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Multinational firms in (Global) Cities: Mimicry, Knowledge Networks, and Economic Growth

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by

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Publications

Belderbos, R., Benoit, F., Edet, S., Lee, G.H., and Riccaboni, M., (2022). *Global Cities' Cross-Border Innovation Networks*. In Cross-border Innovation in a Changing World: Players, Place and Policies, edited by Davide Castellani, Alessandra Perri, Vittoria G. Scalera, and Antonello Zanfei, Oxford: Oxford University Press

Presentations & Seminars

1. "Global cities as Knowledge Hubs: Multinational firms, Connectivity and R&D Locations" at Academy Of Management Conference 2018 IM Division Doctoral Consortium, Chicago, United States, 10-14 August 2018.

2. "Mimicry in Foreign Direct Investment location decisions: the role of national culture" at Druid 19th Academy Conference, Aalborg University, Denmark, 16-18 January 2019.

3. "Mimicry in Foreign Direct Investment Location Decisions: the role of national culture" at the Competition and Innovation Summer School, Ulcinj, Montenegro, 26 May 2019.

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6. "Global Cities' Innovation Network", Summer School for Data & Algorithms on ST&I studies, Leuven, Belgium, 16-18 September 2020.

7. "International Connection, Local Disconnection: the (heterogeneous) role of global cities in local and global innovation networks", 2nd Doctoral Seminar, KU Leuven, Belgium, 1 June 2021.

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Chapter 1. General Introduction

Early theorists predicted that cities would become the dominant players in the world economy (e.g. Castells, 1996) characterized by an agglomeration of global command functions of firms and international organizations (Sassen, 1991; Scott, 2001). Almost 25 years later, cities are found to be the driving force of economic and social development (Henderson, 2007; McKinsey & Company, 2013) characterized by high levels of Gross Domestic Product (GDP) per capita, high rates of productivity growth (OECD, 2020) and a disproportionate presence of multinational enterprises (MNEs), leading universities and inventors (Beaverstock & Smith, 1996; Sassen, 2001; Klier & Testa, 2002).

Prior research has referred to cities by many definitions such as ‘global cities’, ‘world cities’, ‘supervilles’, ‘imperial cities’, ‘great industrial cities’, ‘metropolitan cities’, ‘primate cities’ to name a few. Generally, they have been defined as the global centers of power and dominance (Alderson et al., 2010) and, more recently, as the critical enablers of the flow of various types of resources such as information, wealth and human capital (Castells, 2000). Indeed, cities are considered key nodes in the global economy as they are increasingly defined by their inter-city connections rather than by their intra-city characteristics (Derudder et al., 2003).

Cities have been the focus in substantial body of research in international business (IB) literature and economic geography literature. Within these literature streams, two key areas of interest can be identified (Chakravarty et al., 2021). In the IB literature, prior research has focused on the strategic motivations of MNE to invest in cities (e.g. Makino et al., 2007; Belderbos et al., 2020) by analyzing foreign direct investment (FDI) location choices. Within the economic geography literature, prior research has focused on the theoretical perspectives and empirical approaches towards defining a ‘global’ or ‘world’ city (e.g. Sassen, 2001; Alderson & Beckfield, 2004; Rozenblat & Pumain, 2007; Derudder et al., 2010; Jacobs, 2016) and its characteristics (e.g. Castells, 2000; Bel & Fageda, 2008; Brown et al., 2010).

Cities have been defined as strategic hubs for FDI leading to a disproportionate concentration of MNE headquarters and subsidiaries (Wall & Knapp, 2011). The attractiveness of cities has been ascribed to economic factors that allow for access to important markets, resources and operating efficiencies. Cities are characterized by a high concentration of specialized services, high levels of venture capital, a large skilled labor pool, state-of-the-art communication and transportation infrastructure and a cosmopolitan environment (Castells, 2000; Duranton & Puga, 2004; Goerzen et al., 2013; Adler et al., 2019). The attraction of MNEs to cities leads to a dynamic evolution (Jacobs et al., 2010) as cities become more attractive by attracting FDI as the latter may attract subsequent investments through imitation of location choices and through the generation of agglomeration and increased interconnectedness. The high degree of interconnectedness to local and global markets provides cities with global reach (Goerzen et al., 2013; Adler et al., 2019) and is perhaps the most important characteristic of global cities.

The connectivity of cities to the world economy has also been of significant interest to scholars in the economic geography literature (e.g., Beaverstock et al., 2002; Alderson & Beckfield, 2004). Global connectivity enables the flow of people, goods, capital and knowledge across space thereby providing considerable resource and information advantages that are not available to less connected locations (Bell & Zaheer, 2007). Moreover, connectivity is found to be crucial in dynamic competitive environments (Cooke et al., 1997), for regional resilience (Boschma et al., 2015) and for rapid adaptation to changing market conditions (Hussler, 2005).

Extant literature has put forward two main approaches to understand and measure the connectivity of cities: the infrastructure approach (e.g. Smith & Timberlake, 2001; Derudder & Witlox, 2008; Otiso et al., 2011) and the corporate organization approach (Beaverstock et al., 2002; Derudder et al., 2003; Alderson & Beckfield, 2004). The infrastructure approach focuses on the role of infrastructure (e.g., transportation infrastructure, telecommunications and broadband internet) in enabling the flow of capital, people and information (Knox & Taylor, 1995). The corporate organization approach focuses on connectivity created through the day-to-day activities of corporate organizations which pursue a transnational location strategy. Hence, this approach argues that the relationships and connections between cities are primarily created through the operations of multinational firms which rely on their geographically dispersed network of affiliates and partners to generate and facilitate the flow of knowledge, resources, personnel and capital (Cano-Kollmann et al., 2016). In this way, multinational firms generate multi-level networks in which firms are the prime agents of production and reproduction (Taylor, 2004) of connectivity that weave cities together in a global network.

Within the corporate organization approach, the World City Network put forward by the Globalization and World cities (GaWC) research network has become a key approach to measure city connectivity. This approach relies on the analysis of the worldwide office networks of advanced producer services firms, i.e. accounting, advertising, finance, insurance and law firms, to calculate cities' interconnectedness to other cities. However, over the years, this dominant approach has not been unchallenged (e.g. Bassens et al., 2009; Neal, 2010; Hansen et al., 2013) as researchers started to question whether the measurement of connectivity based on advanced producer services firms was too restrictive. Hence, it is deemed important to develop a more inclusive understanding of city connectivity, by including additional dimensions of globalization (Boschken, 2008).

This dissertation addresses two sides of the dynamic interrelationship between MNEs and cities. First, it addresses the literature on cities as MNEs' foreign direct investment location choice and imitation processes within these FDI location choices. This imitation not only enhances the attractiveness of the city by contributing to the generation of agglomeration and encouraging additional imitation, but also contributes to the further development of the international connectivity of the city and the creation of global knowledge networks. Second, the literature on cities and their international (knowledge) connectivity is addressed. Within this literature stream, we elaborate on the interrelated and simultaneous role of different types of international connectivity on city economic growth and the influence of this (FDI induced) connectivity on the surrounding areas of the city.

In sections 1.1. and 1.2 the state of the art in the literature on cities as MNEs' foreign direct investment location choice and the literature on cities and their connectivity is summarized and the voids in these literature streams, which the dissertation aims to address, are identified. In section 1.3 the contents of the individual research chapters are introduced, while in section 1.4 the two main source of data used in this dissertation (FDI data and georeferenced patent data) are discussed.

1.1 City Location Choice and Imitation

Location decisions for foreign direct investment (FDI) by MNEs have been extensively examined in both international business (see Nielsen et al., 2017 for an overview) and economic geography literature (e.g., Alcacer & Chung, 2007). While research has recently began to examine the attractiveness of cities as places for FDI and how FDI may enhance connectivity between cities, there is still a need to further improve understanding of the finer grained geographic aspects of MNEs' investment decisions (Beugelsdijk & Mudambi, 2013).

Extant research has found that, for a given firm, the location choice is to an important extent determined by prior FDI location choices of the firm's peers (Belderbos et al., 2011; De Beule et al., 2018), i.e. those with whom firms are connected within the home country inter-firm network. Institutional theory suggests that firms will imitate the location choice of peers for two reasons (DiMaggio & Powell, 1983). First, by imitating, firms are able to derive relevant local information, thereby reducing the uncertainty surrounding the advantages or relevant environmental factors of their locations choices (Haveman, 1993). Second, when a large number of peers invest in the same location, this may be observed as the most appropriate, credible or legitimate decision for a similar firm. Imitation may allow firms to display conformity to common corporate behavior and take decisions that are seen as legitimate by their stakeholders (Suchman, 1995). Although these processes and their underlying motivations have been found to be important at the country-level, extant research has put little emphasis on imitation considerations and legitimacy seeking behavior at the city-level (e.g. Holmes et al., 2013).

According to the institutional theory, imitative behavior also depends on social norms embedded in national culture (Hofstede, 1980). Cultural norms are found to be crucial in determining organizational responses to institutional pressures (Oliver, 1991; Lu, 2002) and differ across countries. However, a comparative national cultural dimension has rarely been included in extant research on imitation processes. In contrast, studies have mostly focused on FDI from single home countries - in particular those countries where group processes are seen as most salient, such as Japan and South Korea (Guillen, 2002; Lu, 2002; Belderbos et al., 2011). Hence, to address this gap, this dissertation analyses imitation pressures in foreign direct investment location decisions by taking a comparative national culture perspective and analyzing heterogeneity in imitation among investors from different home countries.

1.2 Cities' role in global innovation networks

Global connectivity is considered a key feature of cities and has received substantial attention in the economic geography literature (e.g. Taylor, 2001; Alderson & Beckfield, 2004). Global connectivity can be defined as "the ease and intensity with which people, goods, capital and knowledge flows across space" (Belderbos et al., 2017, p. 9). As previously discussed, prior research has put forward two main approaches to understand and measure this connectivity: the infrastructure approach and the corporate organization approach. Recent research has called for a more inclusive understanding of the connectivity of global cities by including additional dimensions of globalization (Boschken, 2008).

Indeed, there are various other ways to look at how cities are globalizing (Ren & Keil, 2017). Another central function of global cities is their role as hotspots for the creation of innovation and international knowledge networks. Global cities host a disproportionately large share of inventors (Bettencourt et al., 2004) and innovation active firms creating dense local knowledge circulation within their boundaries. This local knowledge circulation and its innovation dynamics are enhanced and stimulated by strong international knowledge connections to outside networks and cities (Maggioni et al., 2007).

Given the increasing role of global cities within these flows of knowledge and knowledge co-creation, we put forward a new measurement of global city collaborations and connectivity in Chapter 3 and 4 by drawing on a novel and extensive database of geocoded patent inventor addresses. This new operationalization contributes to the economic geography literature as it allows for a more direct measurement of collaborations and connectivity across cities, since co-invented patents represent a direct form of interaction via knowledge exchange. Furthermore, the new operationalization is able to cope with some of the drawbacks of the two traditional approaches in measuring connectivity, by providing a stable base for comparison over time, accurate measurement of changing urban geographies and by avoiding the influence of changes in data collection (Aranya & Taylor, 2008). In this dissertation, we compare the newly proposed measure with the advanced producer service based measure (also referred to as the World City Network) by the GaWC. We contribute to the economic geography literature on global cities by emphasizing that these cities can be locational anchoring points for very different types of flows (Krätke, 2014).

Connectivity has become a defining feature within the modern economy resulting in an extensive amount of city and country connectivity rankings (e.g. Mastercard, 2008; EIU 2012) and urban policy reports linking global connectivity to city competitiveness. As a result, global connectivity of cities is often seen as a way to foster economic development and competitiveness and as a general mechanism to increase a city's economic power. This has led to global connectivity becoming a top priority on policy agendas and the implementation of numerous strategies (e.g. encouraging cross-border FDI) and significant amounts of resources devoted to improving this connectivity (e.g. European Commission Lisbon economic growth agenda, 1999; Capello, 2000). However, there is little empirical evidence on the specific relationship between city economic growth and its different types of connectivity as a key driver of productivity and regional success (Knoben & Oerlemans, 2006). In this dissertation, we analyze the simultaneous and interrelated influences of the knowledge network and the advanced producer services network of cities on their economic growth. This analysis contributes empirically to the stream of literature on global city innovation and advanced producer services networks.

While extant research has emphasized (FDI induced) international connectivity as a way to increase city productivity and global competitiveness (Anselin et al., 1997; Rosenthal &

Strange, 2004; Rodriguez-Pose & Crescenzi, 2008), scholars have also expressed concerns about the effects of this international connectivity on the areas surrounding cities. An extensive focus of cities on international connectivity may lead to the erosion of knowledge and R&D infrastructure in the cities' surroundings (Pisano & Shih, 2009) and an unequal spread of economic opportunities exacerbating divergence among the city and its surrounding area (Fitjar & Rodriguez-Pose, 2011). However, a systematic analysis on the influence of this connectedness on the relationships between the global city and the surrounding region remains absent (Lorenzen et al., 2020). This dissertation contributes to the literature by bridging two streams of research regarding innovation and knowledge exchange in core regions (Shearmur, 2012) and innovation within the their surrounding areas (Dubois, 2013) and by quantitatively examining how knowledge connection between the global city and their surrounding areas vary systematically with the international connectedness of the global city.

1.3 Overview of Dissertation

Whereas this introductory chapter has started by presenting a general overview of the literature on cities and the opportunities and challenges regarding this literature, the next part of this general introduction will give a brief overview of the four chapters included in this dissertation.

The second chapter of the dissertation zooms in on cities as a location choice for MNEs and the imitation of these location choices by peers within the same home country network. The third to fifth chapter focus on the knowledge connectivity of cities. Chapter 3 analyses the changing role of global cities in global knowledge collaborations with other foreign cities. While Chapter 3 looks at all possible international collaborations, Chapter 4 investigates the collaborations between global cities. Chapter 4 compares the knowledge network to the advanced producer services network of global cities and analyses the simultaneous role of both networks in city economic growth. Chapter 5 examines the influence of city international connectivity on the development of local linkages with the area surrounding the city. All papers are written such that they can be independently read, and hence may contain some overlap in the explanation of definitions and concepts.

Chapter 2 - National Culture, Pressure to Conform & Imitation in FDI location Decisions

Extant research found that location decisions choices are to an important degree determined by the foreign location choices prevailing among the firm's peers, i.e. firms in the same home country or industry with which they are connected (e.g., Henisz & Delios, 2001; Belderbos et al., 2011). These imitation processes can be explained by institutional theory (Haveman, 1993;

Suchman, 1995; Shaver et al., 1997), which suggests that imitation processes depend on social norms embedded in the national culture. However, prior research on imitation pressures in FDI location decisions has not yet included a comparative national culture dimension.

Indeed, the gains of imitating the common location choices of peers' are likely to vary across home countries (Li & Parboteeah, 2015). More specifically, they may depend on the presence of three cultural traits (Hofstede, 2001), which can also jointly act as domestic conformity forces, strengthening the incentive to imitate: the level of collectivism, power distance and uncertainty avoidance. Yet, the strength exerted by the presence of these cultural traits is unlikely to be uniformly important for all firms. Less legitimate firms, in contrast to legitimate firms, may receive more rewards from aligning their behavior with expectations (Phillips & Zuckerman, 2001) while also being more likely to be sanctioned in case of deviation from socially appropriate behavior (Ruef & Scott, 1998). Furthermore, multinational enterprises with limited multinational operations, in contrast to those with substantial multinational operations, may depend more on domestic stakeholders to gain access to important resources and enhance the possibility of survival and growth (Hendriks et al., 2018).

In this chapter, we shed light on how the domestic cultural environment, legitimacy status and the degree of multinational operations of the firm shape the firm's incentives to display behavioral imitation in FDI location decisions by using conditional logit models. We employ a sample of 1050 greenfield manufacturing investments made in Metropolitan Statistical Areas within the United States by 662 firms based in 35 different home countries. To analyze the influence of the national culture on the propensity to imitate, we take into account the national cultural dimensions of power distance, collectivism and uncertainty avoidance (Hofstede et al., 2010) while also constructing an overarching indicator of conformity pressures based on these dimensions.

Chapter 3 - Global Cities' Cross border Collaboration on Innovation

A key characteristic of global cities is their international connectedness which has most often been measured by the office networks of advanced producer services firms. However, given the increasing importance of knowledge and innovation, there is a need to examine city network connectivity in terms of additional dimensions of "global-ness" (Boschken, 2008) such as through the lens of knowledge collaborations (Cano-Kollmann et al., 2016).

Indeed, global cities are prominent spaces for knowledge exchange and collaboration on innovation (e.g., Bairoch, 1988). Their global reach can provide access to resources and information that are not locally available (Bell & Zaheer, 2007), enable greater diversity of knowledge and ideas (Bathelt et al., 2004), and facilitate the recombination of knowledge (Rosenkopf & Almeida, 2003; Maggioni et al., 2007). This in turn improves technological capabilities (Asheim et al., 2011; Hannigan et al., 2015) and innovation performance (Breschi & Lenzi, 2015; De Noni et al., 2018).

Chapter 3 proposes a new operationalization of global city connectivity in terms of global cities' position in cross-border knowledge collaborations and co-created knowledge flows measured by co-invention linkages with world-wide foreign inventors in other cities. We analyze the specific and changing role of 125 global cities within these global innovation collaborations. In order to do so, we employ a novel and extensive database of geocoded patent inventor addresses at the patent family level, drawing on information from all patent authorities. The details of this database will be introduced in section 1.4.

Chapter 4 - The World City Innovation and Service Networks and Economic Growth

Cities throughout the world can function as locational anchor points for different types of flows, such as those related to the advanced producer services and knowledge and innovation. Cities are thus simultaneously involved in different types of networks. Their position within those networks, i.e. their connectivity, is often said to contribute to the economic power and economic growth of the city. Both aspects of cities' international connectivity may allow economies to grow, but an unanswered question is what their relative contribution is and whether these different networks are complements or substitutes.

The presence of advanced producer services can contribute directly to economic growth by their increasing role in regional employment and job creation (Beyers, 2003) and indirectly by enhancing the competitiveness and productivity of local firms (Catin, 1995). At the same time, international connectivity enriches local innovation dynamics (Bell & Zaheer, 2007), enhances innovation competitiveness (Bathelt et al., 2004) and increases local firm productivity through the introduction of new products or processes. However, on the one hand, with increasing inter-city competition for excellence in international connectivity, a specialization of the city in one of these networks may allow for stronger agglomeration effects and a greater value of network involvement for the cities' economic growth. On the other hand, innovation may contribute to the formation of advanced producer networks, and vice versa, through the introduction of new types of services and delivery-methods and by diffusing knowledge across firms and industries.

In Chapter 4, we analyze the (changing) position of 129 world cities in inter-city collaborative innovation networks with other global cities and compare this with their ranking on established indicators based on affiliate networks of advanced producer services firms. We use a fixed effects panel regression model to analyze the simultaneous and interrelated association of the two types of network strength with economic growth. We use the novel database of geocoded patent inventor addresses complemented with city-level economic indicators retrieved from Oxford Economics.

Chapter 5 - The Role of Global Cities in Local and Global Innovation Networks

Scholars have expressed concerns that the effects of international connectedness on economic growth remain spatially constrained within global cities (Moreno et al., 2005) putting pressure on the local economy by creating divergence among regions (Benito & Narula, 2007) and leading to unequal development.

In Chapter 5, we examine the relationship between the global network orientation of global cities and their local linkages with surrounding areas. We argue that the nature of this relationship may depend on the characteristics of the global city and their surrounding regions. More positive associations are expected for geographically proximate regions and regions with a strong knowledge base while a more negative association is expected for technologically leading global cities. Geographical distance may enhance opportunities for knowledge collaborations (Broekel & Boschma, 2012) as it lowers the barriers and costs of knowledge exchange (Iammarino & McCann, 2006) and induces knowledge spillovers and interactive learning between actors (Malmberg & Maskell, 2003). Similarly, the presence of a strong local knowledge base in the surrounding areas may signal greater potential in knowledge exchange with global cities (Nooteboom, 2000). In contrast, technological leadership of the global city may increase the need for strong international connectedness of global cities to have access to state-of-the-art technology, which often cannot easily be obtained from the surrounding area (Roijakkers & Hagedoorn, 2006).

We use a fixed effects Poisson regression model to analyze the association between international knowledge networks of 21 U.S. global cities and their local knowledge connections with 614 surrounding areas across 13 industries. We construct the local and global innovation networks based on the database of geocoded patent inventor used in Chapter 3 and 4. A set of relevant characteristics at the global city and the surrounding area level is retrieved from sources such as U.S. Census Bureau, U.S. Bureau of Labor Statistics and the U.S. Bureau of Transportation Statistics.

1.4 Main Data Sources

This section will introduce the two key sources of data used within this dissertation: the fDi Markets database and the georeferenced patent data dataset. These sources form the empirical building blocks of the respective chapters they were used in. In each individual paper, more detail is given on the data sources used for the construction of variables in the analyses.

1.4.1 fDi Markets

Data on foreign direct investments of MNEs at the regional (city) level has been gathered from the fDi Markets database published by the Financial Times Ltd. This database is considered to be the most comprehensive online database on cross-border greenfield investments covering investments made by MNEs in all industries and countries. fDi Markets collects data from more than 8000 news sources including media, industry organizations and investment agencies as well as information from market research and publications.

The database only reports information on greenfield investments and joint ventures that lead to a new operation or an expansion thereof. The database provides information on the parent company, the investing company, the source country and city and the destination country and city. The database also reports on the sector and sub-sector of the investment. Every project is tagged to a sector that can be aligned with the North American Industry Classification System (NAICS) version 2007. Additionally, projects are also assigned non-sector specific value chain activity and business activities, such as manufacturing, sales, R&D and headquarters.

The coverage of this database is considered to be representative for FDI trends and worldwide FDI flows (e.g. Castellani et al., 2013; D'Agostino et al., 2013; Belderbos et al., 2017). It is extensively used by the UNCTAD World Investment Report, The Economist Intelligence Unit, and the World Bank and by several national governmental institutions around the world.

In Chapter 2, the fDi Markets database is used to identify the 1050 greenfield manufacturing investments made in the United States between 2005 and 2012. Using the project industry and value chain tags, the analysis is restricted to the inclusion of investment in manufacturing industries, corresponding to the NAICS classifications 31-33. In Chapter 4, the database is used to construct a control variable based on the number of FDI investments in the advanced producer services industry in a city.

1.4.2 Georeferenced patent data[1]

Determining spatial patterns in innovation with precision is important for research as it enables the in-depth analysis of innovation at the city level. Patent information provided by patent offices often lack sound address information, i.e. less than 30% of patents in PATSTAT have address information for at least one inventor on the patent. To solve this issue, a dataset of patent application across the globe with geo-referenced information for inventors and assignees was developed by building on the previous work of Morrison et al., (2017) and De Rassenfosse et al., (2019).

Several steps were taken to construct the georeferenced patent database. First, a dataset was constructed by integrating several patent data sources. As a starting point PATSTAT autumn 2018 version was used. PATSTAT is the largest patent statistical dataset containing patent activity from over 90 patent offices. The data from PATSTAT was merged with several external databases to obtain address and geographic coordinate information of inventors and assignees, including the OECD REGPAT database, the PatentView database of the USPTO and the disambiguated patent databases by Morrison et al., (2017) and De Rassenfosse et al., (2019).

Second, to recover missing address or coordinate information of the included patent application, a range of algorithms was used. More precisely, to retrieve postcode information, Libpostal by AI Barentine was used, a multilingual international street address parser trained on Open Street Map. To solve the issue of missing coordinates or postcodes, separately for inventors and assignees, a two-step process was used. First, a deterministic and probabilistic matching was used based on patents with coordinates and postcodes filed at other patent offices or within the same patent family. Second, string-matching was applied based on patents that have full address or coordinate information or based on patent family addresses. This process was repeated until no further improvement in coordinate coverage could be made. After obtaining the coordinate or postcode information, a Google Geocoding API was used on patents with cleaned address information to geocode addresses.

The geocoded dataset was complemented with the De Rassenfosse et al., (2019) database leading to the inclusion of 12.1 million priority patents with geocoded information for at least one inventor on the patent between 2000-2014 with overall large improvements in address information for most countries.

[1] Joint work with Samuel Edet (IMT Lucca), René Belderbos (KU Leuven), Massimo Riccaboni (IMT Lucca) and Geon Ho Lee (KU Leuven). A detailed paper on the construction of the dataset is forthcoming and will be included in the dissertation of Samuel Edet, see also working paper of Edet et al., (2021).

Third, geocoded patents were allocated to Functional Urban Areas around the world. To assign patents to the Functional Urban Areas, geocoded patents were clipped to the respective global city shape files[2] or isochrones. For OECD countries, the shape files based on the FUA methodology of the OECD (OECD, 2012) were used. For non-OECD countries, self-constructed isochrones based on a similar city delineation using average driving time within the city were used. Isochrones were constructed by using GIS techniques and the Open Street Map application. In total, patents were assigned to over 1240 functional urban areas in 83 countries all over the world, comprising approximately 59% of the dataset.

This dataset was used in Chapter 3 to analyze the international co-invention linkages across 125 (global) cities in 46 countries between 2000-2001. In Chapter 4, the georeferenced patent data was used to examine co-inventor linkages across 129 (global) cities located in 76 countries between 2000 and 2012. Chapter 5 uses the dataset to analyze the innovation linkages of 21 U.S. (global) cities with 614 surrounding counties across 13 industries between 2001 and 2015.

1.5 Geographic level of analysis

This dissertation focuses on cities and detailed geographical areas. In chapter two, we examine cities in the U.S. and use the definition of Metropolitan Statistical Area (MSA)[3]. In chapter three to five, we use the Functional Urban Area (FUA) definition of the OECD to define (global) cities worldwide. In addition, in chapter five, counties were the unit of analysis to examine the areas around the (global) city.

1.5.1 Cities

We define cities as Metropolitan Statistical Areas and Functional Urban Areas. The MSA definition was established by the U.S. Office of Management and Budget (OMB) while the FUA definition was established by the OECD in collaboration with Eurostat and EC-DG Regio. Both definitions are essentially equal in operationalization[4]. The process of delineating cities is split in to three steps.

