When near is far and far is near: physical and constructed dimensions of geography and their implications for inward FDI performance*

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Abstract

Building on a sociology theory of space, we conceptualize physical geography as separated from its constructed connotations and suggest that the impact of geographic location on countries' attraction for foreign direct investment (FDI) is contingent upon their constructed qualities – that is, their unilateral characteristics and connectivity to other countries. Quantile regression analyses confirm these predictions and show notable variations across the distribution of FDI. The findings show that geography is not destiny and should rather be treated as an endogenous country characteristic whose consequences for FDI are subject to actions of policymakers and firms. Subsequent analyses show that the level of economic development affects the relationships between the physical and constructed consequences of geography on FDI, introducing significant differences between developed and developing countries. We outline the role for policy in shaping the contingencies that affect the relationships between geographic location and FDI.

Keywords: countries' geographic location, actual and constructed geographic space, sociology theory of space, quantile regression, connectivity, FDI policy

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Does countries' location in relation to other countries affect their performance as hosts for foreign direct investment (FDI)? Although this is a fundamental question for the understanding of FDI patterns and has been the subject of substantial research over decades, both theory and empirical research offer inconclusive answers to this question.

The theoretical ambiguity resides in the conflicting arguments advanced by different theoretical perspectives in relation to the anticipated impact of geographic location on FDI. Theories that regard FDI as an economic activity that is based on the transfer of weightless, intangible, mobile assets at no cost across borders entail that FDI is not affected by geographic location. Moreover, by internalizing economic transactions FDI offers a means to avoid many frictions related to geography and remoteness (Beugelsdijk, Ambos and Nell, 2018; Buckley and Casson, 1976; Singh and Marx, 2013). In contrast, other theoretical perspectives emphasize cultural barriers and costs of managing international operations, and posit that remoteness reduces FDI (Head and Mayer, 2013; Hymer, 1960). In agreement with the theoretical ambiguity, the findings of studies that empirically tested the relationships are mixed and inconclusive (Keller and Yeaple, 2013; Nachum, Zaheer and Gross, 2008). The persisting impact of geography at a time when transportation costs have sharply declined further complicates the puzzle about the impact of geographic location on FDI (Dosdier and Head, 2008).

The limited understanding of these relationships is inappropriate for an economic activity that takes place over distance. The impact of geographic location, or lack thereof, on FDI has underlaid some of the most fundamental questions raised by FDI research and is of critical importance for policymakers and firms. An incomplete understanding of these relationships undermines theoretical developments and constrains the ability to provide adequate guidance for practice.

In this paper, we seek to address this deficiency. Building on sociology theory that distinguishes the physical from the constructed dimensions of space (Bligh and Riggio, 2013; Kim, 2006), we submit that the impact of physical location on FDI is moderated by constructed dimensions that are not directly related to geography (Marotta, 2012). Thus, countries' unilateral economic and institutional characteristics (Berry, Guillén and Zhou, 2010), and their connectivity to other countries (Alcacer and Ingram, 2013; Shulgin, Zinkina and Andreev, 2019) shape the impact of countries' location on their FDI performance.

We test these predictions based on quantile regression, a statistical technique that offers a means to estimate variations of relationships across the distribution of a phenomenon of interest (Hong, 2013; Hong, Christiani and Li, 2019; Koenker, 2005). In the context of our paper, this implies that the impact of geographic location, country characteristics and country's connectivity to other countries

would vary across different scales of the distribution of FDI (Paniagua, Figueiredo and Sapena, 2015; Dimelis and Louri, 2002). The empirical testing is based on FDI flows and stocks to all the countries that received FDI during 1980–2017. In employing inward FDI flows and stocks as measures of countries' performance as host for FDI, we follow a long tradition in FDI research regarding the operation of this construct (Keller and Yeaple, 2013).

The findings provide general support for the hypothesized relationships and show substantial variations across different quantiles of the FDI distribution. We draw the implications of these findings for policy and suggest that they assign active roles for policymakers, in their ability to shape the consequences of geography by affecting the contingencies that determine its consequences. They also have implications for firms whose location strategies affect many of these contingencies. We call for caution in interpreting these findings due to manipulations of financial flows that undermine the employment of FDI data as indicators of actual economic activity (for an elaboration, see the methodology section).

The findings make several important contributions to theory and practice. For one, the separation of geographic location from its constructed meanings, which we theorize and confirm empirically, challenges the deterministic view of geographic location as an exogenous country characteristic, the "design of nature", which has often underlaid (implicitly at least) discussions in this area. Rather, it calls for the treatment of geography as a country attribute whose consequences for FDI are constructed by actions, the "design of humanity" (Addison and Rahman, 2005).

Sociology theory provides the theoretical underpinning for the distinction we introduce between the physical and the constructed nature of geographic location, and enables us to offer a novel conceptualization of what constitutes near and far. Our findings show the merits of this approach in explicating the separate and combined effect of the physical and the constructed on FDI and settling some of the conflicting findings of extant research. This contributes to the emergence of new ways of theorizing about space (Hall, 2012; Enos, 2017; Cook et al., 2018) and demonstrates the merits of a sociology perspective for extant theorizations that have been underpinned predominantly by economic and economic geography perspectives (Head and Mayer, 2013; Beugelsdijk and Mudambi, 2013). It also contributes to the growing interest in connectivity among countries, notably between home and host countries, and its impact on FDI patterns and offers insights into the theoretical boundaries of this impact (e.g., Cano-Kollmann et al., 2016). This bears relevance also to recent debate regarding the theoretical meanings of distance measures and suggestions that impact assumed to be due to geography in fact reflects other influences, including connectivity-related measures (Frankel and Rose, 2000; Berry et al., 2010).

Furthermore, studying countries' unilateral characteristics and their connectivity to other countries in a unified framework, and measuring them in a comparable manner so that their respective impacts can be fully evaluated, enables us to deepen understanding of the interactions and interdependencies between these distinct, yet related, determinants of the relationships between geography and FDI. These contingencies represent forces of integration, expressed by connectivity among countries, and fragmentation, accentuated by differences among them (Zhou, 2010), and as such carry different consequences for countries' ability to attract FDI. They also require different policy interventions, reinforcing the need to understand the complex and nuanced interdependencies and cross influences between them as a guide for adequate policy response.

Last, the employment of quantile regression contributes to the development of a theory that accommodates variations in the impact of location across different scales of the FDI distribution. The large variations we find across quantiles call for nuanced responses to geography in theory and practice, informed by explicit recognition of varying dynamics in different volumes of FDI. This contribution is particularly important as the number of countries participating in FDI and their diversity have increased considerably in recent decades.

