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A BIT Far?

Geography, International Economic Agreements, and Foreign Direct Investment: Evidence from Emerging Markets

Laura Gomez-Mera
Gonzalo J. Varela

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Abstract

How do international economic agreements influence the investment patterns of firms from emerging economies? This paper studies the ways in which bilateral investment treaties and preferential trade agreements interact with geographic and cultural distance to influence firms' investment patterns. *How does geographic and cultural proximity affect the impact of international economic agreements on foreign direct investment flows?* This question is answered using data from an original survey of 700 firms from four emerging (or newly-emerged) economies: Brazil, India, the Republic of Korea, and South Africa. The findings suggest that bilateral investment treaties and preferential trade agreements increase the likelihood of foreign direct investment. Yet, the effects of these agreements on foreign direct investment depend on the distance between the origin and potential destination countries. Moreover, trade and investment agreements appear to interact differently with distance. By providing guarantees to investors and signaling credible commitment from host governments, bilateral investment treaties mitigate the higher uncertainty and transaction costs associated with investing in faraway, unfamiliar markets. By contrast, the investment attraction effectiveness of preferential trade agreements fades with distance.

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A BIT Far?
Geography, International Economic Agreements, and Foreign Direct Investment: Evidence from Emerging Markets

Laura Gomez-Mera
Associate Professor
University of Miami
lgmera@miami.edu

Gonzalo J. Varela
Senior Economist
The World Bank
gvarela@worldbank.org

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1. Introduction

Foreign direct investment (FDI) flows are an important source of foreign capital for developing countries. In the last decade, almost half of total FDI flows have been directed to developing and emerging economies. Moreover, large developing countries have become increasingly salient sources of outward FDI. Indeed, in 2014, multinational enterprises (MNEs) from developing and emerging economies accounted for 35% of global FDI flows, while developing Asia became the world's top source of outward FDI (UNCTAD 2015).

The rising salience of emerging market multinational enterprises (EMNEs) has generated significant interest among scholars of international business and economics. A growing literature has examined the factors influencing the investment decisions of these firms, and their differences and similarities with multinational enterprises from advanced industrialized countries (Cantwell and Barnard 2008; Sauvant 2005; 2008; 2010; Dunning, Kim, and Park 2008; Gammeltoft 2008; etc.). Much of this work has focused on the economic motivations for these firms to internationalize, emphasizing competitiveness pressures resulting from increased economic interdependence. This literature has paid less attention to the role of non-economic factors, such as domestic political institutions and participation in international institutions. While a vast body of research has examined how domestic and international institutions influence patterns of FDI, this work has primarily concentrated on firms from advanced industrial nations.

In this paper, we fill a gap in the literature by studying whether and in what ways international economic agreements affect the investment decisions of firms from emerging and newly emerged countries. Research on FDI from developed countries tends to find a positive association between the presence of bilateral investment treaties (BITs) and preferential trade agreements (PTAs) and inflows of foreign investment. What role do these international economic agreements (IEAs) play in the decision of EMNEs? In addition, we are interested in the ways in which IEAs interact with distance to shape outward FDI from emerging economies. More specifically, do IEAs work to mitigate the costs typically associated with geographic and cultural distance? As empirical studies have shown, despite the reduction in transportation costs typically associated to globalization, distance still matters for patterns of both trade and investment. Indeed, the further away a potential market, the higher uncertainty about political, economic, and cultural factors, and the more difficult it is to secure finding at home for those investments, which may affect the profitability of investments. We thus hypothesize that, by providing guarantees to investors and signaling credible commitment from host governments, BITs mitigate the higher uncertainty and reduce transaction costs associated with investing in faraway, unfamiliar markets.[1]

By contrast, we expect the relationship between PTAs and distance to be more complex and to depend partly on the motivations driving firms' decisions to invest abroad. Previous research suggests that the effect of PTAs on *trade creation* fades with distance (e.g. Carrere et al. 2012; Freeman and Pienknagura 2016). In a study of the impact of PTAs on FDI inflows, Medvedev (2011) finds that the FDI benefits of PTAs increase with the proximity to the host country. In line with these results, and given the data from our survey, which indicate that firms value PTAs primarily for their trade facilitating effects, we expect the benefits of PTAs for FDI attraction to also decrease with distance. PTAs allow investors to import lower-cost inputs from and to export finished goods back to their home countries. Yet, increasing transport costs will

[1] One example by which BITs reduce transaction costs is by giving access to more competitive financing. For example, German multinationals that invest in countries with which Germany has a BIT will be able to apply for funding from KfW, a German government-owned development bank.

offset these benefits, as the distance between two countries grows. Distance thus erodes part of the trade cost savings associated with PTAs. Thus, in the context of vertical FDI, we would expect the relevance of PTAs for investors to fade with distance between the firm's country of origin and the potential destination.[2]

We test these hypotheses using data from an original survey of firm-level data from four emerging economies: Brazil, India, South Africa, and the Republic of Korea. Consistent with our expectations, we find, first, that controlling for distance and market size, the existence of a BIT between a firm's country of origin of and a potential market is associated with a greater number of investments in that country. But in addition, the effect of the BIT increases with distance between members. In other words, investors pay greater attention to the signals provided by BITs when considering whether to invest or not in more distant countries. The positive interaction effect between BIT and distance also suggests that these agreements work to offset part of the larger costs typically associated with distance, such as informational asymmetries and higher transaction costs. In addition, our results show that while PTAs are also associated with more investment, their effects appear to decrease the further away members are from each other. These results also hold when controlling for different aspects of institutional quality and political risk.

The analysis in this paper has implications for several scholarly and policy debates on the role of international economic agreements for cross-border investment decisions, at a time in which that role appears to be under scrutiny among key players in the world economy. Indeed, increased scrutiny has come both from the academic and policy fronts. In a blogpost published in 2008 and entitled "Some investors are more equal than others," Dani Rodrik suggests that BITs give an advantage to foreign relative to domestic investors. In addition, it is argued that arbitration panels such as the International Center for the Settlement of Investment Disputes (ICSID) tend to operate 'secretively' and quickly.[3] Recent political developments have also shown skepticism with respect to the benefits of these types of agreements among politicians and their constituents. A top-down example is the withdrawal of the USA from the Trans-Pacific Partnership (TPP) negotiations early in 2017. A bottom-up example is the Brexit vote in 2016 signaling – among many other things - an appetite for keeping certain decisions at home rather than empowering supranational agencies for those purposes.

Our contribution thus lies in exploring the ways in which distance—geographic and cultural – affects the effectiveness of these international commitments in attracting foreign investment. At the same time, we contribute to the economics literature on the determinants of FDI by showing how states can use specific policies – such as joining trade and investment agreements—to offset the cost of investing in faraway destinations. BITs reduce the transaction and information costs associated with investing abroad. Finally, we contribute to the literature on emerging market multinationals, which has focused primarily on economic considerations and has paid less attention to the ways in which host governments can use policy choices to increase their attractiveness to potential foreign investors.

The paper is structured as follows. In the next section, we review the relevant literatures, on EMNEs, distance, and international economic agreements and FDI. We then present our arguments and hypotheses.

[2] PTAs allow investors to import lower-cost inputs from and to export finished goods back to their home countries. Yet, increasing transport costs will offset these benefits, as the distance between two countries grows. If PTAs are primarily valued for their trade-enhancing benefits, as the results of our survey suggest, their relevance to investors should fade with distance.

[3] The argument is that these are ad hoc panels convened by practicing lawyers rather than a regularly sitting court with permanent judges. In addition, there is no formal appeals process. This, according to many, defeats the whole object of providing swift and binding decisions.

In Part 3, we introduce our empirical strategy, discussing our sample, estimation technique, as well as the ways in which we operationalize our main independent and control variables. We then discuss our results and their implications. In the concluding section, we summarize their main findings and highlight how they contribute to scholarly and policy-making debates on the determinants of FDI from emerging markets and on the role of international institutions in attracting foreign investment.

2. Literature Review

In examining the ways in which IEAs interact with distance to influence the investment decisions of EMNEs, we draw upon and contribute to three bodies of literature: work on FDI from emerging markets, on the role of distance in the context of increasing global economic integration, and on international economic agreements and their effects on FDI.

2.1. FDI from Emerging Market Multinationals

In the last two decades, developing and emerging economies have become increasingly salient players in the global economy. Apart from capturing growing shares of global FDI flows, firms from the South have emerged as important sources of outward investment. Already in 2005, according to UNCTAD's *World Investment Report*, outflows from developing economies were about three times world FDI flows 25 years before, reaching about $130 billion. In 2011, these flows added up to $384 billion, accounting for more than 20% of total FDI flows. In terms of stocks, in 2011, firms from developing economies accounted for 1 of every 5 dollars of equity held by multinationals worldwide, almost tripling the same ratio during the early 1990s.

A growing body of literature looks at the drivers and characteristics of outward FDI from emerging and developing economies. Dunning, Kim, and Park (2008) compare contemporary TNCs from emerging markets with traditional developed country corporations. They find evidence of a new wave of "asset-augmenting" FDI in the 2000s, which contrasts with the primarily market-seeking and efficiency-seeking FDI from developed economies in the 1960s-1980s. Whereas the traditional developed-country companies generally invested abroad to exploit ownership-specific advantages, developing country MNCs tend to rely instead on country-specific advantages, particularly in the services sector. Because of their limited assets and the growing competitiveness pressures they face, firms from emerging markets have incentives to access "created" assets such as brands, distribution networks, and managerial skills, in foreign countries through M&As or other types of asset-augmenting FDI.[4]

Scholars have also highlighted the differences between the current wave of outward FDI from emerging economies and two previous waves of outward investment from the developing world. The first wave (1960s to mid-1980s) was driven primarily by the market- and efficiency-seeking strategies of Latin American MNCs. The second wave, beginning in the mid-1980s, was dominated by Asian MNCs, seeking to gain access to the rapidly expanding newly-industrializing economies in East Asia, as well as to increase efficiency by drawing on cheaper labor in other less developed economies.