First, core municipalities are identified through the use of (gridded) population data. Each city is defined by an urbanized area of urban-high density nucleus with a population density of at

[2] A shapefile is a digital vector storage format storing geometric location and their associated attribute information. For a detailed description on these shapefiles, we refer to the OECD (2012) report.

[3] The collective term for Federal Metropolitan Areas varies over time. Earlier research may also the term Metropolitan Area (MA), Standard Metropolitan Area (SMA) or Standard Metropolitan Statistical Area (SMSA) to indicate the same area.

[4] For U.S. cities a comparison was made between the highly similar delineation logic by the OECD and the delineation of MSA by the United States Office of Management and Budget. No significant differences could be found between both approaches.

least 1 500 inhabitants per km² and a population of at least 50 000 inhabitants overall. A lower threshold of 1 000 people per km² is used for Canada and the United States as metropolitan areas typically develop in a less compact manner. Second, cities belonging to the same larger urban area are connected. Some cities may host densely inhabited cores that are physically separated yet economically and socially integrated and thus belong to the same polycentric structure. Accordingly, cities are considered to be part of a larger urban area if more than 15% of the residence population of the city commutes to work in the other city. Third, the hinterlands are identified. Hinterlands or worker catchment areas are areas located around the urban area and may contain several municipalities or counties. A municipality or county is considered to be a hinterland if at least 15% of its employed residents work within the core urban area. The list of cities is mainly based on data from Eurostat and may be revised based on additional comments provided by the respective countries. However, up to current knowledge, the delineation of these cities will not be revised and hence remain unchanged over time.

The appropriateness of the city, defined as MSA, as the geographical unit of analysis for the Chapter 2 is supported for two reasons. First, it allows for a more fine-grained identification of imitation at the detailed regional level. Second, it allows for an accurate measurement of local conditions that drive location choices for MNEs and which may confound mimicry effects, such as agglomeration economies (Belderbos et al., 2011). The appropriateness of the city, defined as global city, as the geographical unit of analysis for the Chapter 3 and 4 is supported by allowing for a uniform comparison of cities on an international scale. National definitions of metropolitan areas are rarely consistent as they are based on country-dependent administrative boundaries that do not necessarily coincide with the actual economic boundaries of the agglomeration. This leads to a harmonized definition of global cities, enabling an accurate comparison of cities and the identification of knowledge clusters (cf. Alcácer & Zhao, 2016).

1.5.2 Counties

In Chapter 5, counties are used to define the surrounding area of the city. A county is a territorial division consisting out of towns or rural populations. They are the major legally defined administrative units below the state level. In some states, counties may be defined as “parishes” (e.g. Louisiana), “boroughs” (e.g. Alaska) or “independent cities” (e.g. Virginia). In total, the U.S. has around 3000 counties, but the number of counties and the size of each county may vary from state to state. The boundaries of counties remain stable over time and have only been adjusted on rare occasions.

Counties provide complete coverage of all land area and population within the United States and are convenient units for data dissemination. Therefore, counties have been used as a basis to construct larger geographical units including the MSAs or the FUAs. However, not every county belongs to an MSA or a FUA, in particular non-metropolitan counties that surround the MSA area.

For Chapter 5, the use of counties surrounding the city is supported by the extensive amount of data availability on this level. Counties serve as primary geographical units for which the Census Bureau reports statistics in every decennial census. Hence, it allows for the possibility to control for alternative explanations of local disconnectedness.

Chapter 2. National Culture, Pressure to Conform, and Imitation in FDI Location Decisions[5]

ABSTRACT

We analyze the influence of national culture on the strength of the role of organizational mimicry in regional location choices of multinational firms. We argue that traits of their national culture predispose firms to imitate prior behavior of firms in their domestic peer group due to differences in cultural traits and the pressure to conform. This influence of conformity pressures related to national cultural traits, i.e. collectivism, power distance and uncertainty avoidance, is expected to be salient in particular for firms that lack substantial legitimacy or have little multinational interests. We find partial support for these arguments in an analysis of location decisions made by foreign firms in the United States at the fine-grained level of Metropolitan Statistical Areas over the period 2005-2012, controlling for locational factors and alternative explanations for clustering.

[5] Joint work together with René Belderbos (KU Leuven) and Arjen Slangen (KU Leuven).

2.1 Introduction

Location is an important consideration in the internationalization strategy of Multinational Enterprises (MNEs) with recent research emphasizing the importance of subnational heterogeneity in locational characteristics (Beugelsdijk & Mudambi, 2013; Belderbos et al., 2020). Location decision choices for foreign direct investment (FDI) by MNEs have been extensively examined (Nielsen et al., 2017). One salient finding has been that, for a given firm, this choice is determined to an important degree by the prior FDI location choices made by the firm's peers, defined as firms with which it shares notable traits such as national origin and industry (Henisz & Delios, 2001; Guillen, 2002; Garcia-Pont & Nohria, 2002; Tan & Meyer, 2011; Belderbos et al., 2011; De Beule et al., 2018). According to neo-institutional theory, firms may imitate the choices of their peers to display conformity to common corporate behavior and thereby gain legitimacy among stakeholders such as banks, shareholders, regulators, and customers. If a firm's peers have frequently invested in a given foreign location, the firm's stakeholders will likely deem investment in that location proper (Suchman, 1995) and thus award the firm with higher legitimacy if it also invests there rather than in a different location. Gaining legitimacy among stakeholders is important for firms because stakeholders provide various resources that are crucial to firms' financial performance and survival (Dowling & Pfeffer, 1975; Deephouse & Suchman, 2008; Heugens & Lander, 2009).

Although such mimicry processes depend on social norms that are embedded in national culture and differ across national contexts (Hofstede, 1980), prior research on isomorphic pressures in FDI has not included a comparative national culture dimension. Instead, studies have mostly focused on FDI from single home countries - in particular those countries where group processes are seen as most salient, such as Japan and South Korea (Guillen, 2002; Lu, 2002; Belderbos et al., 2011).[6] Hence, an important question remains to what extent mimetic processes in location choices differ in accordance with the national culture of investing firms.

This paper aims to shed light on how the domestic cultural environment shapes firms' incentives to display behavioral imitation in FDI location decisions. We propose that different national cultures exert different pressures to conform as a function of cultural traits, in particular collectivism, power distance, and uncertainty avoidance, and that these dimensions may form an overarching measure of conformity forces. In countries with a high pressure to conform,

[6] A partial exception is Li and Parboteeah (2015) who associated the count of joint venture establishments in China by investors from a number of different home countries to these investors' home country culture dimensions, but did not examine location decisions.

firms can realize higher domestic legitimacy gains by displaying behavioral conformity. We expect that such domestic conformity forces strengthen a firm's tendency to invest in the foreign location where its peers recently invested most often. Yet conformity pressure are unlikely to be uniformly important for firms. We argue that the tendency to imitate location choice is highest for younger and smaller firms lacking substantial domestic legitimacy, since these firms have a stronger need for the legitimacy gains associated with behavioral conformity. Additionally, we pose that the tendency to imitate location choice is highest for firms with low multinational interest as they are more reliant on domestic legitimacy gains associated with behavioral conformity.

We find partial support for these hypotheses in an analysis of the location choice for 1050 greenfield manufacturing investments made in United States Metropolitan Statistical Areas (MSAs) by 622 firms based in 35 different home countries during the period 2005-2012. In studies of mimicry, it is essential that imitating forces are separated from common locational factors that provide locational advantage and may drive clustering of investments (Gimeno et al., 2005; Tan & Meyer, 2011; Belderbos et al., 2011). Our analysis therefore accommodates alternative explanations of clustering due to agglomeration externalities and controls for a range of other characteristics of MSAs to ensure accuracy of inference.

Our study contributes to research on imitation in FDI by showing that firms' tendency to engage in such imitation varies systematically across home countries as a function of the strength of the conformity forces in these countries. Moreover, we contribute to institutional theory by uncovering firm heterogeneity in conformity forces inducing imitation (DiMaggio & Powell, 1983; Rosenzweig & Singh, 1991; Yiu & Makino, 2002), with legitimate firms and firms with substantial multinational operations less sensitive to conformity pressure and less inclined to engage in imitation. Finally, we make a methodological contribution to international business research on national culture by developing an overarching measure of conformity forces, based on Hofstede's cultural dimensions for the 2000s.

2.2 Theory and Hypotheses

Many studies have analyzed firms' choices between foreign investment locations, variously operationalizing such locations as either countries, federated states, provinces, metropolitan areas, or cities (for a review, see Nielsen et al., 2017). In broad terms, FDI location choices have been found to be driven by three sets of factors: (i) features of the locations, including their economic size and growth, the quality of their human resources and political institutions, their cultural and geographic distance, and – for narrowly-defined locations – agglomeration economies; (ii) features of the investing firms, such as their international and target-location experience and technological and marketing capabilities; and (iii) the foreign location choices prevailing among investors' peers, i.e. those with whom they share notable traits notably compatriots from the same home country. The effect of peers' foreign location choices is partly due to the uncertainty that foreign investors face about the relative attractiveness of possible target locations (Henisz & Delios, 2001; Tan et al., 2008). Because of that uncertainty, which stems from foreign investors' inability to obtain complete information on the opportunities and challenges associated with specific locations, investors use their peers' recent location choices as signals of the relative attractiveness of these locations (Haveman; 1993; Shaver et al., 1997). The reason is that peers are likely to have based their recent location choices on information that is also relevant for focal foreign investors, since peers by definition show resemblance to these investors and since location-specific opportunities and challenges usually do not change radically in the short run (Thomas & Venkataraman, 1988; Tan & Meyer, 2011). Therefore, the more often a firm's peers have recently invested in a given foreign location, the more attractive the firm will presume the location to be and, hence, the higher the chance that it will imitate its peers' decision to invest there.

This phenomenon is also emphasized in institutional theory. Institutional theory suggests that firms are inclined to adopt certain practices not because of functional considerations, but because of social considerations and external influences (Meyer & Scott, 1977; DiMaggio & Powell, 1983). In this theory, imitation is put forward as a mechanism to navigate uncertainty by reducing the bounded rationality of managers, facilitate efficient strategic decision-making (Meyer & Rowan, 1977), limit downside risks and increase organizational survival by enhancing legitimacy.

Besides imitating their peers' recent foreign location choices in response to uncertainty, firms have also been argued to imitate these choices to display conformity to common behavior and thereby gain so-called legitimacy. Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995: p.574). Legitimacy is conferred upon a firm by its stakeholders, both internal ones such as employees and shareholders, and external ones such as customers, regulators, banks, and unions (Oliver, 1991; Deephouse, 1996; Li et al., 2007). If these actors generally perceive or assume a firm's behavior to be desirable, proper, appropriate, or in line with expectations, they will consider the firm legitimate and be willing to provide it with various resources (Suchman, 1995). For instance, employees will be willing to provide labor services, shareholders and banks will be willing to endow it with funds, potential customers will be willing to contribute to its revenues and endorse its products, and government agencies will prolong its permits (Meyer & Rowan, 1991; Suchman, 1995). Legitimacy is therefore crucial to a firm's financial performance and, hence, to its survival (Dowling & Pfeffer, 1975; Deephouse & Suchman, 2008; Heugens & Lander, 2009). Indeed, firms with high levels of legitimacy are said to survive longer and acquire resources more easily (Suchman, 1995; Deephouse & Suchman, 2008).

One important way in which firms can gain legitimacy is by showing conformity to common behavior among their peers (DiMaggio & Powell, 1983; Meyer & Rowan, 1991; Suchman, 1995). The reason is that stakeholders tend to cognitively categorize firms into groups based on similarities between them (Kostova & Zaheer, 1999; Yiu & Makino, 2002; Li et al., 2007) and determine the properness of a group member's behavior by assessing whether this behavior is in line with the behavior prevailing within the group (Suchman, 1995). The more often firms within a cognitively-constructed group have recently shown a certain behavior, the higher the chance that stakeholders are aware of the behavior and have come to perceive it as the norm for the group, i.e. as the proper form of behavior ('the logical and right thing to do') (Suchman, 1995; Yiu & Makino, 2002). Consequently, the more often a firm's peers have recently invested in a given foreign location, the more proper the firm's stakeholders will likely perceive investment in that location to be and, hence, the more the firm's legitimacy will likely increase if it also invests there rather than in a different location (Henisz & Delios, 2001; Belderbos et al., 2011; De Beule et al., 2018). Our baseline hypothesis therefore is:

Baseline Hypothesis 1: *The number of recent investments by peers in a given foreign location is positively related to a firm's propensity to invest in that location rather than elsewhere.*

2.2.1 The moderating role of domestic conformity forces related to domestic cultural traits

In general, most of a firm's stakeholders are based in its home country (Meyer & Benito, 2016). This is not only true for small firms but also for most of the world's largest ones. For instance, Oh & Rugman (2008) found that the 804 firms that appeared on Fortune's *Global 500* list over the period 1999-2008 on average realized 54% of their sales domestically and had 58% of their assets in their home country, indicating that most of their customers and employees are domestic ones. Hendriks et al. (2018) found that, over the period 2000-2007, 218 of the world's largest retailers on average realized even 75% of their sales domestically. Likewise, Birkinshaw et al. (2004) report that, at the time they surveyed 35 of the largest Swedish multinational firms, 71.4% of the capital stock of these firms was owned by Swedish shareholders. Consequently, the legitimacy gains that investing firms realize by imitating their peers' most common location choices are likely to predominantly occur in their home country.

Although investing firms may be able to realize domestic legitimacy gains by imitating their peers' most common location choices, these gains are likely to vary across home countries. The reason is that the value that stakeholders assign to behavioral conformity is country specific (Li & Parboteeah, 2015). The more strongly stakeholders value behavioral conformity, the more legitimacy firms can gain by imitating their peers' most common location choices and, hence, the stronger their incentive to display such behavioral conformity. The value that stakeholders within a country assign to behavioral conformity and, thus, the incentive for firms from that country to display such conformity is likely to depend on three features of a country's culture, i.e. the level of collectivism, power distance, uncertainty avoidance[7].

Collectivism refers to the degree to which people in a society think of themselves and their fellow citizens as group members rather than individuals (Hofstede, 2001). In collectivist societies, people are expected to blend into the group to which they belong and strive for group membership rather than pursue their own interests. Firms in collective societies have a low tolerance towards social pressures (Bond & Smith, 1997) and hence, tend to act as deemed to be appropriate within society (O'Neill et al., 1998) to gain social recognition and acceptance and to adhere to conformity (Murray & Schaller, 2012). In contrast, deviance from appropriate behavior or risk-taking is often associated with a loss of reputation (Hofstede et al., 2010). In terms of stakeholder legitimacy, the higher the collectivism in a home country, the more strongly domestic stakeholders tend to value uniformity in behavior among group members (Gomez-Mejia et al., 2000; Li & Parboteeah, 2015) and, hence, the larger the gain in domestic legitimacy firms from that country can realize by conforming to the behavior prevailing among their fellow group members, i.e. their peers. Thus, the higher the collectivism in a country, the stronger the incentive for firms from that country to mimic their peers' most common FDI location choices. We therefore hypothesize:

[7] The two more recently added cultural dimensions of Indulgence and Long Term Orientation were not included as they were merely added but not developed by Hofstede and are based on entirely different datasets which may not allow for comparability. Additionally, they lack information for a substantial amount of home countries.

Hypothesis 2a: *Collectivism strengthens the positive relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there.*

Power distance refers to the degree to which people in a society accept and expect the existence of authority structures and their associated power differences (Hofstede, 2001). Within high power distant societies, firms tend to behave according to authoritarian patterns and expectations (Scott, 2008) while being less inclined to challenge these patterns by deviating from expectations (Hofstede, 2001) to avoid penalization. Legitimacy-wise, the higher the power distance in a home country, the higher domestic stakeholders tend to value authoritative patterns of behavior (Li & Parboteeah, 2015) and, hence, the larger the gain in domestic legitimacy firms from that country can realize by adhering to such patterns (Scott, 2008). The recent occurrence of many investments by a firm's peers in a given foreign location is likely to constitute an authoritative pattern of behavior, since these many recent investments will likely cause investment in the location to be seen as the dominant standard that other firms should follow (Li & Parboteeah, 2015). Therefore, the higher the power distance in a country, the stronger the incentive for firms from that country to mimic their peers' most common location choices. We therefore hypothesize:

Hypothesis 2b: *Power Distance strengthens the positive relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there.*

Uncertainty avoidance reflects the degree to which people within a country accept ambiguous situations and tolerate uncertainty (Hofstede, 2001). Within uncertainty avoidant societies firms tend to rely on established practices, strict rules and expectations regarding their behavior in order to reduce uncertainty (Sully de Luque & Javidan, 2004) while being intolerant towards deviant behavior. Hence, firms based in uncertainty avoidant countries will have a greater need to reduce uncertainty and ambiguity associated with FDI location decisions. From a legitimacy perspective, the higher the uncertainty avoidance in a country, the less comfortable domestic stakeholders tend to be with unexpected events and moves and, hence, the more positively they will value behavior that conforms to their expectations. Stakeholders' expectations about a firm's behavior are likely to be shaped in part by the behavior that prevails among its peers (Suchman, 1995). The more often these peers display a given behavior, the more strongly stakeholders will likely expect the firm to engage in that behavior as well and, hence, the larger the domestic legitimacy gain the firm will likely be able to realize by displaying this behavior. Thus, the higher the uncertainty avoidance in a country, the stronger the incentive for firms from that country to mimic their peers' most common location choices. We therefore hypothesize:

Hypothesis 2c: *Uncertainty Avoidance strengthens the positive relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there.*

Masculinity reflects the degree to which a society stresses achievement, ambition, wealth and materialistic goals (Hofstede, 2001). It is said to indicate the prevalence of values such as money and material goods in a given society over values such as education. Masculine societies are characterized by strong competitiveness and aggressiveness instead of cooperation. A masculine society does not have any outstanding features or characteristics that are in line with being responsive towards social influences nor does it provide indications of strong valuations of domestic stakeholders towards the display of conformity. Hence, we do not expect any effects regarding the incentives for a firm to mimic their peers' most common FDI location choices. We therefore hypothesize:

Hypothesis 2d: *Masculinity does not affect the relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there.*

The levels of collectivism, power distance and uncertainty avoidance in home countries are likely to strengthen the incentive for firms from these countries to mimic the most common location choices of peers through societal pressures and their compliance with social norms and stakeholder expectations. The presence of these cultural features may thus jointly act as conformity forces on firms, i.e. the pressure to comply with a standard determined by a group or culture (Murray & Schaller, 2012), as they similarly influence the incentives of firms to engage in behavioral conformity. Hence, we hypothesize:

Hypothesis 2e: *Domestic conformity forces strengthen the positive relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there.*

2.2.2 The moderating role of an investing firm's legitimacy

Although we expect domestic conformity forces to strengthen firms' tendency to imitate their peers' most common location choices for legitimacy purposes, the strengthening effect of these forces may differ across firms. Legitimate firms often have substantial bargaining power, access to resources, favorable contracts and long lasting business relationships which allow them to act more independently and deviate from the expectations of behavioral conformity leading to a feeling of security (Caroll, 2016). Indeed, mature firms generally have developed stronger relationships with their legitimators and are therefore more likely to be taken for granted or to be endorsed by them (Singh et al., 1986; Deephouse, 1996). Likewise, larger firms usually have more contractual or social ties and endorsement from actors within their environment (Singh et al., 1986) and are said to be able to achieve stronger organizational legitimacy from stakeholders (Pfeffer & Salancik, 1978). In contrast, less legitimate, i.e. younger and smaller, firms are usually more dependent on stakeholders to get access to crucial resources (Rao, 1994) and lack trustworthy relationships with customers and suppliers (Stinchcombe, 1965) or support from relevant organizations and interest groups (Baum, 1989), which are necessary for the survival and growth of a company (Zimmerman & Zeitz, 2002). External actors such as customers, suppliers and interest groups are often said to be more reluctant to interact with younger and smaller firms (Stinchcombe, 1965), making it more difficult for them to acquire necessary resources (Ruef & Scott, 1998).

Moreover, legitimate firms i.e. older and larger firms, are more likely to have built a reputation in the eyes of stakeholders giving them more reliability as prior reputation is often used as a heuristic to evaluate adherence to conform behavior (Philippe & Durand, 2011). Older firms can rely on years of experience and familiarity with stakeholders whereas larger firms have the necessary resources to engage in reputation-building activities (Fombrun & Shanley, 1990) and are more visible in doing so due to their wider scale of operations. Generally, stakeholders tend to perceive visible and familiar firms more propitiously. Less legitimate firms, i.e. younger and smaller firms, often do not have such reputation as they often lack experience thereby causing inconformity to be more likely to stand out towards stakeholders. For that same reason, less legitimate firms are likely to receive more rewards for aligning behavior with expectations (Phillips & Zuckerman, 2001), but also more likely to be sanctioned when they do not comply with socially appropriate behavior (Bansal, 2005).

As a consequence, firms having different levels of legitimacy (Suchman, 1995; Ruef & Scott, 1998) will have a different need for the domestic legitimacy they can gain by being responsive to domestic conformity forces. If a firm already has substantial legitimacy, its need for additional legitimacy is likely to be low and, hence, so is its responsiveness to domestic conformity forces. By contrast, if a firm has relatively low legitimacy, it will likely perceive a high need for additional legitimacy and thus be highly responsive to the conformity forces in its home country. We therefore hypothesize:

Hypothesis 3: *The strengthening effect of domestic conformity forces on the positive relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there is primarily salient for firms that have limited rather than extensive legitimacy, i.e. younger and smaller firms.*

2.2.2 The moderating role of multinational operations

Multinational firms (MNEs) operate in multiple locations and own and control activities in more than one country. MNEs are simultaneously involved in both the local home environment and a global environment when coordinating and managing operations. As a consequence, multinational firms with broad multinational operations and multiple affiliates abroad are facing a variety of worldwide stakeholders that can confer them with legitimacy (Kang, 2013) and provide them with access to resources in multiple environments. The diversity in stakeholders reduces the vulnerability to reductions in resource provision in case of loss of legitimacy in any specific environment, including the home country (Pfeffer & Salancik, 1978; Drees & Heugens, 2013).

In contrast, firms with no or a limited number of foreign operations conduct most of their business domestically and engage predominantly with domestic stakeholders. Therefore, these firms will place more emphasis on legitimacy from their domestic stakeholders and can solely depend on them to gain access to important resources and enhance the possibility of survival and growth (Hendriks et al., 2018). Hence, firms that have extensive multinational operations may be less responsive to domestic conformity forces. By contrast, firms with a low degree of multinational operations will likely be more responsive to conformity forces within the home country. Hence, we hypothesize:

Hypothesis 4: *The strengthening effect of domestic conformity forces on the positive relationship between the number of recent investments by peers in a given foreign location and a firm's propensity to invest there is primarily salient for firms with a limited rather than extensive multinational operations, i.e. foreign affiliates.*

2.3 Data, Variables and Methods

We test our hypotheses on a comprehensive dataset on the location of greenfield manufacturing investments by foreign firms in the United States at the detailed regional level of Metropolitan Statistical Areas (MSAs), 2005-2012. This is an appropriate setting to test our hypotheses for several reasons. First, we focus on mimicry at the detailed regional level to allow a more fine-grained identification of imitation. Second, by keeping the host country context constant, the analysis can focus on the effects of home country culture. Third, this approach allows for an accurate measurement of local conditions that drive location choices for multiple firms and that may confound location effects with mimicry effects. An important confounder in the context of foreign direct investment is the attraction of clusters of firms in the focal industry due to agglomeration economies (e.g. Belderbos et al., 2011; Tan & Meyer, 2011).

The data on the location of greenfield manufacturing investments in the United States are taken from the fDi Markets database maintained by the Financial Times Ltd. The coverage of this database is considered to be representative for FDI trends and worldwide FDI flows (e.g. Castellani et al., 2013; D'Agostino et al., 2013; Belderbos et al., 2017). For each cross-border greenfield investment, the data lists the name of the investing firm, their home country, the industry of investment, and the location of the investment. More information on this database can be obtained in section 1.4.1. We restrict our analysis to investments in manufacturing industries, corresponding to the NAICS (North American Industry Classification System) classifications 31 through 33. Information on the investing firms, such as the establishment year and the total assets of the parent firms and the presence of prior affiliates in the U.S., was obtained from the ORBIS database. Information on the national cultural dimensions of Hofstede was retrieved from Taras et al., (2012).

We identify 1050 greenfield manufacturing projects in the U.S. during the observation period due to 622 firms based in 35 countries for which information in the ORBIS database was available. From the original sample, we have lost 1 firm due to the unavailability of data in the Hofstede dimensions for the country of Lebanon. Due to missing values for the year of incorporation, an additional 27 firms could not be included in the final sample.

Table 2.1 lists the number and percentage of investments by source country and industry. The countries with the largest shares of investment are Germany (20.8%), Japan (16.3%) and France (7.5%). The largest shares of investments are in Automotive Components (13.5%) followed by Industrial Machinery, Equipment & Tools (11.6%) and Plastics (10.4%). Table 2.2 shows that the manufacturing investments are relatively well spread across MSAs. MSAs that are the largest recipients of manufacturing investments are Cincinnati-Middletown (3.3%), Houston-Sugarland-Baytown (3.0%), and Charlotte-Gastonia-Concord (2.9%).