1. Theory and hypotheses

The notion that geographic location affects FDI is inconsistent with the conceptualization of the assets driving FDI as being weightless and fully mobile over distance at no cost (Beugelsdijk et al., 2018). Indeed, historically, discussions of FDI paid little attention to the impact of geography on FDI. Rather, the use of firm-specific intangible assets was conceptualized as the underlying rationale for FDI (Buckley and Casson, 1976; Hymer, 1960). This has changed with the growing influence of Dunning's ownership-location-internalization paradigm and its emphasis on the role of location and geography in shaping the patterns of FDI (Dunning, 2008). Substantial attention has subsequently been given to geography-related issues such as networks (Calatayud, Mangan and Palacin, 2017), agglomeration (Fujita and Thisse, 2013) and country-specific institutional, cultural and social factors (Berry et al., 2010). Recent interest in global supply chains has given additional impetus to geography and the interaction among value-creating activities spread across geographies (Buckley, 2009). The growing interest in location and geography has also triggered interest in economic geography and the incorporation of place, space and scale in FDI theorization (Hall, 2012; Beugelsdijk and Mudambi, 2013; Cook et al., 2018).

This research has demonstrated the strong impact of geography on FDI but yielded mixed and inconclusive findings about the direction and nature of the impact.

Some studies show that countries' remoteness from other countries weakens their attractiveness as host for FDI, presumably a result of the cost of management over distance and the difficulties of transferring MNE assets that rise with distance (Keller and Yeaple, 2013). Other studies accentuate the positive impact of remoteness, suggesting that it fosters the development of distinctive skills and affords access to resources and knowledge that are not available in central locations (Redding and Schott, 2003). Yet other studies suggest that the significant impact of geography is a result of model mis-specification and omitted variables, and show that it is lessened and may disappear when these variables are added to the model (Markusen and Maskus, 2002).

In this paper, we offer some reconciliation for these ambiguous theoretical arguments and inconclusive empirical findings. Building on sociology theory of space and applying it to FDI, we distinguish the physical from the constructed dimension of geography and employ this distinction to offer a different conceptualization of what constitutes near and far in relation to FDI.

The sociology theory of space originates in Simmel's metaphor of the Stranger (Simmel, 1908), a newcomer to a society whose newness implies that he is physically near but socially remote. This combination of near and far defines the actual meaning of the Stranger's location as a member of a system in the spatial sense but not in the social sense (Best, 2019). Simmel attributes this separation between the physical and constructed to the Stranger's own characteristics and his interaction with others and suggests that these define the consequences of the physical (Simmel, 1908; Jackson, Harris and Valentine, 2017). Accordingly, whereas the physical dimension of geography is fixed, its constructed connotations are intertwined with the characteristics of the participants and vary across them in a manner that reflects their characteristics (Kim, 2006; Marotta, 2012).

Applying this duality of the physical and the constructed to FDI, we suggest that the consequences of countries' physical location for their performance as host for FDI is determined by constructed characteristics and interaction with other countries. Thus, countries' unilateral characteristics modify the impact of geographic location on their FDI performance, such that the same geographic location differentially affects countries with different characteristics. Similarly to the notion that the properties of the Stranger determine the consequences of his strangeness (Simmel, 1908), we suggest that the characteristics of countries determine the consequences of their geographic location. As Strangers with different properties would experience strangeness differentially under identical conditions (Löw and Weidenhaus, 2017), the impact of geographic location on FDI would vary across countries with different characteristics.

For instance, the abundance and quality of local resources render geographic location less impactful because they lessen dependency on other countries for

complementary resources and make countries more self-sufficient. Such local resources could also command rent that is high enough to make up for the costs of remoteness. In a similar fashion, large economic size offers scale economies that may make up for additional costs that arise as a result of remoteness, as do also markets with high purchasing power, thus diminishing the negative impact of remoteness. Social structure and the dynamics of social relationships also vary across countries, reflecting their geographic location in relation to other countries (Löw and Weidenhaus, 2017). Diamond (1997) describes how geographic remoteness has isolated societies from social patterns established in central locations and created distinctive social relationships and modes of social interactions. Blainey (1966) portrays distance and isolation as the they have shaped Australia's society throughout its history.

Furthermore, the benefits of spillover effects and externalities that take place among countries located in proximity to each other matter less for larger and resource-rich countries, because their own endowments offer many of these benefits (Redding and Scott, 2003). In contrast, smaller and less endowed countries benefit more from geographic proximity to neighbouring countries because it may enable them to make up for their size by drawing on resources of those countries, or else take part in global and regional networks of production and consumption (Shulgin et al., 2019). Research shows that FDI to small island countries is affected by regional location (and openness) to a greater extent than is FDI to other countries (Reed, 2004).

In a similar fashion, political institutions matter differently in different geographic locations (Enos, 2017). Well-functioning institutions signal for investors that their rights are protected and guarded and thus reduce risk, a guarantee that matters more in remote locations because it lessens the greater risk that arises because of remoteness (Poot, 2004).[1]

Unilateral country characteristics thus indicate that countries experience differentially the consequences of remoteness from other countries, changing the impact on their FDI performance of being far or near (Bligh and Riggio, 2013). The impact of remoteness is therefore weaker for more endowed countries, and vice versa. Formally:

> *H1: Countries' unilateral characteristics negatively moderate the impact of geographic location on the amounts of FDI they receive.*

[1] Competitive pressure and barriers to entry are also likely to be affected by location and remoteness, and are likely to manifest in the markets for both consumers and resources. Remoteness may increase competitive pressure because isolation from foreign competition had enabled incumbents to develop strong competitive positions and dominate markets. These effects are likely to be accentuated by scale.

In Simmel's theory and its subsequent developments, interaction is a means of constructing metaphorical proximity, which creates channels of communication that lessen the perception of strangeness (Bligh and Riggio, 2013; Marotta, 2012; Simmel, 1908). The physical thus takes on different meanings that are shaped by the nature and dynamics of the communication.

Applying this idea to FDI, we suggest that countries' interaction with other countries increases familiarity and legitimacy, creates trust and reduces negative perceptions of foreignness (Shulgin et al., 2019; Zaheer, 1995). Such interactions override the impact of geographic distance, and according to some studies eliminate it altogether (Calatayud et al., 2017). Frankel and Rose (2000) found that the impact of common language increases the likelihood of trade between two countries by 200 per cent, whereas a 1 per cent increase in geographic distance reduces it by 0.2 per cent.

The interactions that create connectivity can take place through multiple channels. We focus here on human, political and technological connectivity, three major channels of interaction that have been shown to affect economic relationships among countries (Gould and Panterov, 2017).

Human connectivity, in the form of flow of people across countries or human interaction through e.g. phone calls and mail, establishes communication routes that reduce the impact of geography. It transfers knowledge of market opportunities and preferential access between countries (Freeman, 2006). Geographic distance affects the costs of human connectivity (by i.e. increasing travel costs, and often also cultural and linguistic distance) (McKercher, 2018), but research shows that much of human interaction takes place with little regard to geography. Analyses of air traffic find intense activity among remote countries and show that travel routes between Asia and North America and between Asia and Europe are the world's busiest (Smith and Timberlake, 2001; World Economic Forum, 2013).

