



# The Effects of Project Scale on FDI Location Choices: Evidence from Emerging Economies

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## Abstract

We examine the interactions of project-specific scale and country-specific economic and institutional attributes in determining inward FDI location choices in emerging economies. We study a large project-level sample with over 15,000 investments originated in 20 industrialised countries and located in 25 emerging economies, between 2003 and 2014. Overall, firms show investment location preferences for emerging economies characterised by larger consumer markets, cheaper labour costs, lower corporate taxes and lower institutional distance. The effects of such country attributes on FDI location are significantly moderated by the project's scale (measured as Capex and Employment). Larger project scale renders FDI location more sensitive to larger market size and to cheaper labour costs, but less sensitive to lower corporate taxes and to lower institutional distance. These results are consistent with the notion that project scale significantly affects firms' locational sensitivity to country attributes when choosing between FDI target locations.

**Keywords** Foreign direct investment · FDI location choices · Emerging economies · Investment scale

**JEL codes** F210 · F130 · F140 · F230

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## 1 Introduction

FDI (Foreign Direct Investment) is a strategic source of finance for emerging economies, exerting beneficial impacts on employment, technological upgrading, productivity and economic growth (Alfaro 2017; Wei and Liu 2006). Given its importance for both private sector development and public policies, research analysing the factors affecting FDI location choices gained prominence in the international business literature. While a voluminous body of research has uncovered a number of country and firm-level attributes affecting FDI attractiveness, studies emphasising a micro-based approach, as to consider project heterogeneous characteristics, are much scarcer (Blonigen 2005).

In this paper, we examine the effects of project scale on multinational enterprises' (MNEs) location choice sensitivity to four important determinants of FDI: market size, labour costs, corporate taxes and institutional quality. Our choice for these determinants is motivated by recent comprehensive review articles summarising the extensive literature on location choice by Jain et al. (2016), Kim and Aguilera (2016), Nielsen et al. (2017) which show that these country attributes are among the key determinants of MNEs' location selection. In broad lines, these four locational traits are purely economic or institutional factors exerting direct impacts on foreign revenues, costs and on investment risk, thus affecting FDI location decisions. However, a gap exists in the extant international business literature in linking country locational factors to project characteristics.

As well noted by Nielsen et al. (2017), most studies treat country locational determinants in a somewhat atomistic way, paying limited attention to how they interact with other factors driving firms to a particular host market. In synergy with this view, Kim and Aguilera (2016) also remark the importance of digging deeper into MNEs' operations, as to allow for a more birds-eye view of MNEs' FDI decisions. Moreover, Nielsen et al. (2017) also highlight a paucity of location studies which have considered the role of investment scale. For instance, a recent theoretical model presented by Jain et al. (2016) provides clear predictions regarding how firm and industry characteristics might interact with country determinants of FDI location. However, the role of project scale, which is a crucial characteristic of any FDI project, remains under-researched. Therefore, the main contribution of our paper is to derive and empirically test hypotheses predicting interactive effects between project scale and several important country-level determinants of FDI location. In doing so, we shed light on how the salience of country locational factors might change contingent on micro-level determinants, such as it is the case of the scale of FDI projects.

Our analysis employs a large project-level dataset with over 15,000 greenfield manufacturing investments from 5182 multinational enterprises. These FDIs are originated in 20 industrialised countries and are located in 25 emerging economies, covering a time period from 2003 until 2014. We empirically estimate FDI location models employing conditional logistic regressions. By including interactions between project scale (measured in financial terms by Capex and in labour terms by Employment) and market size, labour costs, taxation and institutional

distance, we analyse if project scale and country attributes jointly affect MNEs' FDI location decisions.

Our sample includes top FDI destinations in the emerging world, like China, India, Brazil, Mexico and Russia, as well as Asian fast-growing economies like Singapore, Thailand, Malaysia, Indonesia and Vietnam. We also cover transition economies, like Poland, Czech Republic, Hungary and Romania (among others). As to the senders of FDI, all the major developed economies are present in our sample: the US and Canada, Japan, Western European countries and Australia. Our empirical study boasts great diversity in terms of numbers of recipients and senders of FDI. However, it is important to clearly set up the boundaries of our examination. Our sample does not cover M&As, nor technological and knowledge-intensive FDI, further being restricted to location choice and not covering other entry modes and internationalisation decisions.

While taking stock of the boundaries of our work, our empirical design adds valuable insights nevertheless. The most common design in the location literature analyses outward FDI from one sender country going to a limited number of recipient countries, typically within a geographic region, or from multiple senders going to one recipient country. For example, reviewing 153 studies, Nielsen et al. (2017) find a considerable bias towards studies based on US and Japan as senders of FDI, and towards China as main FDI recipient. We offer empirical evidence that considerably expands extant studies by analysing FDI location choices of MNEs from multiple sender countries in industrialised economies investing in multiple recipient countries in emerging economies. This gives a good scope for generalisation of our results in the context of emerging economies.

Although studies focussing on investment scale are scarce, a few papers have examined the issue. For instance, larger projects involving more capital are considered to be inherently riskier than smaller projects (Chadee et al. 2003). In line with this view, some evidence suggests MNEs are more likely to locate subsidiaries with larger scale in countries characterised by lower risk (Duanmu 2014; Pak and Park 2005). However, this research stream remains somewhat fragmented, with the role of investment scale yet to be streamlined into a more coherent theoretical framework. Our work differs from and contributes to these studies in many ways. First, building on insights from the economics literature (Chen and Moore 2010; Defever 2012; Halvorsen 2012; Tomiura 2007), we establish a pathway linking micro-level factors, such as project scale heterogeneity, to country-level locational factors. The main insight we borrow from this literature is that investment (project) heterogeneity can shift the salience of FDI location to country-level determinants. Second, our empirical examination goes beyond country risk, as we analyse the interplay between scale and a wider set of country-level locational factors potentially affecting expected revenues and costs. Third, regarding the role of scale, Duanmu (2014) analyses how expropriation risk influences the scale of Chinese outward FDI. While, like Duanmu (2014), we use Capex as a proxy for the investment's scale, our analysis differs from the former in that by examining the impact of country expropriation risk on Capex *directly*, Duanmu (2014) seems to embed the location and the capital commitment decision as jointly determined. We examine whether the scale of the investment affects *location sensitivity* to country determinants, instead, analysing

a cross-country sample of FDI senders and not only a single sender. Fourth, the locational role of scale was analysed in the context of joint-ventures (Chadee et al. 2003), whereas we look into greenfield FDI.

Furthermore, our study is important from theoretical and conceptual perspectives, adding a more granular view on how location decisions are made by MNEs. Most of FDI location studies, for being unable to account for project scale in the empirical design (usually due to data restrictions), intrinsically assume that firms pick their target locations either neglecting the scale of the project, or assuming that the scale (how much capital is to be committed) will be determined sequentially after the target market is selected. But it is very likely that the capital budgeting process of strategically relevant ventures, like FDI, occurs either before or concomitantly with foreign market choice. Our paper provides evidence that this is exactly the case: Projects with different scales might end up located in target countries with different economic and institutional characteristics.

The paper continues as follows. In Sect. 2, the literature is reviewed and empirically testable hypotheses are proposed. Section 3 describes the dataset employed in the empirical test and the empirical methods. In Sect. 4 the main empirical results are presented and discussed, followed by sensitivity checks in Sect. 5. Section 6 discusses our findings with the extant international business literature, whereas Sect. 7 concludes.

## 2 Literature Review and Hypotheses Development

This section discusses the literature and proposes testable hypotheses. We begin by discussing the extant International Business (IB) literature on FDI location choices. Building on recent valuable and comprehensive reviews, we discuss the current boundaries in the literature and propose the need to dig deeper into investment-specific characteristics, like scale, as to further expand location choice theory. In doing so, we propose ways to integrate the micro-level approach typically employed in the economics literature into IB. We then streamline project scale in a cohesive theoretical framework, where the size of the investment might interplay with important locational factors well established in the field. We propose hypotheses linking project scale, market size, labour costs, taxation and institutional quality distance with FDI location attractiveness.

### 2.1 An Overview of Location Studies in the International Business (IB) Literature

FDI location choice has been a subject of vigorous research in many disciplines, such as international economics, economic geography, international business, and strategic management. The field was initially rooted in the economics discipline, mostly led by the early seminal works by Buckley and Casson (1976), Coase (1937) and Hymer (1960). The core concepts from these studies are that multinational firms explore foreign investment opportunities as to arbitrage from market imperfections across jurisdictions and thus maximise returns (Hymer 1960), and as ways

to minimise transaction costs by internalising cross-border activities within the umbrella of the same firm as opposed to conducting arms-length transactions (Coase 1937). In seeking such benefits, MNEs would locate optimally as to pursue cost-efficient locations (Buckley and Casson 1976).

These early concepts were expanded and integrated into a more cohesive conceptual framework in the seminal work by Dunning (1980). In the spirit of the OLI paradigm, the extent to which the firm will serve the foreign market through local production by undertaking FDI depends critically on Ownership, Locational and Internalisation advantages possessed by the firm. If the firm owns valuable proprietary assets (like technology, organisational skills, brands, etc), if it is more valuable to internalise activities as opposed to conduct arms-length transactions, and if the foreign economy offers locational-specific advantages, then FDI is an attractive choice. While locational theory grew more robust following the OLI paradigm, the geography of foreign investment lost space to issues like the ownership and governance of multinational firms (Kim and Aguilera 2016). It was even suggested that location has been mostly neglected in the IB discipline (Dunning 1998).

Since then, location choice theory has experienced a surge and revival, with hundreds of studies devoted to understanding how MNEs locate their FDIs. In order to coherently and rigorously summarise the vast contributions in the field (since one can hardly cover so much work), we rely on the valuable and comprehensive recent review studies by Jain et al. (2016), Kim and Aguilera (2016) and Nielsen et al. (2017). In doing so, we discuss how location theory can be expanded.

The review conducted by Nielsen et al. (2017) analysed 153 quantitative studies, examining mostly how location choice theory evolved in terms of the theories of FDI, methodological issues and the key findings in the literature. From a theoretical perspective, they highlight the focus of extant studies on three levels of analysis, namely destination location, parent firm and the interaction parent firm-location, and on six major theoretical branches, namely purely economic factors, institutions, industrial clusters, global cities, resource-based view and liability of foreignness. Focussing on locational factors as the prime interest of our study, their review reveals that several hypotheses were formulated, among the most important being the role of market size, wages (labour costs), taxation and institutional quality. In terms of the empirical findings, there is consistently reliable evidence indicating that locations with large market size (74% of studies) and with better institutional quality (75% of studies) typically receive more FDI. The conclusions on wages and taxation are ambiguous. About 49% of studies report a significantly negative association of wages and FDI location, whereas for taxation about 50% of studies show negative effects on location.

From a methodological perspective, the study of Nielsen et al. (2017) uncovers interesting patterns in the literature. The vast majority of papers look into country, industry and firm dimensions, with a clear bias towards FDI originating in the US and in Japan, and located in China. Thus, papers encompassing a larger number of both home and host economies are welcome to further expand the empirical reliability and generalisation of findings. Our paper contributes to enrich the literature with a comprehensive empirical setup with FDI originated in 20 countries and flowing to 25 locations. The same holds regarding the scarcity of studies looking at the

micro-level on a more granular dimension than firm level determinants, such as it is the case of investment (project) level data. Our study, by examining FDI location at the project level, contributes towards understanding more about this overlooked layer of locational decisions. Furthermore, and crucially linked to our paper, the authors report a significant scarcity of papers examining the role played by the scale of the investment. Thus, our focus on the importance of incorporating investment scale in location choice theory helps bridging another important gap in the literature.

Although, as well noted by Nielsen et al. (2017), the role of investment scale received limited attention in the literature, we identify a few studies which shed some light on the issue. The concept of investment scale has appeared in some IB/management studies, although it has not yet been cohesively streamlined into an integrated conceptual framework. Such studies suggest that there might be an important role to be played by project scale in shaping FDI location decisions. From a transaction costs perspective and from the ownership-specific and locational advantages achievable from engaging in FDI, the scale of the investment should interplay with the selection of foreign target markets (Dunning 1998; Hennart 1991; Root 1994). Studies looking at project (subsidiary) scale mostly agree that projects with larger scale carry higher financial risks (Pak and Park 2005). Consistent with the view that risk-exposure is proportional to total investment, Chadee et al. (2003) find that MNEs locate larger investments in Chinese areas providing policy and economic incentives. Also in line with the notion of risk-exposure, Duanmu (2014) finds that Chinese MNEs reduce investment scale in countries with higher expropriation risks, though this effect can be mitigated by the strength of home-host political relations.

In their rich review article, Kim and Aguilera (2016) summarise the findings of 137 studies on FDI location choices. The authors begin by providing a comprehensive historical overview on how different theoretical perspectives combined to forge the contemporary location theory, from the early contributions from economics and the behavioural tradition to the neglect and revival of the discipline in more recent years. Next, they categorise the main findings of the literature into 8 main topics that received most attention: institutions (like culture, corruption, etc), emerging markets (studies on China, India, Transition economies, etc), new economic geography (agglomeration economies, cities, geography), strategic asset seeking (knowledge-seeking FDI, R&D investments, etc), regions (economic integration, regionalisation vs globalisation, subnational spaces, etc), networks (social ties, immigrant networks, etc), offshoring (outsourcing of activities) and others.

Several interesting insights emerge from Kim and Aguilera (2016)'s review. For instance, the authors note that while the institutional environment is one of the most researched topics, the literature indicates that firms are heterogeneous in their perception of institutional constraints. In effect, firms with specific governance and ownership structures might evaluate institutional quality differently when making locational decisions. Furthermore, the renewed focus on location choices into and by emerging market firms has expanded the boundaries of the discipline by combining insights from Institutional and Organisational theories. Yet, going forward, Kim and Aguilera (2016) suggest two particularly fruitful avenues for further research: to consider institutions as configurations (that is, systems of interrelated components governing social actions as opposed to a

continuum of good/bad institutions), and to consider MNEs as networks of activities in multiple spaces (as opposed to conceptualising activities and locational decisions in isolation). In sum, Kim and Aguilera (2016) encourage researchers to dig deeper into MNEs' operations as to uncover a sharper birds-eye view of MNEs' FDI decisions. Following this recommendation, we propose a more granular analysis focussing on project characteristics, such as the investment scale, to uncover newer mechanisms expanding beyond country, industry and firm level locational determinants.