Table 2. 1 The distribution of FDI Investments across home countries and sectors

Home Country	*No. of FDI Investments*	*Pct. of all investments*	*Sector*	*No. of FDI Investments*	*Pct. of all investments*
Germany	218	20,76	Automotive Components	142	13,52
Japan	171	16,29	Industrial Machinery, Equipment & Tools	122	11,62
France	79	7,52	Plastics	109	10,38
UK	77	7,33	Chemicals	89	8,48
Canada	76	7,24	Metals	82	7,81
Switzerland	55	5,24	Food & Tobacco	74	7,05
Italy	46	4,38	Electronic Components	67	6,38
South Korea	40	3,81	Automotive OEM	63	6
Netherlands	33	3,14	Medical Devices	32	3,05
Denmark	29	2,76	Pharmaceuticals	31	2,95
Australia	25	2,38	Rubber	27	2,57
Sweden	23	2,19	Paper, Printing & Packaging	26	2,48
India	20	1,9	Aerospace	25	2,38
Spain	19	1,81	Engines & Turbines	20	1,9
China	19	1,81	Building & Construction Materials	17	1,62
Belgium	16	1,52	Space & Defense	15	1,43
Finland	13	1,24	Beverages	15	1,43
Austria	11	1,05	Biotechnology	15	1,43
Israel	11	1,05	Semiconductors	15	1,43
Mexico	9	0,86	Textiles	12	1,14
Ireland	9	0,86	Non-Automotive OEM	11	1,05
Norway	9	0,86	Consumer Products	11	1,05
Brazil	7	0.68	Ceramics & Glass	10	0,95
Hong Kong	6	0,57	Wood Products	8	0,76
Taiwan	5	0,48	Business Machines & Equipment	5	0,48
South Africa	4	0,38	Minerals	3	0,29
New Zeeland	4	0,38	Consumer Electronics	2	0,19
Malaysia	3	0,29	Coal, Oil and Natural Gas	2	0,19
Portugal	3	0,29	*Total*	*1 050*	*100*
Thailand	3	0,29			
Luxembourg	2	0,19			
Colombia	2	0,19			
Greece	1	0,1			
Russia	1	0,1			
Turkey	1	0,1			
Total	*1 050*	*100*			

Table 2. 2 Distribution of investments across Metropolitan Statistical Areas (MSAs) top 30

MSA	*No. of FDI Investments*	*Pct. of all investments*
Cincinnati-Middletown, OH-KY-IN	35	3,33
Houston-Sugar Land-Baytown, TX	32	3,05
Charlotte-Gastonia-Concord, NC-SC	30	2,86
Chicago-Naperville-Joliet, IL-IN-WI	27	2,57
Detroit-Warren-Livonia, MI	26	2,48
Greenville-Mauldin-Easley, SC	24	2,29
Atlanta-Sandy Springs-Marietta, GA	21	2,00
Boston-Cambridge-Quincy, MA-NH	16	1,52
Chattanooga, TN-GA	15	1,43
Louisville/Jefferson County, KY-IN	15	1,43
Philadelphia-Camden-Wilmington, PA-NJ	15	1,43
Portland-Vancouver-Beaverton, OR-WA	14	1,33
Evansville, IN-KY	14	1,33
Memphis, TN-MS-AR	14	1,33
Mobile, AL	13	1,24
Auburn-Opelika, AL	13	1,24
Greensboro-High Point, NC	13	1,24
Nashville-Davidson-Murfreesboro, TN	13	1,24
Terre Haute, IN	12	1,14
St. Louis, MO-IL	11	1,05
Columbia, SC	11	1,05
Spartanburg, SC	11	1,05
Dallas-Fort Worth-Arlington, TX	10	0,95
Knoxville, TN	10	0,95
Charleston-North Charleston, SC	10	0,95
New York-Northern New Jersey-Long Island, NY	10	0,95
Augusta-Richmond County, GA-SC	10	0,95
Austin-Round Rock, TX	10	0,95
Durham, NC	10	0,95
Little Rock-North Little Rock-Conway, TX	10	0,95
Tuscaloosa, AL	10	0,95
Other MSAs with less than 10 investments	565	54,7

2.3.1 Variables and Method

The *dependent variable* is a binary variable taking the value of 1 if the firm invests in the particular MSA, else 0. We infer imitation in location decisions by focal firms' location choice responses to the number of recent investments in the MSA by firms based in the same home country[8]. Hence, we operationalize peers as compatriots (Xie & Li, 2017), which follows from our conjectures on domestic culture and conformity pressures influencing location choice. We include two focal variables. First, we include the number of recent investments in the MSA by firms based in the same home country and the same industry. The investments by peers in the same industry may be the most relevant, informative and legitimate (McKendrick et al., 2003; Jiang et al., 2014). Second, we include the number of recent investments in the MSA by firms based in the same home country in other industries as firms may also mimic the investment

[8] Some MNEs may have headquartes in more than one country. In this case, the home country was defined as the place of the main stock exchange listing in line with ORBIS.

decisions of firms located in the broader institutional group (e.g. Ingram & Simons, 2002; Bastos & Greve, 2003). To avoid taking into account recent investments made by the focal firm as investments of peers, we excluded prior investments of the focal firm from the focal mimicry variables.

We operationalize the focal variables by considering prior investments in the two years before the focal firm's investment location choice. Taking a two year window allows for more variation in response lags, but still restricts imitation to recent behavior as this has the most informational and legitimacy increasing value (Cyert & March, 1963)[9]. A longer time lag tends to reduce mimetic influences (Belderbos et al., 2011) and renders the prior investment variable less distinguishable from agglomeration economies due to cumulative investment. The two prior investment variables test for baseline Hypothesis 1.

Our hypotheses 2a-2d suggest bringing in the original dimensions of culture due to Hofstede et al., (2010), namely power distance, uncertainty avoidance, collectivism and masculinity. Due to both the limited coverage of two newer dimensions and potential issues of comparability as they were not originally developed in the work of Hofstede, Indulgence and Long Term Orientation were not included within the analysis[10]. To test Hypothesis 2e, we construct an overall indicator of the pressure to conform across the home countries of the investors, based on the dimensions of national culture. This measure of pressure to conform was constructed by conducting a principal component analysis on the cultural dimensions of power distance, uncertainty avoidance, collectivism and masculinity across countries. While the Bartlett test ($p<0.001$) indicated satisfactory statistical relationships between the dimensions, the Kaiser-Meyer-Olkin (KMO) test indicated a lack of sample adequacy for the masculinity dimension (below 0.50) suggesting that it cannot be combined with the other dimensions in a principal component analysis (Kaiser, 1974; Hair et al., 2006). Hence, we conducted the analysis on the three remaining dimensions (Kaiser, 1974), which yielded one factor with an eigenvalue greater than 1[11], and with all items having a factor loading above the commonly-used threshold of 0.3. We extract the principle component as our measure pressure to conform.[12]

[9] In supplementary analysis we examine the sensitivity of results if we restrict prior investments to the previous year.
[10] The inclusion of Long Term Orientation or Indulgence leads to the loss of 8 home countries, 91 projects, 67 firms.
[11] To increase confidence in our obtained number of factors, we additionally performed the parallel analysis of Horn.
[12] The results of the principal component analyses are relegated to the appendix.

Hypothesis 3 distinguishes between firms with substantial legitimacy and those with less legitimacy. We operationalize legitimacy by the age and size of the firm at the time they made the focal investment. We determined a firm's age at the time it made a given investment by subtracting the year of the investment as reported in *fDi Markets* from the firm's year of establishment. For firms that merged or were acquired at some point in their history, we set the year of establishment equal to that of the oldest firm involved in the deal, thus assuming the occurrence of legitimacy spillovers between merger partners and from acquirers to acquired firms (Kostova & Zaheer, 1999). The size of the firm was measured by using the total assets obtained from ORBIS database (Haveman, 1993). We then used the median age and size to establish a less and substantial legitimacy group. Firms that fall both under the median age and size are assigned to the less legitimate group. If information on one of the two indicators (e.g. size) is missing, the other one (e.g. age) is used to assign firms to their respective group. Given that more information could be obtained for age compared to size, age was predominantly used to assign firms to groups. We lose several observation as either no data could be obtained for firm age or size or if the retrieved information placed firms into contradicting groups (young and large firms or old and small firms). This leads to the loss of 293 projects due to 175 firms from 30 home countries. Hypotheses 3 is tested by assessing the moderating effect of pressure to conform (the separate cultural dimensions and the joint domestic conformity force) separately in the two subsamples; it predicts a significant association in the subsample of younger and smaller firms, rather than in the subsample of older and larger firms.

To test Hypothesis 4, we distinguish between firms with a high number of foreign affiliates and firms with no or a limited number of foreign affiliates. Data on the number of foreign affiliates was obtained from ORBIS. We used the median number of affiliates of the sample firms to estimate two separate models: one for firms with extensive foreign operations and one for firms with limited or no existing foreign operations. About 62% of the firms within the dataset do not have any foreign affiliates before investing in the United States. Hypotheses 4 is tested by assessing the moderating effect of pressure to conform (the separate cultural dimensions and the joint domestic conformity force) separately in the two subsamples; it predicts a significant association in the subsample of firms with no or limited multinational operations, rather than in the subsample of firms with extensive multinational operations.

We conduct a split sample analysis for Hypothesis 3 and 4 rather than including an additional interaction term because split sample analysis also allows the other covariates to differ for the two types of firms and does not restrict all other coefficients to be equal (Hoetker, 2007). Split sample analysis furthermore avoids inclusion of triple interaction terms, which are difficult to interpret in nonlinear models (e.g. Bowen, 2012).

We include a number of control variables related to other investments in the MSAs, to ensure that the focal prior investment variables capture imitation rather than confounding influences. Our choice of control variables is based on prior studies on investment location (e.g. Belderbos et al., 2017; Asmussen et al., 2019; Belderbos et al., 2020) and the gravity model literature (e.g. Rose, 2000; Glick & Rose, 2002; Perkins, 2008; Nachum et al., 2008). We include the recent investments of firms based in other countries in the focal industry, as firms may also act on signals of attractiveness provided by such firms. To control for internal collocation effects (Defever, 2006) and familiarity with a location (Perkins, 2008), we include *Investor's Experience*. This is a dummy variable taking the value one of the focal firm has invested in a particular MSA prior to the focal investment location choice. Previous manufacturing investments made by the firm in a particular MSA were retrieved from fDi Markets and the ORBIS database.

The analysis controls for a series of other variables that have been found to affect the attractiveness of regions or countries for foreign investment. *GDP Per Capita* is included to control for differences in income and purchasing power and overall market volume (Lu, 2002). Foreign investors are often attracted to larger markets as it is associated with higher profits from sales (Chakrabarti, 2003) and economies of scale leading to increased return on investment (Bergstrand, 1986). *Population Density* is included to control for the concentration of demand and the potential customer base. The squared term of population density is included to control for potential negative effects of the highest level of density such as congestion and pollution. *Corporate Tax Rate* is included to control for differences in corporate tax rates at the state level. When an MSA includes cities based in multiple states, the average of corporate tax rates of those states was calculated. *Educational Attainment* measures the share of the population of the MSA with a master's degree and controls for the presence of human capital (Alcacer & Chung, 2002). *Labor Cost* may reduce the attractiveness of an MSA for manufacturing investment. A higher wage contributes to a higher cost of production eventually resulting in higher product prices making the firm less competitive within the home and host market (Chakrabarti, 2003). Labor Cost is measured as the weighted average of wage costs by occupation for the focal industry. *Rent Costs* increase the cost of establishment and may discourage investments. It is measured as the average rent per real estate unit.

In order to establish the role of mimicry processes, it is crucial to control for the presence of agglomeration economies: the positive externalities obtained from co-locating with other firms in an industry cluster (Marshall, 1920; Porter, 1998; Tan & Meyer, 2011). We follow the approach of Gleaser & Kerr (2009) and Alcacer & Chung (2014) and distinguish four variables that directly measure the different mechanisms through which agglomeration can bring advantages to a focal firm and increase the attractiveness of an MSA for investment. *Labor Fit* measures the improved access to specialized labor in agglomerated areas. It measures the MSA's labor force specialization in jobs that are more frequently offered in the focal industry. *Supplier Fit* measures the benefits one can obtain from the presence of suppliers in the MSA, such as lower transport cost and specialized production for the focal industry. It measures the specialization of the MSA in industries that are important suppliers to the focal industry, with importance determined by the US input-output table. Similarly, *Buyer Fit* is the specialization of the MSA in industries that are important buyers of the focal industry. *Knowledge Fit* measures the specialization of the MSA in technology development relevant for the focal industry. It is identified by the technology fields of patents invented in the MSA. The potential residual effects of agglomeration economies due to the size of the industry cluster are measured by *Employment*, the number of employees in the MSA in the focal industry. Details on measurement of the agglomeration variables are relegated to the appendix.

Air Traffic Intensity is included to control for the connectivity of the MSA. It measures the number of passengers travelling from the MSA's airport(s), on a per capita basis. Finally, *Geographical Distance* is included to control for the distance between the focal MSA and the source city of the investing firm. Greater geographical distance is often associated with lower FDI activity as distance may hamper the flow of goods, services, capital and labor (e.g. Rose, 2000; Glick & Rose, 2002; Chakrabarti, 2003; Perkins, 2008; Nachum et al., 2008) due to large transportation costs, transaction costs or higher costs of obtaining information and managing affiliates in distant regions. All independent variables, except the binary variables, were logarithmically transformed and are measured in the year before the focal investment location decision, if not defined otherwise, to allow for a response time by the investing firm. The logarithmic transformation in the context of a conditional logit model, allows the estimated coefficients to be interpreted as average elasticities (Head et al., 1995).

2.3.2 Empirical Model

Since our analysis is one of location choice, an appropriate method to relate such choices to locational characteristic is the conditional logit model of McFadden (1974). This model is commonly used in location choice literature (e.g. Henisz & Delios, 2001; Alcacer & Chung, 2007; Nachum et al., 2008; Belderbos et al., 2011), and relates the probability that a specific MSA, rather than any other MSA, is chosen as location for investment to the locational characteristics of the MSAs as described above.

A multinational firm f in manufacturing industry i (i = 1,…,S) has a location choice set of 354 different MSA l (l=1,…,354) to locate a FDI investment at time t (t = 2005-2012). The expected probability of firm f in manufacturing industry i from home country c choosing MSA l among other MSAs at time t, focusing on the two focal mimicry variables, is expressed as follows:

$$P_{f,i,l,t} = \frac{\exp\left(\alpha_1 pFDI_{l,c,i,t} + \alpha_2 pFDI_{l,c,i,t} * DC_c + \alpha_3 pFDI_{l,c,k,t} + \alpha_4 pFDI_{l,c,k,t} * DC_c + \beta H_{f,l,t} + \gamma H_{l,t} + \delta H_{l,i,t}\right)}{\sum_{m=1}^{Z} \exp(\alpha_1 pFDI_{l,c,i,t} + \alpha_2 pFDI_{l,c,i,t} * DC_c + \alpha_3 pFDI_{l,c,k,t} + \alpha_4 pFDI_{l,c,k,t} * DC_c + \beta H_{f,l,t} + \gamma H_{l,t} + \delta H_{l,i,t})}$$

Where the main independent variables include the two main effects of our two focal variables, Prior FDI coming from the same home country c and the focal industry i and Prior FDI coming from the same home country c and other industries k. DC represents the separate cultural dimensions (collectivism, power distance, uncertainty avoidance and masculinity) and the joint domestic conformity forces. Other independent variables include variables that vary over MSA, the firm and time ($H_{f,l,t}$: Investor's Experience), variables that vary over MSA and time ($H_{l,t}$: GDP per capita, Population Density, Population Density Squared, Corporate Tax Rate, Educational Attainment, Rent Costs, Geographical Distance and Air Traffic Intensity), variables that vary over MSA, industry and time ($H_{l,i,t}$: Labor Fit, Supplier Fit, Buyer Fit, Knowledge Fit, Employment and Labor Costs) and variables that vary by MSA, industry, home country and time (Prior FDI Other County Focal Industry).

The conditional logit model relies on the assumption of independence of irrelative alternatives (IIA) and homogeneity of preferences among investing firms, or that these preferences depend on observable characteristics. In a robustness analysis reported in the supplementary analysis section, we relax this assumption by estimating random coefficient (mixed) logit models.

2.4 Empirical Results

Table 2.3 displays the descriptive statistics of the variables and table 2.4a displays their correlations. Tables 2.4b and 2.4c present the correlations tables for the subsets of firms with less and substantial legitimacy, respectively. Tables 2.4d and 2.4e present the correlation tables for the subsets of firms with limited and substantial multinational operations, respectively. The correlations do not indicate multicollinearity concerns.

Table 2. 3 Descriptive statistics

Variable	*Description*	*Mean*	*Std.dev*	*Min*	*Max*
Loc	Binary variable taking the value of 1 if the investment was made in a particular MSA and zero otherwise	0,003	0,053	0	1
Prior FDI Home Country Focal Industry	The number of prior FDI investments in the previous two years in the MSA made by firms in the same home country and focal industry	0,005	0,075	0	5
Prior FDI Home Country Other Industry	The number of prior FDI investments in the previous two years in the MSA made by firms in the same home country but active in another manufacturing industry	0,040	0,235	0	5
Prior FDI Other Country Focal Industry	The number of prior FDI investments in the previous two years in the MSA made by firms active in the focal industry but based in other countries	0,028	0,199	0	9
Collectivism	The degree of collectivism within a source country based on Hofstede	36,914	18,438	10	87
Power Distance	The degree of power distance within a source country based on Hofstede	45,363	15,569	11	104
Uncertainty Avoidance	The degree of uncertainty avoidance within a source country based on Hofstede	65,260	20,938	23	112
Masculinity	The degree of masculinity within a source country based on Hofstede	60,410	22,533	5	95
Domestic Conformity Forces	Principal Component of the Hofstede cultural dimensions	-0,760	0,817	-2	1
Legitimacy	Binary variable taking the value of 1 if the firm belongs to the older and larger group based on the median of the age and total assets, zero otherwise	0,473	0,499	0	1
Foreign Affiliates	Binary variable taking the value of 1 if the firm belongs to the group with substantial foreign affiliates based on the median of the foreign affiliates, zero otherwise	0,424	0,494	0	1
Investor's Experience	Binary variable taking the value one of the focal firm has invested in a particular MSA prior to the focal investment location choice	0,008	0,092	0	1
GDP per capita	The GDP per capita at MSA level	36412,940	10601,900	15517	91598
Population density	Population divided by the area of the MSA	297,323	474,573	7	7340
Corporate tax rate	The corporate tax rate at state level (percentage)	6,550	2,674	0	12
Educational attainment	The share of the MSA population with third level education	3,236	0,304	2	4
Labor Cost	The weighted average of wage costs by occupations for the focal industry	37877,550	5451384,000	22140	69880
Employment	The number of employees in the MSA in the focal industry	1597,440	4965,204	1	100454
Rent costs	The average rent per housing unit at the MSA level	748,906	164,972	439	1560
Supplier Fit	The specialization of the MSA in industries that are important suppliers to the focal industry, with importance determined by the US input-output table	0,410	0,339	0	26
Buyer Fit	The specialization of the MSA in industries that are important customers to the focal industry, with importance determined by the US input-output table	0,386	0,655	0	22
Labor Fit	The MSA’s labor force specialization in jobs that are more frequently offered in the focal industry	97,032	40,474	27	1471
Knowledge Fit	The specialization of the MSA in technology development relevant for the focal industry	1,488	3,428	0	149
Geographical Distance	The great circle distance between the focal MSA and the source city of the investing firm (Haversine formula)	8065,639	2875,379	13	19210
Air traffic Intensity	The total number of passengers travelling from the MSA's airport(s), on a per capita basis	0,022	0,070	0	1

Note: Descriptives are untransformed continuous variables. In the empirical models, the variables are taken in natural logarithm.

Table 2. 4 Correlations

Table 2. 4a Correlations in the full sample

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Loc	1																
2	Prior FDI Home Country Focal Industry	**0,0196**	1															
3	Prior FDI Home Country Other Industry	**0,0333**	**0,0935**	1														
4	Prior FDI Other Country Focal Industry	**0,0391**	**0,0860**	**0,0629**	1													
5	Investor's Experience	**0,0752**	**0,0322**	**0,0810**	**0,0375**	1												
6	GDP per capita	**0,0282**	**0,0320**	**0,1085**	**0,0732**	**0,0863**	1											
7	Population density	**0,0351**	**0,0391**	**0,1331**	**0,0959**	**0,1312**	**0,3902**	1										
8	Corporate tax rate	**0,0035**	-0,0018	-0,0006	0,0003	**0,0094**	0,0021	**0,0246**	1									
9	Educational attainment	**0,0193**	**0,0196**	**0,0701**	**0,0496**	**0,0598**	**0,5736**	**0,3268**	**0,0755**	1								
10	Labor Cost	**0,0214**	**0,0216**	**0,0948**	**0,0682**	**0,0952**	**0,5166**	**0,4883**	**0,0158**	**0,5344**	1							
11	Employment	**0,0361**	**0,0489**	**0,1060**	**0,1199**	**0,0725**	**0,1946**	**0,3666**	**0,0073**	**0,1384**	**0,2789**	1						
12	Rent costs	**0,0085**	0,0021	**0,0357**	**0,0226**	**0,0668**	**0,3599**	**0,4015**	0,0022	**0,4278**	**0,6867**	**0,1754**	1					
13	Supplier Fit	**0,0062**	**0,0187**	**0,0270**	**0,0257**	**0,0112**	0,0024	**0,0520**	**0,0137**	**-0,0335**	**-0,0625**	**-0,0777**	**-0,0553**	1				
14	Buyer Fit	0,0030	**-0,0107**	**0,0055**	**0,0037**	**-0,0110**	**0,0096**	**0,0168**	**0,0117**	0,0002	**-0,0309**	**-0,0484**	**0,0048**	**-0,0341**	1			
15	Labor Fit	**0,0214**	**0,0249**	**0,0165**	**0,0601**	**0,0132**	**0,0120**	**0,0438**	**-0,0237**	0,0024	**0,0167**	**0,4931**	**-0,0122**	-0,0006	**-0,0325**	1		
16	Knowledge Fit	**0,0133**	**0,0250**	**0,0231**	**0,0522**	**0,0142**	**0,0484**	**0,0624**	0,0001	**0,0499**	**0,0482**	**0,1638**	-0,0001	**0,0398**	**-0,0178**	**0,1278**	1	
17	Geographical Distance	-0,0019	**0,0065**	-0,0026	**0,0036**	**0,0142**	**-0,0199**	**-0,0167**	**-0,0440**	**-0,0280**	**-0,0053**	**-0,0192**	**0,0481**	-0,0006	**0,0324**	**-0,0278**	**-0,0037**	1
18	Air traffic Intensity	**0,0186**	**0,0122**	**0,0544**	**0,0337**	**0,0424**	**0,2855**	**0,2867**	**-0,1208**	**0,1566**	**0,1123**	**0,1458**	**0,1961**	**0,0251**	**0,0118**	**0,0065**	**0,0131**	**0,0239**

Note: correlations in bold are significant (P<0.05).

Table 2. 4b Correlations in the less legitimate firm sample

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Loc	1																
2	Prior FDI Home Country Focal Industry	**0,0179**	1															
3	Prior FDI Home Country Other Industry	**0,0367**	**0,0945**	1														
4	Prior FDI Other Country Focal Industry	**0,0415**	**0,0781**	**0,0577**	1													
5	Investor's Experience	**0,0833**	-0,0014	**0,0213**	**0,0474**	1												
6	GDP per capita	**0,0297**	**0,0274**	**0,0924**	**0,0759**	**0,0155**	1											
7	Population density	**0,0390**	**0,0358**	**0,1159**	**0,1012**	**0,0267**	**0,3898**	1										
8	Corporate tax rate	0,0035	-0,0036	**0,0051**	-0,0012	0,0010	0,0010	**0,0257**	1									
9	Educational attainment	**0,0218**	**0,0201**	**0,0601**	**0,0531**	**0,0127**	**0,5733**	**0,3271**	**0,0767**	1								
10	Labor Cost	**0,0238**	**0,0206**	**0,0792**	**0,0716**	**0,0185**	**0,5156**	**0,4885**	**0,0179**	**0,5328**	1							
11	Employment	**0,0382**	**0,0429**	**0,0951**	**0,1234**	**0,0248**	**0,2025**	**0,3760**	**0,0109**	**0,1467**	**0,2905**	1						
12	Rent costs	**0,0118**	0,0021	**0,0283**	**0,0229**	**0,0078**	**0,3596**	**0,4019**	0,0014	**0,4270**	**0,6860**	**0,1820**	1					
13	Supplier Fit	0,0033	**0,0155**	**0,0237**	**0,0287**	0,0011	-0,0041	**0,0494**	**0,0129**	**-0,0397**	**-0,0712**	**-0,0771**	**-0,0643**	1				
14	Buyer Fit	0,0019	**-0,0123**	-0,0007	0,0014	**-0,0049**	**0,0110**	**0,0192**	**0,0099**	0,0015	**-0,0229**	**-0,0360**	**0,0102**	**-0,0072**	1			
15	Labor Fit	**0,0216**	**0,0209**	**0,0162**	**0,0618**	**0,0107**	**0,0173**	**0,0543**	**-0,0258**	**0,0130**	**0,0261**	**0,4905**	**-0,0132**	**0,0302**	**-0,0175**	1		
16	Knowledge Fit	**0,0157**	**0,0238**	**0,0232**	**0,0555**	**0,0105**	**0,0495**	**0,0627**	**0,0050**	**0,0509**	**0,0463**	**0,1666**	0,0025	**0,0404**	**-0,0095**	**0,1302**	1	
17	Geographical Distance	-0,0017	0,0012	**-0,0213**	**0,0045**	-0,0042	**-0,0163**	**-0,0161**	**-0,0379**	**-0,0267**	**-0,0046**	**-0,0153**	**0,0488**	-0,0024	**0,0403**	**-0,0360**	**-0,0046**	1
18	Air traffic Intensity	**0,0179**	**0,0128**	**0,0509**	**0,0349**	0,0039	**0,2865**	**0,2875**	**-0,1234**	**0,1579**	**0,1138**	**0,1489**	**0,1969**	**0,0221**	**0,0151**	**0,0093**	**0,0141**	**0,0282**

Note: correlations in bold are significant (P<0.05).