In the third wave, beginning in the 1990s, there has been a resurgence of OFDI from Latin America and Asia, as well as growing flows from the Russian Federation and South Africa. While access to markets and inputs

[4] Examples include several M&As, including Lenovo's purchase of IBM's PC business and Tata's acquisition of the steel giant Corus.

remain the main motives, asset-augmenting strategies have increased in importance. During this period, MNCs from emerging markets have relied on outward investments to access technology, R&D and marketing capabilities, brands and managerial competencies (Gammeltoft 2008; Gammeltoft and Hobdari 2017; Fey et al. 2016). In terms of destinations, according to Gammeltoft (2008), third wave OFDI is increasingly global and reaching both developed and developing countries, particularly in the manufacturing sector.[5] Finally, although up to 2001, FDI from emerging markets was mainly in the form of greenfield investment, M&As have become more common (Dunning et al. 2008).

We add to this literature in two main ways. First, most of the available work on EMNEs has relied primarily on case studies of specific firms, sectors, or countries. By contrast, we use data from a survey of over 700 firms from four emerging economies, which includes questions about the motivations, incentives, and geographic location of these firms' decisions. Second, research on EMNEs has largely ignored the role of non-economic factors in shaping these firms' decisions. Are EMNEs concerned about political factors, such as institutional and regulatory quality in host countries? Do they consider whether potential destination markets participate in international economic agreements? It has been argued that MNCs from emerging economies may possess "adversity advantages," derived from their experience operating in a business environment characterized by corrupt officials, regulatory instability and weak institutions (Contessi & El-Ghazali 2010). Experience dealing with such challenging conditions may make these firms less worried about political risk and instability, and by the same token, less responsive to the presence of BITs and PTAs. We explore these issues empirically using data from the survey of potential investors.

2.2. Distance and FDI

We also engage the discussion in the international trade and investment literatures on the so-called "distance puzzle." Conventional wisdom holds that globalization has irreversibly brought countries together, facilitating international trade and investment. The fall in communication and transportation costs in recent decades, a central element in the transaction costs that are captured by distance, has led to the "death of distance" and made the world "flat" (Friedman 2005). Yet, empirical studies have failed to show the purported declining distance elasticity of bilateral international trade (Disdier and Head 2008; Carrere, de Melo, and Wilson 2011). Instead, studies have found that the burden of distance of trade may be increasing.

A similar distance puzzle has been identified in FDI patterns. The empirical literature has shown that distance has a negative effect on the investment decisions of multinational firms. Gravity-type of models tend to find that distance, capturing informational gaps and asymmetries as well as cultural differences, hinders FDI flows between two countries (e.g. Di Giovanni 2005; Portes and Rey 2005; Head and Mayer 2013; etc.). For example, Ferrantino (1992) finds that transaction costs associated, inter alia, with geographic and cultural barriers, largely explained the fact that third world multinationals invested in other developing countries, as opposed to a preference for low-income or labor-intensive markets.

These findings appear to go against the "FDI versus exports" approach, according to which firms are more likely to expand production across borders, the higher the transportation costs and trade barriers. Moreover, as information and communications technology facilitates the circulation of ideas and know-how, firms should find investing and producing goods abroad more efficient than exporting them. Yet, as

[5] FDI in services, however, continues to exhibit a relatively higher regional bias. Asian MNCs appear to be more globalized than Latin American MNCs, they are still more concentrated on neighboring countries.

Baldwin (2016) has argued, while the ICT revolution has enabled the unbundling of production and the spread of global value chains, there are still important barriers to the movement of people. The still high cost of moving people constrains the flow of professional services, the delivery of which requires face-to-face contact and which cannot easily be offshored to foreign locations. Until this "third unbundling" of labor services and workers materializes – according to Baldwin (2016) through the spread of "telepresence" -- we can expect distance to constrain investment decisions, particularly in certain sectors.

Scholars have also examined the impact of *cultural distance* on foreign investment. Conventional wisdom holds that similarities in cultural values facilitate doing business across countries and thus affects firms' location decisions. Cultural and language differences are viewed as barriers to communication, thus leading to higher transaction and information costs. Thus, multinational firms may prefer to invest in countries with shared history, culture, and values. Relying on various conceptualizations of cultural distance, several studies have found empirical support for its posited negative impact on FDI inflows (e.g.: Bhardwaj, Dietz, and Beamish 2007; Siegel et al. 2011; Quer et al. 2017).

In line with this research, we expect firms' investment decisions to be negatively influenced by geographic and cultural distance, which increase the difficulty of making business across borders. When considering attractive markets, firms will be more likely to prefer familiar, relatively closer destinations. Yet, can IEAs contribute to offset the impediments of distance on FDI flows?

2.3. International Economic Agreements and FDI

Conventional accounts of the determinants of FDI emphasized economic factors, particularly the size of the market, business opportunities, and the availability of inputs in potential destinations. In addition, economists recognized that governments could use specific policies, such as financial and tax incentives and membership in international economic agreements to increase their attractiveness in the eyes of foreign investors (Dreher et al, 2015).

Much of this work has focused on bilateral investment treaties (BITs), which govern the interactions between foreign private investors and governments in host countries. BITs are viewed as commitment devices that contribute to mitigating the so-called time-inconsistency problem inherent in foreign investment.[6] These treaties specify guarantees to foreign investors, most notably, the possibility of seeking third-party arbitration in international tribunals and to obtain compensation in case of expropriation. In this sense, they act as credible commitment mechanisms, thus boosting FDI between signatories. But in addition, BITs have been also viewed as signaling a government's commitment to liberal economic policies, and hence reducing the likelihood of a broader range of interventions that may affect the profitability of investments. Thus, BITs should also work to attract investment flows from third countries (Büthe and Milner 2009; Neumayer and Spess 2005).

An extensive body of literature has tested these theoretical claims empirically, obtaining mixed results. Several scholars have found a statistically significant increase in FDI in the presence of a BIT, even when

[6] FDI involves the acquisition of fixed assets in a foreign country; investors will thus be concerned about the "obsolescing bargain" (Vernon 1971) – the fact that once they have incurred the cost of the investment, governments, anticipating that it will be difficult to pull out without considerable cost, see their bargaining power increase. Indeed, once the investment is made, a rational government faces incentives to breach the terms of the agreement, expropriate assets, or introduce regulatory changes that make the investment less profitable for the firm. Firms will anticipate this type of opportunistic behavior and will be discouraged from investing in certain countries in the absence of specific guarantees.

considering potential endogeneity effects (Neumayer and Spess, 2005; Büthe and Milner 2008; 2014; etc.).[7] In other studies, however, the association is less clear (e.g Hallward-Driemeier, 2003; Tobin and Rose-Ackerman, 2005; etc.). Finally, other works have found that the effectiveness of BITs on FDI depends on characteristics of the host country, such as the quality of institutions and level of political risk. Neumayer and Spess (2005) for example, show that the impact of BITs in attracting FDI increases with the quality of institutions. By contrast, Yackee (2007) and Tobin and Rose-Ackerman (2011) find that investment treaties are more effective in environments where political risk is higher.

Scholars have also explored the relationship between participation in preferential trade agreements (PTAs) and FDI. Four different mechanisms through which preferential liberalization may affect FDI inflows have been identified. First, economists emphasize the market-expansion effects of trade agreements. By creating a larger host market, PTAs stimulate FDI inflows, which have been demonstrated to be particularly sensitive to market size (e.g. Ethier 2001; Levy-Yeyati, Stein, and Daude 2003). Second, PTAs allow firms to benefit from lower barriers of access, gaining access to cheaper inputs, and permitting them to export back to their home country. Assuming a complementarity between trade and investment in the context of vertical FDI and global value chains, one would expect PTAs to result in higher FDI inflows (Medvedev, 2011). Third, PTAs may work to attract FDI inflows by contributing to increased economic growth of the host economy (World Bank, 2001; Rodrik, 1999).

In addition to these purely economic effects of PTAs on FDI, there are political economy mechanisms through which these agreements influence foreign investment decisions. Many of the more recent PTAs contain investment and other non-trade provisions, concerning a broad range of domestic issues such as the environment, competition policy, customs cooperation, labor standards, and intellectual property rights. These "deep" trade agreements have been viewed as important drivers of FDI (Osnago et al., 2015). Much like BITs, the non-trade provisions in PTAs signal to potential investors a government's commitment to maintaining liberal trade and investment policies. In line with this, Büthe and Milner (2008) find that developing countries that participate in multilateral and regional trade organizations, such as the WTO or EU, which provide mechanisms for information sharing, monitoring, and enforcement, tend to attract higher levels of FDI.

Much of this work assumes North-South FDI flows- that is, firms from advanced industrialized nations investing in developing countries. In this paper, instead, we investigate whether international economic agreements also influence the decisions of firms from the South. Are these emerging foreign investors as attentive/responsive to the commitment-enhancing effects of trade and investment treaties as their counterparts from industrial economies? And does the effectiveness of IEAs in attracting FDI from emerging economies depend on other factors, such as geographic and cultural distance and political risk in the host country?

3. Hypotheses

The literature on EMNEs has claimed that these firms tend to be more "global" in scope than their predecessors in previous waves of outward FDI expansion from the developing world. Yet, in line with the research reviewed in section 2, we expect these firms, like their competitors from the North, to be sensitive

[7] See UNCTAD (2014) for a comprehensive review of this literature.

to the higher transaction and informational costs associated with both physical and cultural distance. Thus, we hypothesize that:

H1: *All else equal, firms from emerging markets prefer to invest in closer and more familiar markets.*

In addition, some have argued that firms from the South may be less worried about political risk and instability and the security of their investments than those from the North. In contrast to these adversity advantage hypothesis, we expect, rational investors from large developing countries to prefer investment destinations in which they enjoy the protections granted by BITs. In addition, given the growing participation of firms from these countries in global and regional value chains, commitment to liberal policies – as signaled by BITs and PTAs—is likely to increase the attractiveness of a potential host market. Our second hypothesis is thus that:

H2: *IEAs increase the attractiveness of potential destinations to emerging market investors.*

Yet, we expect these positive effects on firms' investment decision to vary with geographic and cultural distance between the firm's country of origin and a potential destination. More specifically, we expect BITs, which protect the security of investments, to reduce the uncertainty associated with remoteness and cultural dissimilarities. We hypothesize that controlling for other country-specific factors, such as market size and levels of political risk, BITs will be more important determinants of firms' investment decisions, the greater the distance between the investor's home country and the potential destination. Moreover, we expect distance to influence the effect of BITs on both the likelihood and the size of a firm's investment in a destination.