Political relationship is another venue of connectivity that facilitates the establishment of economic relationships among countries by creating venues for coordination and institutional ties that facilitate convergence, and reduce transaction costs and frictions caused by remoteness. Frankel and Rose (2000) show that the impacts of a common regional trading bloc, colony-colonizer relationships and a common polity increase the likelihood of trade between countries by 330 per cent, 900 per cent and 300 per cent respectively. Spilker, Bernauer and Umaña (2016) find that countries' choice of partners for preferential trade agreements is driven by cultural similarity, political system, and environmental and labour standards, and that geographic distance has a weak effect on the choice.

Technological connectivity, through internet, telephone and transportation infrastructure, is another means of interaction that reduces the impact of geographic distance on economic transactions between countries (Calatayud et al., 2017). In the presence of digital technology, geographic distance was found to have no impact on the flow of knowledge and information (Forman and van Zeebroeck, 2019). Studies show that country differences in terms of culture, language and shared history affect the intensity of communication through technological means between them more than geographic distance does (Blum and Goldfarb, 2006).

Connectivity, through human, political and technological interaction, draws remote countries closer to other countries and diminishes the impact of physical location, such that geography matters less for more connected countries. Formally:

> *H2: Countries' connectivity to other countries negatively moderates the impact of geographic location on the amounts of FDI they receive.*

2. The model and measures

Underpinned by the logic driving our theory, the empirical testing is based on a model that links countries' FDI performance as the response with geographic location in relation to other countries as the covariate. Countries' unilateral characteristics and their connectivity to other countries are added as two moderators whose impact determine the outcome:

$$y_{it+1} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \beta_4 x_{1it} x_{2it} + \beta_5 x_{1it} x_{3it} + \varepsilon_{it+1} \quad (1)$$

where y_{it+1} is the amounts of FDI that country i receives in year $t+1$, x_{1it} is a location measure, and x_{2it} and x_{3it} represent respectively vectors of country characteristics and their connectivity to other countries. Furthermore, ε_{it+1} is a country-specific standard error term that accounts for unobservable and idiosyncratic country attributes.

We operationalize the response variable by the annual amounts of FDI stocks and flows that countries receive. The data on FDI stocks measure cumulative activity over time and as such are free of the volatility of flows, whereas flow measures correct for distortions of stocks whose cumulative nature means that they may not accurately reflect the changing industrial composition of FDI over time in terms of sensitivity to location. Stock data could also be biased by incomparable methods of accounting for historical stocks across countries.[2] Following Pence (2006),

[2] Systematic collection of FDI stock data started in 1980, decades and in some cases centuries after FDI activity had started. At that time, only a few countries collected historical data based on FDI market values. The majority of countries calculated the stock figures by aggregating FDI flows, an inaccurate way to measure stocks.

we use an inverse hyperbolic sine transformation of the FDI stock and flows data. This transformation approximates the natural log and is defined for zero and negative values, thus enabling us to include observations with such values.

Geographic location, the main explanatory variable, is measured as the sum of the distance in kilometres (km) of a focal country from all other countries that receive FDI in a given year, using capital cities as the points of measurement.[3] The measure is time varying, reflecting changes in the country set during the study period caused by the formation of new countries, the opening up for FDI of other countries and the achievement of a level of economic development that makes FDI feasible. This measure, which presents geographic location as a unilateral attribute of countries, is free of distortions of dyadic relationships; for instance, when intense FDI activity between neighbouring countries shows a positive effect of location (Smarzynska, 2001). This approach has particular appeal in light of the growing prevalence of vertical investment, whereby the position of countries in relation to other countries is often a more informative indicator of their ability to participate in global networks than their bilateral distance from specific partners (Buckley, 2009). It is also more in tune with MNE location choices, which are made within an overall location portfolio (Nachum and Song, 2011).

The moderating effects – countries' unilateral attributes and their connectivity to other countries – are measured by two corresponding indices. The country index is the standardized value of the sum of the major economic and institutional country attributes that – according to theory – affect the attraction of countries for FDI (Blonigen and Piger, 2014). The connectivity index is calculated as an aggregation of human, political and information connectivity measures created by the KOF Swiss Economic Institute (Axel, Gaston and Martens, 2008). For comparability, we standardized both measures to have a mean of zero and a standard deviation of one. We include year fixed effects to allow the FDI distribution to shift over time and country fixed effects to account for observable and unobservable country characteristics that are likely to affect FDI, such as agglomeration effects, trade and inflation.

Table 1 presents the variables included in the model, their operation measures and the data sources. Table 2 provides descriptive statistics and the correlation coefficients of these variables. Most correlations among the explanatory variables are at accepted levels. We perform unit root tests for each variable in the model (Im, Pesaran and Shin, 2003), and confirm that the variables are stationary. The variance inflation factor is below 4.82 in all the models, well below the generally accepted threshold of 10, lessening concerns regarding multicollinearity.

[3] The location measures are available from the authors upon request.

Table 1. Variables in the model, measures and sources

Constructs	Operation measures	Sources of data
A country's performance as host for FDI	Total annual FDI stocks and flows (US$ million, current prices)	United Nations UNCTAD FDI database (http://stats.unctad.org/fdi)
Geographic location	Cumulative km distance of a country from all other countries that receive FDI at time t (the choice set)	Authors' calculations based on GeoDist Database (http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=)
Unilateral measures (H1) – dimensions of the index:		
Size and agglomeration	GDP (US$ million)	World Bank Economic Development Indicators database
Economic development	Per capita GDP (US$)	
Natural resources	Natural resource rents (per cent of GDP)	
Political institutions	POLCON 2017 index (Henisz, 2000)	http://www-management.wharton.upenn.edu/henisz/
Connectivity measures (H2) - dimensions of the index:		
Political connectivity	1. Number of embassies in a country 2. Membership in international organizations 3. Participation in UN Security Council Missions 4. International treaties	KOF (http://globalization.kof.ethz.ch) (Axel, Gaston and Martens, 2008) The indices are constructed on a scale of zero to 100. Higher values represent greater connectivity.
Information connectivity	1. Internet users per 1,000 people 2. Number of television sets per 1,000 people 3. Trade in newspapers (per cent of GDP)	
Human connectivity	1. Telephone traffic 2. Transfers (per cent of GDP) 3. International tourism (arrivals and departures, per cent of population) 4. Foreign population (per cent of population) 5. International letters (per capita)	
Control variables		
Country and year fixed effects	Dummy variables for each country and year in our sample	