Table 2. 4c Correlations in the legitimate firm sample

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Loc	1																
2	Prior FDI Home Country Focal Industry	**0,0215**	1															
3	Prior FDI Home Country Other Industry	**0,0308**	**0,0921**	1														
4	Prior FDI Other Country Focal Industry	**0,0364**	**0,0963**	**0,0710**	1													
5	Investor's Experience	**0,0948**	**0,0425**	**0,1001**	**0,0504**	1												
6	GDP per capita	**0,0266**	**0,0364**	**0,1240**	**0,0702**	**0,1247**	1											
7	Population density	**0,0308**	**0,0425**	**0,1501**	**0,0897**	**0,1897**	**0,3906**	1										
8	Corporate tax rate	0,0036	-0,0001	**-0,0056**	0,0022	**0,0140**	0,0034	**0,0235**	1									
9	Educational attainment	**0,0165**	**0,0193**	**0,0799**	**0,0455**	**0,0864**	**0,5739**	**0,3264**	**0,0743**	1								
10	Labor Cost	**0,0188**	**0,0227**	**0,1101**	**0,0642**	**0,1378**	**0,5178**	**0,4881**	**0,0135**	**0,5361**	1							
11	Employment	**0,0337**	**0,0552**	**0,1182**	**0,1156**	**0,1046**	**0,1860**	**0,3562**	0,0033	**0,1292**	**0,2661**	1						
12	Rent costs	**0,0048**	0,0021	**0,0426**	**0,0224**	**0,0975**	**0,3601**	**0,4010**	0,0032	**0,4287**	**0,6873**	**0,1682**	1					
13	Supplier Fit	**0,0095**	**0,0228**	**0,0330**	**0,0209**	**0,0214**	**0,0103**	**0,0551**	**0,0145**	**-0,0264**	**-0,0527**	**-0,0797**	**-0,0450**	1				
14	Buyer Fit	0,0041	**-0,0102**	**0,0079**	**0,0073**	**-0,0188**	**0,0082**	**0,0147**	**0,0135**	-0,0012	**-0,0387**	**-0,0596**	-0,0006	**-0,0591**	1			
15	Labor Fit	**0,0212**	**0,0281**	**0,0160**	**0,0589**	**0,0154**	**0,0065**	**0,0327**	**-0,0216**	**-0,0089**	**0,0069**	**0,4968**	**-0,0112**	**-0,0336**	**-0,0471**	1		
16	Knowledge Fit	**0,0108**	**0,0261**	**0,0233**	**0,0486**	**0,0188**	**0,0473**	**0,0622**	**-0,0051**	**0,0490**	**0,0503**	**0,1610**	-0,0028	**0,0391**	**-0,0254**	**0,1255**	1	
17	Geographical Distance	-0,0025	**0,0117**	**0,0121**	**0,0077**	**0,0080**	**-0,0302**	**-0,0197**	**-0,0600**	**-0,0337**	**-0,0066**	**-0,0231**	**0,0516**	**0,0152**	**0,0127**	**-0,0210**	-0,0020	1
18	Air traffic Intensity	**0,0193**	**0,0118**	**0,0581**	**0,0325**	**0,0618**	**0,2844**	**0,2858**	**-0,1178**	**0,1553**	**0,1107**	**0,1424**	**0,1952**	**0,0287**	**0,0087**	0,0037	**0,0121**	**0,0184**

Note: correlations in bold are significant (P<0.05).

Table 2. 4d Correlations in the firms with no or limited multinational operations sample

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Loc	1																
2	Prior FDI Home Country Focal Industry	**0,0217**	1															
3	Prior FDI Home Country Other Industry	**0,0337**	**0,0922**	1														
4	Prior FDI Other Country Focal Industry	**0,0374**	**0,0819**	**0,0595**	1													
5	Investor's Experience	**0,0141**	-0,0004	**0,0068**	-0,0009	1												
6	GDP per capita	**0,0283**	**0,0328**	**0,1000**	**0,0743**	0,0030	1											
7	Population density	**0,0358**	**0,0398**	**0,1207**	**0,0986**	**0,0066**	**0,3904**	1										
8	Corporate tax rate	0,0040	-0,0020	**0,0065**	-0,0022	0,0019	0,0010	**0,0262**	1									
9	Educational attainment	**0,0202**	**0,0212**	**0,0606**	**0,0522**	0,0039	**0,5729**	**0,3270**	**0,0755**	1								
10	Labor Cost	**0,0206**	**0,0218**	**0,0745**	**0,0712**	0,0019	**0,5172**	**0,4894**	**0,0168**	**0,5321**	1							
11	Employment	**0,0356**	**0,0474**	**0,0973**	**0,1202**	0,0024	**0,2006**	**0,3720**	**0,0123**	**0,1423**	**0,2898**	1						
12	Rent costs	**0,0089**	0,0005	**0,0235**	**0,0246**	0,0009	**0,3608**	**0,4018**	0,0006	**0,4253**	**0,6846**	**0,1780**	1					
13	Supplier Fit	**0,0063**	**0,0202**	**0,0211**	**0,0276**	-0,0042	0,0013	**0,0514**	**0,0120**	**-0,0353**	**-0,0531**	**-0,0655**	**-0,0470**	1				
14	Buyer Fit	0,0033	**-0,0140**	**0,0074**	**0,0051**	**0,0157**	**0,0114**	**0,0173**	**0,0109**	0,0011	**-0,0452**	**-0,0593**	-0,0042	**-0,0413**	1			
15	Labor Fit	**0,0212**	**0,0231**	**0,0146**	**0,0588**	0,0021	**0,0139**	**0,0483**	**-0,0235**	**0,0063**	**0,0140**	**0,4888**	**-0,0225**	**0,0309**	**-0,0208**	1		
16	Knowledge Fit	**0,0159**	**0,0240**	**0,0247**	**0,0546**	0,0006	**0,0500**	**0,0634**	**0,0059**	**0,0504**	**0,0500**	**0,1683**	0,0013	**0,0415**	**-0,0177**	**0,1310**	1	
17	Geographical Distance	-0,0019	**0,0076**	**-0,0060**	**0,0057**	-0,0014	**-0,0176**	**-0,0151**	**-0,0363**	**-0,0275**	**-0,0064**	**-0,0216**	**0,0431**	**-0,0090**	**0,0365**	**-0,0302**	**-0,0056**	1
18	Air traffic Intensity	**0,0169**	**0,0115**	**0,0616**	**0,0368**	**0,0043**	**0,2889**	**0,2896**	**-0,1257**	**0,1584**	**0,1173**	**0,1512**	**0,1998**	**0,0240**	**0,0141**	**0,0074**	**0,0124**	**0,0225**

Note: correlations in bold are significant (P<0.05).

Table 2. 4e Correlations in the firms with substantial multinational operations sample

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Loc	1																
2	Prior FDI Home Country Focal Industry	**0,0168**	1															
3	Prior FDI Home Country Other Industry	**0,0330**	**0,0956**	1														
4	Prior FDI Other Country Focal Industry	**0,0416**	**0,0917**	**0,0676**	1													
5	Investor's Experience	**0,1155**	**0,0502**	**0,1148**	**0,0596**	1												
6	GDP per capita	**0,0281**	**0,0309**	**0,1192**	**0,0716**	**0,1332**	1											
7	Population density	**0,0341**	**0,0382**	**0,1486**	**0,0922**	**0,2025**	**0,3899**	1										
8	Corporate tax rate	0,0029	-0,0016	**-0,0089**	0,0037	**0,0152**	0,0036	**0,0225**	1									
9	Educational attainment	**0,0180**	**0,0174**	**0,0820**	**0,0460**	**0,0922**	**0,5745**	**0,3266**	**0,0756**	1								
10	Labor Cost	**0,0226**	**0,0212**	**0,1193**	**0,0643**	**0,1444**	**0,5159**	**0,4869**	**0,0146**	**0,5375**	1							
11	Employment	**0,0367**	**0,0509**	**0,1175**	**0,1194**	**0,1143**	**0,1866**	**0,3595**	0,0005	**0,1331**	**0,2648**	1						
12	Rent costs	**0,0080**	0,0043	**0,0504**	**0,0200**	**0,1020**	**0,3587**	**0,4011**	0,0045	**0,4312**	**0,6894**	**0,1722**	1					
13	Supplier Fit	**0,0060**	**0,0168**	**0,0341**	**0,0232**	**0,0174**	0,0039	**0,0529**	**0,0160**	**-0,0312**	**-0,0751**	**-0,0938**	**-0,0665**	1				
14	Buyer Fit	0,0026	**-0,0061**	**0,0064**	0,0008	-0,0045	**0,0072**	**0,0164**	**0,0121**	-0,0007	**-0,0082**	**-0,0365**	**0,0194**	**-0,0241**	1			
15	Labor Fit	**0,0216**	**0,0272**	**0,0186**	**0,0619**	**0,0195**	**0,0097**	**0,0381**	**-0,0241**	-0,0026	**0,0201**	**0,4993**	0,0008	**-0,0401**	**-0,0486**	1		
16	Knowledge Fit	**0,0100**	**0,0262**	**0,0213**	**0,0491**	**0,0215**	**0,0464**	**0,0612**	**-0,0073**	**0,0494**	**0,0459**	**0,1581**	-0,0019	**0,0377**	**-0,0182**	**0,1239**	1	
17	Geographical Distance	-0,0021	0,0045	0,0013	-0,0003	**0,0199**	**-0,0269**	**-0,0219**	**-0,0646**	**-0,0319**	**-0,0052**	**-0,0132**	**0,0621**	**0,0180**	**0,0388**	**-0,0258**	0,0000	1
18	Air traffic Intensity	**0,0210**	**0,0133**	**0,0461**	**0,0293**	**0,0679**	**0,2808**	**0,2826**	**-0,1140**	**0,1543**	**0,1057**	**0,1379**	**0,1912**	**0,0267**	**0,0068**	**0,0054**	**0,0141**	**0,0305**

Note: correlations in bold are significant (P<0.05).

Table 2.5 to 2.9 presents the results of the conditional logit analysis. Model 1 only contains the control variables. Most of the control variables are significant and have an intuitive sign. Prior investment from third countries in the focal industry has a positive insignificant effect on the probability that an MSA is chosen as the location for investment, with an estimated average elasticity of about 1.072 ($p<0.001$): a 10 percent increase in prior investment increases the probability of investment by 10.72 percent. The experience of the focal firm is significantly positive indicating that it is an important antecedent of the choice to locate new manufacturing investments in that MSA. GDP per capita, Educational Attainment and Air Traffic Intensity show a positive effect indicating the attractiveness towards MSAs with the presence of a well-developed market, highly educated human capital and good connections to other domestic and foreign cities.

Population density shows the expected inverted U-shaped relationship with the probability that the MSA is chosen for investment confirming both the benefits of the concentration of demand and a large customer base and the negative effects of congestion or pollution. Other significant negative effects are observed for Rent Costs showing that firms are less likely to choose locations characterized by higher costs for renting offices or houses. All of the measures of agglomeration benefits, except customer-related and knowledge-related agglomeration benefits, contribute significantly to the attractiveness of the MSA for new investments, indicating the importance of the potential positive externalities that can be obtained from co-locating with others. The only unexpected effect is a significant positive influence of state corporate tax levels. State corporate tax levels are also relatively low and may also be associated with greater quality of public infrastructure and tax incentive for investors (Goetz, 1997; Head et al., 2004). Geographical distance is not significant, which may be due to the limited variation across the regional locations within the same host country.

If the two focal mimicry variables are included in model 2, a positive significant effect is observed for prior investments in the focal industry from the home country and for the number of recent investments from other industries from the home country. The magnitude of this effect for recent investments by firms from the same home country and from the focal industry and in other industries, respectively are 0.58 ($p<0.05$) 0.82 ($p<0.001$), implying that an increase of 10 percent increases the probability that an MSA is chosen by, respectively, 5.8% and 8.5% on average. These results provide support for baseline Hypothesis 1.

Table 2. 5 Conditional Logit model of FDI investments in the United States, 2005-2012, with Collectivism

	Model 1 Full Sample	*Model 2 Full Sample*	*Model 3 Full Sample*	*Model 4 Less Legitimate*	*Model 5 High Legitimacy*	*Model 6 Low # foreign affiliates*	*Model 7 High # foreign affiliates*	*Model 8 Full Sample*
Prior FDI Home Country Focal Industry		0.575*	0.209	0.202	0.316	-0.0353	0.171	0.178
		(0.310)	(0.358)	(0.601)	(0.437)	(0.595)	(0.354)	(0.358)
Prior FDI Home Country Focal Industry x Collectivism			0.0747***	0.0750***	0.0634	0.0921***	-0.0195	0.0789***
			(0.0212)	(0.0233)	(0.0490)	(0.0262)	(0.0313)	(0.0211)
Prior FDI Home Country Other Industry		0.822***	0.840***	1.268***	0.596***	1.150***	0.455**	0.837***
		(0.135)	(0.137)	(0.191)	(0.180)	(0.168)	(0.203)	(0.137)
Prior FDI Home Country Other Industry x Collectivism			0.00921	0.0298***	-0.0134	0.0220**	-0.0277*	0.00993
			(0.0108)	(0.0107)	(0.0133)	(0.0108)	(0.0154)	(0.0106)
Prior FDI Other Country Focal Industry	1.072***	0.985***	0.995***	0.951***	0.990***	1.133***	0.848***	0.825***
	(0.127)	(0.133)	(0.133)	(0.202)	(0.193)	(0.172)	(0.165)	(0.188)
Prior FDI Other Country Focal Industry x Collectivism								-0.265
								(0.171)
Investor's Experience	3.064***	2.974***	2.974***	3.845***	3.052***	3.710***	3.283***	2.979***
	(0.264)	(0.261)	(0.258)	(1.105)	(0.273)	(0.0804)	(0.299)	(0.258)
GDP per capita	1.023***	0.957***	0.963***	1.102***	0.779**	1.131***	0.654*	0.959***
	(0.198)	(0.202)	(0.200)	(0.253)	(0.316)	(0.225)	(0.352)	(0.199)
Population Density	4.129***	3.939***	3.953***	4.629***	3.106***	4.442***	2.947***	3.955***
	(0.558)	(0.561)	(0.563)	(0.688)	(0.926)	(0.631)	(0.962)	(0.562)
Population Density Squared	-2.134***	-2.058***	-2.061***	-2.226***	-1.825***	-2.105***	-1.805***	-2.060***
	(0.342)	(0.347)	(0.347)	(0.402)	(0.603)	(0.369)	(0.624)	(0.346)
Corporate Tax Rate	0.173***	0.195***	0.191***	0.198**	0.179*	0.180**	0.193*	0.187***
	(0.0649)	(0.0671)	(0.0675)	(0.0933)	(0.0954)	(0.0768)	(0.101)	(0.0663)
Educational Attainment	0.455**	0.456**	0.445**	0.587**	0.315	0.607***	0.220	0.440**
	(0.198)	(0.200)	(0.197)	(0.255)	(0.296)	(0.231)	(0.314)	(0.198)
Labor Costs	-0.324	-0.344	-0.349	-0.985	0.228	-1.072*	0.682	-0.326
	(0.546)	(0.544)	(0.546)	(0.639)	(0.885)	(0.646)	(0.832)	(0.547)
Employment	0.0915***	0.0845***	0.0841***	0.0954***	0.0717**	0.0905***	0.0744**	0.0841***
	(0.0201)	(0.0201)	(0.0200)	(0.0244)	(0.0313)	(0.0226)	(0.0314)	(0.0200)
Rent Costs	-1.585***	-1.500***	-1.497***	-1.081***	-1.958***	-1.211***	-1.870***	-1.508***
	(0.267)	(0.269)	(0.269)	(0.318)	(0.432)	(0.318)	(0.423)	(0.270)

Continuation Table 2.5								
Supplier Fit	0.596***	0.595***	0.587***	0.291	0.937***	0.542**	0.645*	0.580***
	(0.223)	(0.223)	(0.223)	(0.313)	(0.292)	(0.260)	(0.383)	(0.223)
Buyer Fit	0.436**	0.414**	0.420**	0.384	0.488**	0.471**	0.330	0.421**
	(0.199)	(0.205)	(0.205)	(0.332)	(0.239)	(0.228)	(0.408)	(0.207)
Labor Fit	1.191***	1.227***	1.226***	1.138***	1.334***	1.162***	1.290***	1.229***
	(0.206)	(0.206)	(0.206)	(0.299)	(0.293)	(0.299)	(0.286)	(0.206)
Knowledge Fit	0.136**	0.133**	0.134**	0.214***	0.0481	0.255***	-0.0208	0.139**
	(0.0602)	(0.0601)	(0.0598)	(0.0778)	(0.0904)	(0.0669)	(0.0972)	(0.0592)
Geographical Distance	0.0122	0.0283	0.00986	0.0765	-0.174	-0.0445	0.167	0.0132
	(0.193)	(0.195)	(0.194)	(0.238)	(0.306)	(0.218)	(0.401)	(0.194)
Air Traffic Intensity	2.352***	2.429***	2.426***	1.753***	3.143***	1.616***	3.374***	2.408***
	(0.506)	(0.504)	(0.505)	(0.581)	(0.813)	(0.593)	(0.807)	(0.504)
Number of firms	622	622	622	441	184	503	179	622
Number of home countries	35	35	35	34	26	35	25	35
Number of projects	1050	1050	1050	553	497	605	445	1050
Wald chi-square	950.68***	1011.74***	1032.85***	640.48***	827.46***	653.51***	818.06***	1074.71***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 6 Conditional Logit model of FDI investments in the United States, 2005-2012, with Power Distance

	Model 1 Full Sample	*Model 2 Full Sample*	*Model 3 Full Sample*	*Model 4 Less Legitimate*	*Model 5 High Legitimacy*	*Model 6 Low # foreign affiliates*	*Model 7 High # foreign affiliates*	*Model 8 Full Sample*
Prior FDI Home Country Focal Industry		0.575*	0.715**	0.875*	0.570	0.865**	-0.429	0.718**
		(0.310)	(0.306)	(0.478)	(0.413)	(0.401)	(0.841)	(0.305)
Prior FDI Home Country Focal Industry x Power Distance			0.0447	0.0642**	0.0130	0.0724**	-0.0773	0.0492*
			(0.0291)	(0.0301)	(0.0479)	(0.0355)	(0.0942)	(0.0288)
Prior FDI Home Country Other Industry		0.822***	0.837***	1.251***	0.563***	1.187***	0.425**	0.837***
		(0.135)	(0.138)	(0.204)	(0.178)	(0.163)	(0.202)	(0.138)
Prior FDI Home Country Other Industry x Power Distance			0.00271	0.00854	-0.00678	0.0167	-0.0213	0.00389
			(0.0123)	(0.0172)	(0.0167)	(0.0143)	(0.0164)	(0.0121)
Prior FDI Other Country Focal Industry	1.072***	0.985***	0.987***	0.929***	0.988***	1.122***	0.895***	0.848***
	(0.127)	(0.133)	(0.133)	(0.206)	(0.193)	(0.171)	(0.176)	(0.187)
Prior FDI Other Country Focal Industry x Power Distance								-0.215
								(0.170)
Investor's Experience	3.064***	2.974***	2.973***	3.846***	3.051***	3.650***	3.283***	2.976***
	(0.264)	(0.261)	(0.259)	(1.106)	(0.274)	(0.0724)	(0.296)	(0.259)
GDP per capita	1.023***	0.957***	0.955***	1.085***	0.784**	1.112***	0.659*	0.952***
	(0.198)	(0.202)	(0.202)	(0.256)	(0.316)	(0.227)	(0.349)	(0.201)
Population Density	4.129***	3.939***	3.943***	4.589***	3.111***	4.414***	2.945***	3.944***
	(0.558)	(0.561)	(0.562)	(0.690)	(0.926)	(0.631)	(0.957)	(0.562)
Population Density Squared	-2.134***	-2.058***	-2.057***	-2.207***	-1.830***	-2.090***	-1.805***	-2.056***
	(0.342)	(0.347)	(0.347)	(0.405)	(0.604)	(0.370)	(0.621)	(0.346)
Corporate Tax Rate	0.173***	0.195***	0.195***	0.205**	0.180*	0.184**	0.185*	0.192***
	(0.0649)	(0.0671)	(0.0671)	(0.0927)	(0.0949)	(0.0768)	(0.0995)	(0.0662)
Educational Attainment	0.455**	0.456**	0.456**	0.614**	0.316	0.630***	0.208	0.453**
	(0.198)	(0.200)	(0.200)	(0.258)	(0.298)	(0.233)	(0.314)	(0.200)
Labor Costs	-0.324	-0.344	-0.354	-1.045	0.241	-1.107*	0.729	-0.341
	(0.546)	(0.544)	(0.548)	(0.643)	(0.885)	(0.649)	(0.827)	(0.549)
Employment	0.0915***	0.0845***	0.0844***	0.0958***	0.0716**	0.0907***	0.0739**	0.0845***
	(0.0201)	(0.0201)	(0.0200)	(0.0244)	(0.0313)	(0.0226)	(0.0313)	(0.0200)
Rent Costs	-1.585***	-1.500***	-1.496***	-1.049***	-1.964***	-1.193***	-1.875***	-1.503***
	(0.267)	(0.269)	(0.269)	(0.315)	(0.432)	(0.317)	(0.422)	(0.270)

Continuation Table 2.6								
Supplier Fit	0.596***	0.595***	0.589***	0.293	0.948***	0.533**	0.647*	0.583***
	(0.223)	(0.223)	(0.223)	(0.312)	(0.292)	(0.260)	(0.384)	(0.224)
Buyer Fit	0.436**	0.414**	0.420**	0.379	0.481**	0.476**	0.321	0.422**
	(0.199)	(0.205)	(0.206)	(0.332)	(0.240)	(0.227)	(0.401)	(0.208)
Labor Fit	1.191***	1.227***	1.227***	1.135***	1.334***	1.171***	1.297***	1.229***
	(0.206)	(0.206)	(0.206)	(0.298)	(0.291)	(0.298)	(0.283)	(0.206)
Knowledge Fit	0.136**	0.133**	0.135**	0.217***	0.0461	0.258***	-0.0184	0.138**
	(0.0602)	(0.0601)	(0.0601)	(0.0777)	(0.0906)	(0.0666)	(0.0956)	(0.0596)
Geographical Distance	0.0122	0.0283	0.0233	0.0958	-0.165	-0.0278	0.156	0.0261
	(0.193)	(0.195)	(0.194)	(0.238)	(0.305)	(0.218)	(0.399)	(0.194)
Air Traffic Intensity	2.352***	2.429***	2.423***	1.737***	3.136***	1.602***	3.381***	2.407***
	(0.506)	(0.504)	(0.506)	(0.584)	(0.812)	(0.595)	(0.802)	(0.506)
Number of firms	622	622	622	441	184	503	179	622
Number of home countries	35	35	35	34	26	35	25	35
Number of projects	1050	1050	1050	553	497	605	445	1050
Wald chi-square	950.68***	1011.74***	1019.14***	608.00***	811.30***	623.57***	886.49***	1042.78***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 7 Conditional Logit model of FDI investments in the United States, 2005-2012, with Uncertainty Avoidance

	Model 1 Full Sample	*Model 2 Full Sample*	*Model 3 Full Sample*	*Model 4 Less Legitimate*	*Model 5 High Legitimacy*	*Model 6 Low # foreign affiliates*	*Model 7 High # foreign affiliates*	*Model 8 Full Sample*
Prior FDI Home Country Focal Industry		0.575*	0.427	0.432	0.499	0.459	0.262	0.390
		(0.310)	(0.365)	(0.557)	(0.455)	(0.511)	(0.375)	(0.367)
Prior FDI Home Country Focal Industry x Uncertainty Avoidance			0.0218	0.0421	0.00361	0.0359	-0.0488	0.0252
			(0.0237)	(0.0321)	(0.0339)	(0.0235)	(0.0422)	(0.0238)
Prior FDI Home Country Other Industry		0.822***	0.824***	1.182***	0.632***	1.102***	0.580***	0.818***
		(0.135)	(0.139)	(0.192)	(0.195)	(0.177)	(0.205)	(0.139)
Prior FDI Home Country Other Industry x Uncertainty Avoidance			0.000303	0.0171	-0.00816	0.00991	-0.0188*	0.00107
			(0.00809)	(0.0122)	(0.0103)	(0.00927)	(0.0103)	(0.00804)
Prior FDI Other Country Focal Industry	1.072***	0.985***	0.985***	0.926***	0.986***	1.114***	0.882***	0.858***
	(0.127)	(0.133)	(0.133)	(0.209)	(0.193)	(0.173)	(0.167)	(0.184)
Prior FDI Other Country Focal Industry x Uncertainty Avoidance								-0.198
								(0.167)
Investor's Experience	3.064***	2.974***	2.973***	3.843***	3.053***	3.679***	3.287***	2.976***
	(0.264)	(0.261)	(0.260)	(1.122)	(0.276)	(0.0838)	(0.298)	(0.260)
GDP per capita	1.023***	0.957***	0.956***	1.086***	0.783**	1.111***	0.653*	0.953***
	(0.198)	(0.202)	(0.202)	(0.257)	(0.316)	(0.227)	(0.351)	(0.201)
Population Density	4.129***	3.939***	3.943***	4.611***	3.105***	4.421***	2.935***	3.944***
	(0.558)	(0.561)	(0.564)	(0.689)	(0.928)	(0.631)	(0.962)	(0.564)
Population Density Squared	-2.134***	-2.058***	-2.058***	-2.218***	-1.828***	-2.095***	-1.798***	-2.058***
	(0.342)	(0.347)	(0.347)	(0.405)	(0.605)	(0.370)	(0.624)	(0.347)
Corporate Tax Rate	0.173***	0.195***	0.195***	0.206**	0.180*	0.186**	0.185*	0.192***
	(0.0649)	(0.0671)	(0.0670)	(0.0929)	(0.0948)	(0.0770)	(0.1000)	(0.0662)
Educational Attainment	0.455**	0.456**	0.455**	0.611**	0.319	0.627***	0.213	0.453**
	(0.198)	(0.200)	(0.199)	(0.258)	(0.298)	(0.233)	(0.314)	(0.200)
Labor Costs	-0.324	-0.344	-0.349	-1.046	0.240	-1.089*	0.717	-0.338
	(0.546)	(0.544)	(0.546)	(0.643)	(0.885)	(0.644)	(0.828)	(0.547)
Employment	0.0915***	0.0845***	0.0845***	0.0963***	0.0716**	0.0912***	0.0738**	0.0846***
	(0.0201)	(0.0201)	(0.0201)	(0.0244)	(0.0313)	(0.0226)	(0.0313)	(0.0200)
Rent Costs	-1.585***	-1.500***	-1.497***	-1.049***	-1.967***	-1.198***	-1.878***	-1.503***
	(0.267)	(0.269)	(0.269)	(0.316)	(0.431)	(0.316)	(0.422)	(0.270)

Continuation Table 2.7								
Supplier Fit	0.596***	0.595***	0.591***	0.293	0.950***	0.536**	0.646*	0.586***
	(0.223)	(0.223)	(0.223)	(0.313)	(0.291)	(0.260)	(0.384)	(0.223)
Buyer Fit	0.436**	0.414**	0.417**	0.378	0.481**	0.473**	0.323	0.418**
	(0.199)	(0.205)	(0.206)	(0.332)	(0.240)	(0.226)	(0.404)	(0.207)
Labor Fit	1.191***	1.227***	1.226***	1.133***	1.335***	1.166***	1.301***	1.228***
	(0.206)	(0.206)	(0.206)	(0.298)	(0.292)	(0.298)	(0.285)	(0.206)
Knowledge Fit	0.136**	0.133**	0.133**	0.217***	0.0446	0.258***	-0.0188	0.136**
	(0.0602)	(0.0601)	(0.0604)	(0.0780)	(0.0909)	(0.0665)	(0.0962)	(0.0599)
Geographical Distance	0.0122	0.0283	0.0239	0.0878	-0.160	-0.0282	0.167	0.0261
	(0.193)	(0.195)	(0.195)	(0.239)	(0.306)	(0.218)	(0.401)	(0.195)
Air Traffic Intensity	2.352***	2.429***	2.427***	1.744***	3.136***	1.610***	3.357***	2.414***
	(0.506)	(0.504)	(0.505)	(0.583)	(0.810)	(0.594)	(0.803)	(0.504)
Number of firms	622	622	622	441	184	503	179	622
Number of home countries	35	35	35	34	26	35	25	35
Number of projects	1050	1050	1050	553	497	605	445	1050
Wald chi-square	950.68***	1011.74***	1024.02***	585.33***	815.86***	640.59***	878.32***	1045.51***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses.
* p<0.05, ** p<0.01, *** p<0.001.