H3: *The greater the (geographic and cultural) distance between a firm's country of origin and a potential destination, the stronger the (positive) effect of BITs on the firm's investment decision.*

The relationship between trade agreements and distance, on the other hand, is likely to be more complicated. First, the effect of PTAs on firms' investment decisions will depend on the motivations of the firms for investing abroad. If the main motivation for the firm is to access new markets – "market-seeking" FDI – then we would expect PTAs, which reduce the cost of trading across borders, to lead to lower levels of FDI. This is because in that context, firms would prefer to directly trade with the country in question instead to engage in the (more) costly strategy of acquiring fixed assets there. If, instead, the firm invests abroad to take advantage of availability of low-cost inputs, such as cheap labor or skilled labor, or other intangible assets that are not readily available in their home countries — "efficiency-seeking" FDI – then PTAs are expected to foster higher levels of FDI. This is particularly the case for firms participating in international production networks or global value chains.

A second consideration concerns the different mechanisms through which BITs and PTAs are expected to attract FDI. While BITs contain provisions protecting investors from specific threats and damages, thereby directly addressing firms' perceptions of risk, the effect of PTAs is indirect. Unless they contain specific investment clauses, they are believed to ease investors' concerns by signaling commitment to market-friendly policies. Moreover, the effectiveness of trade agreements in attracting FDI may be less related to these commitment/signaling effects and more to the fact that they reduce the cost of trading for efficiency-seeking investors. Once the firm starts producing within this country, it can also take advantage of preferential access to other trade partners with which the destination country may have signed an

agreement. These advantages may be particularly salient as production becomes increasingly fragmented in global value chains.[8]

***H4**: The effectiveness of PTAs in attracting FDI fades with geographic and cultural distance between two countries, (assuming investors value PTAs for their trade-creating benefits).*

4. Empirical Analysis

4.1. Data

The data for this study come from an original survey of investors and potential investors in four countries: Brazil, Korea, South Africa, and India. The "Potential Investor Survey," a joint project by UNIDO and the World Bank, included interviews with 713 firms, randomly drawn from registries that contain all firms with revenues of at least $25 million and operating in one of five sectors: finance and insurance, manufacturing, wholesale trade, retail trade, and transportation and warehousing (See Table 1).[9] To deal with selection bias problems in other investors' surveys, the sample contains not just firms that invest abroad but also companies that considered investing but have decided not to do so, as well as firms that are focused on the domestic market. The interviews were conducted in person and over the phone in 2009-2011.[10]

Table 1. Survey respondents by country and sector

Sector	Brazil	India	South Africa	Korea, Rep.	Total
Manufacturing	55	150	34	166	**405**
	40.4%	82%	36.9%	59.5%	**58.7%**
Wholesale trade	13	3	1	24	**41**
	9.6%	1.64%	1.1%	8.6%	**5.9%**
Retail trade	22	6	25	31	**84**
	16.2%	3.28%	27.2%	11.1%	**12.2%**
Transportation & warehousing	22	0	1	32	**55**
	16.3%	0%	1.1%	11.5%	**7.9%**
Finance & insurance	24	24	31	26	**105**
	17.6%	13.1%	33.7%	9.3%	**15.2%**
Total	**136**	**183**	**92**	**279**	**690**

Source: Gomez-Mera et al (2014)

Firms were asked a variety of questions concerning their motivations for investing abroad, as well as the different economic, political, and cultural factors influencing their choice to invest or not in a specific destination. Data from the survey suggests that most firms are market-seeking: accessing new markets was

[8] Indeed, almost 30% percent of investors in our sample said the main ways in which they benefited from a PTA concerned the increased size of the export market, while 23% and 16% mentioned reduction in the costs of trade and access to raw materials, respectively. Yet, these trade costs reducing benefits of PTAs will fall the further away the potential investment destination, given the higher transaction costs associated with trading with faraway markets. Thus, if investors value PTAs primarily because of their trade-related effects, the relevance of these agreements may decrease with distance.

[9] The rationale for excluding natural resources and focusing largely on manufacturing and services was that while investment in natural resources continues to account for a significant proportion of total FDI, its drivers and patterns of geographical expansion tend to differ markedly from investment in manufacturing and services.

[10] See Gomez-Mera et al. (2014).

claimed to be the main motivation for almost 70% of investors in the sample. The second main motivation for investing abroad was lowering production costs, chosen by 20% of investors surveyed, followed by acquiring natural resources and inputs (5%) (Gomez-Mera et al. 2014).

Investors were also asked to identify the three countries where they hold their largest investment. Of all investors in the sample, only a subset identified the three main destinations. We aggregate this firm-level data to generate a count of the number of investments from each country in each sector. The implicit assumption made here, and purely driven by data availability, is that these data give a good representation of the set of destinations in which firms from these four countries invest.

Although companies in our sample have investments in all regions of the world, there is a clear regional and cultural bias, particularly in services. Brazilian firms tend to invest in Latin America, South African firms invest in Africa, and Korean firms tend to invest in East Asia (Table 2). The exception is India, with a more widespread reach. This is why in the remainder of this paper we look at revealed investment decisions and test the trade-off between market size and informational costs associated with geographical and cultural distance, as well as the role that BITs may have in reducing these informational costs.

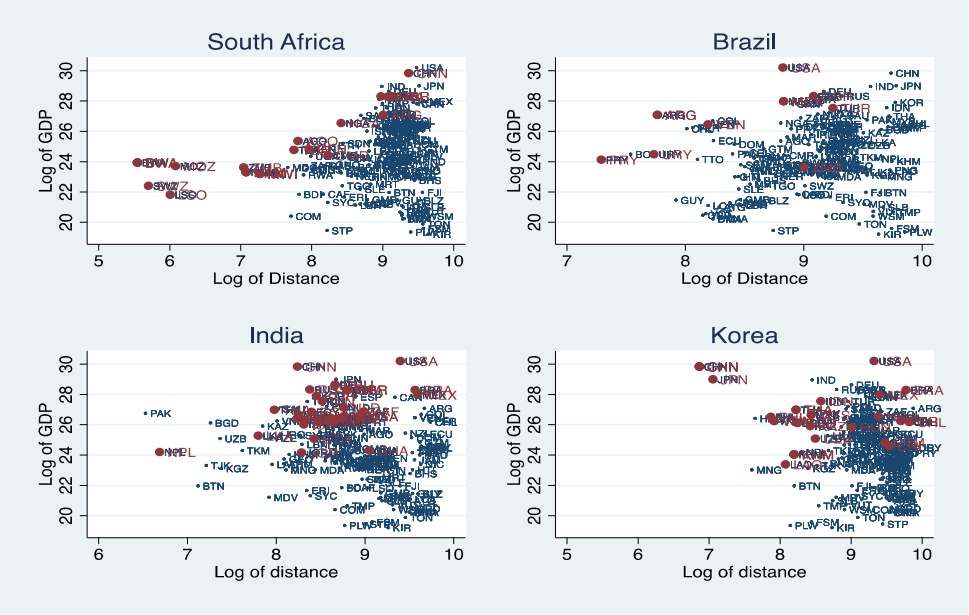
Table 2. Investment destinations by country and region (%)

	Brazil	**India**	**South Africa**	**Korea, Rep.**
Africa	6.98	8.33	74.7	2.58
East Asia & Pacific	2.33	23.5	8.0	69
Europe & Central Asia	16.3	22.7	10.7	5.81
Latin America & Caribbean	48.8	1.52	4.0	10.3
Middle East & North Africa	2.33	20.4	0.0	0.65
South Asia	0.0	6.82	1.33	7.1
US	23.3	16.7	1.33	4.52
Total	**100**	**100**	**100**	**100**

Source: Gomez-Mera et al (2014)

Consistent with the literature on the determinants of FDI, firms in this sample face a trade-off between investing in a larger, more developed market and investing in more familiar, closer destinations where they face lower transaction costs. Figure 1 shows this trade-off graphically. The scatter plots all possible bilateral investments for firms in each of the countries of origin in our sample. The red dots show the countries in which there is at least one investment (or one firm from that country that holds its largest investment there). Except for firms from Korea, which appear to have a wider, more global reach, we can see most of actual investments falling along or above a positively sloped line. The graph identifies a locus of combinations of market attractiveness and distance that makes firms willing to invest: firms accept greater transaction costs in exchange for a more attractive market. Thus, for example, although Brazilian firms would probably like to invest in large attractive markets such as Indonesia, they end up investing in smaller, but closer countries like Uruguay, Argentina, and Paraguay. It appears as if it took very large markets such as China, Japan or India, to offset the costs of investing in distant locations.

Figure 1. Market Size- Distance Trade-Off



4.2. Estimation strategy

Our unit of observation is the triplet country of origin '*i*' – country of destination '*j*' – sector '*s*', and our dependent variable is the number of investments from country *i* in country *j* in sector '*s.*'[11] We use a hurdle model – a special type of count model, which comprises two different steps for two separate processes. The first step models the decision to invest, using a Logit model (to determine whether the count is zero or positive). The second models the intensity – the count of investments, using a zero-truncated negative binomial to determine the drivers of the positive count of investments.[12] Both models are assumed to follow the same specification.

Baseline model

The baseline specification for the hurdle model poses a relationship between the decision (and the count) of investments between I and j, and the international economic agreements, along with controls, as follows:

$$FDI\ Count_{ijs} = a + b_1 GDPpc_j + b_2 Pop_j + b_3 Dist_{ij} + b_4 Contig_{ij} + b_5 ComLang_{ij} + b_6 Colony_{ij} + b_7 BIT_{ij} + b_8 PTA_{ij} + b_9 \overline{Exp}_{ij} + e_{ijs}$$

The dependent variable, *FDI Count*$_{ijs,}$, is the number of investment projects from home country *i* in host country *j* corresponding to sector *s*. This gravity equation includes economic controls, such as the real per capita gross domestic product (natural logs, in constant 2005 international dollars) of the host country (*GDPpc*$_j$), which is an indicator for level of economic development. In addition, to control for market size in

[11] Note that a count of zero investment from country i in country j in sector s masks two different scenarios: (i) no investment from i is conducted in j in sector s, or (ii) firms from i that invest in j in sector s have not answered the question or have not been sampled. The underlying process that determines whether a zero corresponds to (i) or to (ii) is unknown and hence not modeled here.