Table 2. Descriptive statistics and correlations

	Mean	St. Dev.	1	2	3	4	5	6	7	8	9	10	11
1. FDI flows (US$ million) (log)	5.82	3.90	1										
2. FDI stocks (US$ million) (log)	8.72	2.95	0.63	1									
3. Geographic location (thousand km) (log)	13.90	0.24	0.14	0.15	1								
4. Political connectivity	61.28	21.77	0.51	0.72	0.05	1							
5. Information connectivity	52.50	22.94	0.46	0.63	0.08	0.55	1						
6. Human connectivity	46.76	22.25	0.20	0.32	-0.19	0.24	0.67	1					
7. Connectivity index	0.07	1.00	0.40	0.58	-0.11	0.64	0.83	0.85	1				
8. GDP (US$ million)	277,000	1,130,000	0.26	0.37	0.11	0.28	0.22	0.11	0.23	1			
9. Per capita GDP (US$)	8,376	13,529	0.29	0.53	-0.06	0.45	0.62	0.66	0.69	0.36	1		
10. Natural resource rents (per cent of GDP)	8.10	11.28	-0.17	-0.14	-0.11	-0.27	-0.22	-0.18	-0.31	-0.12	-0.11	1	
11. POLCON	0.39	0.33	0.36	0.47	0.13	0.55	0.52	0.37	0.57	0.23	0.42	-0.35	1
12. Unilateral index	0.01	1.00	0.27	0.47	-0.05	0.40	0.42	0.46	0.56	0.60	0.66	0.14	0.59

[a] Coefficients with absolute values above 0.05 are statistically significant at the 0.01 level.

Endogeneity concerns in our model could originate in the relationships among FDI, country characteristics and the connectivity measures that might be jointly determined. We believe, however, that our study design and model lessen concerns on this ground. The study is based on annual data over four decades, with a time lag between the response variables and the covariates and moderators, which diminishes the possibility of reverse causality. Selection bias is minimized because we study the entire population of countries at each point in time. The consistent results of the moderating effects in the partial and full models reduce concerns that these variables are jointly determined. The year and country fixed effects address, at least in part, endogeneity on the ground of omitted variables. Nonetheless, to further reduce endogeneity concerns we conduct two-stage analyses, which offers formal reassurance that endogeneity is not driving the results.

We estimate the model with quantile regression, a statistical technique that allows for varying impacts of a set of regressors on different quantiles of the outcome distribution and reports the relationships separately for each quantile (Hong, 2013; Hong et al., 2019; Koenker, 2005). Quantile regression enables the impact of geographic location on FDI performance to vary for countries that receive large or small volumes of FDI, a quality that is of particular value for a heterogeneous phenomenon as FDI (Dimelis and Louri, 2002; Yasar and Paul, 2007). All the covariates in our model are potentially sensitive to the amount of FDI that countries receive. For instance, the impact of remoteness on FDI matters less for countries that receive large amounts of FDI because internal externalities are likely to lessen the need for external interactions. Larger volumes of FDI are also likely to diminish the impact of transportation costs because local purchases from other foreign investors could replace the need to import inputs from elsewhere. Modelling such relationships with OLS regression models that are based on the conditional mean would yield erroneous results because they assume away such variations and do not account for the highly skewed distribution of FDI.

Furthermore, a quantile regression estimation on the median is more suitable than estimation at the mean through ordinary least squares (OLS) for dealing with skewed distribution and violations of the normality assumption. Outliers and skewed data affect the median less and in general quantile regression estimates at any quantile are more robust against outliers in the response variable. In our dataset, the flow data have a median of $0.33 billion, and a mean of $5.02 billion, and the stock data have a median of $3.43 billion and a mean of $62.53 billion. With such skewed distribution, extreme observations have significant impacts on the estimates, painting a distorted picture of actual relationships. Moreover, the quantile regression technique treats individual observations in relative terms to others. This makes it appealing for the study of FDI because

countries' FDI performance is evaluated in relation to that of other countries. These features make the quantile regression particularly suitable for the study of FDI, which is notorious for outliers and has skewed, heavy-tailed distributions, with large variations of response variables in relation to varying ranges of covariates (Yasar and Paul, 2007).

We report our findings in quantiles. The adequate level of aggregation in quantile regression analyses – whether quantiles or quartiles – is related to the nature of the phenomenon studied. Given the highly skewed nature of the FDI data and the large number of stark outliers, we opted for a disaggregated level of analysis that enables us observe detailed nuanced in the results.[4] Following Firpo, Fortin and Lemieux (2009), we use the two-step unconditional quantile regression approach, which offers direct indications of how marginal change in the level of one variable affects the distribution of FDI while keeping the other characteristics constant.

The time window for the study begins in 1980, when systematic collection of stock data at the international level started and the flow data reached sufficient magnitude.[5] The analysis ends in 2017, the latest year for which data were available at the time of collection. This long timespan reduces concerns regarding left-censoring bias and diminishes the effect of cyclical shifts that could distort the nature of the relationships. We define the country choice set to include all sovereign states that received FDI during the study period. We take the first year in which a country receives FDI as the indication that it entered investors' choice set. This removes sample selection bias because we study the entire population at each point in time. We exclude tax-haven countries because investment in these countries is driven by tax minimization motives rather than the theoretical relationships we assume (Hines, Gumpert and Schnitzer, 2016).[6] The complete data sets include 148 countries and 4,932 country/year observations.

[4] Note that the estimate of the model for different quantiles of the distribution does not imply splitting up the observation. The quantile regression technique uses the full data sets (not subgroups) to estimate the effect of independent variables on quantiles of the outcome.

[5] FDI flow data have been collected since 1970, but prior to 1980 there are many missing observations that do not appear to be randomly distributed.

[6] There is no established consensus on a specific definition for a tax haven (Hines, Gumpert and Schnitzer, 2016). We adopt the classification of the Organization for Economic Cooperation and Development (OECD), a widely accepted definition first introduced with the publication of the OECD report (OECD, 2000). This long history is particularly important for a study, like ours, that spans almost four decades. The OECD list of tax haven countries includes 35 states, mostly small islands in the Pacific and Atlantic Oceans.

3. Statistical analysis and results

A few words of caution are in order before we discuss the findings. When constructing the country location measure, we followed a common procedure in research in this area and used capital cities as the point of measurement. This approach captures countries' location by a single point, which may not necessarily correspond to the actual location of economic activity, a concern that is particularly troubling in relation to large countries (Gleditsch and Ward, 2001). In addition, the operation of the measure is based on the direct, shortest line between capital cities. This may not correspond to the actual distance that affects economic activities.