Table 2. 8 Conditional Logit model of FDI investments in the United States, 2005-2012, with Masculinity

	Model 1 Full Sample	*Model 2 Full Sample*	*Model 3 Full Sample*	*Model 4 Less Legitimate*	*Model 5 High Legitimacy*	*Model 6 Low # foreign affiliates*	*Model 7 High # foreign affiliates*	*Model 8 Full Sample*
Prior FDI Home Country Focal Industry		0.575*	0.868**	0.952**	0.754	1.155**	0.519	0.852**
		(0.310)	(0.356)	(0.465)	(0.550)	(0.487)	(0.411)	(0.358)
Prior FDI Home Country Focal Industry x Masculinity			-0.0364	-0.0529*	-0.0212	-0.0295	-0.0532*	-0.0361
			(0.0226)	(0.0298)	(0.0324)	(0.0267)	(0.0273)	(0.0234)
Prior FDI Home Country Other Industry		0.822***	0.877***	1.168***	0.684***	1.214***	0.606***	0.874***
		(0.135)	(0.148)	(0.209)	(0.216)	(0.182)	(0.220)	(0.147)
Prior FDI Home Country Other Industry x Masculinity			-0.00607	0.0112	-0.00870	-0.00601	-0.0121	-0.00592
			(0.00766)	(0.0119)	(0.00961)	(0.00870)	(0.00916)	(0.00762)
Prior FDI Other Country Focal Industry	1.072***	0.985***	0.986***	0.918***	0.989***	1.102***	0.853***	0.888***
	(0.127)	(0.133)	(0.133)	(0.204)	(0.192)	(0.174)	(0.168)	(0.180)
Prior FDI Other Country Focal Industry x Masculinity								-0.151
								(0.163)
Investor's Experience	3.064***	2.974***	2.982***	3.889***	3.057***	3.628***	3.281***	2.984***
	(0.264)	(0.261)	(0.265)	(1.076)	(0.278)	(0.0699)	(0.299)	(0.265)
GDP per capita	1.023***	0.957***	0.960***	1.083***	0.786**	1.117***	0.660*	0.958***
	(0.198)	(0.202)	(0.202)	(0.255)	(0.318)	(0.226)	(0.356)	(0.202)
Population Density	4.129***	3.939***	3.929***	4.575***	3.105***	4.389***	2.961***	3.929***
	(0.558)	(0.561)	(0.562)	(0.689)	(0.926)	(0.631)	(0.956)	(0.562)
Population Density Squared	-2.134***	-2.058***	-2.054***	-2.203***	-1.828***	-2.085***	-1.807***	-2.053***
	(0.342)	(0.347)	(0.347)	(0.406)	(0.605)	(0.371)	(0.619)	(0.347)
Corporate Tax Rate	0.173***	0.195***	0.197***	0.204**	0.184*	0.188**	0.196*	0.195***
	(0.0649)	(0.0671)	(0.0674)	(0.0925)	(0.0954)	(0.0770)	(0.102)	(0.0667)
Educational Attainment	0.455**	0.456**	0.459**	0.614**	0.320	0.630***	0.215	0.458**
	(0.198)	(0.200)	(0.200)	(0.258)	(0.300)	(0.233)	(0.317)	(0.200)
Labor Costs	-0.324	-0.344	-0.355	-1.028	0.234	-1.076*	0.676	-0.346
	(0.546)	(0.544)	(0.544)	(0.637)	(0.886)	(0.642)	(0.835)	(0.545)
Employment	0.0915***	0.0845***	0.0845***	0.0963***	0.0717**	0.0913***	0.0743**	0.0847***
	(0.0201)	(0.0201)	(0.0200)	(0.0243)	(0.0312)	(0.0226)	(0.0312)	(0.0200)
Rent Costs	-1.585***	-1.500***	-1.500***	-1.050***	-1.969***	-1.201***	-1.876***	-1.505***
	(0.267)	(0.269)	(0.268)	(0.316)	(0.431)	(0.315)	(0.421)	(0.269)

Continuation Table 2.8								
Supplier Fit	0.596***	0.595***	0.594***	0.284	0.950***	0.533**	0.634*	0.591***
	(0.223)	(0.223)	(0.222)	(0.314)	(0.290)	(0.259)	(0.383)	(0.223)
Buyer Fit	0.436**	0.414**	0.410**	0.381	0.477**	0.473**	0.323	0.411**
	(0.199)	(0.205)	(0.206)	(0.332)	(0.242)	(0.223)	(0.413)	(0.208)
Labor Fit	1.191***	1.227***	1.226***	1.137***	1.331***	1.167***	1.287***	1.228***
	(0.206)	(0.206)	(0.206)	(0.297)	(0.292)	(0.298)	(0.285)	(0.206)
Knowledge Fit	0.136**	0.133**	0.132**	0.219***	0.0447	0.256***	-0.0176	0.133**
	(0.0602)	(0.0601)	(0.0606)	(0.0771)	(0.0903)	(0.0668)	(0.0966)	(0.0603)
Geographical Distance	0.0122	0.0283	0.0336	0.103	-0.157	-0.00588	0.153	0.0360
	(0.193)	(0.195)	(0.195)	(0.239)	(0.305)	(0.219)	(0.399)	(0.195)
Air Traffic Intensity	2.352***	2.429***	2.428***	1.729***	3.146***	1.617***	3.384***	2.419***
	(0.506)	(0.504)	(0.505)	(0.586)	(0.811)	(0.595)	(0.808)	(0.504)
Number of firms	622	622	622	441	184	503	179	622
Number of home countries	35	35	35	34	26	35	25	35
Number of projects	1050	1050	1050	553	497	605	445	1050
Wald chi-square	950.68***	1011.74***	1031.42***	623.90***	812.23***	650.86***	772.94***	1044.08***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 9 Conditional Logit model of FDI investments in the United States, 2005-2012, with Domestic Conformity Forces

	Model 1 Full Sample	*Model 2 Full Sample*	*Model 3 Full Sample*	*Model 4 Less Legitimate*	*Model 5 High Legitimacy*	*Model 6 Low # foreign affiliates*	*Model 7 High # foreign affiliates*	*Model 8 Full Sample*
Prior FDI Home Country Focal Industry		0.575*	1.276***	1.588***	0.896	1.485***	-0.742	1.328***
		(0.310)	(0.426)	(0.565)	(0.663)	(0.426)	(1.026)	(0.426)
Prior FDI Home Country Focal Industry x Domestic Conformity Forces			1.143*	1.576**	0.563	1.647**	-0.995	1.245**
			(0.585)	(0.751)	(0.851)	(0.792)	(1.070)	(0.595)
Prior FDI Home Country Other Industry		0.822***	0.900***	1.628***	0.436*	1.413***	0.0778	0.912***
		(0.135)	(0.211)	(0.291)	(0.243)	(0.216)	(0.288)	(0.209)
Prior FDI Home Country Other Industry x Domestic Conformity Forces			0.0910	0.499*	-0.212	0.364	-0.528*	0.112
			(0.215)	(0.274)	(0.263)	(0.241)	(0.276)	(0.213)
Prior FDI Other Country Focal Industry	1.072***	0.985***	0.989***	0.938***	0.988***	1.128***	0.883***	0.832***
	(0.127)	(0.133)	(0.133)	(0.208)	(0.193)	(0.172)	(0.168)	(0.189)
Prior FDI Other Country Focal Industry x Domestic Conformity Forces								-0.244
								(0.171)
Investor's Experience	3.064***	2.974***	2.971***	3.825***	3.052***	3.690***	3.288***	2.975***
	(0.264)	(0.261)	(0.259)	(1.134)	(0.274)	(0.0807)	(0.297)	(0.258)
GDP per capita	1.023***	0.957***	0.956***	1.096***	0.781**	1.117***	0.654*	0.952***
	(0.198)	(0.202)	(0.201)	(0.254)	(0.316)	(0.226)	(0.351)	(0.200)
Population Density	4.129***	3.939***	3.950***	4.624***	3.106***	4.431***	2.932***	3.952***
	(0.558)	(0.561)	(0.564)	(0.690)	(0.927)	(0.631)	(0.961)	(0.563)
Population Density Squared	-2.134***	-2.058***	-2.060***	-2.225***	-1.827***	-2.098***	-1.797***	-2.059***
	(0.342)	(0.347)	(0.347)	(0.404)	(0.604)	(0.369)	(0.622)	(0.346)
Corporate Tax Rate	0.173***	0.195***	0.194***	0.201**	0.180*	0.182**	0.187*	0.190***
	(0.0649)	(0.0671)	(0.0672)	(0.0933)	(0.0951)	(0.0769)	(0.0999)	(0.0662)
Educational Attainment	0.455**	0.456**	0.453**	0.604**	0.317	0.622***	0.214	0.449**
	(0.198)	(0.200)	(0.199)	(0.257)	(0.298)	(0.233)	(0.314)	(0.199)
Labor Costs	-0.324	-0.344	-0.357	-1.034	0.237	-1.099*	0.715	-0.340
	(0.546)	(0.544)	(0.548)	(0.646)	(0.885)	(0.648)	(0.827)	(0.549)
Employment	0.0915***	0.0845***	0.0843***	0.0957***	0.0716**	0.0909***	0.0740**	0.0844***
	(0.0201)	(0.0201)	(0.0200)	(0.0244)	(0.0313)	(0.0226)	(0.0313)	(0.0200)
Rent Costs	-1.585***	-1.500***	-1.494***	-1.060***	-1.962***	-1.197***	-1.874***	-1.502***
	(0.267)	(0.269)	(0.269)	(0.316)	(0.432)	(0.317)	(0.422)	(0.270)

Continuation Table 2.9								
Supplier Fit	0.596***	0.595***	0.586***	0.295	0.945***	0.537**	0.647*	0.580***
	(0.223)	(0.223)	(0.223)	(0.312)	(0.292)	(0.261)	(0.384)	(0.224)
Buyer Fit	0.436**	0.414**	0.421**	0.379	0.485**	0.473**	0.323	0.423**
	(0.199)	(0.205)	(0.206)	(0.333)	(0.240)	(0.228)	(0.404)	(0.208)
Labor Fit	1.191***	1.227***	1.225***	1.134***	1.335***	1.165***	1.298***	1.229***
	(0.206)	(0.206)	(0.206)	(0.299)	(0.292)	(0.298)	(0.284)	(0.206)
Knowledge Fit	0.136**	0.133**	0.135**	0.214***	0.0464	0.257***	-0.0200	0.139**
	(0.0602)	(0.0601)	(0.0601)	(0.0785)	(0.0908)	(0.0667)	(0.0966)	(0.0596)
Geographical Distance	0.0122	0.0283	0.0168	0.0824	-0.167	-0.0388	0.165	0.0196
	(0.193)	(0.195)	(0.194)	(0.238)	(0.306)	(0.218)	(0.400)	(0.194)
Air Traffic Intensity	2.352***	2.429***	2.422***	1.739***	3.140***	1.601***	3.369***	2.404***
	(0.506)	(0.504)	(0.507)	(0.582)	(0.812)	(0.594)	(0.803)	(0.506)
Number of firms	622	622	622	441	184	503	179	622
Number of home countries	35	35	35	34	26	35	25	35
Number of projects	1050	1050	1050	553	497	605	445	1050
Wald chi-square	950.68***	1011.74***	1012.79***	594.26***	819.64***	624.98***	811.37***	1045.61***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

The interaction effects of the prior investment variables with pressure to conform are added in Model 3. Collectivism positively and significantly moderates the effects of prior investments by home country firms in the focal industry (b=0.075; p<0.05) and positively but insignificantly moderates the effect of prior investments by firms in other industries (b=0.009; p=0.393). Power Distance and Uncertainty Avoidance both positively and insignificantly moderate the effects of prior investments by home country firms in the focal industry (respectively, b=0.047; p=0.125 and b=0.022; p=0.357) and positively but insignificantly moderate the effect of prior investments by firms in other industries (respectively, b=0.003; p=0.825 and b=0.003; p=0.970). Masculinity negatively and insignificantly moderates the effects of prior investments by home country firms in the focal industry (b=-0.036; p=0.108) and in other industries (b=-0.006; p=0.428). The overall measure of pressure to conform positively and significantly moderates the effect of prior investments by home country firms in the focal industry (b=1.143; p<0.05) and positively but insignificantly moderates the effect of prior investments by firms in other industries (b=0.0.091; p=0.673). These findings provide partial support for Hypothesis 2 for Collectivism (H2a) and the overall domestic conformity forces (H2e). When faced with collectivism and the joint domestic pressures to conform, firms are more inclined to imitate the recent behavior of other firms in the narrowly defined institutional group.

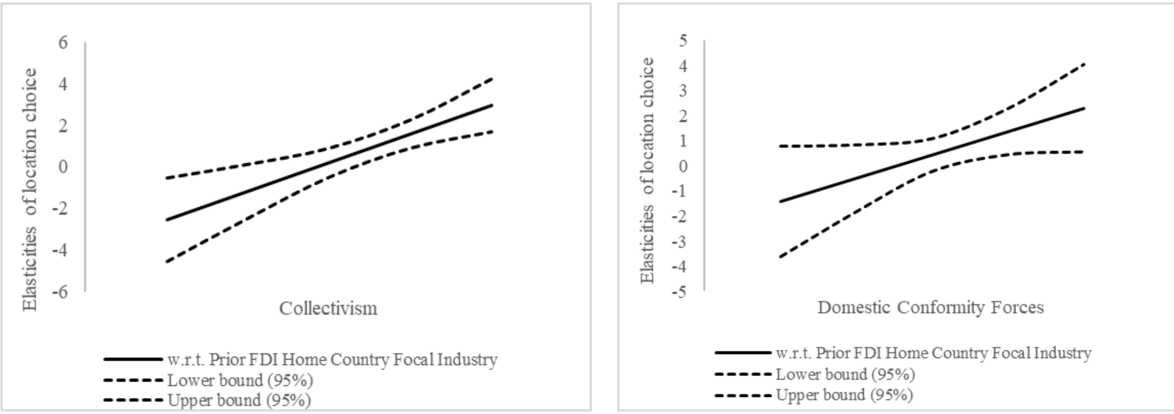
Model 4 and 5 present the split sample results to test Hypothesis 3. Collectivism only has a significant positive moderating influence on imitation for the subsample of firms with less legitimacy for both prior investments within and outside the focal industry (b=0.075; p<0.001 and b=0.03; p<0.001). Power Distance only has a significant positive moderating influence on imitation for the less legitimate firm sample for prior investments within the focal industry (b=0.064; p<0.05), but a positive insignificant moderating influence for prior investments within other industries (b=0.009; p=0.620). Uncertainty Avoidance has an insignificant positive moderating influence on imitation for the less legitimate firm sample for both prior investments within and outside the focal industry (b=0.042; p=0.190 and b=0.017; p=0.160). In contrast, Masculinity shows a significant negative moderating influence on imitation for the less legitimate firm sample for prior investments within the focal industry (b=-0.053; p<0.05), but an insignificant positive effect for prior investments in other industries (b=0.011; p=0.343). The overall measure of pressure to conform only has a significant positive moderating influence on imitation for the subsample of firms with less legitimacy, both for prior investments within and outside the focal industry (b=1.576, p<0.001 and b=0.0.499, p<0.05). This indicates that primarily less legitimate firms are inclined to imitate home country peers when faced with collectivism, power distance or the overall domestic conformity pressures, in partial support of Hypothesis 3.

Model 6 and 7 present the split sample results to test Hypothesis 4. Collectivism has a significant positive moderating influence on imitation for the subsample of firms with no or limited foreign operations for both prior investments within and outside the focal industry (b=0.092; p<0.001 and b=0.022; p<0.01) while a significant negative moderating influence on imitation can be observed for the subsample of firms with substantial foreign operations for prior investments outside the focal industry (b=-0.028; p<0.05). Within the limited foreign operations subsample, power distance has a significant positive moderating influence for prior investments within the focal industry (b=0.072; p<0.01) but no significant moderating influence for prior investments within other industries (b=0.017; p=0.243). Uncertainty avoidance shows insignificant positive moderating influences on imitation for the subsample of firms with no or limited foreign operations, but a negative significant moderating influence on imitation for the subsample of firms with a higher number of foreign operations for prior investments within other industries (b=-0.019; p<0.05). Similarly, masculinity only shows negative significant moderating influences on imitation for the subsample of firms with a number of foreign operations for prior investments within the focal industry (b=-0.053; p<0.05), but not within other industries (b=-0.012; p=0.269).

The overall measure of pressure to conform has a significant positive moderating influence on imitation for the subsample of firms with no or limited foreign operations, for prior investments within the focal industry (b=1.647, p<0.01) and a significant negative moderating influence on imitation for the subsample of firms with a high number of foreign operations for prior investments within other industries (b=-0.528; p<0.05). This indicates that primarily firms with a low number of foreign operations are inclined to imitate home country peers when faced with collectivism and power distance while firms with a high number of foreign operations are less inclined to imitate home country peers when faced with uncertainty avoidance and masculinity. Based on the overall measure of domestic conformity forces, firms with no or limited foreign operations are inclined to imitate home country peers from the same industry when faced with domestic conformity forces while firms with a high number of foreign operations are less inclined to imitate home country peers from other industries.

The magnitude of the moderated influence of prior investments cannot be directly inferred from the coefficients and depend on both the main effect of prior investment and the interaction term.

We calculate the elasticities of the probability that an MSA is chosen as the location for investment with respect to the two prior investment variables for different levels of pressure to conform[13]. Figure 2.1 indicates that mimicry effects increase when faced with increasing collectivism and domestic pressure to conform. For the full sample, the elasticity of locational choice with respect to recent prior investments coming from the narrow institutional group increases from respectively, 0.209 and 0.438 at the mean value for collectivism and domestic conformity pressure, to 2.892 and 2.305 when collectivism and domestic conformity pressure are two a standard deviations higher.

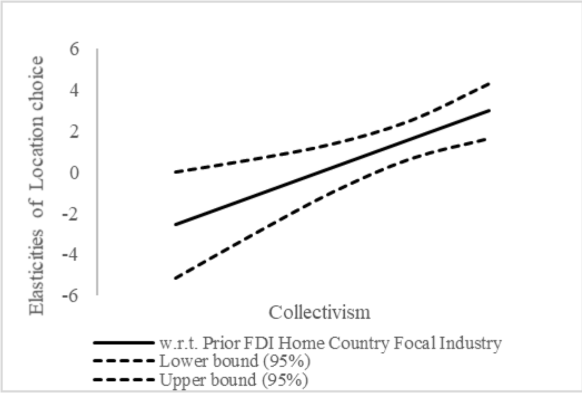


(A) (B)

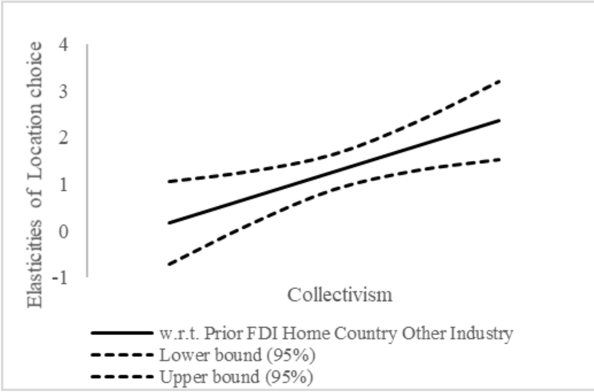
Figure 2. 1 Evaluation of mimicry effects for the full sample: The elasticity of location choice with respect to Prior FDI Home Country Focal Industry at different levels of Collectivism (A) and Domestic Conformity Forces (B).

Figure 2.2 shows a similar positive influence of increasing collectivism, power distance and domestic conformity on mimicry of recent investments for less legitimate firms. The average elasticity with respect to recent prior investments from the narrow institutional group increases from about respectively, 0.201, 0.875 and 0.432 to 2.968, 2.875 and 3.007 when collectivism, power distance and the joint domestic conformity forces rise by two standard deviations. We note that the elasticity with respect to FDI from the narrow institutional group is negative for low levels of collectivism, power distance and the joint domestic conformity pressure. A contrasting pattern is observed for masculinity for which we observe a negative influence on mimicry of recent investments for less legitimate firms. The average elasticity with respect to recent prior investments from the narrow institutional group decreases from about 0.952 at the mean to -1.430 when masculinity is two standard deviations higher. The elasticity with respect to FDI from the narrow institutional group is positive for low levels of masculinity.

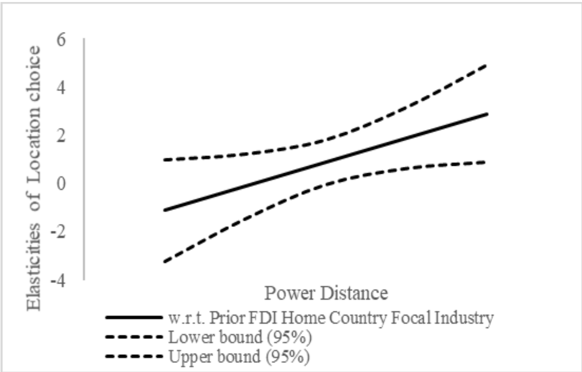
[13] A figure for legitimate firms was not included given that interaction effects were not significant for this sample.



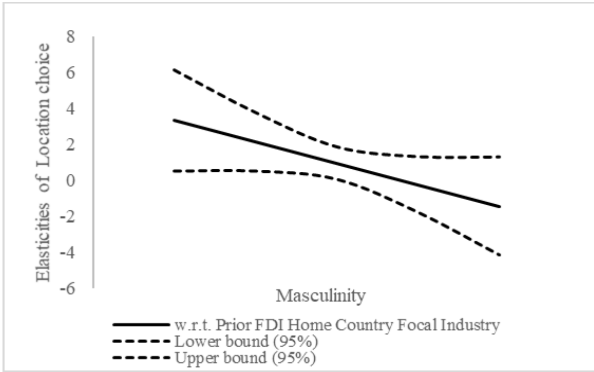
(A)



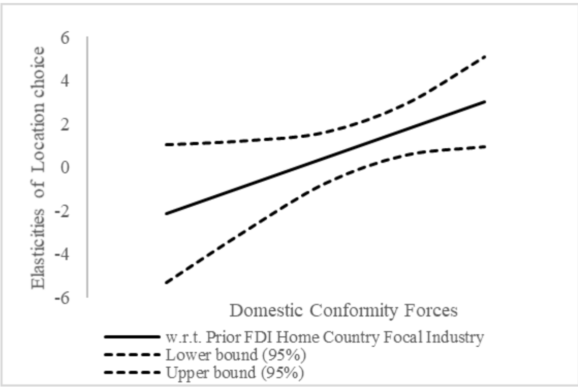
(B)



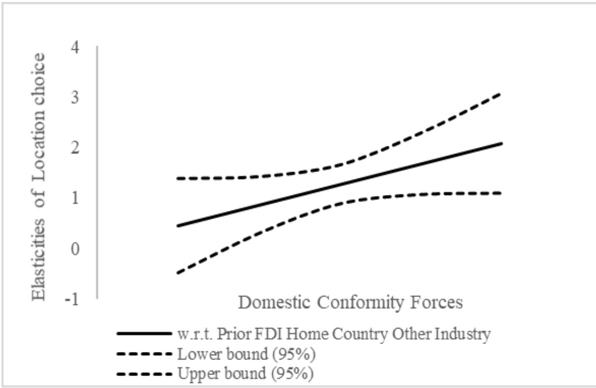
(C)



(D)



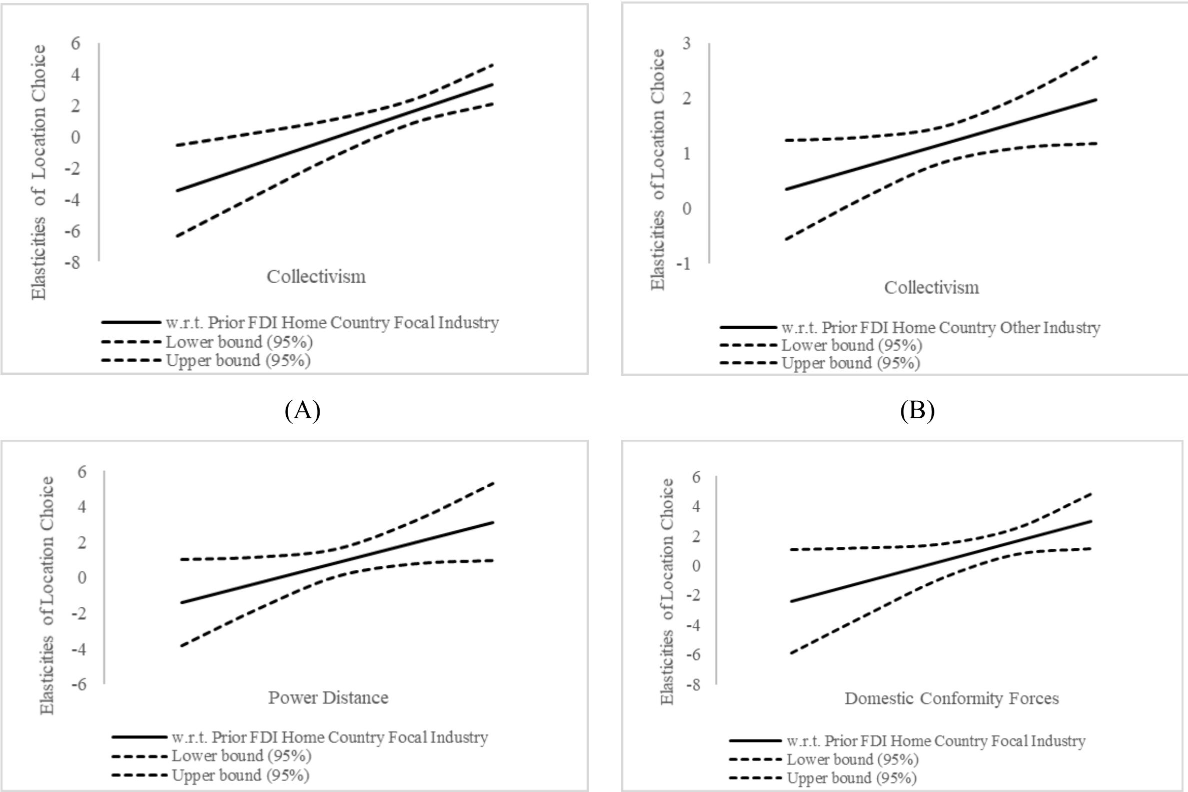
(E)



(F)

Figure 2. 2 Evaluation of mimicry effects for the less legitimate firm sample: The elasticity of location choice with respect to Prior FDI Home Country Focal Industry at different levels of Collectivism (A), Power Distance (C), Masculinity (D) and Domestic Conformity Forces (E). The elasticity of location choice with respect to Prior FDI Home Country Other Industry at different levels of Collectivism (B) and Domestic Conformity Forces (F).