[12] The idea is that if the outcome in the first step is positive, then "the hurdle is crossed" and the conditional distribution of the positive values follows a zero-truncated count model. An alternative was to use a zero-truncated Poisson, but given that the data showed overwhelming evidence of over-dispersion, the negative binomial is preferred.

the destination country, the natural log of the population in *j* (Pop_j) is included. $Exports_{ij,}$ the average exports of country *i* to country *j* over 2007-2009 seeks to both size-related market attractiveness and all the gravity type of factors that impede or facilitate economic relations between a pair of countries, and control for the complementarities that may exist between investment and trade. All else equal, it is expected that the larger the size of the host country's market and the higher the level of commercial exchange between the home and host countries, the more attractive the latter would be as an investment destination.

In line with gravity models used widely in the trade literature, our model controls for the geographic and cultural distances between home and host countries. $Dist_{ij}$ is the capital to capital distance in kilometers (logs) from country of origin to country of destination, while $Contig_{ij,}$ is a dummy variable equal to 1 if countries *i* and *j* are contiguous and zero otherwise. The greater the physical distance between two countries, the lower the expected investment levels between them, given higher transaction and information costs associated with distance. To capture the effect of cultural differences, we include two control variables: $Comlang_{ij}$ is a binary variable equal to 1 if the countries *i* and *j* share the official language, and zero otherwise, while $Colony_{ij}$ takes the value 1 if there was a shared colonial history between countries *i* and *j* and zero otherwise. We expect that sharing a common language and a colonial history to facilitate investment ties between two countries. Finally, e_{ijs} is the error term assumed to be orthogonal to the regressors, and the set of "a" and "b" are parameters.[13]

We also control for political stability and institutional quality, using data from the International Country Risk Guide (ICRG), published by the Political Risk Services Group, and from the World Bank Governance Indicators (WGI). We include two indicators in different models: the ICRG quality of government index and the WGI political stability index. *Gov quality* is an average of three ICRG variables – Corruption, Law and Order, and Bureaucratic Quality. While the first two are measured on a scale from 0 to 6, Bureaucratic quality ranges from 0 to 4. The average of these scores is then scaled 0-1. *Pol stability* measures perceptions of the likelihood of a government being overthrown by violent and/or unconstitutional means. In most circumstances, we would expect a positive relationship between the coefficient for these indicators and FDI count. However, if "adversity advantage" arguments are true, then the sign of the coefficient should be negative.

Our variables of interest are BIT_{ij} and $PTA_{ij.}$ BIT_{ij} is a dummy taking value 1 if countries *i* and *j* have a bilateral investment treaty signed and ratified. Similarly, PTA_{ij} takes the value 1 if countries *i* and *j* have signed or are part of a bilateral or plurilateral preferential trade agreement.

It is possible that the direction of causality between international economic agreements and investment runs the other way. The case of the bilateral investment agreement between Uruguay and Finland helps illustrate this reverse causality problem. The agreement signed between the two countries in 2002 was part of the conditions required for a billion-dollar investment of a Finish cellulose pulp company in Uruguay. While formally, the treaty preceded the investment, the signature of the former, was a consequence of the interest in the latter. The standard approach to tackle this reverse causality problem that introduces a potential source of inconsistency to standard estimators is to instrument the endogenous variable – in this case the international economic agreement dummies. As a robustness check, we estimate instrumental variable models. We follow Hallward-Driemeier (2003) and Busse et al. (2008) and as instrument the

[13] The specification also includes dummies for countries of origin (Brazil being the baseline) and sectors.

number of BITs/PTAs a host country has concluded with third countries, subtracting the one with the home country (*BITall/ PTAall)*. [14]

Interacted model: What role for distance?
The following step consists in testing the extent to which distance conditions the effects of international agreements on FDI, and specifically if trade and investment agreements work to compensate at least partially the costs associated with dissimilarities as captured by geographic distance. This is done through an interacted model.

$$FDI\ Count_{ijs} = a + b_1 GDPpc_j + b_2 Pop_j + b_3 Dist_{ij} + b_4 Contig_{ij} + b_5 ComLang_{ij} + b_6 Colony_{ij} + b_7 BIT_{ij} + b_8 PTA_{ij} + b_9 Dist * BIT_{ij} + b_{10} Dist * PTA_{ij} + b_{11} \overline{Exp}_{ij} + e_{ijs}$$

In this case, the potential problem of endogeneity is attenuated by the fact that the endogenous variable is interacted with an exogenous factor: distance. In fact, as argued by Nunn and Qian (2014) "interacting an arguably exogenous term […] with one that is potentially endogenous […], can be interpreted as exogenous since we directly control for the main effect of the endogenous variable."[15]

4.3 Results

i. Baseline

We first estimate a model of economic determinants of FDI, including market size and level of economic development of the destination country, and average exports between the origin and destination markets, controlling for distance and institutional factors. As expected, the results in Table 3 show that both market size and level of economic development of the destination country matter for potential investors. The combination of GDP per capita and population of the destination market are significant determinants of the probability of investing in a destination, and of the number of investments there. Models 1 and 2 also suggest that the greater the trade between the two countries, the higher the likelihood that firms from country i origin will invest in market j.

At the same time, and in line with our first hypothesis, physical distance between markets reduces the probability of investing in a market. This is likely related to the information costs associated with conducting business in a faraway, possibly unfamiliar destination.[16] Similarly, the statistically significant estimated coefficient for *Comlang* shows that sharing an official language is a significant determinant of both the probability of investing and of the number of investments in a market, further reinforcing our point

[14] These robustness checks with instrumental variables are run using a GMM estimator, with the dependent variable being the count of investments from country *i* in country *j.*

[15] Other examples include Brukhart et al. (2012), and Drehel et al. (2015).

[16] Although not reported here, our results also show that the sensitivity to distance is higher for firms in the services sector, as indicated by a negative interaction term between the services dummy and distance. In line with the literature, relative to manufacturers, investors in the service sector show a preference for relatively similar host markets, revealing that in services, in-depth knowledge of the host-market is more valuable than in manufacturing.

that investors exhibit a preference for familiar markets, where they face lower transaction costs. Common colonial heritage, however, does not significantly predict the likelihood or size of investing by emerging market firms.

Finally, Models 1 and 2 also include measures of political stability and institutional quality. The estimated coefficients for political stability is statistically significant and has the expected sign. Firms from emerging economies are more likely to invest (and tend to invest more) in destinations where perceptions of political instability and violence are low. The coefficient of quality of government, however, does not reach statistical significance.

In Models 3 and 4, we include our main variables of interest, namely *BIT* and *PTA*. In Model 5, both variables are statistically significant in the first stage logistic regression, while the coefficient of BIT is also significant at the 90% level in the negative binomial stage. A PTA between two countries thus appears to influence the likelihood but not the level of investment between two countries. More specifically, all else equal, the odds of receiving an investment from an emerging market firm are 3.7 higher when there is a BIT between the origin and the destination countries, and 1.75 higher if the two countries have signed a PTA. Moreover, a BIT between two countries increases the difference in the logs of expected counts of investments by 1.6.

Table 3. Baseline models. Hurdle negative binomial regressions

	(1)		(2)		(3)		(4)	
	Logit	NB	Logit	NB	Logit	NB	Logit	NB
$GDPpc_j$	0.537***	0.309	0.229*	0.145	0.0150	0.0170	0.349	0.240
	(0.192)	(0.285)	(0.137)	(0.220)	(0.153)	(0.222)	(0.213)	(0.284)
$Population_j$	0.561***	0.501***	0.689***	0.473***	0.578***	0.557***	0.432***	0.549***
	(0.103)	(0.147)	(0.0912)	(0.138)	(0.101)	(0.140)	(0.112)	(0.161)
$Distance_{ij}$	-0.00023***	-0.00013***	-0.00025***	-0.00014***	-0.0002***	-8.15e-05	-0.00017***	-7.12e-05
	(6.24e-05)	(4.90e-05)	(6.38e-05)	(4.27e-05)	(6.73e-05)	(5.03e-05)	(6.54e-05)	(5.60e-05)
$Trade_{ij}$	4.71e-08**	-7.28e-09	2.59e-08	-9.75e-09	5.08e-08*	-1.18e-08	8.38e-08**	-7.47e-09
	(2.40e-08)	(8.80e-09)	(1.75e-08)	(8.26e-09)	(2.89e-08)	(8.38e-09)	(3.59e-08)	(9.04e-09)
$Contiguity_{ij}$	0.163	0.701	0.604	0.392	0.649	0.421	0.178	0.712
	(0.690)	(0.591)	(0.641)	(0.502)	(0.661)	(0.487)	(0.690)	(0.517)
$Colony_{ij}$	0.531	0.0844	0.300	0.176	-0.0696	-1.097	0.0180	-0.340
	(0.876)	(0.801)	(0.928)	(0.696)	(0.778)	(0.930)	(0.801)	(0.843)
$Comlang_{ij}$	1.320***	2.126***	1.253***	2.229***	1.748***	3.557***	1.890***	2.556***
	(0.373)	(0.478)	(0.340)	(0.488)	(0.363)	(0.907)	(0.390)	(0.797)
$Gov\ quality_j$	-1.521	1.743					-1.933*	1.903
	(1.091)	(1.455)					(1.151)	(1.508)
$Poll\ stability_j$			0.349*	0.472**	0.323*	0.680***		
			(0.192)	(0.234)	(0.196)	(0.239)		
BIT_{ij}					1.306***	1.612*	1.420***	0.567
					(0.431)	(0.836)	(0.472)	(0.799)
PTA $_{ij}$					0.568*	0.467	0.450	0.684
					(0.335)	(0.398)	(0.355)	(0.426)
Constant	-16.68***	-15.44***	-16.67***	-11.36***	-13.64***	-11.78***	-13.30***	-15.98***

	(2.421)	(4.113)	(1.698)	(3.639)	(1.992)	(3.561)	(2.724)	(4.306)
Home FE	Y	Y	Y	Y	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	1,852	1,852	2,508	2,508	2,508	2,508	1,852	1,852

Until now, however, we have ignored an important potential problem when looking at the association between trade and investment agreements and FDI flows: the possibility of endogeneity. If we find a statistically significant positive effect of the BIT and PTA variables, before concluding that signing trade and investment agreements causes an increase in FDI inflows, we should be able to demonstrate that the causality does not in fact run the other way, i.e., that higher FDI flows may lead countries to join more of these agreements. For example, multinational corporations that invest in a country may press their governments to sign BITs to ensure greater protection for their investments. If they are part of global value chains of international production networks, they may also demand trade agreements to gain access to lower cost inputs and to facilitate re-exporting goods back to their home country.