Possible distortions in the FDI data should also be noted. FDI data represent internal transfers and reinvested earnings of multinational enterprises (MNEs) and are silent about capital raised locally, a feature that could lead to a systematic underreporting of economic activity, particularly in countries with large and developed financial systems that offer attractive fundraising options (Beugelsdijk et al., 2018). Furthermore, the complex distribution of value-creating activities across countries and intense intrafirm trade have enabled MNEs to distort the connection between actual location of economic activity and financial flows, and undermined the value of FDI data as an approximation of value-creating activities. Alternative indicators that are immobile and cannot be manipulated by internal accounting, such as employment and tangible assets or actual control, are not available at the international level and do not match the requirements of our study design (Zucman, 2015). We stress the need to address this limitation of the FDI data as an important task for future research. With these caveats in mind, we move on to discuss the findings.

Table 3 presents the results of the unconditional quantile regression analyses. The first pre-regression step involves estimating the re-centered influence function (RIF) of y_{it} for each quantile as:

$$RIF(y_{it+1}, q_\tau) = c_{1,\tau} 1(y_{it+1} > q_\tau) + c_{2,\tau} \quad (2)$$

where q_τ is the value of the FDI at quantile τ, $c_{1,\tau} = 1 / f_y(q_\tau)$, $f_y(q_\tau)$ is the density of the FDI at q_τ, $c_{2,\tau} = q_\tau - (1 - \tau)c_{1,\tau}$, and the indicator function $1(y_{it+1} > q_\tau)$ identifies whether the value of a country FDI is above q_τ. In the second step, we estimate the following linear probability response model at each quantile of interest by incorporating country and time fixed effects:

$$\mathrm{E}[RIF(y_{it+1}, q_\tau)|x] = \alpha_r + \gamma_{t+1} + x_{it}\beta_\tau + e_{it+1} \quad (3)$$

where x_{it} denotes the covariates and moderators for countries' geographic location, unilateral characteristics and connectivity to other countries. Since the link function

$\mathrm{E}[RIF(y_{it+1}, q_\tau)|x]$ is equal to $c_{1,\tau} \Pr[\mathbf{1}(y_{it+1} > q_\tau)|x] + c_{2,\tau}$, it is linear in probability and therefore the average marginal effects of covariates β_τ can be consistently estimated using a simple OLS (Firpo et al., 2009). The RIF-OLS regression results are estimates of unconditional quantile marginal effects.

The results show that the impact of countries' geographic location on FDI performance is contingent upon their unilateral characteristics and connectivity to other countries, in support of H1 and H2. Both effects are significant for most of the quantiles, in agreement with the idea that underlies our theory, namely that the constructed dimensions of geography change the consequences of physical location, such that countries with different such dimensions are differentially affected by geographic location.

The results show interesting differences between the two contingency effects. Countries unilateral attributes are negative in all the estimates up to the 90th quantile when they turn positive and their impact diminishes slightly across the distribution. The connectivity measure changes direction at the 70th quantile and becomes positive as the volume of FDI increases. As representation of forces that separate countries and those that draw them together (Zhou, 2010), these differences speak for the differential effects of these conflicting forces.

The results offer also suggestive evidence of interdependencies between the two contingencies. The inclusion of the connectivity measures in the model changes the results of the two top quantiles of the unilateral measures (the differences between models 2 and 4), such that the switch from negative to positive sign of unilateral characteristics is pushed from the 70th quantile to the 90th. Similarly, the inclusion of unilateral characteristics in the model changes the results of the connectivity measures (differences between models 3 and 4), pushing the switch from negative to positive sign down the FDI distribution. These relationships perhaps suggest some substitution between countries' unilateral attributes and their connectivity to other countries.

Taken together, these differences could be understood as indicative of differences in kind between the two measures. The connectivity measures are human-made in the sense that they are the outcome of government policies, and several of them can be changed quite easily should policymakers decide to do so (e.g., establishment of political relationships with other countries). The unilateral measures, in contrast, combine those that are human-made but evolve slowly and gradually (e.g., GDP, institutions) with others that are given by nature, such as natural resources and size. As such, these variables relate to geography and remoteness in different ways, consistent with our findings. The results of the stock and flow analyses are largely consistent with each other, and thus reassuring of the robustness of our theory and empirical analyses.

Table 3. Country unilateral characteristics, connectivity and FDI, unconditional quantile regression

a. FDI Flows

Variables/ Quantiles	Model 1: Baseline					Model 2: Unilateral Measures					Model 3: Connectivity Measures					Model 4: Full Model					OLS
	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90	
Unilateral$_{t-1}$						87.39 (0.00)	65.98 (0.00)	35.90 (0.00)	0.73 (0.86)	-62.0 (0.00)						25.80 (0.21)	47.78 (0.00)	32.82 (0.00)	10.51 (0.01)	-38.3 (0.00)	9.73 (0.23)
Location*Unilateral$_{t-1}$						-6.26 (0.00)	-4.72 (0.00)	-2.57 (0.00)	-0.03 (0.92)	4.52 (0.00)						-1.85 (0.21)	-3.42 (0.00)	-2.36 (0.00)	-0.73 (0.02)	2.82 (0.00)	-0.68 (0.24)
Connect$_{t-1}$											244.7 (0.00)	90.80 (0.00)	24.04 (0.00)	-35.80 (0.00)	-102.9 (0.00)	231.5 (0.00)	66.13 (0.00)	7.46 (0.28)	-42.3 (0.00)	-87.6 (0.00)	24.63 (0.16)
Location$_{-1}$*Connect$_{t-1}$											-17.80 (0.00)	-6.55 (0.00)	-1.68 (0.00)	2.68 (0.00)	7.46 (0.00)	-16.9 (0.00)	-4.79 (0.00)	-0.49 (0.32)	3.15 (0.00)	6.35 (0.00)	-1.77 (0.16)
Location$_{-1}$	1.01 (0.92)	16.36 (0.00)	-2.14 (0.37)	-14.8 (0.00)	-22.1 (0.00)	-4.50 (0.59)	12.24 (0.00)	-4.41 (0.03)	-14.70 (0.00)	-17.6 (0.00)	-12.74 (0.21)	12.32 (0.00)	-2.08 (0.36)	-11.18 (0.00)	-16.79 (0.00)	-13.9 (0.17)	10.14 (0.00)	-3.64 (0.08)	-11.5 (0.00)	-14.4 (0.00)	-3.03 (0.43)
Constant	-18.7 (0.89)	-224 (0.00)	28.52 (0.38)	205.9 (0.00)	307.8 (0.00)	57.48 (0.62)	-167.4 (0.00)	59.90 (0.03)	204.4 (0.00)	246.9 (0.00)	165.9 (0.23)	-169.10 (0.00)	29.32 (0.34)	158.6 (0.00)	236.36 (0.00)	182.1 (0.19)	-139 (0.00)	50.50 (0.07)	163.3 (0.00)	204.7 (0.00)	45.73 (0.39)
R-squared	0.23	0.50	0.58	0.60	0.52	0.23	0.51	0.58	0.60	0.54	0.24	0.51	0.58	0.61	0.55	0.25	0.52	0.58	0.61	0.56	0.18[a]

.../...