Figure 2.3 shows a similar positive influence of increasing collectivism, power distance and the joint domestic conformity on mimicry of recent investments for firms with no or limited foreign operations. The average elasticity with respect to recent prior investments from the narrow institutional group increases from about respectively, -0.035, 0.865 and 0.277 to 3.361, 3.120 and 2.968 when collectivism, power distance and the joint domestic conformity forces rise by two standard deviations. For the narrowly defined group, the average elasticity increases from about 1.150 to 1.960 when collectivism increases by two standard deviations. We again note that the elasticity with respect to FDI from the narrow institutional group is negative for low levels of collectivism, power distance and the joint domestic conformity pressure.



(A) (B) (C) (D)

Figure 2. 3 Evaluation of mimicry effects for firms with no or limited foreign affiliates: The elasticity of location choice with respect to Prior FDI Home Country **Focal** Industry at different levels of Collectivism (A), Power Distance (B) and Domestic Conformity Forces (D). The elasticity of location choice with respect to Prior FDI Home Country **Other** Industry at different levels of Collectivism (B).

Figure 2.4 shows a contrasting negative influence of increasing collectivism, uncertainty avoidance, and the joint domestic conformity forces on mimicry of recent investments for firms with a high number of foreign operations. The average elasticity with respect to recent prior investments from the broad institutional group decreases from respectively, 0.455, 0.580 and 0.465 to -0.567, -0.206 and -0.398 when collectivism, uncertainty avoidance and the joint domestic conformity forces increase by two standard deviations. For low levels of collectivism, uncertainty avoidance and the joint domestic conformity forces, the elasticity with respect to FDI from the broad institutional group is positive.

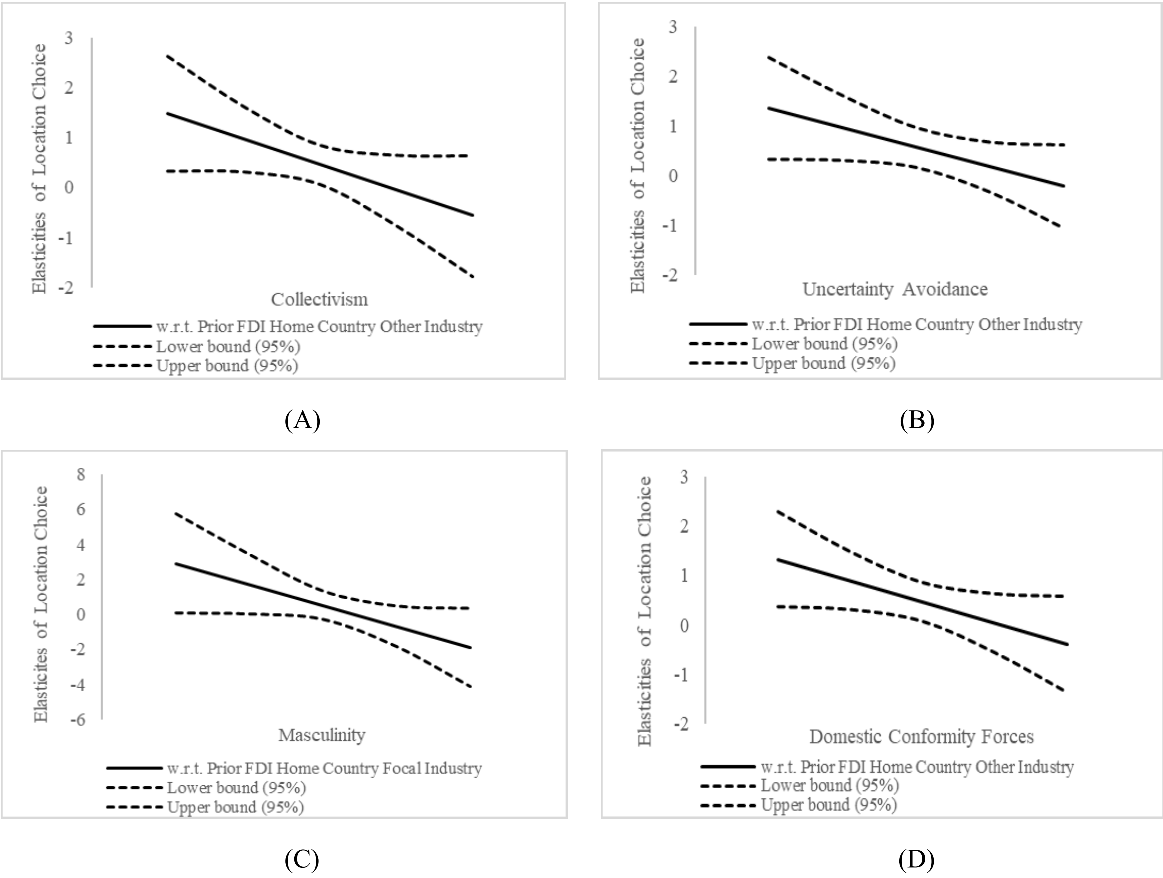


Figure 2. 4 Evaluation of mimicry effects for firms with a high number of foreign affiliates: The elasticity of location choice with respect to Prior FDI Home Country **Other** Industry at different levels of Collectivism (A), Uncertainty Avoidance (B) and Domestic Conformity Forces (D). The elasticity of location choice with respect to Prior FDI Home Country **Focal** Industry at different levels of Masculinity (C).

2.4.1 Supplementary Analysis

We conducted a number of supplementary analyses to examine the robustness of our findings. First, we examine whether the individual cultural dimensions and the joint domestic conformity pressure also affect the role of prior investments by third country firms in the focal industry in location decisions. We consider this a useful falsification test of our theory: given that the individual cultural dimensions and the joint domestic conformity pressure relate to conformity with practices within the same institutional group, a positive moderation effect would be inconsistent with our theoretical arguments. Results are reported in model 9 of Tables 2.5-2.9. We find that the interaction term between the cultural dimensions and the third country investments and the domestic pressures to conform and third country investments is negative but insignificant. The absence of a significant or positive interaction is consistent with our theory. The negative coefficient may suggest that domestic legitimacy may even be harmed by imitating investments from third countries, which may be caused by the fact that third country investments behavior is not necessarily conforming to investment practices of the firm's institutional group. With the addition of the interaction term between the third country investments, the individual cultural dimensions and domestic conformity pressure, the hypotheses testing variables maintain their signs and significance. For power distance, Hypothesis 2 is now partially supported.

Third, we use a more restricted operationalization of prior investments. Instead of looking at prior investments two years prior to the focal investment, we now take into account investments one year prior to the focal investment. This renders our results for Hypothesis 2 and 3 less robust. For collectivism, Hypothesis 2 is not supported while only partial support is found for Hypothesis 3 and Hypothesis 4. For power distance, uncertainty avoidance, masculinity and the joint domestic conformity forces, no support was found for the hypotheses. We posit that investments two years prior to the focal investment might display the FDI signals better and that focal firms may need time to implement a response to prior behavior of their peers, in particular where it concerns complex decisions such as FDI in manufacturing.

We also test a less restricted operationalization of prior investments three years prior to the focal investment, reducing our sample to 956 projects of 585 firms from 35 home countries. This renders our results generally less robust. For collectivism, Hypothesis 2 is only partially supported while no support is found for Hypothesis 3 or Hypothesis 4. For power distance, uncertainty avoidance, masculinity and the joint domestic conformity forces, no support was found for the hypotheses. We posit that longer time lags tend to reduce mimetic influences (Belderbos et al., 2011) and render the prior investment variables less distinguishable from agglomeration economies due to cumulative investment. In addition, we test the effect of the recentness of model behavior on location choice by interacting the focal FDI variables with the age of the prior FDI that had been operational at the time of (potential) imitation of the focal firm as in Belderbos et al. (2011). We find negative insignificant effects for the interaction terms providing only a very tentative indication of the importance of recentness.

Fourth, we used the individual cultural dimensions of Taras et al., (2012) were used. The domestic pressure to conform is calculated based on a principal component analysis on the dimensions of culture for the year 2000 (Taras et al., 2012), based on a meta-analysis of the relationship between Hofstede's original four cultural dimensions values and a variety of organizationally relevant outcomes. Due to missing cultural dimension scores for several of the initially included home countries, our sample was reduced to 793 projects due to 460 firms located in 20 different home countries, severely limiting the variation in pressure to conform in our dataset. Using the Taras dimensions renders our results less robust for collectivism and power distance with no support for any of the Hypotheses. For uncertainty avoidance, results become more robust as we find partial support for Hypothesis 2, Hypothesis 3 and Hypothesis 4. For the joint domestic conformity forces, results remain similar with an exception for Hypothesis 4 which is now fully supported.

Fifth, we operationalize domestic conformity pressures based on the sum of power distance, collectivism and uncertainty avoidance. Results on Hypothesis 3 become slightly less robust, showing the value of our principal component approach. Alternatively, we put forward an alternative indicator of pressure to conform namely the domestic cultural diversity, i.e. the degree of ethnic fractionalization. Therefore, we rely on the Historical Index of Ethnic Fractionalization (HIEF) dataset. The ethnic fractionalization index corresponds to the probability that two randomly drawn individuals within a country are not from the same ethnic group (Drazanova, 2020). This renders our results less robust and even leads to positive significant results of the sample of firms with a high number of foreign operations.

Sixth, we examined whether imitation and pressure to conform are stronger for firms' first FDI entries in a US region. Internationalization is an incremental process which consists of a series of sequential steps enabling firms to gradually learn how to cope with differences between countries and locations (Barkema et al, 1996). If a firm has already made a previous investment in a region it will have obtained location specific knowledge that drives further investments (Henisz & Delios, 2001; Lieberman & Asaba, 2006). This may reduce the influence of conformity pressures and prior investment behavior by peers. Hence, we re-estimate our model including only first entries of the firms in an MSA. Data on prior investments by the firm in a particular MSA is retrieved by combining the FDI markets dataset with ORBIS subsidiary establishment data. We classified 274 investments as subsequent rather than first entries. When only taking into account the first entries, we find similar support for our hypotheses.

Seventh, some home countries report very few investments such that mimicry may play a relatively small role in the location decision process. Therefore, we exclude the 5% bottom home countries in terms of FDI. This reduces our sample to 981 projects due to 562 firms located in 19 different home countries thereby reducing the variation of our cultural traits and pressure to conform values. We find similar results for our hypotheses. Similarly, some MSAs report very few investments so we remove the 5% bottom FDI receiving MSAs. This reduces our sample to 899 projects due to 539 firms from 35 home countries. This results in similar support for our Hypotheses for collectivism, uncertainty avoidance and masculinity, but renders our results less robust for power distance, with no support for the hypotheses, and joint domestic conformity forces with no support for Hypothesis 2 and Hypothesis 4. However, one could argue that the inclusion of MSAs with few country investments are needed for a proper systematic comparison with MSAs that do receive ample investments.

Eight, we operationalize third country investments as all manufacturing investments (focal or other industries) from firms located in a different country. Results are similar to those reported in Tables 2.5 to 2.9. Similarly, investments by service firms may also influence focal firm investment location behavior. We operationalize third country investments as all manufacturing and service investments (focal or other industries) by firms located in a different country. Our results are again similar to those reported in Tables 2.5 to 2.9.

Ninth, firms may also be attracted to prior service firm investments from the same home country. We therefore operationalize prior FDI home country other industry as all investments (services and manufacturing) outside of the focal industry coming from the same home country. Our results become more robust for collectivism, the joint domestic conformity forces and uncertainty avoidance which now shows partial support for Hypothesis 3 and Hypothesis 4. Similar results are found for power distance and masculinity. Additionally, we split up the prior FDI home country other industry variable including both manufacturing and services into two variables: one for manufacturing investments and one for service investments. This allows us to observe whether prior FDI in services is as strongly followed as prior FDI in manufacturing. We find stronger results for the following of prior FDI manufacturing industries for all cultural traits and the joint domestic conformity forces. If we add to this specification a similar extended variable including service and manufacturing for other countries' prior FDI, results for collectivism and masculinity remain similar while results for power distance become less robust. In contrast, results for uncertainty avoidance become more robust with partial support for Hypothesis 3 and Hypothesis 4 and for power distance which now shows full support for Hypothesis 4.

Tenth, we include a variable to control for the following of buyers and suppliers that are collocated at home and with which the focal firm is likely to have existing supplier-buyer relationships. This allows us to control for the possible benefits that can be obtained by collocating with known buyers and suppliers in the United States. We operationalize supplier-buyer following based on an input-output matrix and information on the headquarter locations of the investing firms. While our results remain robust, we find insignificant negative effects of buyer-supplier following for most samples, except for the less legitimate sample where buyer-supplier following is negative significant ($p<0.05$).

Eleventh, the presence of population belonging to the same ethnical group as the home country in the MSA might influence our results when stakeholders value the location choices regarding 'similar' MSAs better than other location choices. Hence, we take this into account by using MSA level data on ethnicities from the Census Bureau. However, this data only allows for information on broader ethnic groups (e.g. White Non-Hispanic, Hispanic, Black Non-Hispanic or Asian or Pacific Islander). Therefore, they do not allow for a fine mapping of similarity between home countries but to our knowledge, this is the only data on MSA level ethnicity or migration available. While our results remain robust, Ethnic Similarity is positive but insignificant in all samples, with an exception for firms with a high number of foreign operations where it has negative and insignificant effects.

Twelfth, we test the existence of non-linear effects by including the squared term of the focal variables. We find significant negative effects of the squared term of recent investments from the narrowly defined institutional group ($b=-2.225$, $p<0.05$) and the broadly defined institutional group ($b=-0.780$, $p<0.01$). A log likelihood test indicates that this is a significant improvement over the base model (chi-squared=9.98, $p<0.01$). As our variables are already logarithmically transformed, this will lead to a non-symmetric parabola. Hence, we check whether the inflection point falls within the range of observed values of recent investments. For recent investments from the narrowly defined institutional group, the inflection point is found to be at 1.76, i.e. for values above 1.76, increasing recent investments from the narrowly defined group are associated with decreasing probabilities. However, this inflection point barely falls within the sample range as it only covers 2 observations (less than 0.05% of the sample). For recent investments from the broadly defined institutional group, the inflection point is found to be at 3.10 which falls outside of the range of observed values (maximum = 1.79). Hence, one could state that while there are declining marginal effects in the elasticity, there are no actual negative effects. When including the squared terms, we find similar results for our hypotheses except for domestic conformity forces for which results are less robust as Hypothesis 2 is no longer supported.

Additionally, we estimate a mixed logit model. As previously mentioned, the conditional logit model relies on the IIA assumption (McFadden & Train, 2000). However, this assumption is frequently violated in location choice analysis. We estimate a mixed logit model under the assumption of normal distribution, the most commonly adopted distribution form. The probability is approximated by simulation techniques since there is no closed form solution for the integral that enters the choice probability. First, the coefficient values are drawn from the density functions and their conditional probability is calculated. Second, the first step is repeated several times and the simulated probabilities are averaged to obtain an approximation of the mixed-logit probability. All our regressions are ran with 50 Halton simulation draws. Because we have no a priori expectations about whether certain coefficients should have a random component or not, all coefficients were allowed to be random (Basile et al., 2008). Our results become less robust for collectivism, power distance and the joint domestic conformity forces while remaining similar for masculinity. For uncertainty avoidance, results become more robust with full support for Hypothesis 3 and partial support for Hypothesis 4.

Finally, we estimate two stage mixed logit regressions to better understand the origin of the heterogeneity in our hypothesis testing variables and to explore what firm characteristics systematically influence the responsiveness to mimicry. In the first stage, we estimate the heterogeneous coefficients of prior FDI (without interaction effects) and find significant positive effects for recent investments from the broadly defined institutional group. Significant random effects are found for recent investments from the narrowly defined institutional group for the full sample and the low number of foreign affiliates sample and for the broadly defined institutional group for all samples. This implies that they have significant variations within their coefficients across investors and locations.

In the second stage, we regress these partially random coefficients at the firm-year on the individual cultural traits, domestic conformity forces, age, size, foreign affiliates and whether the country is a developing country. Results confirm significant positive effects of collectivism and domestic conformity forces on recent investments from the narrowly defined institutional group while masculinity shows significant negative effects. The firm size is negative and significant in all models. No significant effects are observed for the broadly defined institutional group, except for positive significant effects of foreign affiliates and negative significant effects for firm size. Larger positive and significant effects for collectivism, uncertainty avoidance, and domestic conformity forces are observed in the less legitimate sample for the narrowly defined institutional group, while power distance, uncertainty avoidance, masculinity and domestic conformity forces show negative significant effects on prior FDI from the broadly defined institutional group. For the narrowly defined institutional group, we find positive significant effects of foreign affiliates in all models, while positive significant effects of developing country are found within the broadly defined institutional group. Within the sample of firms with no or limited foreign affiliates, we again observe significant positive effects of collectivism and significant negative effects of masculinity on prior FDI from the narrowly defined institutional group while also observing significant negative effects for masculinity on prior FDI from the broadly defined institutional group. Additionally, we observe positive significant effects of firm age within both groups and significant negative effects of firm size within the broadly defined institutional group. Hence, overall, this two stage random coefficient analysis provides broadly consistent results.

2.5 Discussion and Conclusion

When multinationals make location decision choices for foreign direct investment, they are influenced by the recent prior foreign location choices of peers within the same institutional group. By looking at these prior investments of peers, a firm is not only able to obtain information on the relative attractiveness of possible target locations (Haveman, 1993), but also able to gain legitimacy among stakeholders and ensure access to various resources (Suchman, 1995) by displaying conformity to common behavior within the same institutional group. In this paper, we argue that the tendency to imitate the location choices of peers depends on the domestic cultural environment: the degree to which conformity pressures characterizes domestic culture, the legitimacy status of the firm in its home country and the extent of multinational operations of the firm.

This paper examined the role of domestic cultural traits, joint domestic conformity forces, the legitimacy of the investing firm and the number of foreign operations of the firm in influencing the strength of mimetic behavior of firms in greenfield foreign direct investment location decisions at the fine grained regional level. Specifically, we examined location decisions at the level of the Metropolitan Statistical Area (MSAs) for 1050 manufacturing investments in the US from 2005-2012, made by 622 MNEs based in 35 home countries. Our analysis controls for alternative explanations of clustering due to agglomeration externalities and a range of other characteristics of MSAs to ensure accuracy of inference.

Our findings suggest clear mimetic patterns in location decisions for greenfield investments that are strengthened by the presence of collectivism and overall domestic conformity forces: the tendency of firms to imitate recent investments by peers within the same institutional group (firms based in the same industry or in another industry in the home country) in a given foreign location is stronger for firms based in home countries characterized by greater conformity pressures. At the same time, we observe discouraging effects of recent investments by peers within the narrow institutional group when there is a rather low pressure to conform. We posit that the more frequent occurrence of investment behavior by firms in the same home country provides for greater visibility and relevance, while competition for similar markets may also exert a compensating discouraging influence on imitation of same-industry peer behavior (e.g. loss of first mover advantages) in the context of narrowly defined or regional markets such as the MSAs in our analysis where there is less space for competition.

We also find major firm heterogeneity in the role of imitation and two domestic cultural traits, i.e. collectivism, power distance, and the joint domestic conformity pressures. Less legitimate firms, i.e. younger firms, have a higher need for additional legitimacy that can be gained by higher responsiveness to the domestic cultural traits and conformity pressures compared to their legitimate counterparts. Collectivism, power distance and the overall domestic conformity forces strengthen the propensity to imitate the recent FDI investments of peers significantly for less legitimate firms but not for firms with substantial legitimacy. A contrasting pattern can be observed for masculinity, which reduces the propensity to imitate the recent FDI investments from peers in the narrowly defined institutional group for less legitimate firms but not for firms with substantial legitimacy.

Additionally, firms with limited multinational operations may depend more on domestic stakeholders to gain legitimacy and access to important resources. Hence, these firms may have a higher need for additional legitimacy that can be gained by higher responsiveness to the domestic cultural traits and conformity pressures compared to their counterparts with substantial multinational operations and affiliates. Collectivism, power distance and the overall domestic conformity forces strengthen the propensity to imitate recent FDI investments of peers, in the narrowly defined institutional group, significantly for firms with limited multinational operations and affiliates but not for firms with high legitimacy. Furthermore, uncertainty avoidance, masculinity and the overall domestic conformity forces reduce the propensity to imitate the recent FDI investments of peers, from the broadly defined institutional group, significantly for firms with substantial multinational operations but not for firms with limited multinational operations.

A contrasting pattern was observed for prior investments from third countries. The positive influence of prior third country investments decreases, rather than increases, in domestic conformity pressures. This provides for another test of our theory, since domestic pressure to conform to the institutional group relates to imitation of firms within that group (Porac & Thomas, 1990), and is likely to be inconsistent with following behavior of firms based in third countries.

Our paper contributes to the literature on imitation in FDI (Lu, 2002; Li & Paraboteah 2011; Belderbos et al., 2011) in two ways. First, we contribute a fine grained locational level analysis while controlling for other types of influences (e.g. agglomeration economies) which may confound mimicry effects. This enables a better identification of mimicry processes compared to country level analysis where more confounding influences occur. Second, we bring in the cultural context of investors to greenfield FDI location decisions allowing for a broader generalizability and showing that mimetic influences differ systematically across home countries. We also contribute to institutional theory by elaborating on the importance of the cultural context and its domestic conformity pressures, which foster mimetic processes in the context of FDI. We demonstrate the presence of firm heterogeneity in conformity forces inducing imitation, with legitimate firms less sensitive to conformity pressure and less inclined to engage in imitation (Suchman, 1995).

We contribute a conceptualization of domestic conformity pressures as a single force embedded in cultural characteristics of countries and examine how cultural forces work jointly, rather than independently, on mimicry. This conceptualization and implementation also represents a methodological contribution to international business research on national culture, by the development of an overarching measure of conformity forces based on the cultural dimensions of Hofstede for the 2000s. Our findings suggest that future research should not generalize from mimicry processes but should focus on multiple home (and host) countries to take into account cultural heterogeneity systematically (Lu, 2002).

Our study also contributes to managers and practitioners. We confirm prior research on institutional theory indicating that managers may engage in imitation processes instead of solely relying on economic rationales when making foreign direct investment location decisions. We add that this tendency may depend on the cultural context and, more precisely, the presence of domestic conformity pressures, to which collectivism, power distance and uncertainty avoidance contribute. Consequently, managers must be aware how these domestic conformity pressures may influence their location choices, in particular if their firm can be considered to hold less legitimacy. We do note, that we did not study performance effects of imitation, such that normative implications of our study are difficult to draw.

This paper provides several opportunities for further research. Researchers can investigate the performance effects of imitation of prior foreign direct investment location decisions of peers (e.g. linking mimetic entry to subsidiary survival). Furthermore, one could investigate the implications of imitation for share- and stakeholders. Shareholders and stakeholders might value the display of conformity less as shareholders value short term profit gains which can be obtained by taking risks whereas stakeholders value stability and survival.

We acknowledge a number of limitations. First, we only have limited variation in domestic conformity pressures due to limited country variation and a lack of high-coverage and accurate cultural data over time. More recent high-coverage cultural data could potentially provide additional insights. Second, we only focus on FDI location decisions in the United States. Given the attractiveness of this country as a place of investment, this may be seen as a legitimate investment target for many firms, which may render our results conservative. The focus of foreign investment locations in the United States also reduces the scope for generalizations. Future research should examine other host countries, which may help building more insight into the role of culture in mimicry processes in foreign direct investment location decisions and its generalizability. Third, although we focus on only one target country thereby ruling out variety in dissimilarities between the home and host country as a result of domestic location choice, it is possible that there are dissimilarities between the home and host country which influence our estimates. Hence, future research could investigate the influence of potential underlying dissimilarities such as difference in ethnic fractionalization or psychological traits.