In Table 4, we report the results of the analysis employing an IV-GMM approach, with *BITall* and *PTAall* -- the number of BITs/PTAs a host country has concluded with third countries, subtracting the one with the home country—as instruments. Model 11 includes both instrumental variables but the coefficient of *PTAall* is not statistically significant, most likely due to high correlation between the two instruments (0.68). Table 4 also reports the first stage Shea R-square, which tells us the percentage change in the R-square associated with changes in each of the instruments. For the *BITall* the Shea R-square is 0.21, which seems reasonable, but for *PTAall* it is 0.07. In Models 12 and 13, therefore, we include *BITall* and *PTAall* in separate regressions. Model 12 shows that the instrument for BIT is positive and statistically significant at the 99% level. The Shea R-square increases to 0.31, suggesting it is a relevant instrument. We also examine the validity of the instruments using the Hansen J-test for overidentifying restrictions. For Model 6, the p-value of the J-test (0.73) shows that we cannot reject the null hypothesis that the overidentification restrictions are valid (or put differently, that our instrument is correlated with the error term). Model 13 only includes the instrumented PTA variable. Although the coefficient is statistically significant, the low value of the Shea R-square and the p value for the J-Hansen test suggest our instrument is not very strong.

Table 4. IEAs and FDI. GMM estimator

	(5)	(6)	(7)
VARIABLES	IVREG GMM	IVREG GMM	IVREG GMM
$GDPpc_j$	-0.0280*	-0.0349**	-0.0342*
	(0.0165)	(0.0148)	(0.0190)
$Population_j$	-0.00464	-0.00764	-0.0179
	(0.0115)	(0.00814)	(0.0116)
$Trade_{ij}$	6.07e-08***	6.32e-08***	5.65e-08***
	(1.73e-08)	(1.64e-08)	(1.73e-08)
$Distance_{ij}$	-7.99e-06***	-7.59e-06***	-6.97e-06***
	(2.57e-06)	(2.36e-06)	(2.57e-06)
$Comlang_{ij}$	0.0791**	0.0717**	0.0214
	(0.0326)	(0.0314)	(0.0323)
$Poll\ stability_j$	-0.0123	-0.0143	-0.0320*

	(0.0196)	(0.0174)	(0.0186)
BITall $_{ij}$	0.161***	0.145***	
	(0.0518)	(0.0445)	
PTAall $_{ij}$	-0.0628		0.189*
	(0.103)		(0.102)
Constant	0.304	0.400**	0.568*
	(0.267)	(0.193)	(0.298)
Shea partial R^2 (first stage)			
BIT	0.21	0.31	
PTA	0.07		0.11
Hansen J statistic (p-value)	0.7244	0.7353	0.0541
Country FE	Y	Y	Y
Sector FE	Y	Y	Y
Observations	2,508	2,508	2,508
R-squared	0.159	0.160	0.152

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

ii. Interacted models

Our results thus confirm that the presence of BITs and PTAs influences emerging market firms' investment decisions. In this section, we explore the extent to which the impact of these agreements on firms' decisions depends on cultural and geographic distance. We hypothesize that BITs, by providing institutional guarantees, mitigate the costs and uncertainty associated with investing in faraway, unfamiliar locations. We expect the relationship between distance and the effect of PTAs, however, to vary according to the motivations of investors, and to matter less for market-seeking investors as distance increases and the costs of trading grow beyond the expected benefits of these agreements.

To test these hypotheses, in Model 8, we add interaction terms between IEAs and distance. The estimated coefficient for the interaction term *BIT*Dist* is positive and statistically significant in the logistic specification, suggesting that the further away two countries are, the greater the effect of the BIT on the likelihood that the country of origin will invest in the destination. In other words, the greater the distance between two countries, the stronger the investment-attraction effect of the investment treaty. Using the coefficients from the first-stage logistic regression, the odds of an investment increase by 1.0003 for every kilometer of distance between two countries with a BIT.

At the same time, this result suggests that the presence of a BIT acts to offset at least partially the transaction costs associated with geographic and cultural distance. BITs are thus (imperfect) substitutes for proximity. More specifically, the estimated coefficients suggest that the existence of a BIT is equivalent to an almost 80% reduction in the geographical distance between two markets. Thus, for example, if Brazil and India had signed and ratified a BIT, its effect would be equivalent to bringing India closer to Brazil – from 17,000 to less than 4,000 kilometers.

The estimated coefficient for the interaction term *PTA*Dist*, on the other hand, is significant and negative only in the count model (negative binomial specification). This finding suggests that, in contrast to BITs, which have a greater effect as magnets for FDI the further away a potential host market, the effectiveness of PTAs in attracting FDI into a potential market *fades* with physical distance. Unlike BITs, PTAs thus fail to

offset the cost of distance. In this sense, PTAs appear to matter for investors *no*t for their political consequences – of signaling credible commitment to investment friendly policies—but instead because of their trade boosting effects, which are compounded by proximity. PTAs allow firms involved in international production networks to more easily move intermediate and finished goods between countries. Yet, the cost-reductions associated with the PTA will be eventually offset by the higher costs associated with greater distance between origin and destination countries. This result is in line with the literature on the role of distance in the effect of PTAs on trade (see, for example, Freeman and Piegnakura 2016).

In Model 9, we interact BIT and PTA with *Contiguity*. The negative sign of the coefficient of the interactive term *BIT*Contiguity* suggests that these agreements have a weaker effect on FDI for pairs of countries that share a border. This confirms our previous finding that BITs have greater relevance when investors consider faraway, unfamiliar destinations, or put, differently, that BITs work to reduce the cost of distance. The coefficient for the *PTA*Contiguity* interaction, however, does not reach acceptable levels of statistical significance in the hurdle model.

Table 5. Physical distance, IEAs, and FDI. Hurdle negative binomial regressions

	(8)		(9)	
VARIABLES	Logit	NB	Logit	NB
GDPpc$_j$	0.0617	-0.00504	-0.0346	-0.0341
	(0.153)	(0.165)	(0.165)	(0.155)
Population$_j$	0.804***	0.603***	0.618***	0.773***
	(0.115)	(0.115)	(0.115)	(0.116)
Distance $_{ij}$	-0.0003***	-0.0003***	-0.0002***	-0.0002***
	(6.59e-05)	(6.77e-05)	(4.94e-05)	(4.34e-05)
Trade $_{ij}$	2.71e-09	7.09e-08**	5.09e-08*	9.59e-09
	(1.79e-08)	(3.14e-08)	(2.70e-08)	(1.74e-08)
Comlang $_{ij}$	2.189***	1.646***	1.727***	2.320***
	(0.383)	(0.381)	(0.379)	(0.395)
Poll stability$_j$	0.593***	0.434**	0.397*	0.561***
	(0.209)	(0.215)	(0.216)	(0.217)
Contiguity $_{ij}$			2.887**	2.565*
			(1.322)	(1.523)
BIT $_{ij}$	-0.269	-0.0616	1.398***	1.390***
	(0.640)	(0.652)	(0.424)	(0.392)
PTA $_{ij}$	2.171***	1.753***	0.511	0.465
	(0.583)	(0.615)	(0.330)	(0.308)
*BIT*Distance $_{ij}$*	0.0002***	0.00023***		
	(7.30e-05)	(8.00e-05)		
*PTA*Distance $_{ij}$*	-0.00028***	-0.000215**		
	0.0002***	0.00023***		
*BIT*Contiguity $_{ij}$*			-3.239*	-3.316*
			(1.719)	(1.918)
*PTA*Contiguity $_{ij}$*			-2.002	-1.043
			(1.378)	(1.577)
Constant	-17.38***	-13.46***	-14.06***	-16.85***
	(2.205)	(2.374)	(2.274)	(2.192)

Home FE	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y
Observations	2,508	2,508	2,508	2,508

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

We then consider the interaction of IEAs with cultural distance (Table 6). In Model 10 we interact BIT and PTA with *Com language,* which is a binary variable that takes the value of 1 if the two countries share a common official language (spoken by at least 20% of the population of the country). Consistent with our expectations, the coefficient of this interaction is negative, although it is only statistical significant in the second stage negative binomial regression. Thus, as these results suggest, the BITs are more effective in promoting investments between pairs of countries that don't speak the same official language. In this sense, BITs appear to also work to reduce the effects of *cultural* distance. The coefficients for *PTA*Com language*, on the other hand, while having the expected sign, do not reach acceptable levels of statistical significance. In Model 11, we use an alternative measure of cultural distance, *Com language (ethno*), which is set to 1 if a language is spoken by at least 9% of the population in both countries. The interaction of BIT and common language continues to be negative and significant in the count model only. In addition, when using this alternative measure of common cultural background, *PTA*Com language* now becomes negative and significant in the first stage logistic model, suggesting PTAs have a greater effect on the odds of investment in pairs of countries that are culturally different than in those that share a language.