Table 3. Country unilateral characteristics, connectivity and FDI, unconditional quantile regression (Concluded)

b. FDI Stocks

Variables/ Quantiles	Model 1: Baseline					Model 2: Unilateral Measures					Model 3: Connectivity Measures					Model 4: Full Model					OLS
	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90	
$Unilateral_{t-1}$						43.32 (0.00)	40.86 (0.00)	27.82 (0.00)	-13.86 (0.00)	-75.7 (0.00)						14.97 (0.18)	26.16 (0.00)	27.61 (0.00)	-0.10 (0.98)	-45.3 (0.00)	2.36 (0.67)
$Location*Unilateral_{t-1}$						-3.06 (0.00)	-2.94 (0.00)	-2.00 (0.00)	1.00 (0.00)	5.48 (0.00)						-1.03 (0.19)	-1.88 (0.00)	-1.99 (0.00)	0.01 (0.98)	3.31 (0.00)	-0.15 (0.70)
$Connect_{t-1}$											117.4 (0.00)	64.55 (0.00)	9.70 (0.09)	-60.66 (0.00)	-131.3 (0.00)	107.3 (0.00)	51.74 (0.00)	-3.81 (0.51)	-60.8 (0.00)	-112 (0.00)	1.45 (0.86)
$Location_{-1}*Connect_{t-1}$											-8.54 (0.00)	-4.64 (0.00)	-0.63 (0.13)	4.53 (0.00)	9.51 (0.00)	-7.82 (0.00)	-3.72 (0.00)	0.33 (0.43)	4.53 (0.00)	8.12 (0.00)	-0.06 (0.91)
$Location_{-1}$	-10.6 (0.01)	9.12 (0.00)	0.01 (1.00)	-18.0 (0.00)	-27.6 (0.00)	-12.9 (0.00)	6.47 (0.00)	-1.81 (0.35)	-17.03 (0.00)	-22.3 (0.00)	-17.21 (0.00)	6.58 (0.00)	0.92 (0.63)	-12.20 (0.00)	-20.90 (0.00)	-17.5 (0.00)	5.29 (0.00)	-0.44 (0.81)	-12.2 (0.00)	-18.3 (0.00)	-7.76 (0.01)
Constant	144.9 (0.01)	-122 (0.00)	1.77 (0.95)	250.6 (0.00)	384.5 (0.00)	178.7 (0.00)	-85.64 (0.00)	26.74 (0.32)	237.8 (0.00)	312.6 (0.00)	233.7 (0.00)	-86.80 (0.00)	-8.96 (0.73)	175.8 (0.00)	294.49 (0.00)	238.9 (0.00)	-69.3 (0.01)	9.60 (0.71)	175.4 (0.00)	259.2 (0.00)	113.44 (0.00)
R-squared	0.53	0.65	0.69	0.67	0.55	0.53	0.66	0.69	0.67	0.58	0.54	0.67	0.69	0.70	0.59	0.55	0.67	0.69	0.70	0.60	0.66[a]

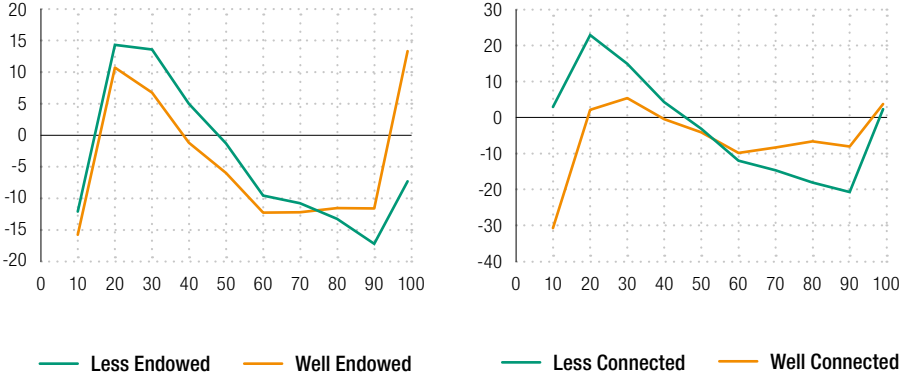
Note: Values in parentheses denote robust p-values obtained from bootstrapped standard errors of the coefficients based on 200 replications. N = 4,932. Country and year fixed effects are added to all the models.

[a] Derived from a least squares dummy variable approach.

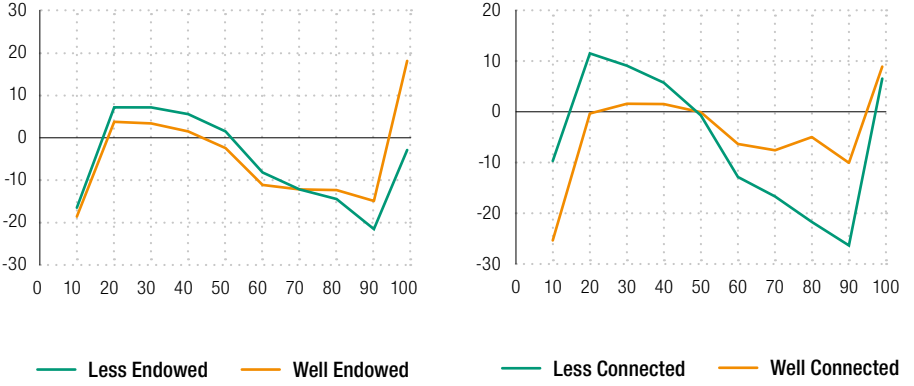
There are notable differences between the contingency effects across the FDI distribution. At the lower scale of the distribution (countries that receive small amounts of FDI), both contingencies are negative, in agreement with our predictions regarding the diminishing effect of geography in the presence of the constructed dimensions. As the volume of FDI increases, the contingency effects become less influential. Figure 1 presents these variations graphically.

Figure 1. Average marginal effect of geographic location on FDI at one standard deviation of unilateral characteristics (left) and connectivity (right)

a. Flow



b. Stock



We reason that these changes are driven by the logic of agglomeration economies that give rise to cumulative processes and path dependencies (Fujita and Thisse, 2013). The location of economic activity is typically triggered initially by location characteristics but over time generates self-perpetuating processes that create vicarious cycles in which the economic activity itself attracts additional activity in a manner that may not be related to locational characteristics. This dissociation of agglomeration from the location attributes that gave them rise is likely to diminish the contingency effect of countries' unilateral characteristics, consistent with our findings. In contrast, the impact of the contingency effect of connectivity is positive, in agreement with research that shows that flows of people and political ties facilitate interaction and advance economic relationships between countries (Foley and Kerr, 2013; Alcacer and Ingram, 2013). The positive signs we find at the higher scale of the FDI distribution suggest that connectivity enables remote countries to override the constraints of geography on their FDI performance.