Fourth, similar to legitimization within the home country, firms may be faced with pressures to conform within the host country for similar reasons. However, host and home countries may have opposing perspectives on actions deemed appropriate and hence firms may be confronted with contrasting expectations and conformity forces (domestic versus host conformity forces). In this case, the relative strength of these opposing pressures and presence of firm characteristics such as the current legitimacy status within the home and host country may determine the propensity to imitate location choices. Hence, while this chapter zooms in on the home country perspective of legitimacy, the inclusion of a host country perspective may provide a more complete picture of the actual influence of domestic conformity forces on the mimicry of prior FDI location decisions. Fifth, we only considered mimicry in the same institutional group taking a home country perspective. Highly internationalized firms with international investors may consider themselves as belonging to an international peer group. Hence, there could be other heterogeneities that may infer results and could be investigated in further research. Furthermore, we are unable to make any claims on the social or economic benefits of mimetic behavior. While we control extensively for economic rationales and tease out social considerations (mimicry) by creating an appropriate setting where mimicry is more likely to occur compared to alternative explanations, we do not explicitly measure the economic or social gains firms could achieve. Last, although, we argue that locational characteristics are exogenous to the individual firm, we conservatively interpret the findings as associations. While an endogeneity bias is unlikely at the individual firm level, at the aggregate level and over time, FDI is an antecedent of establishment growth and additional FDI through mimicry and agglomeration complicating causal inference.

2.7 Appendix: National Culture, Pressure to Conform, and Imitation in FDI Location Decisions

This appendix describes the construction of the agglomeration indicators (A2.7.1), reports on a series of robustness tests and alternative specifications of the location model (A2.7.2) and reports details of the principle component analysis (A2.7.3)

A2.7.1. Construction of Agglomeration indicators

The construction of agglomeration indicators follows Gleaser and Kerr (2012), Alcacer and Chung (2014), and Belderbos and Braito (2019). The presence of agglomeration economies associated with specialized input for a multinational investing in MSA l and industry k is measured as follows:

$$\left[\sum_{k=1,\ldots I} input_{\,i\leftarrow k} * \frac{E_{klt}}{E_{kt}}\right] * \left[\frac{E_{lt}}{E_t}\right]^{-1}$$

Where $input_{i\leftarrow k}$ is the share of industry i\`s inputs from industry k, E_{klt} indicates the employment of industry k in MSA l at time t, E_{kt} indicates the employment of industry k for all MSAs at time t, E_{lt} indicates the employment for all industries in MSA l at time t and E_t is the employment for all industries and all MSAs at time t. The measure of client industry specialization, Buyer Fit, is constructed in an analogous manner.

Labor Industry specialization compares the labor requirements for a particular industry *i* to the labor force present in a given MSA *l* at time *t*. It is calculated as follows:

$$\left[\sum_{O=1,\ldots O} L_{iO} * \frac{EO_{olt}}{EO_{lt}}\right] * \left[\frac{EO_{ot}}{EO_t}\right]^{-1}$$

Where L_{iO} is the percentage of industry i employment in occupation o. EO_{olt} indicates the employment in occupation o for MSA l at time t, EO_{lt} indicates the employment for all occupations for MSA l at time t, EO_{ot} is the employment in occupation o for all locations, and EO_t is the employment for all occupations and all locations.

To approximate technology or knowledge spillovers for a multinational operating in a particular industry i investing in MSA l, knowledge fit was measured as follows:

$$\left[\sum_{x=1,\dots X} w_{i,x} * \frac{P_{xlt}}{P_{lt}}\right] * \left[\frac{P_{xt}}{P_t}\right]^{-1}$$

Where $w_{i,x}$ indicates to what extent a patent class x is relevant for industry i, which is determined based on the industry-patent class concordance due to (Lybbert & Zolas, 2014). P_{xlt} indicates the patent count in patent class x in MSA l at time t, P_{lt} indicates the patent count in all patent classes for MSA l at time t, P_{xt} is the patent count of patent class x in all MSAs at time t while P_t indicates the patent count in all classes and in all MSAs at time t.

A2.7.2. Robustness tests and alternative specifications

Table 2.10 reports the individual cultural traits and the obtained pressures to conform by home country. In table 2.11 and 2.12, we report on the results of the conditional logit models in t-1 and t-3, respectively. In table 2.13, we report on the importance of the recentness of the model's behavior. In table 2.14, we report on the results with the individual cultural traits according to TARAS and the domestic conformity forces measured by using the TARAS dimensions for the 2000's (Taras et al., 2012). Table 2.15 reports on the summation of the Hofstede dimensions while Table 2.16 reports on using ethnic fractionalization as an alternative measure of domestic cultural pressures. Table 2.17 reports the results when only when only taking into account the first entries. Table 2.18 and 2.19 reports on the results when leaving out home countries with the 5% lowest FDI investments into the U.S and the results when leaving out the bottom 5% MSAs in terms of receiving FDI. Table 2.20 report the results when including all third country manufacturing investments. The results when including all third country manufacturing and service investments are reported in table 2.21. Table 2.22 reports the results when including both service and manufacturing investments in prior FDI home country other industry while table 2.23 splits up prior FDI home country other services industries and other manufacturing industries. Table 2.24 reports the results when combining all third country manufacturing and services investments and prior FDI home country other services and manufacturing investments. Table 2.25 reports on the results when including client/buyer following while table 2.26 reports on the results when including ethnic similarity. Table 2.27 shows the results when including the non-linear effects of prior FDI counts. Table 2.28 reports on the mixed logit model results while Table 2.29 reports on the results on the two stage mixed logit regression.

Table 2. 10 Individual Cultural Traits and Pressure to Conform by home country

Home Country	*Collectivism*	*Power Distance*	*Uncertainty Avoidance*	*Masculinity*	*Domestic Conformity Forces*
Australia	10	38	51	61	-1,66
Austria	45	11	70	79	-1,31
Belgium	25	65	94	54	-0,20
Brazil	62	69	76	49	0,43
Canada	20	39	48	52	-1,47
China	80	80	30	66	0,46
Colombia	87	67	80	64	0,95
Denmark	26	18	23	16	-2,14
Finland	37	33	59	26	-1,12
France	29	68	86	43	-0,15
Germany	33	35	65	66	-1,08
Greece	65	60	112	57	0,74
Hong Kong	75	68	29	57	0,08
India	52	77	40	56	-0,06
Ireland	30	28	35	68	-1,68
Israel	46	13	81	47	-1,10
Italy	24	50	75	70	-0,80
Japan	54	54	92	95	0,13
Luxembourg	40	40	70	50	-0,76
Malaysia	74	104	36	50	0,96
Mexico	70	81	82	69	0,94
Netherlands	20	38	53	14	-1,43
New Zealand	21	22	49	58	-1,82
Norway	31	31	50	8	-1,40
Portugal	73	63	104	31	0,87
Russia	61	93	95	36	1,19
South Africa	35	49	49	63	-0,92
South Korea	82	60	85	39	0,75
Spain	49	57	86	42	0,01
Sweden	29	31	29	5	-1,71
Switzerland	32	34	58	70	-1,21
Taiwan	83	58	69	45	0,52
Thailand	80	64	64	34	0,53
Turkey	63	66	85	45	0,49
UK	11	35	35	66	-1,91

Table 2. 11 Conditional Logit Estimates – T-1

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.212*** (0.270)	1.867*** (0.344)	0.956*** (0.301)	1.666*** (0.355)	0.761** (0.332)
Prior FDI Home Country Focal Industry * Collectivism	0.0308 (0.0200)	0.0226 (0.0239)	0.0275 (0.0292)	0.0314 (0.0240)	-0.00277 (0.0356)
Prior FDI Home Country Other Industry	0.571*** (0.122)	0.915*** (0.196)	0.528*** (0.141)	0.626*** (0.190)	0.462*** (0.158)
Prior FDI Home Country Other Industry * Collectivism	0.00814 (0.0110)	0.0261* (0.0138)	-0.00920 (0.0127)	0.0225* (0.0136)	-0.0242 (0.0162)
Prior FDI Other Country Focal Industry	0.602*** (0.124)	0.395** (0.200)	0.719*** (0.165)	0.512** (0.204)	0.711*** (0.156)
Investor's Experience	4.123*** (0.167)	5.003*** (0.218)	3.676*** (0.208)	4.611*** (0.180)	3.848*** (0.230)
GDP per capita	0.780*** (0.206)	0.984*** (0.251)	0.593* (0.327)	1.015*** (0.222)	0.448 (0.373)
Population Density	3.150*** (0.592)	4.368*** (0.701)	1.966** (0.961)	4.309*** (0.644)	1.436 (0.997)
Population Density Squared	-1.868*** (0.376)	-2.358*** (0.450)	-1.415** (0.647)	-2.329*** (0.410)	-1.188* (0.671)
Corporate Tax Rate	0.168*** (0.0625)	0.182** (0.0925)	0.143* (0.0842)	0.134* (0.0793)	0.190** (0.0899)
Educational Attainment	0.334* (0.183)	0.545** (0.235)	0.0938 (0.262)	0.473** (0.214)	0.103 (0.298)
Labor Costs	-0.673 (0.497)	-1.206** (0.613)	-0.116 (0.781)	-1.208** (0.613)	0.200 (0.764)
Employment	0.0533*** (0.0161)	0.0646*** (0.0212)	0.0388 (0.0238)	0.0578*** (0.0201)	0.0525** (0.0231)
Rent Costs	-1.530*** (0.260)	-1.223*** (0.327)	-1.864*** (0.406)	-1.415*** (0.316)	-1.777*** (0.411)
Supplier Fit	0.480** (0.215)	0.293 (0.298)	0.795*** (0.297)	0.479* (0.251)	0.490 (0.387)
Buyer Fit	0.391** (0.183)	0.293 (0.331)	0.409** (0.207)	0.345 (0.236)	0.416 (0.355)
Labor Fit	1.040*** (0.180)	0.929*** (0.323)	1.146*** (0.216)	0.894*** (0.262)	1.171*** (0.252)
Knowledge Fit	0.102* (0.0542)	0.141* (0.0751)	0.0496 (0.0787)	0.209*** (0.0664)	-0.0538 (0.0837)
Geographical Distance	0.0423 (0.197)	0.234 (0.254)	-0.244 (0.298)	0.0659 (0.231)	0.0605 (0.385)
Air Traffic Intensity	2.344*** (0.464)	2.026*** (0.583)	2.690*** (0.727)	1.758*** (0.575)	3.034*** (0.738)
Number of firms	669	472	203	549	191
Number of home countries	35	34	26	35	25
Number of projects	1159	601	558	678	481
Wald chi-square	1589.94***	1290.39***	1319.95***	1485.57***	1074.45***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.377***	2.013***	1.058***	1.886***	0.621
	(0.262)	(0.374)	(0.298)	(0.324)	(0.418)
Prior FDI Home Country Focal Industry * Power Distance	0.0190	0.0138	0.0170	0.0183	-0.0199
	(0.0239)	(0.0310)	(0.0273)	(0.0295)	(0.0329)
Prior FDI Home Country Other Industry	0.584***	0.953***	0.487***	0.700***	0.397**
	(0.129)	(0.207)	(0.151)	(0.183)	(0.180)
Prior FDI Home Country Other Industry * Power Distance	0.00156	0.0167	-0.0123	0.0160	-0.0238
	(0.0114)	(0.0157)	(0.0137)	(0.0164)	(0.0159)
Prior FDI Other Country Focal Industry	0.586***	0.360*	0.723***	0.480**	0.727***
	(0.124)	(0.200)	(0.165)	(0.202)	(0.157)
Investor's Experience	4.134***	5.016***	3.677***	4.629***	3.848***
	(0.167)	(0.216)	(0.209)	(0.179)	(0.231)
GDP per capita	0.772***	0.954***	0.598*	0.994***	0.466
	(0.208)	(0.251)	(0.329)	(0.225)	(0.373)
Population Density	3.125***	4.307***	1.959**	4.269***	1.438
	(0.591)	(0.696)	(0.963)	(0.643)	(0.998)
Population Density Squared	-1.859***	-2.330***	-1.412**	-2.313***	-1.188*
	(0.377)	(0.450)	(0.649)	(0.410)	(0.671)
Corporate Tax Rate	0.171***	0.184**	0.145*	0.135*	0.193**
	(0.0626)	(0.0915)	(0.0847)	(0.0792)	(0.0901)
Educational Attainment	0.348*	0.578**	0.0939	0.498**	0.0970
	(0.184)	(0.235)	(0.263)	(0.215)	(0.300)
Labor Costs	-0.698	-1.227**	-0.125	-1.226**	0.183
	(0.496)	(0.612)	(0.780)	(0.615)	(0.764)
Employment	0.0533***	0.0649***	0.0388	0.0575***	0.0529**
	(0.0161)	(0.0211)	(0.0239)	(0.0201)	(0.0233)
Rent Costs	-1.521***	-1.206***	-1.860***	-1.406***	-1.773***
	(0.259)	(0.326)	(0.405)	(0.316)	(0.412)
Supplier Fit	0.485**	0.290	0.801***	0.484*	0.493
	(0.217)	(0.298)	(0.298)	(0.251)	(0.388)
Buyer Fit	0.392**	0.301	0.408**	0.351	0.412
	(0.185)	(0.332)	(0.207)	(0.239)	(0.352)
Labor Fit	1.043***	0.937***	1.145***	0.896***	1.159***
	(0.180)	(0.321)	(0.216)	(0.262)	(0.251)
Knowledge Fit	0.0993*	0.139*	0.0479	0.208***	-0.0576
	(0.0542)	(0.0745)	(0.0793)	(0.0658)	(0.0846)
Geographical Distance	0.0513	0.250	-0.240	0.0797	0.0534
	(0.198)	(0.257)	(0.299)	(0.233)	(0.383)
Air Traffic Intensity	2.341***	2.002***	2.692***	1.750***	3.051***
	(0.465)	(0.585)	(0.727)	(0.574)	(0.737)
Number of firms	669	472	203	549	191
Number of home countries	35	34	26	35	25
Number of projects	1159	601	558	678	481
Wald chi-square	1594.09***	1294.61***	1328.28***	1512.06***	1103.16***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.383***	1.984***	0.958***	1.918***	0.831**
	(0.299)	(0.335)	(0.358)	(0.317)	(0.370)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	-0.00924	-0.0175	0.00674	-0.0127	-0.0387
	(0.0190)	(0.0261)	(0.0235)	(0.0199)	(0.0354)
Prior FDI Home Country Other Industry	0.611***	0.903***	0.576***	0.685***	0.569***
	(0.118)	(0.195)	(0.149)	(0.195)	(0.150)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	-0.00589	0.00420	-0.00886	0.00151	-0.0232**
	(0.00774)	(0.0124)	(0.00929)	(0.0103)	(0.00987)
Prior FDI Other Country Focal Industry	0.574***	0.349*	0.716***	0.466**	0.713***
	(0.124)	(0.199)	(0.165)	(0.200)	(0.161)
Investor's Experience	4.144***	5.028***	3.679***	4.647***	3.854***
	(0.167)	(0.215)	(0.209)	(0.180)	(0.230)
GDP per capita	0.780***	0.952***	0.599*	0.998***	0.465
	(0.209)	(0.252)	(0.329)	(0.225)	(0.376)
Population Density	3.116***	4.285***	1.964**	4.259***	1.409
	(0.595)	(0.696)	(0.966)	(0.642)	(1.008)
Population Density Squared	-1.860***	-2.317***	-1.418**	-2.307***	-1.183*
	(0.380)	(0.450)	(0.652)	(0.409)	(0.682)
Corporate Tax Rate	0.174***	0.187**	0.145*	0.137*	0.193**
	(0.0628)	(0.0913)	(0.0844)	(0.0794)	(0.0903)
Educational Attainment	0.352*	0.589**	0.0944	0.503**	0.0998
	(0.185)	(0.236)	(0.262)	(0.216)	(0.302)
Labor Costs	-0.723	-1.282**	-0.124	-1.274**	0.190
	(0.496)	(0.610)	(0.779)	(0.609)	(0.765)
Employment	0.0534***	0.0650***	0.0386	0.0569***	0.0531**
	(0.0161)	(0.0211)	(0.0239)	(0.0201)	(0.0233)
Rent Costs	-1.515***	-1.189***	-1.862***	-1.395***	-1.771***
	(0.259)	(0.325)	(0.405)	(0.315)	(0.410)
Supplier Fit	0.497**	0.289	0.806***	0.496**	0.508
	(0.218)	(0.299)	(0.298)	(0.250)	(0.395)
Buyer Fit	0.389**	0.302	0.407*	0.351	0.406
	(0.186)	(0.329)	(0.208)	(0.239)	(0.356)
Labor Fit	1.036***	0.939***	1.144***	0.886***	1.166***
	(0.180)	(0.319)	(0.216)	(0.262)	(0.254)
Knowledge Fit	0.0954*	0.138*	0.0466	0.207***	-0.0619
	(0.0546)	(0.0743)	(0.0791)	(0.0653)	(0.0842)
Geographical Distance	0.0633	0.257	-0.234	0.0884	0.0768
	(0.198)	(0.256)	(0.299)	(0.233)	(0.386)
Air Traffic Intensity	2.343***	1.996***	2.690***	1.749***	3.026***
	(0.465)	(0.584)	(0.727)	(0.572)	(0.740)
Number of firms	669	472	203	549	191
Number of home countries	35	34	26	35	25
Number of projects	1159	601	558	678	481
Wald chi-square	1594.63***	1358.99***	1321.18***	1563.62***	1088.76***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.434*** (0.306)	1.991*** (0.339)	0.772* (0.408)	2.062*** (0.307)	0.753** (0.336)
Prior FDI Home Country Focal Industry * Masculinity	-0.0126 (0.0148)	-0.0231 (0.0216)	0.0176 (0.0184)	-0.0263* (0.0151)	-0.00207 (0.0156)
Prior FDI Home Country Other Industry	0.690*** (0.127)	0.940*** (0.199)	0.611*** (0.164)	0.789*** (0.216)	0.688*** (0.157)
Prior FDI Home Country Other Industry * Masculinity	-0.0104 (0.00711)	-0.00623 (0.0126)	-0.00696 (0.00834)	-0.00656 (0.00946)	-0.0252*** (0.00809)
Prior FDI Other Country Focal Industry	0.578*** (0.124)	0.358* (0.198)	0.718*** (0.164)	0.464** (0.197)	0.713*** (0.158)
Investor's Experience	4.141*** (0.167)	5.020*** (0.215)	3.678*** (0.209)	4.653*** (0.179)	3.843*** (0.230)
GDP per capita	0.788*** (0.208)	0.960*** (0.251)	0.590* (0.328)	1.010*** (0.224)	0.453 (0.374)
Population Density	3.111*** (0.593)	4.282*** (0.693)	1.966** (0.960)	4.243*** (0.639)	1.443 (0.988)
Population Density Squared	-1.854*** (0.378)	-2.309*** (0.447)	-1.414** (0.647)	-2.298*** (0.407)	-1.182* (0.660)
Corporate Tax Rate	0.177*** (0.0632)	0.187** (0.0914)	0.146* (0.0847)	0.137* (0.0794)	0.199** (0.0917)
Educational Attainment	0.342* (0.184)	0.573** (0.234)	0.0958 (0.262)	0.487** (0.213)	0.0863 (0.296)
Labor Costs	-0.705 (0.495)	-1.243** (0.610)	-0.117 (0.780)	-1.252** (0.608)	0.227 (0.760)
Employment	0.0532*** (0.0161)	0.0649*** (0.0211)	0.0389 (0.0238)	0.0566*** (0.0201)	0.0520** (0.0230)
Rent Costs	-1.518*** (0.259)	-1.192*** (0.325)	-1.864*** (0.406)	-1.399*** (0.315)	-1.787*** (0.413)
Supplier Fit	0.504** (0.218)	0.295 (0.299)	0.795*** (0.297)	0.509** (0.250)	0.496 (0.386)
Buyer Fit	0.386** (0.187)	0.296 (0.331)	0.408** (0.208)	0.344 (0.242)	0.412 (0.358)
Labor Fit	1.031*** (0.180)	0.929*** (0.321)	1.146*** (0.216)	0.873*** (0.262)	1.165*** (0.252)
Knowledge Fit	0.0952* (0.0548)	0.141* (0.0742)	0.0480 (0.0789)	0.206*** (0.0655)	-0.0505 (0.0834)
Geographical Distance	0.0609 (0.199)	0.257 (0.258)	-0.244 (0.298)	0.0917 (0.234)	0.0416 (0.385)
Air Traffic Intensity	2.342*** (0.466)	1.964*** (0.586)	2.694*** (0.727)	1.739*** (0.572)	3.048*** (0.739)
Number of firms	669	472	203	549	191
Number of home countries	35	34	26	35	25
Number of projects	1159	601	558	678	481
Wald chi-square	1588.26***	1350.40***	1319.05***	1598.17***	1115.57***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.568***	2.151***	1.244***	2.044***	0.419
	(0.367)	(0.605)	(0.425)	(0.466)	(0.806)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	0.378	0.270	0.352	0.345	-0.389
	(0.438)	(0.605)	(0.521)	(0.547)	(0.789)
Prior FDI Home Country Other Industry	0.602***	1.246***	0.376*	0.873***	0.0536
	(0.211)	(0.338)	(0.222)	(0.247)	(0.293)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.0315	0.437	-0.210	0.302	-0.543*
	(0.212)	(0.324)	(0.235)	(0.286)	(0.282)
Prior FDI Other Country Focal Industry	0.589***	0.373*	0.720***	0.489**	0.719***
	(0.124)	(0.200)	(0.165)	(0.203)	(0.158)
Investor's Experience	4.131***	5.009***	3.677***	4.623***	3.850***
	(0.167)	(0.217)	(0.208)	(0.180)	(0.230)
GDP per capita	0.774***	0.966***	0.596*	1.000***	0.461
	(0.207)	(0.251)	(0.329)	(0.224)	(0.374)
Population Density	3.131***	4.333***	1.962**	4.282***	1.423
	(0.592)	(0.699)	(0.963)	(0.643)	(1.002)
Population Density Squared	-1.861***	-2.344***	-1.414**	-2.318***	-1.185*
	(0.377)	(0.451)	(0.649)	(0.410)	(0.676)
Corporate Tax Rate	0.170***	0.183**	0.144*	0.135*	0.193**
	(0.0626)	(0.0918)	(0.0845)	(0.0793)	(0.0899)
Educational Attainment	0.346*	0.565**	0.0950	0.492**	0.103
	(0.184)	(0.235)	(0.262)	(0.214)	(0.300)
Labor Costs	-0.695	-1.221**	-0.124	-1.229**	0.182
	(0.496)	(0.612)	(0.780)	(0.613)	(0.765)
Employment	0.0534***	0.0648***	0.0387	0.0577***	0.0530**
	(0.0161)	(0.0211)	(0.0238)	(0.0201)	(0.0233)
Rent Costs	-1.522***	-1.211***	-1.861***	-1.405***	-1.768***
	(0.259)	(0.326)	(0.405)	(0.316)	(0.411)
Supplier Fit	0.484**	0.291	0.800***	0.481*	0.498
	(0.216)	(0.298)	(0.298)	(0.251)	(0.391)
Buyer Fit	0.392**	0.298	0.408**	0.349	0.411
	(0.185)	(0.331)	(0.207)	(0.237)	(0.354)
Labor Fit	1.042***	0.936***	1.145***	0.896***	1.164***
	(0.180)	(0.321)	(0.216)	(0.262)	(0.252)
Knowledge Fit	0.0997*	0.139*	0.0485	0.207***	-0.0590
	(0.0542)	(0.0749)	(0.0791)	(0.0660)	(0.0842)
Geographical Distance	0.0499	0.242	-0.239	0.0753	0.0654
	(0.197)	(0.255)	(0.299)	(0.232)	(0.385)
Air Traffic Intensity	2.343***	2.016***	2.691***	1.753***	3.038***
	(0.465)	(0.583)	(0.727)	(0.574)	(0.739)
Number of firms	669	472	203	549	191
Number of home countries	35	34	26	35	25
Number of projects	1159	601	558	678	481
Wald chi-square	1592.43***	1288.08***	1323.33***	1503.27***	1085.70***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 12 Conditional Logit Estimates – T-3