Table 6. Cultural distance, IEAs, and FDI. Hurdle negative binomial regressions

	(10)		(11)	
VARIABLES	Logit	NB	Logit	NB
$GDPpc_j$	0.00684	-0.00877	0.139	0.149
	(0.161)	(0.223)	(0.136)	(0.247)
$Population_j$	0.575***	0.563***	0.534***	0.343**
	(0.113)	(0.160)	(0.0958)	(0.160)
$Distance_{ij}$	-0.0002***	-6.81e-05	-0.0002***	-7.34e-05
	(4.98e-05)	(5.33e-05)	(4.78e-05)	(6.38e-05)
$Trade_{ij}$	5.20e-08*	-1.10e-08	4.98e-08*	-1.91e-09
	(2.74e-08)	(1.03e-08)	(2.56e-08)	(1.28e-08)
$Contiguity_{ij}$	0.599	0.401	0.400	0.208
	(0.568)	(0.675)	(0.553)	(0.768)
$Colony_{ij}$	-0.0199	-0.469	0.896	2.421**
	(0.799)	(1.172)	(0.706)	(1.103)
$Comlang\ (off)_{ij}$	1.742***	13.78**		
	(0.472)	(5.570)		
$Comlang\ (ethno)_{ij}$			1.135***	16.42***
			(0.436)	(3.311)
BIT_{ij}	1.369***	11.98**	0.910**	14.50***
	(0.458)	(5.567)	(0.428)	(3.323)
PTA_{ij}	0.523	0.340	0.870***	0.624
	(0.331)	(0.421)	(0.329)	(0.476)
$BIT*Comlang_{ij}$	-0.325	-11.10*		
	(0.877)	(5.726)		

*PTA*Comlang* $_{ij}$	0.402	0.645		
	(0.776)	(0.852)		
*BIT*Comlang (ethno)* $_{ij}$			-0.535	-16.66***
			(0.619)	(3.325)
*PTA*Comlang (ethno)*$_{ij}$			-1.292**	-0.651
			(0.647)	(0.886)
Pol stability$_{j}$	0.326	0.618**		
	(0.213)	(0.269)		
Constant	-13.52***	-11.67***	-14.02***	-9.988**
	(2.250)	(3.254)	(2.240)	(3.901)
Home FE				
Sector FE				
Observations	2,508	2,508	2,572	2,572

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Jointly considered, these results on cultural distance and those reported above on the geographical distance shed light on one mechanism operating within the channel that links IEAs (specifically BITs) and cross-border investment. BITs are more effective when firms invest in faraway, dissimilar environments, suggesting, as mentioned above, that they are imperfect substitutes for proximity and familiarity. PTAs, on the other hand, seem to, decrease in effectiveness as distance between partners grows.

These results hold in the face of several robustness tests, as shown in Table A2 in the Appendix. We begin by using alternative estimation strategies for each of the stages in the hurdle regressions, including Logit and Probit and Poisson and negative binomial. The coefficient for *BIT*Distance* is positive and statistically significant in these models, except in the Poisson specification. In contrast, *PTA*Distance* is only significant (and still negative) in the count models, suggesting that distance decreases the effect of PTAs on the quantity but not the likelihood of investments. Similarly, the coefficient of BIT*Contiguity is negative and significant across specifications, while PTA*Contiguity is only significant – and against our expectations also negative—in the Poisson model.[17] Finally, our findings concerning the interaction of BITs and cultural distance also continue to hold when using alternative estimation strategies. Both BITs and PTAs appear to have a stronger effect on investments between pairs that do not speak the same language.

It may be useful to show graphically the interactive relationship between IEAs and distance that our analysis has uncovered. Using the coefficients from the logistic and negative binomial regressions in Table A2 (Appendix), we plot the marginal effects of distance on FDI conditional of having or not BITs and PTAs (holding all other variables at their means). As Figure 2a shows, as distance between two countries' capital cities grows, the likelihood of investment flows between them declines. However, it falls less rapidly for pairs of countries that have signed and ratified a BIT. Another way to interpret this conditional relationship is that for countries that are close to each other, the effect of having a BIT is insignificant. As distance between countries grows, however, the marginal effect of having a BIT also increases. In contrast, as Figure 2b shows, the marginal effect of having a PTA is substantially higher when distance between two countries is low. As distance grows, the effectiveness of a PTA in increasing the likelihood of investment, fades.

[17] These results are only marginally altered when dropping the logarithmic transformation of *GDPpc* and *Pop,* and when using *LnDistance* instead of Distance as in previous specifications.

In Figure 3, in turn, we examine the conditional effect of IEAs and distance on the expected count of investments. Again, we can observe the difference between pairs of countries with and without BITs. While less statistically significant, having a BIT partially offsets the negative effects of distance on the count of investments. By contrast, while at lower levels of distance PTAs appear to have a substantive effect on the predicted count of investments, as distance grows, the marginal effect of a PTA falls until disappearing (relative to no PTA).

Figure 2a. Likelihood of Investing and BITs

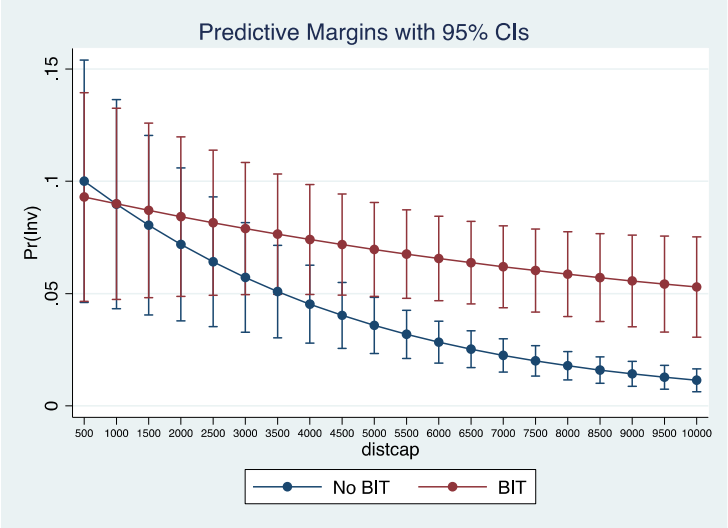


Figure 2b. Likelihood of Investment and PTAs

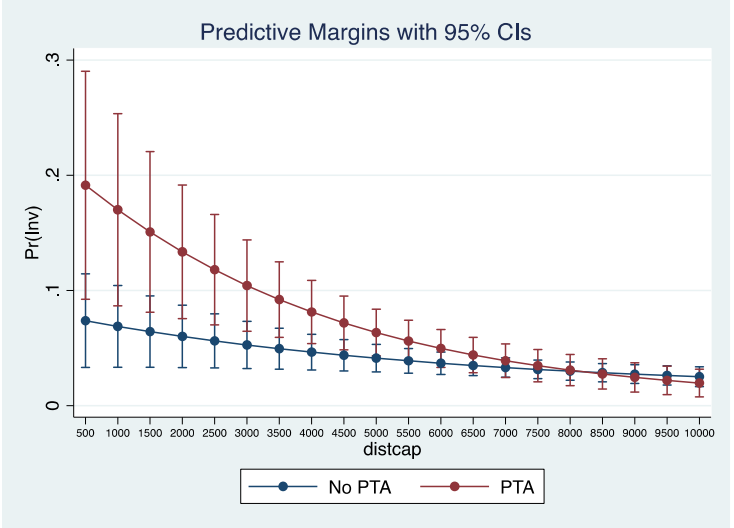


Figure 3a. Predicted count of Investments and BITs

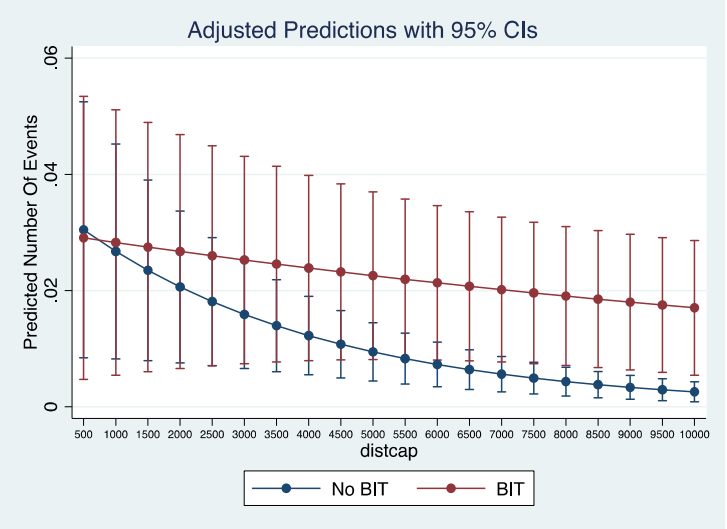
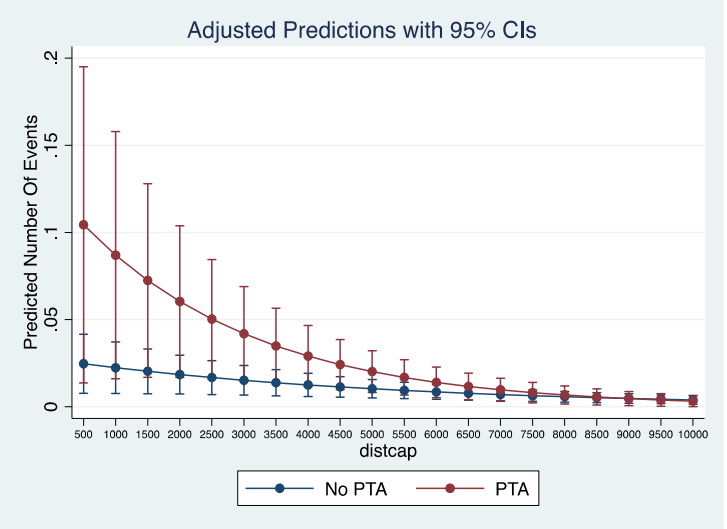


Figure 3b. Predicted count of investments and PTAs



4.4. Extensions

Does the direction of FDI flows affect the impact of IEAs on FDI? More specifically, do firms pay more attention to BITs and/or PTAs when they invest in developing countries, which tend to be associated with higher levels of uncertainty and regulatory instability? Indeed, we would expect investors to demand higher institutional commitments to enter generally riskier destinations than in advanced nations. However, some

scholars have argued that firms from emerging markets, given their experience doing business in challenging and uncertain environments, are less sensitive to poor governance and low institutional quality problems in other developing countries. An observable implication of this "adversity advantage" of emerging market firms would be no significant attention to BITs or any other institutional mechanisms signaling credibility and reliability by the host country government.

To assess this empirically, we interact *BIT* and *PTA* with dummy variables indicating the direction of FDI flows. South-South (SS) is equal to 1 if the host country is a Southern country and 0 otherwise, while South-North (SN) takes the value of 1 if the destination country is in the North.[18] Table 7 reports these results. All else equal, both BITs and PTAs appear to have a *stronger* effect on South-South FDI flows. While the main effects are insignificant, the interaction *BIT*SS* is positive and statistically significant in the second stage regression model, suggesting that BITs have a stronger effect on the intensity of investments when emerging market firms invest in other developing countries than when they invest in the North. The coefficient of PTA*SS, on the other hand, is positive and significant only in the first-stage logistic regression. PTAs are more effective in shaping the likelihood of SS (than SN) investment. Moreover, these results hold when controlling for political stability and institutional quality. Indeed, in Model 13, the coefficient of *Pol stability* continues to be statistically significant and positive, although *Gov. quality* (Model 12) is not.