While recognising the stupendous progress achieved by the IB literature in identifying the determinants of FDI location choices at several levels and dimensions, Jain et al. (2016) argue that such determinants have been employed in such disparate ways as to produce a somewhat fragmented theoretical framework. To bridge this organisational gap in the literature, they propose a two steps comprehensive model whereby the FDI location determinants are systematically categorised and unified in a comprehensive model. The authors categorise locational factors into two broad categories: firm and industry-specific determinants, and country-specific determinants.

Step 1 of Jain et al. (2016)'s model includes the firm-level determinants that facilitate resource deployment internationally for exploration or exploitation, being comprised by four main dimensions: The firm's degree of experiential learning, top management's background and networks, customer relationships and industry structure. In Step 2 of the model, informed by the first step, firms examine country-specific location determinants to evaluate the attractiveness for FDI. The country locational factors include mainly the macroeconomic environment, inter-regional ties, distance between home and host country, availability of natural resources and agglomeration economies. In summary, FDI location choices combine firm, industry and country locational factors, whereby firms with specific characteristics might choose to invest in countries with specific advantageous locational traits. This relationship seems to entail an interactive effect of firm and country determinants in shaping location choice. While the model coherently streamlines firm, industry and country locational factors, the model does not encompass the project-level dimension. But this can be important. Since not all FDI projects are equal nor pursue the same objective, the same firm might evaluate the attractiveness of candidate locations differently depending on the heterogeneity of singular FDI projects, such as scale, FDI type, resource dependence, etc. Furthermore, Jain et al. (2016) highlight the importance of examining the factors causing changes in the salience of location to country determinants. While the authors remark the role of time, we position project scale as an important factor potentially affecting location salience.

In summary, after reflecting upon the boundaries in location theory as highlighted in the reviews by Jain et al. (2016), Kim and Aguilera (2016) and Nielsen et al. (2017), we view a potential interaction of project characteristics, like the scale of the investment, with country locational traits as an interesting way to expand IB's location choice theoretical framework. Yet, as we shall discuss, in order to propose ways in which such micro-level project dimension can be embedded into IB locational theory, we rely on solid concepts from the international economics literature, which has recently developed a particularly insightful focus on micro-level heterogeneities.



## 2.2 Investment Heterogeneity: Some Insights from Economics

A solid international economics literature emphasises the influence of investment and firm heterogeneity on the proclivity to undertake FDI and on FDI location as well. When firms and their investments are heterogeneous, optimal FDI decisions differ across firms (Tomiura 2007).

Investment heterogeneity is manifested from multiple factors, such as the size (scale) of the FDI (Halvorsen 2012; Markusen 2004; Yeaple 2009), FDI typology or category (Defever 2012), the expected productivity of the investment (Aw and Lee 2008; Chen and Moore 2010; Helpman et al. 2004; Tomiura 2007). Halvorsen (2012) finds that investment size is affected by several locational variables, such as market attractiveness, taxation, labour costs and agglomeration. For instance, the author highlights that market determinants might be relatively more important for larger investments for they are more dependent on high turnover. Defever (2012) shows that the spatial organisation of multinational firms and therefore their locational choices depend on how heterogeneous investments are regarding FDI type (production, services, R&D, headquarters, etc).

Chen and Moore (2010) find that investments undertaken by firms with higher productivity levels are more likely to be located in tougher and more competitive host markets, characterised by smaller market size and lower trade barriers. Head and Ries (2003) find that firms making less productive investments are more likely to locate in countries with lower costs. Scale economies at both investment (plant) and firm levels are known to affect both the proclivity to invest abroad (Brainard 1993) and the potential gains from FDI exploitable through optimally locating foreign plants in host economies with advantageous locational factors (Guimaraes et al. 2004; Helpman 2006; Markusen 2004; Yeaple 2003). What is common to many studies in this literature is that the characteristic of the investment at hand, being scale, productivity or technology, as well as the characteristics of the investing firm, affect location choice sensitivity to country determinants.

In summary, the main insight we gain from these studies is that investment heterogeneity can influence how multinational firms evaluate locational factors when making FDI locational decisions. In what follows, building on the insights mostly borrowed from economics, we articulate how investment scale, a particularly important heterogeneous characteristic, might affect FDI location choices by increasing or decreasing the salience of locational advantages/disadvantages. In doing so, we propose an important role for investment scale in the development of location theory in the IB literature, which has thus far uncovered key findings relating FDI location to country, firm and industry dimensions, while overlooking project-level characteristics, such as investment scale.

## 2.3 The Influence of Project Scale on the Salience of FDI to Locational Factors

The literature on the locational factors affecting FDI location choice is vast, with numerous characteristics and advantages of host economies having been considered,



both in the IB and in the economics literatures. Having already discussed the IB literature on locational determinants in Sect. 2.1, and further considering that our main inspiration to expand locational theory as to encompass project heterogeneity in terms of scale is borrowed from economics, we study the interplay between scale and some locational traits with an established influence on FDI in the economics literature. It is noteworthy that there is a significant overlap with the studies in the IB domain which also looked at some of these locational factors. However, in order to avoid an overly encompassing yet unclear theoretical setup and underdeveloped arguments, we focus predominantly on the studies in economics as to derive our testable hypotheses. Such choice is motivated by the clearer conceptual pathways in the economics literature linking project heterogeneity with locational factors. Yet, we discuss any nuances in the approaches of the two disciplines when needed (such as with institutional quality). Later on, in Sect. 6, we thoroughly discuss our findings with the extant IB literature and how we seek to expand the existing locational theory.

We discuss the interplay of project scale with four locational factors: market size, labour costs, taxation and institutional quality. Market size and labour costs speak directly to the core of trade theory, as these are locational traits clearly linked with market-seeking and efficiency-seeking FDI typologies (Braconier et al. 2005; Helpman et al. 2004; Markusen and Venables 1998; Yeaple 2009). Taxation is another key locational advantage thoroughly analysed in this literature, with MNEs typically tax shifting into low tax jurisdictions to maximise profits (Barrios et al. 2012; Wheeler and Mody 1992). Institutional quality is also a key dimension affecting firms' locational choices. Seeking to minimise agency costs and avert expropriation, foreign firms typically locate investments in countries with stronger institutional quality (Bevan and Estrin 2004; Disdier and Mayer 2004; Quere et al. 2007; Sen and Sinha 2017). Next, we discuss each locational factor in detail.

### 2.3.1 Market Size

Market size is an important factor affecting a country's FDI attractiveness. It is widely accepted that larger market size is associated with a higher inflow of inward FDI (Markusen and Venables 1998). Market size works as a signal for the host economies' consumer market potential, with larger markets signalling greater volume and consumer demand potential, as well as economies of scale in foreign production (Markusen 2004). Moreover, scale economies is a key concept affecting firms' proclivity to undertake market-seeking FDI (Helpman 2006; Markusen 2004), with such type of investment typically being located in larger economies (Yeaple 2009). In addition, it is well established that larger projects further contribute with economies of scale (Haldi and Whitcomb 1967), which in turn might dilute costs and therefore mitigate investment risks. Moreover, Halvorsen (2012) shows that market attractiveness is a more salient factor for larger investments, because the greater the scale of the investment, the more it depends on achieving a higher turnover, which clearly links investment scale to demand potential. This discussion indicates that project scale might affect MNEs' assessment of market size as a locational advantage.

While developing economies are *relatively* more fit to receive efficiency-seeking FDI than industrialised countries, such investments might not be *purely efficiency-seeking*. Firms might locate in developing economies to minimise labour and input costs *and* to gain access to the local and surrounding markets, following a more complex integration strategy (Yeaple 2003). This is consistent with real world regularities, such as the strong presence of automobile manufacturers from industrialised countries in large emerging consumer markets, like Latin America. The argument is germane since many emerging economies have experienced substantial economic growth which increased the attractiveness of consumer markets, while in many developed economies markets seem saturated (London and Hart 2004; Radjou and Prabhu 2012). Thus, firms might be better off and profit more from the FDI by choosing the host economy with the largest domestic market.

Based on this discussion, we propose that FDI location likelihood should be higher in emerging economies with larger markets, with such salience increasing the larger is investment scale.

Hypothesis 1a: *Market size is positively associated to FDI location likelihood.*

Hypothesis 1b: *The effect of market size on FDI location likelihood is positively moderated by project size.*

### 2.3.2 Labour Costs

International specialisation led to reallocation of production towards emerging countries (Gao 2007), especially to benefit from cheaper labour costs (Braconier et al. 2005). The knowledge-capital model (Carr et al. 2001) provides clear predictions indicating that production activities are likely to be located where unskilled labour is cheap, whereas knowledge-intensive activities go to places where skilled labour is cheaper, instead. Labour-intensive FDI is more prevalent in emerging economies (Aizenman and Noy 2006), mostly because of a greater availability of cheaper unskilled labour, lower factor prices and overall cheaper production costs (de Mello 1997).

While, as we previously discussed, investments into emerging economies might not be driven purely by efficiency considerations, with market-access also potentially taking on importance, when it comes to labour costs, the gains from locating in host economies where labour is cheaper are notorious in the literature. For instance Chen and Moore (2010) show that French firms are more likely to locate FDI in countries with lower labour costs. Braconier et al. (2005) find that more FDI by US firms takes place in countries where unskilled labour is relatively cheaper. Consistent with the view that cheaper labour costs can attract manufacturing FDI, Du et al. (2008) show that FDI location likelihood is more likely in Chinese regions with lower wages.

Given that labour-intensive investments with larger scale might be even more reliant on labour availability, and considering that cheaper labour reduces costs and cash outflows, investments with larger scale might fit better with locations where labour is cheaper. For instance, since larger investments entail higher risk, and higher risks command higher returns (Campbell 1996), it is plausible to expect that the labour

bill of larger investments should be as cheap as possible as to reduce cost and boost the investment's profitability. Indeed, Jain et al. (2016) note that when firms expand into locations to benefit from low-cost labour, such investments become highly scale sensitive, with substantial capital allocated. This discussion provides an indication that investment scale might affect the salience of FDI location to labour costs. Thus, we conjecture that:

*Hypothesis 2a: Labour costs are negatively associated to FDI location likelihood.*

*Hypothesis 2b: The effect of labour costs on FDI location likelihood is negatively moderated by project size.*

### 2.3.3 Taxation

Taxation is a strong force affecting FDI, with lower taxes typically encouraging foreign investment (Barrios et al. 2012). As argued by Wheeler and Mody (1992), governments compete in international location tournaments by offering tax and other short-term incentives to increase MNEs' perceived attractiveness of locations. Indeed, in recent years several countries around the world have reduced corporate taxes to stimulate inward FDI (Becker et al. 2012).

Yet, the effect of taxation on locational choices is not necessarily homogeneous across firms, with investment and firm heterogeneities playing an important role. For example, Krautheim and Schmidt-Eisenlohr (2011) present a theoretical model predicting that the extent to which firms benefit from lower international taxation depends on scale, productivity and on the industry competitive structure. In a similar vein, Hauffer and Stähler (2013) provide evidence that low cost firms are more likely to exploit locational tax advantages, because these firms are more profitable and hence benefit more from a lower tax burden. Becker et al. (2012) also show that firms making more profitable investments are more likely to locate projects in low tax jurisdictions.

Since investments with larger scale have the potential to reduce costs by generating scale economies, and given the evidence just debated that the lower the cost, the more firms benefit from lower taxes, this discussion indicates that investment scale might affect FDI location salience to taxation. In light of this, on one hand, MNEs will be better off by locating the investment in the host country charging the lowest taxes over profits, while, on the other hand, given economic and policy incentives (like lower taxes) tend to decrease investment risk, mostly by reducing cash outflows, FDI projects with larger scale might benefit even more from lower corporate taxes.

*Hypothesis 3a: Corporate taxes are negatively associated to FDI location likelihood.*

*Hypothesis 3b: The effect of corporate taxes on FDI location likelihood is negatively moderated by project size.*

### 2.3.4 Institutional Quality

Institutional quality has an important impact on internationalisation, in particular for FDI (Sen and Sinha 2017). As well pointed by North (1991) on his seminal works, economic institutions determine transaction and production costs and therefore the profitability of investments. Good institutional governance enhances productivity prospects, thus attracting more foreign investors (Quere et al. 2007). In synergy with this argument, the quality of institutions is viewed by MNEs as an important attribute of a location, in particular because foreign investors may be expropriated by local governments (Azzimonti 2018; Bevan and Estrin 2004; Brada et al. 2019; Du et al. 2008; Kesternich and Schnitzer 2010; Stulz 2005; Wei 2000). This is especially the case in emerging economies, where agency problems can be acute (Asiedu et al. 2009).

Empirical studies mostly corroborate these predictions. For example, Wei (2000) finds that corruption is quite taxing to foreign investors, strongly reducing FDI flows. Du et al. (2008) show that US MNEs investing in China prefer locations that have better protection of intellectual property rights and lower levels of government intervention and corruption. The quality of institutions of host countries influences significantly the location choices of French MNEs' investments in European countries (Disdier and Mayer 2004). Institutional quality stimulates international business and FDI flows into transition economies (Bevan and Estrin 2004). More FDI flows into countries enforcing stronger property rights, which increases MNEs' valuations (Lin et al. 2019).

Expropriation risk is a decreasing function of institutional quality, for higher institutional quality enhances monitoring on local governments and firms (Stulz 2005). Therefore, MNEs can minimise expropriation by investing in the country with the highest institutional quality. The benefits from a well-functioning institutional environment go beyond reducing agency conflicts and expropriation risks, also affecting the expected productivity of the investment. Good institutions push entrepreneurial activity towards more productive outputs, as opposed to political and lobbying activities (Baumol 1996; Sobel 2008). Such better business environment typically leads to stronger productivity levels (Lasagni et al. 2015), which attracts more FDI (Cheng and Kwan 2000). Therefore, countries with better institutions are likely more attractive locations for FDI.

Given large scale investments are riskier, MNEs can mitigate risk-exposure by locating large scale projects in host economies where strong institutions protect foreign investors against expropriation. Consistent with this, Pak and Park (2005) contend that in locations with high investment risk due weaker institutional setups (like unstable political and legal environments), firms make more cautious investments, with the subsidiary scale being negatively correlated with country riskiness. For example, Duanmu (2014) shows that firms reduce the scale of investments in countries with higher expropriation risks. This discussion altogether suggests that the scale of the investment might also affect the salience of FDI location choice with respect to institutional quality.