These findings offer some reconciliation for the inconclusive findings of extant research (Dosdier and Head, 2008; Keller and Yeaple, 2013; Nachum et al., 2008) that motivated our paper. The employment of quantile regression shows that the relationships between geography and FDI change across different scales of the FDI distribution, variations that could not be detected by extant research that applied a single model to the entire distribution. The limitations of this approach are vividly apparent in the vast differences between the quantile regression and the OLS results in tables 3a+b. Given the variations we found across different scales of the FDI distribution in the quantile regression analyses, the interpretation of findings based on the application of a single model to the mean of the entire population becomes dubious. The OLS results could be the outcome of conflicting processes at different levels of the FDI distribution that cancel each other out, which is consistent with the conflicting findings of extant research. The second way by which our study offers reconciliation with extant research is by including unilateral and connectivity measures in a single model. As our findings show, these dimensions influence each other in a variety of ways. Studying them on their own, as has been common in most extant research, is likely to yield unstable results.

4. Additional tests

We conducted multiple additional analyses to test the sensitivity of the findings to different specifications, sub-models and statistical techniques. The complete results of these analyses are available upon request. We estimated the models with the variables comprising the indices on their own, to examine their independent impact, and address concern that conflicting forces cancel each other out or that a single component is driving the results (Gould and Panterov, 2017).

We also conducted additional two-stage analysis based on the control variable approach (Imbens and Newey, 2009; Rothe, 2010), using the values of the connectivity and country indices along with their interaction with distance as excluded instruments. The estimates with the endogeneity correction are stronger than those in the main analyses (table 3), offering additional grounds for believing that endogeneity does not affect our results in a significant way. Additional analyses include the introduction of varying time lags, use of size-adjusted (by GDP) measures of FDI, inclusion of regional fixed effects and application of the conditional quantile regression technique. These made small changes in coefficients' magnitude, but overall the results are consistent with those of the main analyses.

In yet another test we examined the possible impact of outliers within quantiles. Quantile regression corrects for outliers in the entire data set but does not exclude the possibility of outliers within individual quantiles. Intuitively, such outliers may have an important effect, particularly in the bottom and top quantiles. To address this concern, we employed the BACON algorithm of Billor, Hadi and Velleman (2000) to identify outliers and estimate the model without them (32 and 12 in the flow and stock data, respectively). The results are comparable with those in the full analyses.

Additional notable tests included estimates of the model on sub-samples split by level of economic development. All the variables in our model are likely to be sensitive to level of economic development. Substantial research shows that countries at varying levels of economic development are affected differentially by location and remoteness (Brun et al., 2005; Boulhol and de Serres, 2010; Guerin, 2006). There are also suggestions that connectivity and integration differentially affect the FDI performance of countries at different levels of economic development (Ghosh and Holf, 2000). The results of the split analysis are consistent with these theoretical predictions (table 4). They show substantial differences in the magnitude of the effects and, particularly for countries with low FDI performance, also in their direction (negative/positive).

The industrial structure typical of developing countries, with heavy reliance on raw material and bulky manufacturing, makes them more amenable to the negative impact of transportation cost and remoteness. Developing countries' participation in global supply chains as production platforms for export further increases sensitivity to the cost of remoteness. Vertically integrated production shows negative relationships with distance, whereas horizontal investment, which is in part a means of overcoming distance, tends to increase with distance (Markusen and Maskus, 2002). Moreover, a low level of economic development is often associated with a small local resource pool, making investors dependent on imports and thus further increasing the negative implications of remoteness. The results of the unilateral interaction term, notably for the countries with high FDI performance,

Table 4. Level of economic development

a. Developed countries

Variables/ quantiles	FDI flows					OLS	FDI flows					OLS
	0.10	0.30	0.50	0.70	0.90		0.10	0.30	0.50	0.70	0.90	
$Unilateral_{t-1}$	58.74 (0.03)	44.81 (0.00)	6.53 (0.33)	-17.43 (0.04)	-46.06 (0.00)	-11.90 (0.35)	82.71 (0.00)	34.40 (0.00)	9.97 (0.05)	-22.00 (0.00)	-63.15 (0.00)	21.00 (0.30)
$Location*Unilateral_{t-1}$	-4.26 (0.02)	-3.19 (0.00)	-0.49 (0.30)	1.24 (0.04)	3.33 (0.00)	0.80 (0.37)	-5.91 (0.00)	-2.44 (0.00)	-0.75 (0.04)	1.57 (0.00)	4.51 (0.00)	-1.46 (0.30)
$Connect_{t-1}$	331.06 (0.00)	2.97 (0.94)	-25.69 (0.30)	-6.46 (0.74)	9.61 (0.59)	103.51 (0.02)	75.49 (0.06)	-89.21 (0.00)	-81.03 (0.00)	-31.28 (0.11)	-26.58 (0.11)	28.71 (0.49)
$Location_{-1}*Connect_{t-1}$	-24.25 (0.00)	-0.26 (0.93)	1.86 (0.31)	0.48 (0.73)	-0.71 (0.58)	-7.63 (0.02)	-5.71 (0.05)	6.57 (0.00)	5.94 (0.00)	2.30 (0.11)	1.96 (0.10)	-2.08 (0.49)
$Location_{-1}$	36.06 (0.02)	-7.06 (0.38)	-19.09 (0.00)	-7.27 (0.15)	-0.96 (0.79)	-1.14 (0.89)	24.40 (0.02)	-12.68 (0.02)	-18.61 (0.00)	-8.97 (0.07)	-6.93 (0.07)	4.94 (0.51)
Constant	-480.53 (0.03)	110.26 (0.33)	280.69 (0.00)	112.14 (0.12)	23.40 (0.64)	34.33 (0.76)	-330.18 (0.03)	184.78 (0.01)	272.00 (0.00)	136.93 (0.05)	107.06 (0.05)	-58.59 (0.58)
Observations	885	885	885	885	885	885	885	885	885	885	885	885
R-squared	0.23	0.50	0.57	0.57	0.44	0.29	0.52	0.65	0.68	0.63	0.53	0.80