To shed further light on the importance of political risk and institutional quality for emerging market investors, we then examine whether the effects of BITs and PTAs are conditional on the quality of institutions in the host market. Indeed, Neumayer and Spess (2005) found that BITs tend to have greater effectiveness in attracting FDI when quality of institutions is low. In other words, BITs tend to substitute also for good domestic institutions. Our results, reported in Table 8, confirm these findings. In Model 14, the interaction term *BIT*Pol stability* is negative and statistically significant at the 95% in the second stage regression. We obtain a similar result when we interact BIT with *Gov quality* (Model 15) and with rule of law (Model 16). By contrast, the coefficient for the interaction terms *PTA*Pol stability* and *PTA*Gov quality* in the first two models are not statistically significant. This suggests that the effect of PTAs, unlike those of BITs, do not depend on the quality of domestic political institutions. This may be viewed as an indication that investors value PTAs mainly for their commercial – not their political—effects.

Table 7. IEAs and direction of FDI flows. Hurdle negative binomial regressions

	(12)		(13)	
VARIABLES	Logit	NB	Logit	NB
$GDPpc_j$	0.293	-0.0654	0.539**	0.375
	(0.226)	(0.262)	(0.266)	(0.237)
$Population_j$	0.636***	0.415**	0.419***	0.704***
	(0.113)	(0.175)	(0.114)	(0.210)
$Distance_{ij}$	-0.0003***	-6.07e-05	-0.0003***	-0.000159
	(8.59e-05)	(0.000196)	(8.95e-05)	(0.000141)
$Trade_{ij}$	6.35e-08*	-1.10e-08	9.96e-08***	-2.48e-08
	(3.63e-08)	(1.20e-08)	(3.84e-08)	(1.55e-08)
SS_{ij}	0.585	-1.732*	0.775	-1.828*
	(0.770)	(0.894)	(0.788)	(1.068)

[18] In this paper, the Republic of Korea is treated as "South".

Comlang $_{ij}$	1.791***	3.696***	1.838***	3.106***
	(0.378)	(1.019)	(0.405)	(0.882)
Pol stability$_j$	0.617**	0.529**		
	(0.248)	(0.212)		
Gov quality$_j$			-0.106	0.619
			(1.248)	(1.757)
BIT $_{ij}$	-0.744	-0.424	-0.531	-2.102
	(1.034)	(1.466)	(1.069)	(1.521)
PTA $_{ij}$	-0.443	0.932	-0.705	2.461
	(1.081)	(1.184)	(1.061)	(1.870)
*BIT*Dist* $_{ij}$	0.00026***	3.17e-05	0.000245**	0.000243
	(9.74e-05)	(0.00023)	(0.000104)	(0.000165)
*PTA*Dist* $_{ij}$	-2.02e-05	-0.000198	3.51e-05	-0.000465**
	(0.000109)	(0.000153)	(0.000106)	(0.000223)
*BIT*SS* $_{ij}$	0.296	3.517***	0.202	2.560**
	(0.797)	(1.216)	(0.804)	(1.178)
*PTA*SS* $_{ij}$	1.698**	0.336	1.248	0.951
	(0.832)	(0.967)	(0.802)	(1.169)
Constant	-16.90***	-7.360*	-15.60***	-17.84***
	(3.558)	(4.418)	(3.906)	(6.079)
Home FE	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y
Observations	2,508	2,508	1,852	1,852

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

Table 8. IEAs, domestic institutions, and FDI. Hurdle negative binomial regressions

	(14)		(15)		(16)	
VARIABLES	Logit	NB	Logit	NB	Logit	NB
GDPpc$_j$	-0.00668	-0.0682	0.280	0.350	0.221	0.478***
	(0.165)	(0.222)	(0.245)	(0.232)	(0.190)	(0.147)
Population$_j$	0.612***	0.580***	0.424***	0.755***	0.490***	0.449***
	(0.104)	(0.136)	(0.118)	(0.201)	(0.0979)	(0.139)
Distance $_{ij}$	-0.00027***	-6.15e-06	-0.00026***	-8.76e-05	-0.0003***	-0.00019
	(8.38e-05)	(0.000103)	(8.62e-05)	(0.000111)	(8.48e-05)	(0.000119)
Trade $_{ij}$	6.95e-08*	-2.02e-08**	1.07e-07***	-2.83e-08*	8.52e-08**	-2.25e-08**
	(3.72e-08)	(8.44e-09)	(3.89e-08)	(1.57e-08)	(3.80e-08)	(9.98e-09)
Comlang $_{ij}$	1.630***	2.820***	1.695***	2.647***	1.469***	3.519***
	(0.387)	(0.574)	(0.397)	(0.568)	(0.396)	(0.702)
Pol stability	0.629*	1.411**				
	(0.323)	(0.623)				
Inst quality			-0.806	4.167**		
			(1.685)	(1.644)		
Rule of law					0.0779	0.293***
					(0.0564)	(0.0955)
BIT $_{ij}$	-0.324	1.410	-0.492	2.333	0.0163	4.088***

	(0.805)	(0.945)	(1.231)	(1.601)	(0.822)	(1.316)
PTA $_{ij}$	1.733*	2.081**	2.438**	3.656***	2.759***	2.466***
	(1.001)	(0.818)	(1.104)	(1.055)	(0.762)	(0.925)
*BIT*Distance* $_{ij}$	0.00025**	-4.95e-06	0.00025**	0.00017	0.00028***	0.0003**
	(0.000105)	(0.000101)	(0.000105)	(0.000118)	(9.70e-05)	(0.000123)
*PTA*Distance* $_{ij}$	-0.00021	-0.00033***	-3.80e-05	-0.000536**	5.01e-05	-0.000268**
	(0.000175)	(0.000121)	(0.000125)	(0.000227)	(0.000117)	(0.000114)
BIT $_{ij}$**Pol stability*$_j$	-0.481	-1.188**				
	(0.331)	(0.556)				
PTA $_{ij}$**Pol stability*$_j$	0.126	0.272				
	(0.417)	(0.359)				
BIT $_{ij}$**Inst quality*$_j$			0.365	-4.197**		
			(1.796)	(1.828)		
PTA $_{ij}$**Inst quality*$_j$			-3.094	-0.174		
			(2.054)	(2.434)		
BIT $_{ij}$**Rol*$_j$					-0.0587	-0.500***
					(0.0691)	(0.116)
PTA $_{ij}$**Rol*$_j$					-0.292***	-0.0349
					(0.101)	(0.0827)
Constant	-13.41***	-11.74***	-12.68***	-22.08***	-14.10***	-17.00***
	(2.343)	(3.533)	(3.056)	(4.811)	(2.420)	(3.374)
Home FE	Y	Y	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y	Y	Y
Observations	2,508	2,508	1,852	1,852	2,508	2,508

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

We then explore whether our main results, namely that the effects of IEAs on FDI depend on the distance between countries, holds in the context of South-South and South-North investment flows. We begin by including two three-way interactions (*BIT*Dist*SS* and *PTA*Dist*SS*). The results, in Table 9, show that while the former is statistically significant, the latter is not. Thus, emerging market firms pay more attention to BITs when investing in other developing countries than when investing in advanced nations, as shown by the results in Table 7. In addition, they tend to demand greater institutional commitments -- in the form of BITs, for example—the further are these developing country destinations. This is confirmed when we divide the sample into developing and developed destination countries, or South-North and South-South investments. As the results from models 19 and 20 show, the interaction of *BIT*Distance* continues to be positive and significant when restricting the sample to S-S investments. By contrast, none of the interaction or main effects are significant for the N-S sample.[19]

[19] The hurdle-negative binomial regressions for N-S did not converge. When we run two separate logit and negative binomial regressions, none of the interaction or main effects are significant for N-S.

Table 9. IEAs, Distance, and the Direction of FDI flows. Hurdle negative binomial regressions

	(17)		(18)		(19)		(20)	
VARIABLES	logit	NB	logit	NB	Logit	NB	Logit	NB
	All sample	All sample	All sample	All sample	SS	SS	SS	SS
$GDPpc_j$	0.276	-0.117	0.504**	0.334	0.483*	0.195	0.191	-0.138
	(0.210)	(0.296)	(0.253)	(0.269)	(0.256)	(0.334)	(0.221)	(0.243)
$Population_j$	0.623***	0.669***	0.416***	0.799***	0.396***	0.409*	0.680***	0.305**
	(0.103)	(0.141)	(0.109)	(0.172)	(0.138)	(0.235)	(0.145)	(0.135)
$Distance_{ij}$	-0.0003***	-0.0002**	-0.0003***	-0.0002**	-0.0003***	-0.00065	-0.0003***	-0.0006*
	(6.60e-05)	(8.85e-05)	(6.67e-05)	(9.92e-05)	(7.59e-05)	(0.00045)	(7.63e-05)	(0.000330)
$Trade_{ij}$	4.86e-08*	-1.54e-08*	8.44e-08**	-1.93e-08*	1.87e-07***	-1.18e-08	5.82e-08	-6.65e-09
	(2.89e-08)	(8.51e-09)	(3.63e-08)	(1.10e-08)	(6.90e-08)	(1.47e-08)	(6.11e-08)	(9.93e-09)
$Comlang_{ij}$	1.844***	3.108***	1.931***	2.877***	1.666***	6.771	1.383***	7.346
	(0.371)	(0.656)	(0.401)	(0.629)	(0.549)	(12.80)	(0.486)	(10.02)
$Pol\ Stability_j$	0.518**	0.660***					0.666**	0.462*
	(0.229)	(0.249)					(0.268)	(0.248)
SS_{ij}	0.349	-0.697	0.415	-0.0758				
	(0.648)	(0.691)	(0.636)	(0.813)				
PTA_{ij}	0.460	1.006*	0.124	1.429**	0.141	2.194*	1.078*	0.798
	(0.424)	(0.544)	(0.440)	(0.722)	(0.734)	(1.321)	(0.653)	(0.825)
BIT_{ij}	0.355	0.424	0.674	-0.0943	0.104	2.728	-0.399	4.780
	(0.482)	(0.567)	(0.543)	(0.669)	(0.851)	(13.78)	(0.745)	(10.75)
$BIT*Dist*SS_{ij}$	0.00018*	0.00019**	0.00014*	0.00021**				
	(8.22e-05)	(8.23e-05)	(8.32e-05)	(8.77e-05)				
$PTA*Dist*SS_{ij}$	9.21e-05	-0.000118	0.000109	-0.000184				
	(7.65e-05)	(8.53e-05)	(7.67e-05)	(0.000116)				
$BIT*Dist_{ij}$					0.00017*	0.00065	0.0002**	0.00049
					(8.72e-05)	(0.000464)	(8.19e-05)	(0.000335)
$PTA*Dist_{ij}$					0.000118	-0.000359	1.98e-05	-0.000184
					(9.31e-05)	(0.000233)	(9.04e-05)	(0.000165)
$Gov\ quality_j$			-0.275	2.141	-2.927	0.305		
			(1.294)	(1.960)	(1.866)	(2.032)		
Constant	-16.20***	-11.58***	-15.01***	-20.59***	-13.41***	-21.10	-16.38***	-4.155
	(3.162)	(4.412)	(3.529)	(5.190)	(3.463)	(14.54)	(3.192)	(3.334)
Home FE	Y	Y	Y	Y	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2,508	2,508	1,852	1,852	1,291	1,291	1,919	1,919