There is an important difference between the IB and economics studies regarding how institutional quality is conceptualised and measured. While both disciplines

build on the economic theory of institutions (North 1991), studies in economics typically focus on institutional quality indexes continuously measured, whereas it is more common in the IB literature to work with the idea of *institutional distance* (Donnelly and Manolova 2020). Institutional distance hampers foreign MNEs' understanding of the functioning of the host market, which complicates the interaction with local consumers, suppliers and other entities (Salomon and Wu 2012). Such hurdles to adapt affect the extent to which MNEs gain legitimacy in the local market (Kostova and Zaheer 1999).

An important assumption within the concept of institutional distance is that the institutional gap between home and host economies takes on even more importance than absolute quantitative measures of the quality of the institutional environment *per se*. Hence, MNEs from countries with relatively weaker institutional quality might be better able to navigate the institutional environment of countries with weaker institutions, whereas firms from institutionally well developed countries might find it more difficult to adapt. In terms of hypotheses development, the main nuance to consider is that under the economics approach one would typically expect a positive relationship between institutional quality and FDI location, whereas under the IB approach a negative relationship between institutional *distance* and FDI location is a common finding.

Hypothesis 4a: *Institutional distance is negatively associated to FDI location likelihood.*

Hypothesis 4b: *The effect of institutional distance on FDI location likelihood is negatively moderated by project size.*

### 3 Research Design

#### 3.1 Data and Variables

The empirical analysis employs project-level FDI data sourced from *FDI Markets: Cross-Border Investment Monitor* database (a service from *The Financial Times*). The dataset provides detailed project-level information, and has been employed in numerous empirical FDI studies (Castellani and LAVORATORI 2020; Duanmu 2014). The dataset includes the identification of the investing firm, the location of the project, as well as information on the scale of the investment's capital expenditures and employment.<sup>1</sup> The period covered in the analysis spans from 2003 to 2014.

Our study covers industrial greenfield FDI projects originated in industrialised countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States) and located in 25

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<sup>1</sup> A limitation of the FDI Markets dataset is that it does not include firm numerical identifiers (such as Tickers and ISIN codes), hence we could not incorporate firm-level characteristics in the analysis given the large number of companies from multiple countries present in our dataset.

emerging host economies (listed in Table 2), boasting a dataset with over 15,000 individual FDI projects. We choose to study industrial projects given the clearer conceptual pathways linking scale economies, manufacturing FDI and location (Brainard 1993; Guimaraes et al. 2004; Markusen 2004).<sup>2</sup> The FDI projects dataset is complemented with host countries' economic data, sourced from Penn World Table 9.0 (Feenstra et al. 2015), the World Bank and Worldwide Governance Indicators, among other data sources. Table 1 summarises the variables used in the study, and brings descriptive statistics:

Variables indexed by  $j$  refer to host country characteristics, whereas the subscript  $t$  refers to time (years), and variables indexed by  $hj$  capture dyadic relationships between home and host countries (like distance between home and host country, colonial ties, shared language, etc). For every project, we match country economic data corresponding to the year in which the investment is recorded (thus our dataset has cross-country and time series variability). Location choice,  $L_j$ , is operationalised as a dummy variable, taking the value of 1 if a host country  $j$  is chosen amongst a choice set containing  $J$  potential host countries, and takes the value of zero if not chosen.

Following Duanmu (2014), who employed data from the same source as we do, we work with project Capex (capital expenditures) as a proxy for the scale of the investment. This makes sense, since investments with a larger scale require greater financial capital commitment. We convert project scale to a dummy variable to facilitate the economic and statistical interpretation of the interactive effects with continuous country-level variables. We do this because it is quite challenging to interpret the interactions between two continuous variables, especially in the context of discrete choice models. Using the projects' Capex sample median as a cut-off point, we set investments with Capex above the median as to have a large Capex scale ( $= 1$ ), whereas we set investments with Capex below the median as to have relatively smaller Capex scale ( $= 0$ ). For the average FDI project in our sample, Capex is about USD 90 million whereas Employment is about 356 job posts.

We employ four main country locational factors in the analysis: market size, labour costs, taxation and institutional distance. In line with the literature (Carr et al. 2001; Yeaple 2009), host market size is proxied by natural logarithm of Total GDP,  $gdp_{jt}$ , obtained from Penn World Table. The most common measure for labour costs often found in the literature is unit labour costs (Chen and Moore 2010). However, we are unable to employ the exact same measure because for many emerging economies in our sample data is either limited or unavailable. Alternatively, we construct a similar proxy factored from labour compensation data. We extract information on labour compensation and the size of countries' workforce from Penn World Table (Feenstra et al. 2015). We employ the natural logarithm of the ratio between labour income and the total number of workers, which returns a measure of labour compensation per worker, which we label  $labcomp_{jt}$ .

The variable  $tax_{jt}$  stands for statutory corporate tax rates, and is calculated as taxes due as a share of commercial profits (Becker et al. 2012; Wheeler and Mody 1992),

<sup>2</sup> We discuss the limitations of this approach in the Conclusion.

**Table 1** Variables summary

Variables	Legend	Source	Interpretation	Mean	SD	Min	Max
FDI location	$L_{jt}$	FDI Markets	1 if chosen, 0 otherwise	0.035	0.185	0	1
Capex (USD MM)	$capex_{jt}$	FDI Markets	Capital expenditures	91.853	328.428	0.010	20,000
Capex scale (0/1)	$capexscale_{jt}$	FDI Markets	Scale of Capital expenditures	0.500	0.500	0	1
Employment	$emp_{jt}$	FDI Markets	Employment creation	356,993	562,785	1	8000
Employment scale (0/1)	$empyscale_{jt}$	FDI Markets	Scale of Employment creation	0.499	0.500	0	1
GDP (USD MM)	$gdp_{jt}$	PWT	Market Size	1,245,211	2,191,770	61,899	17,100,000
Labour comp. p.w (USD)	$labcomp_{jt}$	PWT	Labour costs	20,114	11,651	2845	52,556
Corporate tax rate (%)	$tax_{jt}$	KPMG	Taxation costs	24.078	8.518	10.000	55.000
Institutional distance	$instdist_{jt}$	WGI	Institutional distance	7.764	3.641	0.000	17.292
Trade/GDP (%)	$tradeopen_{jt}$	World Bank	Trade openness	85.615	58.325	17.196	345,417
Bilateral distance (km)	$dist_{hj}$	Calculated	Trade costs	7286.618	4214,918	55	18,370
Economic integration	$integration_{hj}$	Dummy	Economic integration	0.114	0.318	0	1
Common language	$language_{hj}$	Dummy	Cultural ties	0.013	0.114	0	1
Colonial relationship	$colonial_{hj}$	Dummy	Historical ties	0.021	0.146	0	1
Political risk	$polrisk_{jt}$	ICRG	Political risk	69.001	7.585	46,750	86,709
Financial risk	$fnrisk_{jt}$	ICRG	Financial risk	37.446	9.244	0	48,166
Economic risk	$econrisk_{jt}$	ICRG	Economic risk	34.850	8.580	0	48,000
Credit default swaps	$cds_{jt}$	S&P CIQ	Credit risk	1.981	3.644	0	66,200
Exports/GDP (%)	$exports_{jt}$	PWT	Export orientation	34.200	32.000	3.520	1,844
Imports/GDP (%)	$imports_{jt}$	PWT	Import competition	35.460	31.010	5.518	1,918
FDI by same industry firms	$sameindustry_{jt}$	Calculated	Industry peers FDI	3.626	7.882	0	103
FDI by same country firms	$samecountry_{jt}$	Calculated	Country peers FDI	7.882	17.043	0	244



**Table 1** (continued)

This table summarises the variables used in the study. FDI location is a dummy variable taking the value of 1 if the country is chosen, and zero otherwise (sourced from FDI Markets database). Project Capex is the investment's Capex in USD million (our measure of investment scale). Capex scale (0/1) is a dummy variable equal to 1 if the project has Capex above the sample median and equal to 0 if below the sample median. Project Employment is the number of job posts created by the project. Employment Scale (0/1) is a dummy variable equal to 1 if the project has Employment above the sample median and equal to 0 if below the sample median (both Capex and Employment measures sourced from FDI Markets database). Total GDP is Gross Domestic Product for each host economy in USD millions (sourced from Penn World Table). Labour Compensation per worker is the total payments to labour compensation in USD divided by the total number of workers (sourced from Penn World Table). Corporate Taxes is the statutory corporate tax rate in each host economy (sourced from auditing company KPMG). Institutional distance is the absolute difference between home and host countries in the WGI institutional quality composite index (sourced from the World Governance Indicators). Trade Openness is the sum of exports and imports as a share of GDP (sourced from World Bank). Home-host Distance is the bilateral distance, in Kilometers, between the home and host economy (calculated by authors following the Haversine formula). Economic Integration is a dummy variable equal to 1 if the home and host economies are both members of the same regional economic integration scheme, and equal to 0 otherwise. Common Language is a dummy variable equal to 1 if the home and host economies share common language, and equal to 0 otherwise. Colonial Ties is a dummy variable equal to 1 if the home and host economies share a former colonial relationship, and equal to 0 otherwise. Political risk is the ICRG Political risk rating Index. Financial Risk is the ICRG Financial risk rating index. Economic risk is the ICRG Economic risk rating index. CDSS is the yearly spread on sovereign Credit Default Swaps, from Capital IQ. Exports/GDP is the ratio of exports to total GDP, from Penn World Table. Imports/GDP is the ratio of imports to total GDP, from Penn World Table. FDI by same industry firms is the total number of FDI's located in the same country-year by firms from the same industry of the investing firm. FDI by same country firms is the total number of FDI's located in the same country-year by firms from the same country of the investing firm.

sourced from the auditing company KPMG.<sup>3</sup> Institutional quality distance is calculated with data from the World Bank's Worldwide Governance Indicators (WGI) composite index (Herrera-Echeverri et al. 2014). The WGI composite index has six dimensions of institutional quality: voice and accountability, regulatory quality, corruption control, rule of law, political stability and government effectiveness. Each sub-index stays in the  $[-2.5, +2.5]$  interval, with higher scores associated to stronger institutional quality. The composite index is obtained by summing the scores across each dimension of the index. Following a common approach in the literature (Duanmu 2011; Salomon and Wu 2012; Xu et al. 2004), we calculate institutional distance as the absolute distance (module) between the WGI institutional quality composite index of the home (h) and host (j) economies:

$$instdist_{jt} = |WGI_{ht} - WGI_{jt}| \quad (1)$$

We then calculate interactions between our proxy for investment scale with the aforementioned country locational attributes. In sensitivity checks to ensure robustness, we first employ Capex measured on a continuous basis, to mitigate measurement issues. Second, we also adjust Capex by industry since firms in capital intensive industries likely commit more capital to FDI projects, and by home-host dyad since bilateral ties might affect how much capital firms commit to the FDI. Third, we also use the investment's Employment (jobs created) as an alternative proxy for scale.

A vector of control variables is further included in the models. While many different control variables have appeared in the empirical FDI location literature (much dependent on what is the main explanatory variable of interest), we try and include control variables that may correlate with our four main locational traits and also affect location choice. We control for trade openness since emerging economies which are more open to trade typically receive more FDI (Asiedu 2002), whereas openness to trade can relate with explanatory variables like the quality of institutions (Dollar and Kraay 2003), labour costs (Arbache et al. 2004), etc. Following the literature (Asiedu 2002; Baltagi et al. 2009; Papadopoulos et al. 2002), trade openness ( $tradeopen_{jt}$ ) is calculated as the sum of exports and imports divided by total GDP (Gross Domestic Product). We include the variable  $dist_{hj}$ , the distance between the home and host country.<sup>4</sup> Geographical distance is known to affect FDI location mostly through trade and transaction costs (Amiti and Javorcik 2008; Chen and Moore 2010; Halvorsen 2012; Markusen 2004), being a common control variable.

Additional proximity factors, besides geographical vicinity, are also important determinants of FDI, like sharing a common language, colonial ties and regional integration schemes (Navaretti and Venables 2006). For example, the importance of regional economic integration schemes is evidenced by Basile et al. (2008), who show that European Union membership increases the attractiveness of locations

<sup>3</sup> Statistics on global corporate tax rates are presented at KPMG website: <https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html>

<sup>4</sup> Distances are calculated between home-host capital cities, employing the Haversine formula.

as hosts for FDI by MNEs from both within and outside the European Union. To account for this kind of economic proximity effect, the control variable  $integration_{hj}$  captures shared membership between home and host countries in regional economic integration schemes, such as the European Union and NAFTA. For instance, considering an investing firm originally from an EU country (such as France), the variable takes the value of 1 if the candidate location is also an EU country (such as Poland, for instance), but is equal to 0 for a candidate location outside Europe (such as Brazil, for instance). In addition, we include control variables capturing cultural and historical proximity between the home and the host economy, such as a dummy for shared common language ( $language_{hj}$ ) and for former colonial relationships ( $colonial_{hj}$ ).

Table 2 reports the distribution of inward FDI by recipient country, plus country averages for selected country-level economic and proximity variables. We also present cross-country statistics on the projects' scale (Capex and Employment). The BRIC countries, China (4251), India (1727), Brazil (1044) and Russia (1011), as well as Mexico (1175), are the emerging countries receiving the largest number of FDI projects in our sample. Other important destinations are Eastern European countries, like Poland (685), Hungary (674), Romania (635) and Czech Republic (517), and Southeastern Asian countries, such as Thailand (648), Malaysia (396) and Indonesia (323).

### 3.2 Econometric Specification

The econometric specification follows a random utility model of foreign plant location, in line with the industrial and FDI location literatures (Arauzo-Carod et al. 2010; Chen and Moore 2010; Defever 2012; Disdier and Mayer 2004; Guimaraes et al. 2004). According to this established methodological approach, the empirical analysis abides by the underlying assumptions of utility (profits) maximisation, being consistent with optimal firm behaviour.

