found in the countries they analysed. Specifically, Asiedu (2006) used the weight of fuel and mineral exports in total exports since their sample was based on Sub-Saharan African nations that have enormous endowments of fuel and minerals. Mohamed and Sidiropoulos (2010) only used fuel, because this is the natural resource of relevance in the Middle East and North Africa (MENA) countries. Looking at FDI from the standpoint of the investor country, Cheung and Qian (2009) used a more wide-ranging proxy (including ores, too) to represent the demand for sundry raw materials in the various countries.

Focusing on the study of twenty five Eurasian countries (which include Central European countries such as the Czech Republic, Slovakia, and Hungary, among others, the Baltic states of Estonia, Latvia, and Lithuania, and Central Asia countries such as Kazakhstan and Russia), and controlling for a huge group of factors that can influence the attraction of FDI to these countries in the period 1989-1998 (e.g. reform measures; weight of the private sector in the economy; GDP and GNP per capita; inflation rate; number of years an economy has been under central planning; effectiveness of rule of law; investment climate; human and social capital), Deichmann *et al.* (2003) conclude that the endowment of natural resources is a necessary condition for FDI. The authors specifically mention the case of countries in Central Asia, rich in oil and natural gas, which would not be attractive without these resources. Ledyaeva (2009) came to a similar conclusion. Analysing the countries from the ex-Soviet Union in the period from 1995 to 2005, Ledyaeva (2009) confirmed that the regions with the most abundant natural resources, measured by their production index for oil and natural gas, attract higher volumes of FDI.

All the empirical studies quoted above make use of econometric models to assess the relevance of natural resources in attracting FDI in various countries. Only Kumar and Chadha (2009) carried out a comparative descriptive study of India and China to find the main differences in FDI

determinants that motivated the two countries, specifically for the steel sector. Although Indian FDI in the extractive industry rose 10% between 2000 and 2004, (there was almost none in 2000) the authors conclude that natural resources are not the main FDI determinant for this country, given that the goal of these firms was to achieve a global dimension. Chinese FDI, on the other hand, is clearly aimed at acquiring resources so as to secure its supply of natural resources.

4. CONCLUSIONS

The strong growth of FDI in the last few decades has led to extensive research on the determinants of this type of investment. The vast amount of theoretical and empirical literature on FDI catalogues a long list of determinants that try to explain direct investment by multinational companies in a particular location. Among these determinants the spotlight falls on those associated with the location dimension of the OLI paradigm (infrastructure, human capital, economic stability and production costs), on the institutional approach (corruption, political instability and institutional quality, and financial and fiscal incentives), and on the 'New Theory of Trade' (market size, market growth, openness of the economy and factor endowments).

Several empirical studies have been carried out to assess which key determinants explain the investment of multinational firms in a given location. The main conclusion that can be drawn from the studies reviewed is that the three theoretical approaches aforementioned are important in explaining FDI location since a large number of studies concluded that infrastructure, economic stability, corruption, and market size are important determinants of FDI location. However, the results obtained for some determinants are not consistent. In fact, a large number of studies do not find any statistically significant relation for determinants such as human capital, financial and fiscal incentives, market growth, and openness of the economy). Furthermore, notwithstanding the quantity and quality of studies on FDI determinants, there are some that have been neglected, e.g. human capital, production costs and factor endowments (in particular natural resources).

In addition, it has been confirmed that most of the studies focus on very specific regions and countries, such as Sub-Saharan Africa (Asiedu 2006), the MENA countries (Mohamed and Sidiropoulos 2010), China (Cheung and

Qian 2009), India (Kumar and Chadha 2009), Eurasia (Deichmann *et al.* 2003), the SADC (Mhlanga *et al.* 2010), the nations from the ex-Soviet Union (Ledyaeva 2009) and BRICS (Vijayakumar *et al*. 2010). Only a very few studies cover a wider range of countries.

We therefore feel that future empirical work in this area should examine some of the less tested determinants (e.g. production costs, natural resource endowments) and could cover countries from different regions of the world.

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