b. Developing countries

Variables/ quantiles	FDI flows					OLS	FDI flows					OLS
	0.10	0.30	0.50	0.70	0.90		0.10	0.30	0.50	0.70	0.90	
$Unilateral_{t-1}$	28.48 (0.23)	31.83 (0.00)	21.61 (0.00)	-5.44 (0.34)	-56.18 (0.00)	3.77 (0.75)	17.69 (0.13)	15.10 (0.02)	11.42 (0.01)	1.82 (0.74)	-57.69 (0.00)	-4.74 (0.49)
$Location*Unilateral_{t-1}$	-2.01 (0.24)	-2.26 (0.00)	-1.55 (0.00)	0.39 (0.33)	4.08 (0.00)	-0.24 (0.77)	-1.21 (0.15)	-1.08 (0.02)	-0.83 (0.00)	-0.15 (0.72)	4.18 (0.00)	0.36 (0.47)
$Connect_{t-1}$	87.32 (0.02)	54.70 (0.00)	-5.41 (0.43)	-25.37 (0.00)	-100.61 (0.00)	-1.85 (0.93)	91.17 (0.00)	41.51 (0.00)	1.97 (0.75)	-60.81 (0.00)	-117.18 (0.00)	-0.90 (0.93)
$Location_{-1}*Connect_{t-1}$	-6.43 (0.02)	-3.98 (0.00)	0.43 (0.38)	1.91 (0.00)	7.36 (0.00)	0.14 (0.92)	-6.66 (0.00)	-2.97 (0.00)	-0.09 (0.83)	4.50 (0.00)	8.59 (0.00)	0.11 (0.88)
$Location_{-1}$	-38.27 (0.00)	2.22 (0.53)	-3.78 (0.11)	-7.61 (0.00)	-2.99 (0.31)	-6.28 (0.24)	-27.49 (0.00)	2.69 (0.27)	-0.53 (0.79)	-11.41 (0.00)	-3.25 (0.26)	-9.13 (0.01)
Constant	514.29 (0.00)	-28.17 (0.56)	52.54 (0.10)	108.80 (0.00)	48.88 (0.22)	88.03 (0.22)	373.95 (0.00)	-31.95 (0.33)	10.70 (0.69)	162.81 (0.00)	55.06 (0.16)	129.62 (0.01)
Observations	4,047	4,047	4,047	4,047	4,047	4,047	4,047	4,047	4,047	4,047	4,047	4,047
R-squared	0.23	0.51	0.58	0.59	0.52	0.52	0.54	0.65	0.68	0.67	0.56	0.88

Note: Values in parentheses denote robust p-values obtained from bootstrapped standard errors of the coefficients based on 200 replications. R-squared from a least squares dummy variable approach for the OLS is reported. Country and year fixed effects are included in all models.

reflect these characteristics. The moderating effect of connectivity appears to be more impactful for developing countries, particularly the countries with high FDI performance (0.70 and 0.90 quantiles), consistent with observations about the close relationships between global integration and economic development (Bong and Premaratne, 2018). Of note are the considerable differences in the OLS results in the split analyses, which offers additional support for the contribution of the quantile regression technique to our understanding of FDI patterns.

5. Conclusion and policy implications

In this study we sought to identify the contingencies that determine the relationships between countries' location in relation to other countries and their performance as hosts for FDI. Drawing on Simmel's metaphor of the Stranger as being simultaneously proximate and remote (Simmel, 1908), we presented physical geographic location as distinct from its constructed representations and suggested that the factors that separate the two are related to unilateral characteristics of countries and their connectivity to other countries. Our findings imply that the impact of geographic location on FDI performance cannot be properly understood without accounting for the constructed dimensions of geography, and call for a reconceptualization of what constitutes near and far in relation to FDI. This duality of the physical and the constructed may serve to explain the inconclusive state of research regarding the impact of countries' geographic location on their FDI performance that motivated our study.

Separating the impact of geographic location from the factors that determine its consequences is important not only because these relationships have different theoretical meanings but also for practice. The significant moderating effects we find challenge the deterministic view of geographic location as an exogenous country characteristic, the "design of nature", and indicate that the consequences of location should not be treated as fixed and unchangeable. With the right policies and actions, these consequences could become the "design of humanity" (Addison and Rahman, 2005). This assigns an active and critical role for policymakers who are often either in direct control of the moderating effects that determine the consequences of geographic location or else exercise strong influence on them.

Furthermore, the large variations we find across different quantiles of the FDI distribution challenge generic policy recommendations that do not recognize this variation and call for nuanced responses by policymakers in different countries. As our findings show, an identical model yields significantly different results for countries at different quantiles of the FDI distribution in terms of level of significance, magnitude and direction of effects. The same country attribute may have opposite effects for countries at different scales of the FDI distribution.

Policy responses ought to reflect this variation and be tailored specifically to individual countries. Such political response needs to be adjusted regularly, as the amounts of FDI that a country receives change over time.

Moreover, the combined effect of countries' unilateral attributes and their connectivity to other countries calls for policy responses that address both and at the same time are responsive to their distinctive nature and varying demands. Improvement of countries' unilateral attributes is subject to country discretion, often based on local resources. Most research attention has traditionally been given to policy measures that would enable countries to improve unilateral attributes, driven by the assumption that countries' locational attributes relative to other countries is the major determinant of their performance as hosts for FDI (Dunning and Lundan, 2008). Policies based on this approach have sought to alleviate the costs of geographic location, for instance by developing infrastructure and simplifying cross-border procedures (Limao and Venables, 2001).

Policy responses to connectivity-related issues are fundamentally different and can be achieved only through collaboration with other countries. They require the embrace of political agendas that draw countries into global networks of relationships and interactions with other countries, and facilitate economic relationships with other countries through open borders and the free flow of people and capital (Alcacer and Ingram, 2013; Calatayud et al., 2017). Establishing these connections and driving their benefits for FDI is subject to government policy to a greater extent than are unilateral attributes, many of which are not subject to policy measures or else respond to them slowly and gradually over time.

Our findings suggest that different connectivity measures might require different policy responses. Separate analyses that we conducted for the different measures show considerable variations in terms of the magnitude and direction of the impact. Of the three dimensions of the connectivity index (table 1), political connectivity is by far the most important moderating effect between geographic location and FDI. For countries with high FDI performance, political connectivity appears to significantly mitigate the impact of geographic location on FDI performance, accentuating the impact of governments policy on the outcome.

The differences we find between developed and developing countries (table 4) also call for policy responses, notably in relation to the connectivity measures. Our findings show that remoteness and distance from centres of economic activity are more detrimental for developing countries than for developed ones. This assigns greater importance to intervention, particularly in relation to the connectivity measures that are more responsive to policy intervention and are highly impactful on developing countries' ability to attract FDI. Governments of developing countries should recognize the critical impact of connectivity on their FDI performance and incorporate this recognition in their FDI policy agenda.

They should actively seek political, technical and human connections with other countries in order to facilitate economic relationships and encourage FDI. Alas, connecting to others requires the willingness of others to connect, assigning a critical role to policymakers outside a country. Such interactions should be seen as generating mutual benefits to the parties involved because developed countries have much to gain from such collaborations too. Differences in level of economic development and industrial structure imply that developed countries do not compete for FDI, at least directly, with developing countries, reducing concerns about conflicting interests. There is also a role for international organizations in promoting these relationships and supporting the creation of the conditions that encourage their formation.

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