Consider the profits (utility)  $\pi_a$  derived by firm  $i$  from investing in country  $a$  as being a function of the set of country attributes summarised by vector  $\mathbf{X}_j$ . Profits derived from investing in country  $a$  are a function of these parameters, producing a vector of coefficients of proportionality  $\theta_a$  and subject to a random disturbance term  $\epsilon_a$ . Alternatively, firm  $i$  might choose to locate the investment in country  $b$ , based on country  $b$ 's attributes set, summarised by  $\mathbf{X}_j$ . Again, profits are a function of such parameters, producing a vector of coefficients  $\theta_b$  and subject to a random disturbance term  $\epsilon_b$ . The profit equations for countries  $a$  and  $b$  are shown below:

$$\pi_a = \theta_a \mathbf{X}_j + \epsilon_a \quad (2)$$

$$\pi_b = \theta_b \mathbf{X}_j + \epsilon_b \quad (3)$$

If the firm chooses to locate the investment in country  $a$ , the location choice decision is driven by the random components of the decision-maker's preferences, reflecting a higher level of expected profits obtained by locating the investment in country  $a$  in detriment of country  $b$ :

$$Prob[L_i = a | \mathbf{X}_j] = Prob[\pi_a > \pi_b] \tag{4}$$

$$Prob[\mathbf{X}_j(\theta_a - \theta_b) + \epsilon_a - \epsilon_b > 0] \tag{5}$$

$$Prob[\mathbf{X}_j\beta + \epsilon > 0 | \mathbf{X}_j] \tag{6}$$

The vector  $\mathbf{X}_j\beta$  summarises the observed characteristics of the differences on the preference functions for countries  $a$  and  $b$ , whereas  $\epsilon$  summarises the difference between the random disturbance elements. The implication is that a positive coefficient obtained in a regression ( $\theta_a - \theta_b > 0$ ) implies that a given variable (attribute) yields higher utility in country  $a$  than in country  $b$ , and based on such attribute, the firm would be better off locating the investment in country  $a$ .

Following Greene (2012), the empirical counterpart of the random utility model is estimated via conditional logistic regressions (CLM). Consider a firm  $i$  choosing between the set of countries  $j, \dots, J$ . Location choice of country  $j$  ( $L_i = j$ ) is modelled as a function of the following country attributes summarised in vector  $\mathbf{X}_j$ : market size ( $gdp_{jt}$ ), labour costs ( $labcomp_{jt}$ ), corporate taxes ( $tax_{jt}$ ) and institutional quality distance ( $instdist_{jt}$ ). These variables are further interacted with the project’s Capex scale ( $capexscale_{pt}$ ). Control variables include trade openness ( $tradeopen_{jt}$ ), distance ( $dist_{hj}$ ) and dummies for economic integration schemes ( $integration_{hj}$ ), common language ( $language_{hj}$ ) and colonial ties ( $colonial_{hj}$ ). The conditional logistic model reads as:

$$Prob[L_i = j] = \frac{\exp(\beta\mathbf{X}_j + \delta capexscale_{pt} \cdot \mathbf{X}_j)}{\sum_{j=1}^J \exp(\beta\mathbf{X}_j + \delta capexscale_{pt} \cdot \mathbf{X}_j)} \tag{7}$$

The location choice (alternatives) set is constructed considering the 25 host countries shown in Table 2 as candidate locations for receiving the FDI. The CLM model is estimated by maximum likelihood (ML), and standard errors are robust to non-spherical variance of the error term. Since we are interested in the interaction effects of locational factors with project scale, at first we report the raw coefficients from the CLM model. The raw coefficients are informative as to whether the interaction is statistically significant. Next, to understand how the interaction might change location probability, we further report the marginal effects of the interacting variables.

### 4 Main Results

Estimation results for the empirical FDI location model are reported in Table 3.

Panel A reports the model output with raw logit coefficients. As per the results shown in model (1), MNEs reveal preferences for locations with larger markets, as the effect of GDP on location likelihood is positive, supporting hypothesis 1a. The interaction of GDP with Capex scale is statistically significantly positive, indicating that MNEs are more likely to locate larger FDI projects in countries boasting larger consumer markets, in line with the notion that a greater capital commitment in a

Table 2 Inward FDI and descriptive statistics by recipient country

Country	FDI		Project		Trade		Home-host		Total		Labour		Corporate		Institutional	
	Projects	Capex	Employment	Openness	Distance	GDP	Compensation	Taxes	Distance							
Argentina	230	73.82	249.63	29.28	12,166.86	683,362.60	17,232	35.00	9.74							
Brazil	1044	142.67	385.17	20.63	10,400.46	2,253,825.74	12,609	34.00	7.95							
Bulgaria	248	28.42	179.29	101.38	4811.28	102,325.08	14,348	10.00	6.76							
China	4251	92.26	359.19	53.58	7428.29	11,047,677.28	8007	25.00	11.38							
Czech Rep.	517	34.21	232.80	124.51	4112.85	281,183.14	28,689	19.00	2.875							
Egypt	74	288.78	465.43	36.72	6026.67	595,509.89	9392	25.00	11.78							
Hungary	674	38.66	195.11	133.91	4370.99	213,636.44	31,398	19.00	3.22							
India	1723	84.35	479.52	33.64	7564.48	4,320,322.59	4362	33.99	9.64							
Indonesia	323	150.44	562.95	46.20	11,263.10	1,490,441.79	6385	25.00	11.45							
Malaysia	396	105.44	384.83	157.23	10,297.96	506,932.93	23,654	25.00	5.98							
Mexico	1175	84.24	377.01	55.25	8319.61	1,648,693.65	14,933	30.00	8.73							
Morocco	150	73.94	401.26	57.85	5273.28	176,926.66	8403	30.00	10.03							
Philippines	185	128.24	525.84	67.91	9589.04	450,989.27	5226	30.00	10.88							
Poland	685	45.55	215.91	69.45	4235.86	726,313.59	27,917	19.00	4.00							
Romania	635	48.77	274.18	68.73	4790.72	298,776.02	17,729	16.00	7.53							
Russia	1011	98.29	351.45	45.16	4698.96	2,602,188.44	26,767	20.00	12.42							
Saudi Arabia	139	579.44	383.87	72.24	6934.92	1,003,559.20	29,199	20.00	10.26							
Serbia	230	38.38	246.46	67.59	4579.50	79,640.54	23,502	15.00	9.67							
Singapore	294	160.08	254.17	304.03	10,512.68	301,367.91	47,999	17.00	1.43							
Slovakia	342	55.475	280.57	134.67	4275.48	121,527.97	30,787	22.00	3.54							
South Africa	189	94.33	344.32	51.88	10,793.69	560,054.39	19,558	28.00	6.08							
South Korea	282	193.63	411.56	73.40	7644.32	1,468,682.40	31,802	24.20	3.63							
Thailand	648	44.43	295.57	114.08	9331.74	763,334.05	7984	20.00	9.30							

**Table 2** (continued)

Country	FDI Projects	Project Capex	Project Employment	Trade Openness	Home-host Distance	Total GDP	Labour Compensation	Corporate Taxes	Institutional Distance
Turkey	265	116.53	338.38	43.48	5324.32	1,058,592.78	23,473	20.00	8.40
Ukraine	127	52.59	238.74	84.09	4634.41	395,766.60	11,027	18.00	11.37
Total	15,837								

This table reports average descriptive statistics by recipient country. FDI projects is the total number of FDI investments recorded in the host country (sourced from FDI Markets database). Project Capex is the average Capex in USD million (our measure of investment scale) for all projects recorded in the host economy, whereas Project Employment is the average number of jobs for all projects recorded in the host economy (both measures sourced from FDI Markets database). Trade Openness is the sum of exports and imports as a share of GDP (sourced from World Bank). Home-host Distance is the bilateral distance, in kilometers, between the home and host economy (calculated by authors following the Haversine formula). Total GDP is Gross Domestic Product for each host economy in USD millions (sourced from Penn World Table). Labour Compensation is the total labour compensation in USD divided by the total number of workers (sourced from Penn World Table). Corporate Taxes is the statutory corporate tax rate in each host economy (sourced from auditing company KPMG). Institutional distance is the absolute difference between home and host countries in the WGI institutional quality composite index (sourced from the World Governance Indicators)

larger scale FDI project requires a larger consumer market as well, as to absorb such larger supply. This result supports hypothesis 1b. Marginal effects reported in Panel B at the bottom of the table further corroborate that larger market size is associated to increased location probability, with the elasticity<sup>5</sup> of location with respect to market size being quantitatively stronger for projects with high Capex scale (0.24) versus low Capex scale (0.22).

Model (2) shows that the effect of labour compensation on FDI location likelihood is significantly negative, indicating that MNEs prefer countries with lower labour costs, consistent with hypothesis 2a. That is, when investing in emerging economies, MNEs from developed economies seem to favour cheaper labour, indicating that FDI going into emerging economies is labour-seeking in addition to being also market seeking as indicated by the results we obtained from the analysis of market size. Moreover, we find a significant and negative interaction of labour compensation per worker with investment's Capex scale, suggesting that the larger the project is, the more important cheaper labour becomes. Thus we find support for hypothesis 2b. The marginal effects estimates further corroborate that lower labour compensation costs increase location choice probability, with the negative elasticity of location choice with respect to labour costs being roughly twice stronger for large scale investments ( $-0.13$ ) when compared to smaller scale investments ( $-0.07$ ).

The results from model (3) show that the coefficient of corporate taxes is significantly negative, therefore taxation reduces the FDI location likelihood, supporting hypothesis 3a. On the other hand, we find a significantly positive interaction of Capex scale with corporate taxes, in contrast with hypothesis 3b. Therefore, FDI projects with smaller scale seem to benefit more from lower taxes, whereas tax advantages seem less pronounced for larger investments. Marginal effects estimates uphold these views. The elasticity of location choice probability with respect to taxation is negative for small scale investments ( $-0.22$ ), while being rather positive for large scale projects (0.14).

The results from model (4) indicate that the effect of institutional distance on location likelihood is significantly negative, in line with hypothesis 4a. We find a significantly positive interaction of Capex scale with our measure of institutional distance, in contrast with hypothesis 4b. This finding indicates that while institutional distance deters FDI with smaller scale, MNEs actually become more tolerant to a less familiar (more distant) institutional environment when the investment is larger. Marginal effects show the elasticity of location choice with respect to institutional distance is indeed negative for smaller projects ( $-0.29$ ), while being positive for larger projects (0.06).

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<sup>5</sup> The elasticity coefficient is the % change in location probability for a 1% change in the explanatory variable.



**Table 3** FDI location choice and the effects of project scale (Capex)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
GDP	0.706*** (0.011)	0.863*** (0.009)	0.866*** (0.009)	0.859*** (0.009)
GDP × Capex scale (0/1)	0.309*** (0.013)			
Labour compensation p.w.	-0.334*** (0.018)	-0.292*** (0.020)	-0.346*** (0.018)	-0.354*** (0.018)
Labour compensation p.w. × Capex scale (0/1)		-0.119*** (0.021)		
Corporate taxes	-0.673*** (0.219)	-0.899*** (0.221)	-2.920*** (0.276)	-0.840*** (0.221)
Corporate taxes × Capex scale (0/1)			4.110*** (0.296)	
Institutional distance	-0.034*** (0.004)	-0.033*** (0.004)	-0.033*** (0.004)	-0.075*** (0.005)
Institutional distance × Capex scale (0/1)				0.087*** (0.005)
Trade/GDP	0.484*** (0.022)	0.502*** (0.021)	0.506*** (0.021)	0.493*** (0.022)
Distance	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)
Economic integration (0/1)	0.921*** (0.033)	0.936*** (0.033)	0.927*** (0.033)	0.929*** (0.033)
Common language (0/1)	0.324*** (0.072)	0.331*** (0.072)	0.328*** (0.073)	0.337*** (0.072)
Colonial ties (0/1)	0.551*** (0.074)	0.543*** (0.074)	0.547*** (0.075)	0.535*** (0.074)
Wald $\chi^2$	16434.91***	16359.63***	16559.51***	16288.43***
Pseudo $R^2$	0.170	0.162	0.164	0.165
Number of obs.	392,799	392,799	392,799	392,799
<b>Panel B: Marginal effects of interactions</b>				
	Capex scale (= 1) (High)	Capex scale (= 0) (Low)		
GDP	0.242*** (0.012)	0.222*** (0.011)		
Labour compensation p.w.	-0.134*** (0.018)	-0.070*** (0.013)		
Corporate taxes	0.145*** (0.014)	-0.227*** (0.038)		
Institutional distance	0.064*** (0.013)	-0.291*** (0.031)		

**Table 3** (continued)

This table reports the regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy variable taking the value of 1 if the country is chosen, and zero otherwise. The country-level explanatory variables are: in model (1) market size proxied by the natural log of total GDP ( $gdp_{jt}$ ); in model (2) labour costs proxied by the natural log of labour compensation per worker ( $labcomp_{jt}$ ); in model (3) taxation ( $tax_{jt}$ ), proxied by corporate tax rates; and in model (4) insitutional quality distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $instidist_{jt}$ ). We further include an interaction between the investment's Capex scale ( $capexscale_{jt}$ ), a dummy equal to 1 if the project's Capex exceeds the sample's median, and equal to zero otherwise, with the four main explanatory variables. The models include control variables: trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_{jt}$ ), home-host distance ( $dist_{hj}$ ), a dummy variable absorbing economic integration ( $integration_{hj}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{hj}$ ) and a dummy for colonial ties ( $colonial_{hj}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients reported, whereas Panel B reports the marginal effects (elasticity) of the interacting variables

\*\*\*Significant at 0.01 level; \*\*Significant at 0.05 level; \*Significant at 0.1 level

Briefly comment on the control variables, these post significant coefficients which are mostly in line with the expectations.<sup>6</sup> The effect of trade openness on location is significant and positive. This result suggests that countries more open to international trade are more likely to receive FDI, in line with the view that trade frictions deter FDI. Home-host bilateral distance decreases the location choice likelihood, in line with the view that geographical distance hampers FDI, mostly via trade costs. Shared regional economic integration schemes and cultural proximity between home and host countries contribute with increasing the likelihood of location, also supporting prior studies. For instance, the positive effect of sharing economic regional integration schemes (like the EU and NAFTA) highlights the benefits which accrue in terms of inward FDI from economic proximity. This could be related to facilitation of investments, alignment of legislation and economic policies, among others. Moreover, the positive effect of sharing common language could signal that by lowering communication barriers, firms can benefit from lower information asymmetry and improve their understanding of how the local market functions, which can potentially mitigate the so-called liability of foreignness.<sup>7</sup> Lastly, the positive effect of colonial ties might reflect the existence of long-lasting business and economic ties between home and host economies, easing investment.