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

Conclusions

This paper examines the ways in which international economic agreements interact with distance to influence the investment decisions of multinational firms. Our findings suggest that both BITs and PTAs significantly and substantively increase the likelihood that an emerging market firm will invest abroad. Moreover, the effects of trade and investment agreements on FDI depend on distance, albeit in different ways. BITs by providing clear rules and arbitration procedures, appear to reduce uncertainty and information asymmetries associated with geographic and cultural distance. Put differently, BITs offset the costs of geographical and cultural barriers to investment, thus acting as (imperfect) substitutes for proximity.

Trade agreements, on the other hand, appear to have a more complex interaction with distance. Our findings show that the positive effect of PTAs on FDI fades with distance. These results suggest that emerging market firms value these trade agreements more for their commercial and trade cost reducing effects than for their role as commitment or signaling mechanisms. In other words, firms appear to prefer investing in countries that are members to trade and investment agreements because these treaties allow them to benefit from lower barriers of access to other countries' markets and to export back to the home country. Yet these benefits are likely offset by the higher transportation and transaction costs associated with distance. Thus, unlike BITs, the benefits of PTAs decrease as the distance between two countries grows.

Our findings have several policy implications for developing country governments that seek to attract FDI from emerging economies, as well as for those considering joining preferential trade agreements. They suggest that signing BITs is a good idea, particularly with countries that are further away. In fact, given the costs of negotiating, signing and complying with investment agreements, it makes sense for developing countries to prioritize those with more distant partners. By contrast, our findings suggest countries are better off signing trade agreements with proximate countries. These results complement those obtained by Freeman and Pienknagura (2016), who find that trade agreements have a stronger positive effect on bilateral flows when they are signed among proximate countries.

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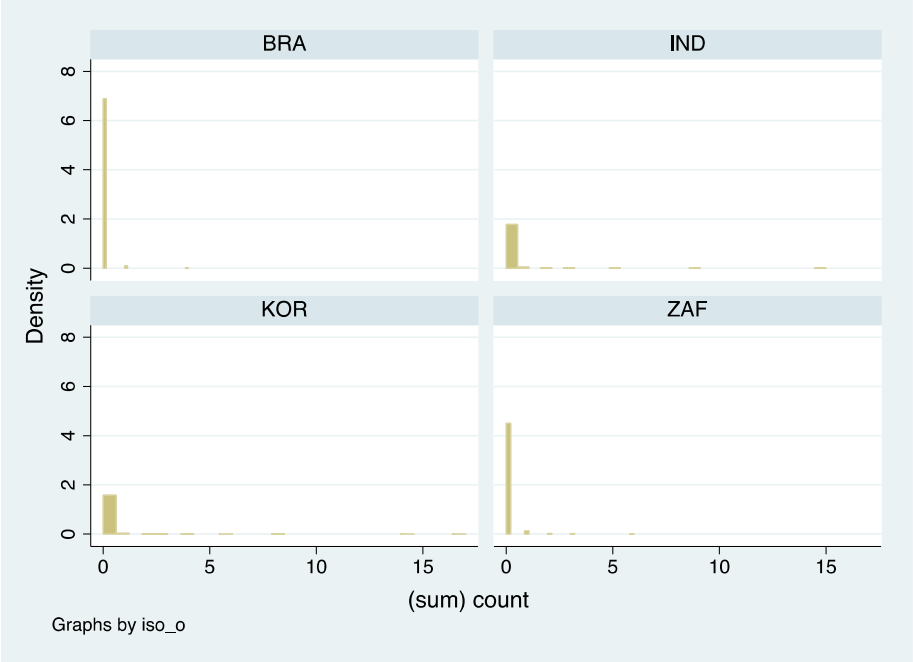
APPENDIX

Figure A1. Evidence of overdispersion



Source: Authors' elaboration based on data from the Potential Investors' Survey.

Table A1. IEAs, geographic distance, and FDI: Robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Probit	Logit	NB	Poisson	Logit	Probit	NB	Poisson
GDPpc$_j$	0.175	-0.0116	0.0549	0.186	-0.0319	-0.0282	-0.0303	0.0522
	(0.108)	(0.0779)	(0.144)	(0.167)	(0.166)	(0.0811)	(0.156)	(0.102)
Population$_j$	0.248***	0.328***	0.802***	0.706***	0.619***	0.326***	0.776***	0.678***
	(0.0557)	(0.0519)	(0.0848)	(0.124)	(0.115)	(0.0587)	(0.117)	(0.0656)
Distance $_{ij}$	-0.00014***	-0.0001***	-0.0003***	-0.00012	-0.0002***	-8.86e-05***	-0.0002***	-0.0002***
	(4.18e-05)	(3.81e-05)	(7.15e-05)	(7.61e-05)	(4.97e-05)	(2.29e-05)	(4.34e-05)	(3.22e-05)
Trade $_{ij}$	5.09e-08***	3.39e-08*	2.54e-09	-1.72e-08**	5.18e-08*	2.70e-08**	9.58e-09	-1.22e-09
	(1.82e-08)	(1.75e-08)	(1.82e-08)	(8.50e-09)	(2.77e-08)	(1.34e-08)	(1.75e-08)	(4.42e-09)
Contiguity $_{ij}$	-0.198	0.0151	-0.000838	-0.466	2.888**	1.436*	2.576*	2.353**
	(0.418)	(0.369)	(0.627)	(0.648)	(1.322)	(0.744)	(1.524)	(1.066)
Colony $_{ij}$	0.112	0.0534	0.255	-0.0826	-0.139	-0.0693	-0.178	-0.412
	(0.408)	(0.400)	(0.554)	(0.560)	(0.749)	(0.401)	(0.727)	(0.371)
Comlang $_{ij}$	0.850***	0.808***	2.128***	2.109***	1.751***	0.894***	2.362***	2.199***
	(0.195)	(0.183)	(0.371)	(0.396)	(0.400)	(0.201)	(0.431)	(0.261)
Pol stability$_j$		0.228**	0.590***	0.702***	0.400*	0.223**	0.565***	0.577***

		(0.106)	(0.187)	(0.220)	(0.217)	(0.109)	(0.218)	(0.136)
Gov quality$_j$	-0.938*							
	(0.569)							
BIT $_{ij}$	-0.227	-0.128	-0.320	0.519	1.419***	0.687***	1.425***	1.130***
	(0.427)	(0.363)	(0.646)	(0.683)	(0.439)	(0.208)	(0.419)	(0.273)
PTA $_{ij}$	0.527	0.842**	2.200**	2.856***	0.504	0.241	0.458	0.478**
	(0.425)	(0.413)	(0.857)	(0.696)	(0.333)	(0.167)	(0.308)	(0.203)
*BIT*Distance* $_{ij}$	**0.00012****	**0.00011****	**0.00022*****	**9.25e-05**				
	(5.45e-05)	(4.81e-05)	(7.98e-05)	(8.87e-05)				
*PTA*Distance* $_{ij}$	**-4.94e-05**	**-9.29e-05**	**-0.00029***	**-0.00042*****				
	(6.27e-05)	(6.60e-05)	(0.000157)	(0.000111)				
*BIT*Contiguity* $_{ij}$					-3.257*	-1.628*	-3.341*	-2.731**
					(1.721)	(0.968)	(1.921)	(1.220)
*PTA*Contiguity* $_{ij}$					-1.996	-0.838	-1.043	-1.859*
					(1.378)	(0.770)	(1.577)	(1.098)
Constant	-7.006***	-7.229***	-17.32***	-17.37***	-14.09***	-7.399***	-16.92***	-15.53***
	(1.389)	(1.068)	(2.008)	(3.196)	(2.284)	(1.145)	(2.215)	(1.332)
Home FE	Y	Y	Y	Y	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	1,852	2,508	2,508	2,508	1,852	2,508	2,508	2,508

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

Table A2. IEAs, cultural distance, and FDI: Robustness checks

	(9)	(10)
VARIABLES	Logit	Poisson
GDPpc $_j$	-0.00275	0.133
	(0.159)	(0.0999)
Population$_j$	0.587***	0.646***
	(0.112)	(0.0619)
Distance $_{ij}$	-0.0002***	-0.0002***
	(4.98e-05)	(3.13e-05)
Trade $_{ij}$	5.08e-08*	-3.51e-09
	(2.79e-08)	(4.54e-09)
Contiguity $_{ij}$	0.507	
	(0.551)	
Colony $_{ij}$	0.671	0.604*
	(0.728)	(0.361)
Com language $_{ij}$	1.103**	1.992***
	(0.450)	(0.326)
BIT $_{ij}$	0.904**	0.889***
	(0.446)	(0.317)
PTA $_{ij}$	0.861***	1.155***
	(0.333)	(0.201)

*BIT*Comlang* $_{ij}$	**-0.144**	**-1.048****
	(0.655)	(0.412)
*PTA*Comlang* $_{ij}$	**-1.383****	**-1.928*****
	(0.662)	(0.387)
Pol stability$_j$	0.292	0.303**
	(0.208)	(0.128)
Constant	-13.54***	-15.69***
	(2.259)	(1.350)
Home FE	Y	Y
Sector FE	Y	Y
Observations	2,508	2,508

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