## 5 Robustness Checks and Extensions

### 5.1 Capex Continuously Measured

We also tested additional models as robustness checks, using a continuous version of the variable Capex. We compute the natural logarithm of Capex, and interact it with all four main explanatory variables. Results are reported in Table 4.

We find robust results for all the interactions. Model (1) reports that the interaction of GDP with Capex is significant and positive, showing again that projects with larger scale are more likely to be located in countries with larger markets. Model (2) indicates that the interaction with Labour compensation per worker is significant and negative, further indicating that projects with larger capital expenditures demand an even cheaper labour force in the host economy. In model (3), we find that the interaction of Capex with Taxes is positive again, suggesting scale might mitigate (dilute) taxation costs. In model (4), the interaction of Capex with institutional distance is positive, hence potentially suggesting that the prospect of a higher return achievable by a larger scale investment might offset the risk-exposure to a relatively unfamiliar institutional environment.

<sup>6</sup> In the interest of space, we do not tabulate nor elaborate much on the marginal effects of control variables since we do not test hypotheses on these variables and they do not interact with scale. For the sake of completeness, the marginal effects estimates are: Trade/GDP (0.120), Distance (-0.248), Economic Integration (0.196), Colonial Ties (0.170) while the marginal effect of Language is insignificant (hence, common language might have a weak effect).

<sup>7</sup> This finding should be caveated since the marginal effect of Language is insignificant.

Panel B shows the marginal effects. We show the elasticity of location choice to each country determinant calculated at the 25th percentile, 50th percentile (median) and 75th percentile of Capex's distribution. This allows us to verify where at the distribution of investment scale we might observe some change in the effects. For market size (GDP), as we move from low to high values of Capex, the effect becomes increasingly stronger. For labour compensation costs, we observe a similar pattern, with larger investments associated to an even stronger location probability in countries offering cheaper labour. Regarding taxation, we find that for a typical investment at the 25th percentile of Capex's distribution (small investment), the elasticity of location is negative, whereas for a typical investment at the 75th percentile (large investment), the elasticity is positive. Since at the median the effect is null, the turning point is likely somewhere in between the 25th percentile and the median. Lastly, the elasticity of location with respect to institutional distance is significantly negative for typical investments located at both the 25th percentile and at the 50th percentile of the distribution (median), turning positive only for very large investments at the 75th percentile. Thus, for the majority of investments institutional distance loads negatively on location, but this effect loses power and turns positive for very sizeable investments only.

## 5.2 Industry-Adjusted Capex

It is possible that project Capex follows industry patterns, such as firms in capital intensive industries making larger investments. To account for this, we normalise project Capex by the average Capex in the industry. Then we re-run our baseline model. Results are in Table 5.

The interactions of Industry-Adjusted project Scale with all four main explanatory variables remain statistically significant, keeping the same signs and roughly similar economic magnitudes as in previous analyses. Therefore, industry characteristics are not influencing our results.

## 5.3 Home-Host Dyad-Adjusted Capex

It is also possible that Capex might follow a dynamic specific to the home-host dyad. That is, firms from a particular home country with investments in another particular host economy might behave similarly, and this might be an unaccounted factor in our analysis. A potential reason might be the existence of investment and commercial ties between countries (only imperfectly controlled for by our measures of proximity, like distance, language and colonial ties), which might affect the pattern of investments. To control for this potential effect, we normalise project Capex by the average Capex in each home-host dyad. Then, we re-estimate our baseline model.

Table 6 shows the results. Our findings remain robust since there are no material changes in our estimates even after accounting for investment patterns across home-host dyads.

## 5.4 Employment as a Measure of Scale

We also used the Employment (number of job posts created) as an alternative proxy for scale, replacing for Capex. The two variables are significantly positively correlated (0.73), indicating they indeed capture investment's scale. We adopt the same design, converting the variable to a dummy equal to 1 for those investments with employment generation above the median, and equal to 0 if below the median. These additional results are reported in Table 7. We find significant interactions of Employment scale with all country attributes, and the interactions once again posted the same signs as before. Thus there are no apparent issues with measurement of investment's scale, since findings are robust across two different measures. We also estimated models with Employment continuously measured (unreported, for the interest of brevity), obtaining robust results.

## 5.5 A Closer Look at Country Risk

While our main results shed light on the interaction between project scale and institutional distance, there might be other sources of country institutional risk worth considering. For example, evidence indicates that firms choose low resource commitment strategies when entering countries with higher political risk (Giambona et al. 2017; Oetzel and Oh 2014). Furthermore, the conceptual nexus linking investment size and scale economies in which we build needs caveating since we do not observe empirically how well these constructs correlate. We examine potential alternative channels, checking on the robustness of our analysis by considering whether project scale interacts with other important country risk factors, such as political, financial, economic and credit risk.

Following an established literature (Bekaert et al. 2014; Click and Weiner 2010; Henisz 2000), we employ several risk metrics sourced from International Country Risk Guide (ICRG). The political risk index is comprised of 12 dimensions: government stability, socioeconomic conditions, investment profile, internal and external conflict, corruption, military in politics, religious tensions, ethnic tensions, law and order, democratic accountability and bureaucratic quality. The financial risk index accounts for 5 dimensions of financial fragility: foreign debt to GDP ratio, foreign debt service as a share of exports, current account balance as a share of exports, net liquidity to cover imports and exchange rate stability. The economic risk index comprises another 5 metrics: GDP per capita, GDP growth, inflation rate, government budget as a ratio of GDP and current account balance. For all the three indexes, a higher rating is associated to lower risk.<sup>8</sup> Furthermore, we proxy for country credit risk using data from S&P Capital IQ on Sovereign Credit Default Swaps (Bailey and Chung 1995; Cuadra and Saprizza 2008; Ismailescu and Kazemi 2010), which are, in broad lines, market-based instruments which capture a country's likelihood

<sup>8</sup> For details on the ICRG methodology, see: <https://www.prsgroup.com/wp-content/uploads/2012/11/icrgmethodology.pdf>

**Table 4** FDI location choice and the effects of project scale (Capex continuous)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
GDP	0.501*** (0.019)	0.863*** (0.009)	0.866*** (0.009)	0.860*** (0.009)
GDP × Capex scale	0.104*** (0.005)			
Labour compensation p.w.	-0.338*** (0.018)	-0.219*** (0.030)	-0.347*** (0.018)	-0.354*** (0.018)
Labour compensation p.w. × Capex scale		-0.038*** (0.007)		
Corporate taxes	-0.702*** (0.219)	-0.901*** (0.221)	-5.899*** (0.449)	-0.864*** (0.220)
Corporate taxes × Capex scale			1.454*** (0.108)	
Institutional distance	-0.034*** (0.004)	-0.033*** (0.004)	-0.033*** (0.004)	-0.115*** (0.007)
Institutional distance × Capex scale				0.024*** (0.002)
Trade/GDP	0.487*** (0.022)	0.503*** (0.021)	0.506*** (0.021)	0.497*** (0.022)
Distance	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)
Economic integration (0/1)	0.920*** (0.033)	0.937*** (0.033)	0.926*** (0.033)	0.930*** (0.033)
Common language (0/1)	0.325*** (0.072)	0.331*** (0.072)	0.329*** (0.072)	0.337*** (0.072)
Colonial ties (0/1)	0.550*** (0.074)	0.544*** (0.074)	0.548*** (0.074)	0.536*** (0.074)
Wald $\chi^2$	16123.25***	16366.68***	16389.97***	16279.17***
Pseudo $R^2$	0.170	0.162	0.164	0.163
Number of obs.	392,799	392,799	392,799	392,799
<b>Panel B: Marginal effects of interactions</b>				
Values at Capex's distribution	25th percentile	50th percentile	75th percentile	
GDP	0.230*** (0.011)	0.235*** (0.012)	0.240*** (0.012)	
Labour compensation p.w.	-0.090*** (0.013)	-0.101*** (0.014)	-0.111*** (0.015)	
Corporate taxes	-0.124*** (0.030)	0.002 (0.021)	0.093*** (0.016)	
Institutional distance	-0.169*** (0.023)	-0.078*** (0.018)	-0.007 (0.015)	

**Table 4** (continued)

This table reports the regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy variable taking the value of 1 if the country is chosen, and zero otherwise. The country-level explanatory variables are: in model (1) market size proxied by the natural log of total GDP ( $gdpp_{jt}$ ); in model (2) labour costs proxied by the natural log of labour compensation per worker ( $labcomp_{jt}$ ); in model (3) taxation ( $tax_{jt}$ ), proxied by corporate tax rates; and in model (4) institutional quality distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $instdist_{jt}$ ). We further include an interaction between the natural log of the investment's Capex scale ( $capexscale_{jt}$ ) continuously measured with the four main explanatory variables. The models include control variables: trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_{jt}$ ), home-host distance ( $dist_{ijt}$ ), a dummy variable absorbing economic integration ( $integration_{ijt}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{ijt}$ ) and a dummy for colonial ties ( $colonial_{ijt}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients reported, whereas Panel B reports the marginal effects (elasticity) of the interacting variables

\*\*\*Significant at 0.01 level; \*\*Significant at 0.05 level; \*Significant at 0.1 level



of defaulting on its outstanding debts. Higher spreads signal default is more likely, deteriorating credit conditions.

Using these additional country risk metrics, we re-estimate our models. Findings are reported in Table 8. The interaction of project scale with all four risk variables is statistically significant, indicating that project scale moderates the effects of such risk factors on FDI location choice. Referring to the marginal effects reported in Panel B, we see that the effect of political risk is stronger for projects with larger scale (0.27) when compared to projects with lower scale (0.24). Since higher scores in the political risk index signal lower political risk, this result suggests that investments with larger scale are more sensitive to political risk (that is, large scale projects are more likely to be located in countries with a higher political risk rating, which implies lower risk).

Larger projects are significantly more likely to be located in countries with a positive financial risk rating (less financially fragile), whereas financial risk rating is insignificant for projects with smaller scale. The same pattern is observed for economic risk. Similarly, we find a significantly negative effect of Credit Default Swap Spreads (CDSS) on the probability of location for projects with larger Capex, but insignificant effects for projects with smaller scale. Overall, this analysis shows that project scale makes location choice more salient to positive risk ratings, which indicates that firms avoid committing larger resources to FDI projects going to riskier countries. These findings suggest that risk aversion and the fear of loss in making sizeable investments might be additional channels linking project scale with locational traits which complement scale economies.

## 5.6 Miscellaneous Tests

In this section we run a few miscellaneous robustness tests. First, an interesting conjecture that emerged from our initial results is whether the effect of project scale might be different in countries with stronger exporting orientation, or if it matters more for countries more inclined for domestic consumption. A growing strand of literature suggest that FDI might also serve as an export platform to other countries (Yeaple 2003), hence it is interesting to verify if larger investments target local consumption or subsequent exporting.

To examine this issue, we introduce two additional interactions of project scale with (1) Exports/GDP and (2) Imports/GDP. Referring to Panel B of Table 9, we can see that Exports/GDP has a positive effect on location choice (which indicates that export platform is a channel explaining FDI decisions), but the marginal effect is weaker for larger (0.05) when compared to smaller (0.07) projects. This might suggest that larger projects are more attracted by the local consumer market (since Exports/GDP is less important). Moreover, we find that Import/GDP loads negatively for large scale projects, while being insignificant for projects with smaller investment. This might signal that large scale projects are more likely to be located in countries where import penetration by foreign products and therefore foreign competition is lower. That is, firms seem to value large consumer markets as targets

**Table 5** FDI location choice and the effects of project scale (Industry-adjusted Capex)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
GDP	0.676*** (0.011)	0.863*** (0.009)	0.865*** (0.009)	0.860*** (0.009)
GDP × Ind. Adj. Capex scale (0/1)	0.367*** (0.013)			
Labour compensation p.w.	-0.331*** (0.018)	-0.252*** (0.021)	-0.348*** (0.018)	-0.354*** (0.018)
Labour compensation p.w. × Ind. Adj. Capex scale (0/1)		-0.198*** (0.021)		
Corporate taxes	-0.638*** (0.219)	-0.897*** (0.221)	-2.681*** (0.282)	-0.859*** (0.221)
Corporate taxes × Ind. Adj. Capex scale (0/1)			3.593*** (0.297)	
Institutional distance	-0.034*** (0.004)	-0.033*** (0.004)	-0.035*** (0.004)	-0.074*** (0.005)
Institutional distance × Ind. Adj. Capex scale (0/1)				0.084*** (0.005)
Trade/GDP	0.476*** (0.022)	0.501*** (0.021)	0.505*** (0.021)	0.493*** (0.022)
Distance	-0.085*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)
Economic integration (0/1)	0.915*** (0.033)	0.936*** (0.033)	0.929*** (0.033)	0.931*** (0.033)
Common language (0/1)	0.312*** (0.073)	0.326*** (0.072)	0.325*** (0.072)	0.332*** (0.072)
Colonial ties (0/1)	0.560*** (0.075)	0.544*** (0.074)	0.545*** (0.075)	0.540*** (0.074)
Wald $\chi^2$	16390.89***	16395.62***	16456.94***	16312.06***
Pseudo $R^2$	0.171	0.163	0.164	0.165
Number of obs.	392,799	392,799	392,799	392,799
<b>Panel B: Marginal effects of interactions</b>				
GDP	Capex scale (= 1) (High)	Capex scale (= 0) (Low)		
Labour compensation p.w.	0.250*** (0.013)	0.220*** (0.011)		
	-0.153*** (0.019)	-0.060*** (0.013)		
Corporate taxes	0.132*** (0.015)	-0.204*** (0.038)		
Institutional distance	0.060*** (0.013)	-0.287*** (0.031)		

**Table 5** (continued)

This table reports the regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy variable taking the value of 1 if the country is chosen, and zero otherwise. The country-level explanatory variables are: in model (1) market size proxied by the natural log of total GDP ( $gdpt_j$ ); in model (2) labour costs proxied by the natural log of labour compensation per worker ( $labcomp_j$ ); in model (3) taxation ( $tax_j$ ), proxied by corporate tax rates; and in model (4) institutional quality distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $instdist_j$ ). We further include an interaction between the investment's Capex scale ( $capexscale_{it}$ ), a dummy equal to 1 if the project's Capex exceeds the sample's median (adjusted for the industry's average Capex scale), and equal to zero otherwise, with the four main explanatory variables. The models include control variables: trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_j$ ), home-host distance ( $dist_{jt}$ ), a dummy variable absorbing economic integration ( $integration_{jt}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{jt}$ ) and a dummy for colonial ties ( $colonial_{jt}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients reported, whereas Panel B reports the marginal effects (elasticity) of the interacting variables. \*\*\* Significant at 0.01 level; \*\* Significant at 0.05 level; \* Significant at 0.1 level

**Table 6** FDI location choice and the effects of project scale (Dyad-adjusted Capex)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
GDP	0.730*** (0.011)	0.863*** (0.009)	0.865*** (0.009)	0.861*** (0.009)
GDP × Dyad Adj. Capex scale (0/1)	0.261*** (0.013)	-0.300*** (0.021)	-0.349*** (0.018)	-0.354*** (0.018)
Labour compensation p.w.	-0.342*** (0.018)	-0.103*** (0.021)		
Labour compensation p.w. × Dyad Adj. Capex scale (0/1)	-0.772*** (0.219)	-0.905*** (0.221)	-2.490*** (0.275)	-0.877*** (0.221)
Corporate taxes			3.210*** (0.297)	
Corporate taxes × Dyad Adj. Capex scale (0/1)	-0.034*** (0.004)	-0.033*** (0.004)	-0.035*** (0.004)	-0.067*** (0.005)
Institutional distance				0.070*** (0.005)
Institutional distance × Dyad Adj. Capex scale (0/1)	0.490*** (0.022)	0.502*** (0.021)	0.505*** (0.021)	0.495*** (0.021)
Trade/GDP	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)
Distance	0.933*** (0.033)	0.938*** (0.033)	0.937*** (0.033)	0.939*** (0.033)
Economic integration (0/1)	0.326*** (0.072)	0.329*** (0.072)	0.322*** (0.072)	0.332*** (0.072)
Common language (0/1)	0.551*** (0.075)	0.546*** (0.074)	0.549*** (0.074)	0.541*** (0.074)
Colonial ties (0/1)	16526.83***	16372.69***	16546.94***	16341.75***
Wald $\chi^2$	0.170	0.162	0.163	0.164
Pseudo $R^2$	392,799	392,799	392,799	392,799
Number of obs.				
<b>Panel B: Marginal effects of interactions</b>				
	Capex scale (= 1) (High)	Capex scale (= 0) (Low)		
GDP	0.243*** (0.012)	0.225*** (0.011)		
Labour compensation p.w.	-0.131*** (0.018)	-0.072*** (0.013)		
Corporate taxes	0.119*** (0.017)	-0.177*** (0.036)		
Institutional distance	0.039*** (0.015)	-0.248*** (0.029)		

**Table 6** (continued)

This table reports the regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy variable taking the value of 1 if the country is chosen, and zero otherwise. The country-level explanatory variables are: in model (1) market size proxied by the natural log of total GDP ( $gdpt_j$ ); in model (2) labour costs proxied by the natural log of labour compensation per worker ( $labcomp_j$ ); in model (3) taxation ( $tax_j$ ), proxied by corporate tax rates; and in model (4) institutional quality distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $instdist_j$ ). We further include an interaction between the investment's Capex scale ( $capexscale_{jt}$ ), a dummy equal to 1 if the project's Capex exceeds the sample's median (adjusted for the home-host dyad average Capex scale), and equal to zero otherwise, with the four main explanatory variables. The models include control variables: trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_j$ ), home-host distance ( $dist_{jt}$ ), a dummy variable absorbing economic integration ( $integration_{jt}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{jt}$ ) and a dummy for colonial ties ( $colonial_{jt}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients reported, whereas Panel B reports the marginal effects (elasticity) of the interacting variables

\*\*\*Significant at 0.01 level; \*\*Significant at 0.05 level; \*Significant at 0.1 level

**Table 7** FDI location choice and the effects of project scale (Employment)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
GDP	0.778*** (0.011)	0.862*** (0.009)	0.865*** (0.009)	0.861*** (0.009)
GDP × Employ. scale (0/1)	0.171*** (0.013)			
Labour compensation p.w.	-0.346*** (0.018)	-0.221*** (0.021)	-0.347*** (0.018)	-0.353*** (0.018)
Labour compensation p.w. × Employ. scale (0/1)		-0.261*** (0.021)		
Corporate taxes	-0.824*** (0.221)	-0.898*** (0.221)	-2.677*** (0.268)	-0.868*** (0.221)
Corporate taxes × Employ. scale (0/1)			3.659*** (0.299)	
Institutional distance	-0.033*** (0.004)	-0.032*** (0.004)	-0.032*** (0.004)	-0.063*** (0.005)
Institutional distance × Employ. scale (0/1)				0.062*** (0.005)
Trade/GDP	0.497*** (0.021)	0.501*** (0.021)	0.506*** (0.021)	0.497*** (0.021)
Distance	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)	-0.084*** (0.003)
Economic integration (0/1)	0.934*** (0.033)	0.939*** (0.033)	0.933*** (0.033)	0.935*** (0.033)
Common language (0/1)	0.330*** (0.072)	0.333*** (0.072)	0.334*** (0.072)	0.335*** (0.072)
Colonial ties (0/1)	0.545*** (0.074)	0.545*** (0.074)	0.547*** (0.074)	0.539*** (0.074)
Wald $\chi^2$	16259.31***	16288.17***	16283.15***	16311.04***
Pseudo $R^2$	0.164	0.163	0.164	0.163
Number of obs.	392,799	392,799	392,799	392,799
<b>Panel B: Marginal effects of interactions</b>				
	Employ. scale (= 1) (High)	Employ. scale (= 0) (Low)		
GDP	0.240*** (0.012)	0.227*** (0.011)		
Labour compensation p.w.	-0.191*** (0.020)	-0.028*** (0.012)		
Corporate taxes	0.132*** (0.016)	-0.197*** (0.036)		
Institutional distance	0.028* (0.014)	-0.223*** (0.028)		

**Table 7** (continued)

This table reports the regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy variable taking the value of 1 if the country is chosen, and zero otherwise. The country-level explanatory variables are: in model (1) market size proxied by the natural log of total GDP ( $gdp_{it}$ ); in model (2) labour costs proxied by the natural log of labour compensation per worker ( $labcomp_{it}$ ); in model (3) taxation ( $tax_{it}$ ), proxied by corporate tax rates; and in model (4) institutional quality distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $instdist_{it}$ ). We further include an interaction between the investment's Employment scale ( $empscale_{it}$ ), a dummy equal to 1 if the project's Employment exceeds the sample's median, and equal to zero otherwise, with the four main explanatory variables. The models include control variables: trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_{it}$ ), home-host distance ( $dist_{it}$ ), a dummy variable absorbing economic integration ( $integration_{it}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{it}$ ) and a dummy for colonial ties ( $colonial_{it}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients reported, whereas Panel B reports the marginal effects (elasticity) of the interacting variables

\*\*\*Significant at 0.01 level; \*\*Significant at 0.05 level; \*Significant at 0.1 level



for large scale investments, provided these markets are not overly crowded by imported products from other foreign providers.

Two remaining issues pertain to the presence of firms from the same industry and home country in the host economy. A well established literature posits that agglomeration with industry peers is an important locational factor (Nielsen et al. 2017), for firms benefit from co-location economies like knowledge spillovers (Alcacer 2006; Head et al. 1995; Nachum et al. 2008). Furthermore, as MNEs often resort to imitating rivals' location choices as to reduce uncertainty (Jain et al. 2016), we analyse the locational patterns of firms from the same industry and from the same country.

We find that a larger number of FDI projects located in the same country by both firms from the same country and same industry as of the investing firm increase FDI location likelihood. Moreover, in both cases, the marginal effects are significantly stronger for investments with larger scale. Therefore, agglomeration economies and imitation of other firms' locational behaviour seem to interact, indeed, with project scale in affecting FDI location choices.

## 6 Discussion of Results with the Extant IB Literature

Our empirical findings uncover series of interactive effects between investment scale and important country-level FDI locational factors. Such findings inform the FDI location choice empirical debate, further charting new directions as to expand location theory in several ways.

First we discuss our baseline findings (deferring the debate on the interactions to a second moment). In general lines, our estimates corroborate several important developments in the extant literature. The positive effect of market size and the negative effects of labour costs and corporate taxation add empirical validity to a voluminous IB literature that looked into the so-called *pure economic factors* as determinants of FDI location. As well noted by Nielsen et al. (2017), such locational traits are often referred to as purely economical because they have a direct and explicit impact on firms' revenues and costs. Hence, the general conclusion of this literature is that firms locate FDI in countries where costs are minimised and revenues maximised. We indeed find corroborating evidence supporting these views. Such new evidence we present is important especially regarding labour costs and taxation, since, as per the review by Nielsen et al. (2017), only about 50% of studies offered empirical support to the labour and taxation costs mechanisms. Therefore, corroborating new evidence, such as we present, is important to validate these theoretical channels.

Our findings also expand on the institutional approach to FDI location. It is widely accepted that institutional distance affects how easily multinationals adapt to investments in foreign economies (Gelbuda et al. 2008; Kotabe and Mudambi 2003; Salomon and Wu 2012). In particular, good institutions seem to help firms to overcome the liability of foreignness (Nielsen et al. 2017), which is, in broad lines, the cost of being unfamiliar with a particular host market (Zaheer 1995). Institutional distance, in turn, makes it more difficult for firms to gain legitimacy in the local

**Table 8** FDI location choice and the effects of project scale (Country risk)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
Political risk	0.026*** (0.003)			
Political risk × Capex scale (0/1)	-0.013*** (0.002)			
Financial risk		-0.000 (0.002)		
Financial risk × Capex scale (0/1)		0.020*** (0.003)	-0.008*** (0.002)	
Economic risk			0.015*** (0.003)	0.004 (0.006)
Economic risk × Capex scale (0/1)				-0.037*** (0.013)
Credit default swaps spreads (CDSS)				0.832*** (0.010)
CDSS × Capex scale (0/1)				-0.336*** (0.019)
GDP	0.833*** (0.009)	0.824*** (0.010)	0.843*** (0.009)	0.832*** (0.010)
Labour compensation p. w.	-0.421*** (0.020)	-0.343*** (0.019)	-0.341*** (0.020)	-0.336*** (0.019)
Corporate taxes	-1.013*** (0.222)	-0.422* (0.228)	-0.463** (0.228)	-0.354 (0.231)
Institutional distance	-0.012*** (0.005)	-0.032*** (0.004)	-0.027*** (0.004)	-0.024*** (0.004)
Trade/GDP	0.433*** (0.024)	0.543*** (0.029)	0.478*** (0.030)	0.482*** (0.023)
Distance	-0.083*** (0.003)	-0.079*** (0.003)	-0.079*** (0.003)	-0.079*** (0.003)
Economic integration (0/1)	0.884*** (0.033)	0.974*** (0.035)	0.991*** (0.035)	0.984*** (0.035)
Common language (0/1)	0.308*** (0.072)	0.353*** (0.074)	0.359*** (0.073)	0.352*** (0.073)
Colonial ties (0/1)	0.556*** (0.074)	0.539*** (0.077)	0.524*** (0.077)	0.528*** (0.076)
Wald chi <sup>2</sup>	16918.40***	14696.29***	14665.07***	14634.70***
Pseudo R <sup>2</sup>	0.163	0.160	0.160	0.160
Number of obs.	390,831	357,207	357,207	357,207
<b>Panel B: Marginal effects of interactions</b>				
	Capex scale (= 1) (High)	Capex scale (= 0) (Low)		
Political risk	0.277*** (0.018)	0.244*** (0.024)		
Financial risk	0.197*** (0.017)	0.007 (0.027)		
Economic risk	0.187*** (0.018)	0.031 (0.024)		

**Table 8** (continued)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
Credit default swaps spreads	-0.048*** (0.017)	0.000 (0.005)		

This table reports regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy equal to 1 if the country is chosen, and 0 otherwise. The country risk explanatory variables are: in model (1) political risk ( $polrisk_{it}$ ), in model (2) financial risk ( $finrisk_{it}$ ), in model (3) economic risk ( $econrisk_{it}$ ), all from International Country Risk Guide (higher scores in each country risk index indicate lower risk), in model (4) Credit Default Swaps Spreads - CDSS ( $cdss_{it}$ ), from Capital IQ. We include an interaction between the investment's Capex scale ( $capexscale_{pit}$ ), a dummy equal to 1 if the project's Capex exceeds the sample's median, and equal to zero otherwise, with the four country risk variables. The models include controls: market size proxied by the natural log of total GDP ( $gdpp_{it}$ ), labour costs proxied by the natural log of labour compensation per worker ( $labcomp_{it}$ ), taxation ( $tax_{it}$ ), proxied by corporate tax rates, institutional distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $instdist_{it}$ ), trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_{it}$ ), home-host distance ( $dist_{it}$ ), a dummy variable absorbing economic integration ( $integration_{it}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{it}$ ) and a dummy for colonial ties ( $colonial_{it}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients, whereas Panel B reports the marginal effects (elasticity) of the interactions

\*\*\*Significant at 0.01 level; \*\*Significant at 0.05 level; \*Significant at 0.1 level

market (Kostova and Zaheer 1999). Our results provide renewed support to this important conceptual development in the field, as we find that institutional distance lowers FDI location likelihood.

Our results also make a relevant methodological addition. As well pointed by Nielsen et al. (2017), FDI location studies are somewhat biased towards outward FDI from the US and Japan, and inward FDI into China. Differently from many of the prior studies, our empirical setup matches 20 developed countries as senders of FDI with 25 emerging economies as recipients of FDI. Therefore, our findings can be generalised to a large number of emerging host economies.

Our results also provide an important step towards expanding location theory. We add two interesting insights. First, Nielsen et al. (2017) note that studies focusing on FDI investment scale are relatively scarce. Only a few studies have ventured into this area. For example, Pak and Park (2005) examined the relation of subsidiary scale and country risk, Duanmu (2014) analysed whether firms reduce investment scale when expropriation risk is higher, whereas Chadee et al. (2003) examined whether investment scale interplays with economic and policy incentives. However, investment scale as a concept remains overlooked and has not yet been streamlined into a more coherent conceptual framework. Inspired by the micro-level approach typically employed in economics, our results shed light on the role of investment scale as a mechanism affecting the salience of FDI location likelihood to important country-level determinants of FDI. Second, discussing our findings in light of the location model recently proposed by Jain et al. (2016), our results indicate that project heterogeneity might be a new dimension to be considered. As such, MNEs would assess firm, industry and, in addition, also project characteristics in Step 1, then moving to Step 2 where country level determinants are assessed, taking stock of the scale of the investment as a factor potentially shifting the salience of FDI location choice to country determinants.

Our findings regarding the interactions of project scale with both market size and labour costs corroborated our proposed hypotheses. The main message we leave is that investment heterogeneity, manifested in the scale of the investment in our case, affects the salience of foreign market choice to two leading variables that relate explicitly with the market-seeking and efficiency-seeking FDI motives. In other words, the effects of two important *pure economic factors*, as defined by Nielsen et al. (2017), can be significantly moderated by investment heterogeneity, such as scale.

Yet, our results pertaining to the interactions of scale with taxation and institutional distance run counter to our expectations. With respect to taxation, our findings suggest that benefiting from a lower tax burden is relatively more important for smaller projects. One potential explanation here is that by increasing the investment scale, profits might go up by a magnitude large enough as to somehow *dilute* taxation costs, making these costs less relevant. Or, alternatively, it might be that countries with higher statutory corporate taxes might be those offering more generous tax relief incentives, which might shift location preferences towards these jurisdictions. However, this might link with measurement issues, which we discuss in the conclusion section. Regarding the positive interaction between investment scale and institutional distance, we conjecture that, while this finding runs counter to the

**Table 9** FDI location choice and the effects of project scale (Miscellaneous tests)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
<b>Panel A: Model output</b>				
Exports/GDP	-0.195 (0.120)			
Exports/GDP × Capex scale (0/1)	-0.178*** (0.060)			
Imports/GDP		0.343*** (0.109)		
Imports/GDP × Capex scale (0/1)		-0.574*** (0.061)	0.032*** (0.001)	
FDI same industry			0.009*** (0.001)	0.009*** (0.000)
FDI same industry × Capex scale (0/1)				0.003*** (0.001)
FDI same country				0.667*** (0.011)
FDI same country × Capex scale (0/1)				-0.253*** (0.020)
GDP	0.895*** (0.009)	0.861*** (0.009)	0.560*** (0.011)	0.667*** (0.011)
Labour compensation p. w.	-0.248*** (0.021)	-0.353*** (0.018)	-0.208*** (0.020)	-0.253*** (0.020)
Corporate taxes	-0.732*** (0.220)	-0.902*** (0.220)	0.457** (0.208)	-0.413* (0.211)
Institutional distance	-0.042*** (0.004)	-0.032*** (0.004)	-0.042*** (0.004)	-0.042*** (0.004)
Trade/GDP	0.984*** (0.057)	0.457*** (0.055)	0.237*** (0.025)	0.279*** (0.025)
Distance	-0.083*** (0.003)	-0.084*** (0.003)	-0.078*** (0.003)	-0.057*** (0.003)
Economic integration (0/1)	0.930*** (0.033)	0.935*** (0.033)	0.792*** (0.033)	0.825*** (0.034)
Common language (0/1)	0.343*** (0.072)	0.330*** (0.072)	0.298*** (0.073)	0.333*** (0.070)
Colonial ties (0/1)	0.555*** (0.075)	0.540*** (0.074)	0.623*** (0.076)	0.436*** (0.072)
Wald chi <sup>2</sup>	16610.10***	16292.62***	18987.65***	17068.20***
Pseudo R <sup>2</sup>	0.163	0.163	0.190	0.170
Number of obs.	392,799	392,799	392,799	392,799
<b>Panel B: Marginal effects of interactions</b>				
Exports/GDP	Capex scale (= 1) (High)	Capex scale (= 0) (Low)		
	0.052*** (0.021)	0.073*** (0.021)		

**Table 9** (continued)

Dependent variable: Location choice (0/1)	(1)	(2)	(3)	(4)
Imports/GDP	-0.110*** (0.026)	-0.001 (0.018)		
FDI by same industry firms	0.040*** (0.002)	0.030*** (0.001)		
FDI by same country firms	0.022*** (0.001)	0.017*** (0.001)		

This table reports the regression results, estimated via conditional logistic regressions. The dependent variable is location choice, a dummy variable equal to 1 if the country is chosen, and 0 otherwise. The main explanatory variables are: in model (1) exports as a share of GDP ( $exp_{jt}$ ), in model (2) imports as a share of GDP ( $imp_{jt}$ ), in model (3) the number of FDI projects by firms from the same industry ( $sameindustry_{jt}$ ), and in model (4) the number of FDI projects by other firms from the same country ( $samecountry_{jt}$ ). We include an interaction between the investment's Capex scale ( $capexscale_{jt}$ ), a dummy equal to 1 if the project's Capex exceeds the sample's median, and equal to zero otherwise, with these four explanatory variables. The models include controls: market size proxied by the natural log of total GDP ( $gdpt_{jt}$ ), labour costs proxied by the natural log of labour compensation per worker ( $labcomp_{jt}$ ), taxation ( $tax_{jt}$ ), proxied by corporate tax rates, institutional distance proxied by the absolute difference between home and host country in the WGI institutional quality index ( $institutions_{jt}$ ), trade openness which is measured as exports plus imports as a share of GDP ( $tradeopen_{jt}$ ), home-host distance ( $dist_{jt}$ ), a dummy variables absorbing economic integration ( $integration_{jt}$ ) equal to 1 if there are regional economic schemes in place between home and host country and equal to 0 otherwise, a dummy for common language ( $language_{jt}$ ) and a dummy for colonial ties ( $colonial_{jt}$ ). The models are estimated with robust standard errors. Panel A shows the model output with raw logit coefficients reported, whereas Panel B reports the marginal effects (elasticity) of the interacting variables

\*\*\*Significant at 0.01 level; \*\*Significant at 0.05 level; \*Significant at 0.1 level

notion of liability of foreignness, it is rather in line with the well known risk-return trade-off. A larger investment with a prospect of generating higher returns might more than compensate for the unfamiliar, hence riskier, institutional environment.

However, the interpretation of our empirical findings requires caveating. In theory, our reasoning draws a close parallel between the project's size and the scale economies achievable from larger investments. However, we do not observe empirically how well project size and scale economies at the firm and plant levels correlate. For example, one particular situation that could render this correlation rather weaker is when technology improvements make scale economies marginally less relevant for overall productive efficiency. As we discuss in the conclusion section, the restrictive informational content in our measurement of project size is an important study limitation.

Relatedly, further testing shows that while the risks of investing in an unfamiliar environment might be more than offset by the higher return potentially yielded by a larger investment, this is not the case with other types of risk. As our estimates show, larger investments are less likely to be located in countries with higher political, financial, economic and credit risk. Hence, our analysis further corroborates previous studies (Giambona et al. 2017; Oetzel and Oh 2014) which suggest that multinational firms prefer conservative resource commitment strategies when entering riskier countries. Thus, an alternative plausible explanation that might run in parallel (or complement) to the role of scale economies is that, actually, project size drives locational decisions from a purely risk exposure perspective. For instance, Giambona et al. (2017) show that risk-averse managers are particularly less likely to take risks abroad. Furthermore, a growing literature in the behavioural economics, finance and management domains highlight that, due to myopic loss aversion, the fear of losses weighs on more heavily than the prospects of gains in managerial investment decisions (Barberis and Thaler 2003; Benartzi and Thaler 1995; Kahneman et al. 1991; Zona 2012).

## 7 Conclusions

This paper investigates the determinants of FDI location choices in emerging economies. The empirical analysis employs a large dataset containing over 15,000 project-level investments, located in 25 emerging economies and originated in 20 industrialised countries. FDI location models are estimated, employing conditional logistic regression models. Empirical results show that FDI location likelihood is higher in countries with larger consumer markets, lower labour costs and corporate taxes, and lower institutional distance between the home and host economy.

We further present new evidence that heterogeneity in FDI project scale influences the effects of such country attributes on FDI location. The scale of the FDI, measured equally as capital expenditures and as employment creation, plays an important moderating role in shaping FDI location decisions. Such evidences demonstrate that project specificities are important factors weighing on MNEs' target country selection process. Depending on the investment scale, the effect of well established country drivers of FDI can become stronger or weaker. Project scale

renders FDI location likelihood more sensitive to the size of the market in the host economy, further rendering MNEs' decision even more reliant on cheaper labour. Moreover, the investment's scale weakens the sensitivity of location choice to both lower corporate taxes and to institutional distance.

The paper adds new evidence to the literature examining the factors affecting FDI location choices, with relevant implications for MNEs' decisions and for investment attraction policy. Our main conceptual contribution to the international business FDI location choice debate is to hypothesise about and empirically show that project investment scale can affect the salience of location choice to important country-level determinants of FDI attractiveness. From the perspective of practitioners deliberating on MNEs' international management strategy, we provide evidence that optimal FDI location is a function not only of host country and firm attributes, but also of how country attributes interplay with investment-specific idiosyncrasies. Both dimensions must be factored in by MNEs' global operations management team when screening foreign markets to locate.

Our work also leaves notes to researchers and policy makers seeking a deeper understanding of FDI location decisions. For researchers, looking at the characteristics of host economies, firms and industries, while missing the project-level dimension, can be elusive. Particularly referring to policy-making, our results indicate that the scale of the FDI, both in terms of capital allocated and employment created, depends crucially on the interactions of country attributes and project heterogeneous characteristics. In broad lines, these results suggest that policy interventions at various levels might exert heterogeneous effects in attracting FDI with different scales.

We acknowledge several limitations in our work. Regarding measurement issues, we relied on a substitute metric for labour costs given the most usual variable (unit labour costs) was unavailable as to cover all countries in our sample. Thus, the results from our estimates regarding labour costs should be caveated. Also, while we look at statutory corporate taxes, our analysis falls short of a more comprehensive examination of tax shifting (avoidance) schemes which are common practice in multinational firms. For example, a growing literature emphasises how multinationals arbitrage the international taxation system as to minimise their tax burdens, with tax locational advantages going far beyond the officially reported taxes (Foss et al. 2019; Jones and Temouri 2016; Kohlhase and Pierk 2020). Future work could examine how the scale of the investment interplays with tax shifting behaviour, such as the use of transfer pricing schemes or investment into pure tax havens. In addition, as we mentioned earlier in the paper, our taxation measure does not capture tax relief incentives that might be offered particularly to larger investments, which made it quite difficult for us to estimate the interactive effect of project size and taxation on location. Thus, our examination of taxation is limited in scope and breadth and should be interpreted with caution.

While our work focussed on manufacturing FDI given the closer link between scale economies and location for industrial FDI, we recognise that this approach limits the contributions of our study. We encourage future research to look into other types of FDI, such as R&D, distribution, sales, etc, as to uncover novel mechanisms linking scale to location. Moreover, while we have looked into a subset of country-level determinants, there are plenty of other country characteristics that we do not



cover, such as the technology and innovative structure of countries (which could be important for knowledge-seeking investments), human capital development and policy incentives.

Although our analysis examines how project-level characteristics (like employment and scale) interact with country-level determinants, we are unable to cover firm-level characteristics. Further studies could consider more complex setups, potentially with three-way interactions between country, firm and project characteristics. The case for examining firm characteristics too becomes particularly important because, as we noted earlier in the paper, while in theory project size and scale economies are plausibly related, we do not observe empirically their correlation since scale economies remained unobservable in our study. Further studies could examine more deeply the theoretical and empirical link between project size and scale economies with firm-level variables that may proxy for scale economies more explicitly (such as capital intensity, technology and cost structure). Such fine tuned examination might shed more light on how project scale interplays with market size, labour costs, institutional distance and taxation (and other locational factors) in affecting FDI location.

Moreover, Kim and Aguilera (2016) suggest that how firms assess the institutional environment of host economies might depend on firm-specific corporate governance and ownership characteristics. Thus, the somewhat unexpected findings we report where larger scale projects seem less sensitive to institutional distance might have been clouded due to governance and ownership being firm-level characteristics missing in our analysis. Further studies could expand on these relations as well.

Our empirical analysis also uncovers another promising channel whereby risk-aversion and the fear of loss might explain how project size affects the salience of location to country risk. Future research can take such incipient findings on this channel as guidance to develop a theoretical framework that can be empirically tested more formally. Lastly, while we make an empirical contribution by studying numerous emerging economies, our study does not cover how project scale might affect FDI location in more developed and high-productivity countries. These are only a few of numerous fruitful avenues for researchers seeking to expand and improve on our work.

## References

- Aizenman, J., & Noy, I. (2006). FDI and trade: A two-way linkages? *The Quarterly Review of Economics and Finance*, 46(3), 317–337.
- Alcacer, J. (2006). Location choices across the value chain: How activity and capability influence collocation. *Management Science*, 52(10), 1457–1471.
- Alfaro, L. (2017). Gains from foreign direct investment: Macro and micro approaches. *World Bank Economic Review*, 30(Supplement 1), 2–15.
- Amiti, M., & Javorcik, B. S. (2008). Trade costs and location of foreign firms in China. *Journal of Development Economics*, 85(1–2), 129–149.
- Arauzo-Carod, J.-M., Liviano-Solis, D., & Antolin, M. M. (2010). Empirical studies in industrial location: An assessment of their methods and results. *Journal of Regional Science*, 50(3), 685–711.
- Arbache, J. S., Dickerson, A., & Green, F. (2004). Trade liberalisation and wages in developing countries. *The Economic Journal*, 114(493), F73–F96.

- Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: Is Africa different? *World Development*, 30(1), 107–119.
- Asiedu, E., Jin, Y., & Nandwa, B. (2009). Does foreign aid mitigate the adverse effect of expropriation risk on foreign direct investment? *Journal of International Economics*, 78(2), 268–275.
- Aw, B. Y., & Lee, Y. (2008). Firm heterogeneity and location choice of Taiwanese multinationals. *Journal of International Economics*, 75(1), 167–179.
- Azzimonti, M. (2018). The politics of FDI expropriation. *International Economic Review*, 59(2), 479–510.
- Bailey, W., & Chung, Y. P. (1995). Exchange rate fluctuations, political risk, and stock returns: Some evidence from an emerging market. *Journal of Financial and Quantitative Analysis*, 30(4), 541–561.
- Baltagi, B. H., Demetriades, P. O., & Law, S. H. (2009). Financial development and openness: Evidence from panel data. *Journal of Development Economics*, 89(2), 285–296.
- Barberis, N., & Thaler, R. (2003). A survey of behavioral finance. In G. M. Constantinides, M. Harris & R. M. Stulz (Eds.), *Handbook of the Economics of Finance*, Volume 1, Part B (pp. 1053–1128). Elsevier.
- Barrios, S., Huizinga, H., Laeven, L., & Nicodème, G. (2012). International taxation and multinational firm location decisions. *Journal of Public Economics*, 96(11–12), 946–958.
- Basile, R., Castellani, D., & Zanfei, A. (2008). Location choices of multinational firms in Europe: The role of EU cohesion policy. *Journal of International Economics*, 74(2), 328–340.
- Baumol, W. J. (1996). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Business Venturing*, 11(1), 3–22.
- Becker, J., Fuest, C., & Riedel, N. (2012). Corporate tax effects on the quality and quantity of FDI. *European Economic Review*, 56(8), 1495–1511.
- Bekaert, G., Harvey, C. R., Lundblad, C. T., & Siegel, S. (2014). Political risk spreads. *Journal of International Business Studies*, 45(4), 471–493.
- Benartzi, S., & Thaler, R. H. (1995). Myopic loss aversion and the equity premium puzzle. *The Quarterly Journal of Economics*, 110(1), 73–92.
- Bevan, A. A., & Estrin, S. (2004). The determinants of foreign direct investment into European transition economies. *Journal of Comparative Economics*, 32(4), 775–787.
- Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal*, 33(4), 383–403.
- Braconier, H., Norback, P.-J., & Urban, D. (2005). Multinational enterprises and wage costs: Vertical FDI revisited. *Journal of International Economics*, 67(2), 446–470.
- Brada, J. C., Drabek, Z., Mendez, J. A., & Perez, M. F. (2019). National levels of corruption and foreign direct investment. *Journal of Comparative Economics*, 47(1), 31–49.
- Brainard, S. L. (1993). A simple theory of multinational corporations and trade with a trade-off between proximity and concentration. NBER working paper, (w4269).
- Buckley, P. J., & Casson, M. (1976). *The future of the multinational enterprise*. Macmillan.
- Campbell, J. Y. (1996). Understanding risk and return. *Journal of Political Economy*, 104(2), 298–345.
- Carr, D. L., Markusen, J. R., & Maskus, K. E. (2001). Estimating the knowledge-capital model of the multinational enterprise. *American Economic Review*, 91(3), 693–708.
- Castellani, D., & Latoratori, K. (2020). The lab and the plant: Offshore R&D and co-location with production activities. *Journal of International Business Studies*, 51(1), 121–137.
- Chadee, D. D., Qiu, F., & Rose, E. L. (2003). FDI location at the subnational level: A study of EJV in China. *Journal of Business Research*, 56(10), 835–845.
- Chen, M. X., & Moore, M. O. (2010). Location decision of heterogeneous multinational firms. *Journal of International Economics*, 80(2), 188–199.
- Cheng, L. K., & Kwan, Y. K. (2000). What are the determinants of the location of foreign direct investment? The Chinese experience. *Journal of International Economics*, 51(2), 379–400.
- Click, R. W., & Weiner, R. J. (2010). Resource nationalism meets the market: Political risk and the value of petroleum reserves. *Journal of International Business Studies*, 41(5), 783–803.
- Coase, R. H. (1937). The nature of the firm. *Economica*, 4(16), 386–405.
- Cuadra, G., & Sapriza, H. (2008). Sovereign default, interest rates and political uncertainty in emerging markets. *Journal of International Economics*, 76(1), 78–88.
- de Mello, L. R., Jr. (1997). Foreign direct investment in developing countries and growth: A selective survey. *The Journal of Development Studies*, 34(1), 1–34.
- Defever, F. (2012). The spatial organization of multinational firms. *Canadian Journal of Economics*, 45(2), 672–697.

- Disdier, A.-C., & Mayer, T. (2004). How different is Eastern Europe? Structure and determinants of location choices by French firms in Eastern and Western Europe. *Journal of Comparative Economics*, 32(2), 280–296.
- Dollar, D., & Kraay, A. (2003). Institutions, trade, and growth. *Journal of Monetary Economics*, 50(1), 133–162.
- Donnelly, R., & Manolova, T. S. (2020). Foreign location decisions through an institutional lens: A systematic review and future research agenda. *International Business Review*, 29(4), 101690.
- Du, J., Lu, Y., & Tao, Z. (2008). Economic institutions and FDI location choice: Evidence from US multinationals in China. *Journal of Comparative Economics*, 36(3), 412–429.
- Duanmu, J.-L. (2011). The effect of corruption distance and market orientation on the ownership choice of MNEs: Evidence from China. *Journal of International Management*, 17(2), 162–174.
- Duanmu, J.-L. (2014). State-owned MNCs and host country expropriation risk: The role of home state soft power and economic gunboat diplomacy. *Journal of International Business Studies*, 45(8), 1044–1060.
- Dunning, J. H. (1980). Toward an eclectic theory of international production: Some empirical tests. *Journal of International Business Studies*, 11(1), 9–31.
- Dunning, J. H. (1998). Location and the multinational enterprise: A neglected factor? *Journal of International Business Studies*, 29(1), 45–66.
- Feenstra, R. C., Inklaar, R., & Timmer, M. P. (2015). The next generation of the Penn World Table. *American Economic Review*, 105(10), 3150–3182.
- Foss, N. J., Mudambi, R., & Murtinu, S. (2019). Taxing the multinational enterprise: On the forced redesign of global value chains and other inefficiencies. *Journal of International Business Studies*, 50(9), 1644–1655.
- Gao, T. (2007). Trade costs, international production shifting, and growth. *European Economic Review*, 51(2), 317–335.
- Gelbuda, M., Meyer, K. E., & Delios, A. (2008). International business and institutional development in Central and Eastern Europe. *Journal of International Management*, 14(1), 1–11.
- Giambona, E., Graham, J. R., & Harvey, C. R. (2017). The management of political risk. *Journal of International Business Studies*, 48(4), 523–533.
- Greene, W. H. (2012). *Econometric Analysis* (7th ed.). Pearson Education Limited.
- Guimaraes, P., Figueiredo, O., & Woodward, D. (2004). Industrial location modeling: Extending the random utility framework. *Journal of Regional Science*, 44(1), 1–20.
- Haldi, J., & Whitcomb, D. (1967). Economies of scale in industrial plants. *Journal of Political Economy*, 75(4, Part 1), 373–385.
- Halvorsen, T. (2012). Size, location and agglomeration of inward foreign direct investment (FDI) in the United States. *Regional Studies*, 46(5), 669–682.
- Haufler, A., & Stähler, F. (2013). Tax competition in a simple model with heterogeneous firms: How larger markets reduce profit taxes. *International Economic Review*, 54(2), 665–692.
- Head, K., & Ries, J. (2003). Heterogeneity and the FDI versus export decision of Japanese manufacturers. *Journal of the Japanese and International Economies*, 17(4), 448–467.
- Head, K., Ries, J., & Swenson, D. (1995). Agglomeration benefits and location choice: Evidence from Japanese manufacturing investments in the United States. *Journal of International Economics*, 38(3–4), 223–247.
- Helpman, E. (2006). Trade, FDI, and the organization of firms. *Journal of Economic Literature*, 44(3), 589–630.
- Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). Export versus FDI with heterogeneous firms. *American Economic Review*, 94(1), 300–316.
- Henisz, W. J. (2000). The institutional environment for multinational investment. *The Journal of Law, Economics, and Organization*, 16(2), 334–364.
- Hennart, J.-F. (1991). The transaction costs theory of joint ventures: An empirical study of Japanese subsidiaries in the United States. *Management Science*, 37(4), 483–497.
- Herrera-Echeverri, H., Haar, J., & Estévez-Bretón, J. B. (2014). Foreign direct investment, institutional quality, economic freedom and entrepreneurship in emerging markets. *Journal of Business Research*, 67(9), 1921–1932.
- Hymer, S. H. (1960). The international operations of national firms: A study of direct foreign investment. Ph.D thesis, MIT (published by MIT Press, Cambridge: MA under the same title in 1976).
- Ismailescu, I., & Kazemi, H. (2010). The reaction of emerging market credit default swap spreads to sovereign credit rating changes. *Journal of Banking and Finance*, 34(12), 2861–2873.

- Jain, N. K., Kothari, T., & Kumar, V. (2016). Location choice research: Proposing new agenda. *Management International Review*, 56(3), 303–324.
- Jones, C., & Temouri, Y. (2016). The determinants of tax haven FDI. *Journal of World Business*, 51(2), 237–250.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic perspectives*, 5(1), 193–206.
- Kesternich, I., & Schnitzer, M. (2010). Who is afraid of political risk? Multinational firms and their choice of capital structure. *Journal of International Economics*, 82(2), 208–218.
- Kim, J. U., & Aguilera, R. V. (2016). Foreign location choice: Review and extensions. *International Journal of Management Reviews*, 18(2), 133–159.
- Kohlhase, S., & Pierk, J. (2020). The effect of a worldwide tax system on tax management of foreign subsidiaries. *Journal of International Business Studies*, 51(8), 1312–1330.
- Kostova, T., & Zaheer, S. (1999). Organizational legitimacy under conditions of complexity: The case of the multinational enterprise. *Academy of Management review*, 24(1), 64–81.
- Kotabe, M., & Mudambi, R. (2003). Institutions and international business. *Journal of International Management*, 9(3), 215–217.
- Krauthaim, S., & Schmidt-Eisenlohr, T. (2011). Heterogeneous firms, profit shifting FDI and international tax competition. *Journal of Public Economics*, 95(1–2), 122–133.
- Lasagni, A., Nifo, A., & Vecchione, G. (2015). Firm productivity and institutional quality: Evidence from Italian industry. *Journal of Regional Science*, 55(5), 774–800.
- Lin, L., Mihov, A., Sanz, L., & Stoyanova, D. (2019). Property rights institutions, foreign investment, and the valuation of multinational firms. *Journal of Financial Economics*, 134(1), 214–235.
- London, T., & Hart, S. L. (2004). Reinventing strategies for emerging markets: Beyond the transnational model. *Journal of International Business Studies*, 35(5), 350–370.
- Markusen, J. R. (2004). *Multinational firms and the theory of international trade*. The MIT Press.
- Markusen, J. R., & Venables, A. J. (1998). Multinational firms and the new trade theory. *Journal of International Economics*, 46(2), 183–203.
- Nachum, L., Zaheer, S., & Gross, S. (2008). Does it matter where countries are? Proximity to knowledge, markets and resources, and MNE location choices. *Management Science*, 54(7), 1252–1265.
- Navaretti, G. B., & Venables, A. J. (2006). *Multinational firms in the world economy*. Princeton University Press.
- Nielsen, B. B., Asmussen, C. G., & Weatherall, C. D. (2017). The location choice of foreign direct investments: Empirical evidence and methodological challenges. *Journal of World Business*, 52(1), 62–82.
- North, D. C. (1991). Institutions. *Journal of Economic Perspectives*, 5(1), 97–112.
- Oetzel, J. M., & Oh, C. H. (2014). Learning to carry the cat by the tail: Firm experience, disasters, and multinational subsidiary entry and expansion. *Organization Science*, 25(3), 732–756.
- Pak, Y. S., & Park, Y.-R. (2005). Characteristics of Japanese FDI in the East and the West: Understanding the strategic motives of Japanese investment. *Journal of World Business*, 40(3), 254–266.
- Papadopoulos, N., Chen, H., & Thomas, D. R. (2002). Toward a tradeoff model for international market selection. *International Business Review*, 11(2), 165–192.
- Quere, A. B., Coupet, M., & Mayer, T. (2007). Institutional determinants of foreign direct investment. *The World Economy*, 30(5), 764–782.
- Radjou, N., & Prabhu, J. (2012). Mobilizing for growth in emerging markets. *MIT Sloan Management Review*, 53(3), 81–88.
- Root, F. R. (1994). *Entry strategies for international markets*. Jossey-Bass.
- Salomon, R., & Wu, Z. (2012). Institutional distance and local isomorphism strategy. *Journal of International Business Studies*, 43(4), 343–367.
- Sen, K., & Sinha, C. (2017). The location choice of US foreign direct investment: How do institutions matter? *Journal of Institutional Economics*, 13(2), 401–420.
- Sobel, R. S. (2008). Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*, 23(6), 641–655.
- Stulz, R. M. (2005). The limits of financial globalization. *Journal of Finance*, 60(4), 1595–1638.
- Tomiura, E. (2007). Foreign outsourcing, exporting, and FDI: A productivity comparison at the firm level. *Journal of International Economics*, 72(1), 113–127.
- Wei, S.-J. (2000). How taxing is corruption on international investors? *Review of Economics and Statistics*, 82(1), 1–11.

- Wei, Y., & Liu, X. (2006). Productivity spillovers from R&D, exports and FDI in China's manufacturing sector. *Journal of International Business Studies*, 37(4), 544–557.
- Wheeler, D., & Mody, A. (1992). International investment location decisions: The case of US firms. *Journal of International Economics*, 33(1–2), 57–76.
- Xu, D., Pan, Y., & Beamish, P. W. (2004). The effect of regulative and normative distances on MNE ownership and expatriate strategies. *Management International Review*, 44(3), 285–307.
- Yeaple, S. R. (2003). The complex integration strategies of multinationals and cross country dependencies in the structure of foreign direct investment. *Journal of International Economics*, 60(2), 293–314.
- Yeaple, S. R. (2009). Firm heterogeneity and the structure of US multinational activity. *Journal of International Economics*, 78(2), 206–215.
- Zaheer, S. (1995). Overcoming the liability of foreignness. *Academy of Management Journal*, 38(2), 341–363.
- Zona, F. (2012). Corporate investing as a response to economic downturn: Prospect theory, the behavioural agency model and the role of financial slack. *British Journal of Management*, 23(S1), S42–S57.

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