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.245***	1.494***	1.002**	1.061**	1.504***
	(0.279)	(0.368)	(0.422)	(0.427)	(0.369)
Prior FDI Home Country Focal Industry * Collectivism	0.0394*	0.0345	0.0474	0.0362	0.0414*
	(0.0235)	(0.0266)	(0.0412)	(0.0364)	(0.0246)
Prior FDI Home Country Other Industry	0.632***	0.822***	0.545***	0.671***	0.533**
	(0.155)	(0.213)	(0.210)	(0.213)	(0.231)
Prior FDI Home Country Other Industry * Collectivism	0.00495	0.0216	-0.0110	0.0129	-0.0126
	(0.0131)	(0.0140)	(0.0178)	(0.0146)	(0.0229)
Prior FDI Other Country Focal Industry	1.089***	1.148***	1.003***	1.272***	0.788***
	(0.146)	(0.177)	(0.230)	(0.178)	(0.269)
Investor's Experience	2.320***	2.704***	2.464***	2.605***	2.368***
	(0.213)	(0.558)	(0.252)	(0.310)	(0.278)
GDP per capita	1.065***	1.134***	0.959***	1.191***	0.880***
	(0.203)	(0.261)	(0.306)	(0.239)	(0.323)
Population Density	3.690***	4.373***	2.868***	4.247***	2.906***
	(0.595)	(0.734)	(0.956)	(0.687)	(0.938)
Population Density Squared	-1.890***	-2.076***	-1.652***	-2.028***	-1.673***
	(0.365)	(0.433)	(0.618)	(0.402)	(0.617)
Corporate Tax Rate	0.196***	0.219**	0.173*	0.219***	0.176*
	(0.0671)	(0.0951)	(0.0943)	(0.0821)	(0.0987)
Educational Attainment	0.268	0.453	0.0961	0.525**	-0.0532
	(0.214)	(0.276)	(0.317)	(0.251)	(0.328)
Labor Costs	-0.220	-0.959	0.473	-1.207*	1.090
	(0.566)	(0.640)	(0.927)	(0.668)	(0.857)
Employment	0.117***	0.125***	0.108***	0.115***	0.123***
	(0.0222)	(0.0268)	(0.0350)	(0.0249)	(0.0363)
Rent Costs	-1.439***	-1.026***	-1.872***	-1.222***	-1.736***
	(0.283)	(0.348)	(0.441)	(0.334)	(0.450)
Supplier Fit	0.652***	0.398	0.953***	0.588**	0.777**
	(0.233)	(0.367)	(0.287)	(0.285)	(0.358)
Buyer Fit	0.118	0.154	0.0693	0.248	-0.121
	(0.221)	(0.373)	(0.267)	(0.284)	(0.314)
Labor Fit	1.162***	1.120***	1.190***	1.065***	1.217***
	(0.225)	(0.331)	(0.312)	(0.324)	(0.301)
Knowledge Fit	0.0912	0.187**	0.00322	0.177**	-0.0113
	(0.0632)	(0.0797)	(0.0932)	(0.0710)	(0.0980)
Geographical Distance	-0.0588	-0.0293	-0.147	-0.104	0.0608
	(0.207)	(0.254)	(0.328)	(0.241)	(0.396)
Air Traffic Intensity	2.402***	1.542**	3.271***	1.526**	3.430***
	(0.533)	(0.621)	(0.817)	(0.647)	(0.787)
Number of firms	585	409	179	467	174
Number of home countries	35	34	26	35	35
Number of projects	956	502	454	547	499
Wald chi-square	1149.36***	596.92***	811.12***	715.92***	799.97***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.318***	1.549***	1.129***	1.241***	1.354***
	(0.313)	(0.455)	(0.424)	(0.439)	(0.424)
Prior FDI Home Country Focal Industry * Power Distance	0.000203	0.00340	0.000187	0.00197	-0.0160
	(0.0237)	(0.0334)	(0.0328)	(0.0375)	(0.0254)
Prior FDI Home Country Other Industry	0.621***	0.795***	0.526**	0.693***	0.440*
	(0.160)	(0.213)	(0.227)	(0.212)	(0.251)
Prior FDI Home Country Other Industry * Power Distance	-0.00131	0.00439	-0.00752	0.0119	-0.0232
	(0.0135)	(0.0150)	(0.0211)	(0.0173)	(0.0218)
Prior FDI Other Country Focal Industry	1.091***	1.143***	1.005***	1.275***	0.770***
	(0.148)	(0.179)	(0.233)	(0.180)	(0.273)
Investor's Experience	2.323***	2.709***	2.464***	2.609***	2.376***
	(0.215)	(0.562)	(0.254)	(0.307)	(0.283)
GDP per capita	1.061***	1.125***	0.959***	1.185***	0.888***
	(0.204)	(0.264)	(0.306)	(0.240)	(0.325)
Population Density	3.673***	4.340***	2.864***	4.228***	2.891***
	(0.595)	(0.734)	(0.954)	(0.686)	(0.938)
Population Density Squared	-1.885***	-2.061***	-1.653***	-2.021***	-1.671***
	(0.365)	(0.435)	(0.618)	(0.403)	(0.618)
Corporate Tax Rate	0.198***	0.222**	0.173*	0.221***	0.177*
	(0.0672)	(0.0952)	(0.0945)	(0.0824)	(0.0988)
Educational Attainment	0.278	0.472*	0.103	0.534**	-0.0462
	(0.216)	(0.283)	(0.318)	(0.255)	(0.330)
Labor Costs	-0.234	-0.986	0.471	-1.213*	1.065
	(0.565)	(0.642)	(0.922)	(0.670)	(0.850)
Employment	0.118***	0.126***	0.109***	0.115***	0.124***
	(0.0221)	(0.0267)	(0.0349)	(0.0248)	(0.0361)
Rent Costs	-1.437***	-1.019***	-1.876***	-1.222***	-1.730***
	(0.283)	(0.348)	(0.439)	(0.334)	(0.448)
Supplier Fit	0.649***	0.398	0.951***	0.585**	0.775**
	(0.232)	(0.368)	(0.286)	(0.285)	(0.357)
Buyer Fit	0.123	0.163	0.0686	0.254	-0.129
	(0.221)	(0.373)	(0.267)	(0.283)	(0.315)
Labor Fit	1.165***	1.117***	1.196***	1.067***	1.223***
	(0.225)	(0.331)	(0.311)	(0.323)	(0.299)
Knowledge Fit	0.0886	0.186**	2.64e-05	0.176**	-0.0175
	(0.0638)	(0.0800)	(0.0937)	(0.0713)	(0.0993)
Geographical Distance	-0.0502	-0.0183	-0.141	-0.0990	0.0747
	(0.207)	(0.254)	(0.329)	(0.241)	(0.395)
Air Traffic Intensity	2.407***	1.526**	3.281***	1.529**	3.433***
	(0.534)	(0.621)	(0.812)	(0.647)	(0.787)
Number of firms	585	409	179	467	174
Number of home countries	35	34	26	35	35
Number of projects	956	502	454	547	499
Wald chi-square	1187.14***	597.46***	831.69***	737.20***	789.69***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.323***	1.527***	1.083**	1.319***	1.429***
	(0.283)	(0.370)	(0.435)	(0.380)	(0.416)
Prior FDI Home Country Focal Industry *	-0.000884	-0.000984	0.00621	-0.0148	0.00867
Uncertainty Avoidance	(0.0150)	(0.0248)	(0.0203)	(0.0217)	(0.0136)
Prior FDI Home Country Other Industry	0.630***	0.773***	0.572***	0.633***	0.597***
	(0.154)	(0.218)	(0.215)	(0.221)	(0.216)
Prior FDI Home Country Other Industry *	-0.00117	0.00509	-0.00395	0.00791	-0.0157
Uncertainty Avoidance	(0.00928)	(0.0118)	(0.0131)	(0.0114)	(0.0135)
Prior FDI Other Country Focal Industry	1.091***	1.145***	1.004***	1.288***	0.779***
	(0.149)	(0.180)	(0.234)	(0.180)	(0.272)
Investor's Experience	2.323***	2.709***	2.464***	2.612***	2.372***
	(0.216)	(0.562)	(0.253)	(0.306)	(0.281)
GDP per capita	1.061***	1.125***	0.957***	1.184***	0.876***
	(0.203)	(0.263)	(0.306)	(0.240)	(0.325)
Population Density	3.672***	4.340***	2.866***	4.225***	2.888***
	(0.596)	(0.734)	(0.956)	(0.686)	(0.939)
Population Density Squared	-1.884***	-2.061***	-1.653***	-2.018***	-1.667***
	(0.366)	(0.434)	(0.619)	(0.403)	(0.618)
Corporate Tax Rate	0.198***	0.222**	0.174*	0.219***	0.177*
	(0.0673)	(0.0953)	(0.0945)	(0.0822)	(0.0986)
Educational Attainment	0.278	0.472*	0.104	0.533**	-0.0444
	(0.216)	(0.282)	(0.318)	(0.255)	(0.330)
Labor Costs	-0.234	-0.988	0.473	-1.214*	1.086
	(0.565)	(0.641)	(0.923)	(0.668)	(0.856)
Employment	0.118***	0.126***	0.109***	0.116***	0.123***
	(0.0221)	(0.0267)	(0.0349)	(0.0248)	(0.0362)
Rent Costs	-1.438***	-1.018***	-1.878***	-1.221***	-1.739***
	(0.283)	(0.348)	(0.440)	(0.334)	(0.450)
Supplier Fit	0.649***	0.398	0.951***	0.585**	0.773**
	(0.232)	(0.368)	(0.286)	(0.285)	(0.357)
Buyer Fit	0.123	0.162	0.0697	0.252	-0.119
	(0.221)	(0.373)	(0.267)	(0.284)	(0.315)
Labor Fit	1.166***	1.118***	1.196***	1.070***	1.225***
	(0.225)	(0.331)	(0.312)	(0.323)	(0.302)
Knowledge Fit	0.0885	0.187**	0.000678	0.177**	-0.0153
	(0.0639)	(0.0799)	(0.0937)	(0.0713)	(0.0990)
Geographical Distance	-0.0498	-0.0186	-0.143	-0.0976	0.0737
	(0.207)	(0.253)	(0.329)	(0.240)	(0.396)
Air Traffic Intensity	2.406***	1.530**	3.278***	1.537**	3.420***
	(0.534)	(0.622)	(0.812)	(0.645)	(0.790)
Number of firms	585	409	179	467	174
Number of home countries	35	34	26	35	35
Number of projects	956	502	454	547	499
Wald chi-square	1190.07***	597.28***	831.68***	744.73***	826.41***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.489***	1.640***	1.226**	1.563***	1.396***
	(0.302)	(0.372)	(0.491)	(0.389)	(0.445)
Prior FDI Home Country Focal Industry * Masculinity	-0.0227	-0.0314*	-0.00794	-0.0429**	0.00893
	(0.0145)	(0.0187)	(0.0213)	(0.0171)	(0.0136)
Prior FDI Home Country Other Industry	0.672***	0.782***	0.620**	0.690***	0.660***
	(0.165)	(0.230)	(0.241)	(0.253)	(0.226)
Prior FDI Home Country Other Industry * Masculinity	-0.00488	-2.39e-06	-0.00567	-0.000250	-0.0135
	(0.00930)	(0.0117)	(0.0132)	(0.0122)	(0.0124)
Prior FDI Other Country Focal Industry	1.096***	1.149***	1.008***	1.300***	0.778***
	(0.151)	(0.180)	(0.236)	(0.178)	(0.273)
Investor's Experience	2.330***	2.701***	2.469***	2.624***	2.380***
	(0.221)	(0.562)	(0.258)	(0.303)	(0.286)
GDP per capita	1.062***	1.127***	0.958***	1.189***	0.881***
	(0.204)	(0.263)	(0.307)	(0.239)	(0.325)
Population Density	3.665***	4.334***	2.861***	4.210***	2.894***
	(0.596)	(0.735)	(0.957)	(0.688)	(0.937)
Population Density Squared	-1.883***	-2.058***	-1.653***	-2.014***	-1.672***
	(0.366)	(0.435)	(0.620)	(0.405)	(0.617)
Corporate Tax Rate	0.198***	0.221**	0.174*	0.217***	0.179*
	(0.0676)	(0.0955)	(0.0949)	(0.0821)	(0.0989)
Educational Attainment	0.279	0.470*	0.105	0.528**	-0.0463
	(0.216)	(0.281)	(0.318)	(0.253)	(0.332)
Labor Costs	-0.234	-0.985	0.468	-1.206*	1.076
	(0.564)	(0.641)	(0.919)	(0.668)	(0.854)
Employment	0.118***	0.127***	0.109***	0.116***	0.123***
	(0.0220)	(0.0267)	(0.0348)	(0.0248)	(0.0362)
Rent Costs	-1.440***	-1.018***	-1.880***	-1.217***	-1.739***
	(0.283)	(0.348)	(0.439)	(0.334)	(0.450)
Supplier Fit	0.647***	0.399	0.948***	0.587**	0.770**
	(0.232)	(0.368)	(0.285)	(0.285)	(0.358)
Buyer Fit	0.130	0.173	0.0716	0.263	-0.124
	(0.221)	(0.372)	(0.267)	(0.283)	(0.315)
Labor Fit	1.164***	1.112***	1.196***	1.062***	1.222***
	(0.226)	(0.331)	(0.311)	(0.324)	(0.301)
Knowledge Fit	0.0873	0.186**	-0.00104	0.178**	-0.0143
	(0.0645)	(0.0800)	(0.0942)	(0.0715)	(0.0986)
Geographical Distance	-0.0474	-0.0172	-0.139	-0.0971	0.0716
	(0.207)	(0.253)	(0.329)	(0.240)	(0.395)
Air Traffic Intensity	2.412***	1.532**	3.286***	1.541**	3.438***
	(0.536)	(0.622)	(0.814)	(0.646)	(0.789)
Number of firms	585	409	179	467	174
Number of home countries	35	34	26	35	35
Number of projects	956	502	454	547	499
Wald chi-square	1184.77***	601.80***	817.26***	763.78***	775.77***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.582***	1.873**	1.389**	1.391**	1.692***
	(0.473)	(0.728)	(0.581)	(0.680)	(0.470)
Prior FDI Home Country Focal Industry *	0.367	0.432	0.398	0.266	0.281
Domestic Conformity Forces	(0.498)	(0.715)	(0.663)	(0.759)	(0.490)
Prior FDI Home Country Other Industry	0.643**	1.023***	0.431	0.845***	0.211
	(0.256)	(0.313)	(0.347)	(0.288)	(0.410)
Prior FDI Home Country Other Industry *	0.0210	0.294	-0.163	0.251	-0.402
Domestic Conformity Forces	(0.255)	(0.331)	(0.345)	(0.310)	(0.395)
Prior FDI Other Country Focal Industry	1.089***	1.142***	1.004***	1.273***	0.782***
	(0.148)	(0.179)	(0.232)	(0.180)	(0.271)
Investor's Experience	2.321***	2.712***	2.463***	2.608***	2.372***
	(0.214)	(0.560)	(0.253)	(0.309)	(0.281)
GDP per capita	1.061***	1.127***	0.957***	1.186***	0.877***
	(0.204)	(0.263)	(0.306)	(0.240)	(0.325)
Population Density	3.680***	4.353***	2.865***	4.238***	2.889***
	(0.595)	(0.734)	(0.956)	(0.686)	(0.939)
Population Density Squared	-1.887***	-2.067***	-1.652***	-2.025***	-1.667***
	(0.365)	(0.434)	(0.619)	(0.403)	(0.618)
Corporate Tax Rate	0.197***	0.221**	0.173*	0.220***	0.177*
	(0.0671)	(0.0952)	(0.0944)	(0.0822)	(0.0987)
Educational Attainment	0.277	0.467*	0.103	0.532**	-0.0444
	(0.216)	(0.280)	(0.318)	(0.254)	(0.330)
Labor Costs	-0.230	-0.974	0.472	-1.213*	1.082
	(0.566)	(0.641)	(0.924)	(0.669)	(0.854)
Employment	0.118***	0.126***	0.109***	0.115***	0.123***
	(0.0221)	(0.0267)	(0.0349)	(0.0248)	(0.0362)
Rent Costs	-1.438***	-1.023***	-1.875***	-1.222***	-1.736***
	(0.283)	(0.348)	(0.440)	(0.334)	(0.449)
Supplier Fit	0.650***	0.397	0.951***	0.587**	0.774**
	(0.233)	(0.368)	(0.286)	(0.285)	(0.357)
Buyer Fit	0.124	0.161	0.0709	0.251	-0.119
	(0.221)	(0.372)	(0.267)	(0.283)	(0.315)
Labor Fit	1.163***	1.117***	1.195***	1.065***	1.223***
	(0.225)	(0.331)	(0.312)	(0.323)	(0.301)
Knowledge Fit	0.0896	0.186**	0.00142	0.177**	-0.0150
	(0.0636)	(0.0799)	(0.0936)	(0.0713)	(0.0990)
Geographical Distance	-0.0539	-0.0236	-0.145	-0.101	0.0716
	(0.207)	(0.254)	(0.329)	(0.241)	(0.396)
Air Traffic Intensity	2.403***	1.529**	3.278***	1.526**	3.427***
	(0.534)	(0.621)	(0.814)	(0.647)	(0.789)
Number of firms	585	409	179	467	174
Number of home countries	35	34	26	35	35
Number of projects	956	502	454	547	499
Wald chi-square	1170.43***	595.18***	828.76***	726.55***	803.96***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 13 Conditional Logit Estimates – Average age of prior FDI

	Full sample
Prior FDI Home Country Focal Industry * Average AGE of these prior FDI investments	-2.600 (0.394)
Prior FDI Home Country Other Industry * Average AGE of these prior FDI investments	-25.93 (0.999)
Investor's Experience	9.942 (0.027)
GDP per capita	0.829 (0.000)
Population Density	8.022 (0.000)
Population Density Squared	-6.305 (0.000)
Corporate Tax Rate	0.125 (0.029)
Educational Attainment	0.361 (0.029)
Labor Costs	-0.610 (0.179)
Employment	0.335 (0.000)
Rent Costs	-1.351 (0.000)
Labor Fit	0.638 (0.001)
Supplier Fit	0.626 (0.001)
Buyer Fit	0.363 (0.060)
Knowledge Fit	0.108 (0.031)
Geographical Distance	0.0119 (0.941)
Air Traffic Intensity	1.565 (0.001)
Number of firms	778
Number of home countries	38
Number of projects	1343
Wald chi-square	263.17***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 14 Conditional Logit Estimates – TARAS cultural dimensions

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.291 (0.432)	0.219 (0.503)	0.0955 (0.580)	0.413 (0.704)	0.266 (0.399)
Prior FDI Home Country Focal Industry * Collectivism	-0.730 (2.159)	-3.405 (2.305)	2.266 (2.426)	-0.375 (3.207)	-1.918 (1.263)
Prior FDI Home Country Other Industry	0.714*** (0.158)	1.044*** (0.211)	0.503** (0.221)	0.842*** (0.212)	0.597*** (0.222)
Prior FDI Home Country Other Industry * Collectivism	0.247 (0.609)	1.010 (0.860)	-0.304 (0.632)	0.961 (0.725)	-1.030* (0.608)
Prior FDI Other Country Focal Industry	1.145*** (0.151)	1.241*** (0.196)	1.017*** (0.218)	1.259*** (0.184)	0.956*** (0.225)
Investor's Experience	3.040*** (0.278)	4.637*** (0.615)	3.054*** (0.302)	3.678*** (0.0810)	3.304*** (0.324)
GDP per capita	1.214*** (0.225)	1.425*** (0.279)	0.883** (0.361)	1.371*** (0.250)	0.904** (0.414)
Population Density	4.547*** (0.702)	4.996*** (0.847)	3.829*** (1.150)	5.136*** (0.754)	3.456*** (1.163)
Population Density Squared	-2.477*** (0.457)	-2.588*** (0.525)	-2.219*** (0.771)	-2.642*** (0.476)	-2.071*** (0.778)
Corporate Tax Rate	0.199*** (0.0754)	0.143 (0.0934)	0.272** (0.120)	0.134 (0.0846)	0.284** (0.119)
Educational Attainment	0.105 (0.225)	0.243 (0.284)	-0.0358 (0.347)	0.332 (0.264)	-0.187 (0.360)
Labor Costs	0.148 (0.606)	-0.773 (0.757)	1.224 (0.912)	-0.576 (0.770)	1.111 (0.896)
Employment	0.0733*** (0.0235)	0.0870*** (0.0272)	0.0577 (0.0367)	0.0774*** (0.0251)	0.0680* (0.0382)
Rent Costs	-1.678*** (0.312)	-1.033*** (0.369)	-2.421*** (0.502)	-1.488*** (0.363)	-1.910*** (0.516)
Supplier Fit	0.732*** (0.238)	0.341 (0.329)	1.126*** (0.325)	0.568** (0.278)	0.986** (0.394)
Buyer Fit	0.340* (0.206)	0.682** (0.313)	0.119 (0.254)	0.567** (0.236)	-0.0917 (0.389)
Labor Fit	1.345*** (0.235)	1.223*** (0.325)	1.502*** (0.351)	1.465*** (0.324)	1.193*** (0.332)
Knowledge Fit	0.164** (0.0697)	0.286*** (0.0822)	0.0472 (0.107)	0.304*** (0.0739)	-0.00980 (0.113)
Geographical Distance	0.0740 (0.201)	0.116 (0.239)	-0.0505 (0.324)	0.0404 (0.223)	0.192 (0.416)
Air Traffic Intensity	2.114*** (0.618)	1.438** (0.638)	2.839** (1.164)	1.758*** (0.660)	2.487** (1.122)
Number of firms	460	341	121	380	127
Number of home countries	20	20	14	20	15
Number of projects	793	426	367	463	330
Wald chi-square	838.07***	672.56***	678.53***	670.47***	601.56***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.233	0.0346	0.316	0.358	0.173
	(0.371)	(0.492)	(0.457)	(0.570)	(0.381)
Prior FDI Home Country Focal Industry * Power Distance	0.659	2.646	-1.926	0.0710	2.600**
	(3.068)	(2.098)	(2.988)	(4.490)	(1.018)
Prior FDI Home Country Other Industry	0.774***	1.147***	0.491**	0.994***	0.585**
	(0.148)	(0.190)	(0.233)	(0.183)	(0.227)
Prior FDI Home Country Other Industry * Power Distance	0.640	0.320	0.492	0.144	2.332
	(0.808)	(0.871)	(1.343)	(0.801)	(1.443)
Prior FDI Other Country Focal Industry	1.145***	1.239***	1.021***	1.257***	0.946***
	(0.151)	(0.196)	(0.219)	(0.184)	(0.225)
Investor's Experience	3.043***	4.620***	3.053***	3.679***	3.301***
	(0.279)	(0.615)	(0.303)	(0.0805)	(0.323)
GDP per capita	1.217***	1.429***	0.880**	1.374***	0.912**
	(0.225)	(0.279)	(0.362)	(0.249)	(0.414)
Population Density	4.543***	4.988***	3.830***	5.131***	3.460***
	(0.703)	(0.847)	(1.149)	(0.754)	(1.166)
Population Density Squared	-2.476***	-2.581***	-2.221***	-2.641***	-2.077***
	(0.458)	(0.526)	(0.771)	(0.476)	(0.780)
Corporate Tax Rate	0.199***	0.142	0.272**	0.134	0.287**
	(0.0755)	(0.0931)	(0.120)	(0.0848)	(0.120)
Educational Attainment	0.105	0.244	-0.0320	0.336	-0.190
	(0.225)	(0.284)	(0.350)	(0.264)	(0.359)
Labor Costs	0.142	-0.783	1.225	-0.593	1.103
	(0.606)	(0.757)	(0.912)	(0.769)	(0.898)
Employment	0.0733***	0.0871***	0.0576	0.0773***	0.0679*
	(0.0235)	(0.0273)	(0.0367)	(0.0252)	(0.0383)
Rent Costs	-1.680***	-1.029***	-2.424***	-1.482***	-1.911***
	(0.312)	(0.368)	(0.501)	(0.362)	(0.516)
Supplier Fit	0.733***	0.346	1.124***	0.570**	1.000**
	(0.239)	(0.328)	(0.327)	(0.277)	(0.398)
Buyer Fit	0.341*	0.679**	0.117	0.562**	-0.0846
	(0.206)	(0.311)	(0.253)	(0.234)	(0.387)
Labor Fit	1.345***	1.224***	1.503***	1.461***	1.198***
	(0.235)	(0.325)	(0.350)	(0.324)	(0.332)
Knowledge Fit	0.163**	0.284***	0.0472	0.303***	-0.0107
	(0.0699)	(0.0819)	(0.107)	(0.0739)	(0.113)
Geographical Distance	0.0787	0.119	-0.0501	0.0486	0.194
	(0.201)	(0.239)	(0.323)	(0.224)	(0.417)
Air Traffic Intensity	2.124***	1.449**	2.843**	1.757***	2.532**
	(0.619)	(0.636)	(1.169)	(0.661)	(1.126)
Number of firms	460	341	121	380	127
Number of home countries	20	20	14	20	15
Number of projects	793	426	367	463	330
Wald chi-square	839.74***	670.56***	676.28***	668.44***	594.17***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.186 (0.319)	-0.174 (0.554)	0.453 (0.377)	0.180 (0.423)	0.164 (0.405)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	2.038* (1.044)	2.766** (1.236)	0.778 (1.476)	2.221* (1.271)	1.069 (2.353)
Prior FDI Home Country Other Industry	0.757*** (0.145)	1.154*** (0.192)	0.458** (0.204)	0.986*** (0.183)	0.474** (0.221)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	0.159 (0.530)	0.681 (0.679)	-0.440 (0.607)	0.345 (0.632)	-0.693 (0.717)
Prior FDI Other Country Focal Industry	1.143*** (0.151)	1.240*** (0.195)	1.022*** (0.218)	1.262*** (0.183)	0.946*** (0.224)
Investor's Experience	3.041*** (0.275)	4.547*** (0.624)	3.052*** (0.303)	3.683*** (0.0816)	3.290*** (0.322)
GDP per capita	1.211*** (0.225)	1.437*** (0.280)	0.884** (0.362)	1.375*** (0.249)	0.908** (0.413)
Population Density	4.557*** (0.705)	5.034*** (0.852)	3.819*** (1.153)	5.158*** (0.756)	3.467*** (1.166)
Population Density Squared	-2.480*** (0.457)	-2.605*** (0.528)	-2.219*** (0.774)	-2.653*** (0.476)	-2.084*** (0.779)
Corporate Tax Rate	0.198*** (0.0760)	0.138 (0.0930)	0.273** (0.120)	0.131 (0.0846)	0.291** (0.120)
Educational Attainment	0.107 (0.225)	0.249 (0.285)	-0.0335 (0.348)	0.339 (0.264)	-0.197 (0.359)
Labor Costs	0.127 (0.610)	-0.834 (0.758)	1.227 (0.912)	-0.628 (0.768)	1.128 (0.892)
Employment	0.0731*** (0.0234)	0.0874*** (0.0273)	0.0578 (0.0366)	0.0772*** (0.0252)	0.0685* (0.0383)
Rent Costs	-1.673*** (0.312)	-1.022*** (0.370)	-2.418*** (0.499)	-1.475*** (0.363)	-1.889*** (0.514)
Supplier Fit	0.727*** (0.239)	0.349 (0.332)	1.128*** (0.325)	0.571** (0.278)	0.988** (0.395)
Buyer Fit	0.349* (0.207)	0.688** (0.316)	0.120 (0.254)	0.564** (0.237)	-0.0800 (0.389)
Labor Fit	1.344*** (0.235)	1.214*** (0.327)	1.500*** (0.351)	1.461*** (0.325)	1.189*** (0.333)
Knowledge Fit	0.166** (0.0697)	0.283*** (0.0825)	0.0460 (0.108)	0.303*** (0.0740)	-0.00883 (0.113)
Geographical Distance	0.0707 (0.201)	0.111 (0.239)	-0.0481 (0.324)	0.0428 (0.223)	0.187 (0.415)
Air Traffic Intensity	2.108*** (0.621)	1.395** (0.644)	2.840** (1.169)	1.738*** (0.661)	2.481** (1.126)
Number of firms	460	341	121	380	127
Number of home countries	20	20	14	20	15
Number of projects	793	426	367	463	330
Wald chi-square	842.39***	643.87***	679.41***	665.12***	610.28***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.214	0.0137	0.441	0.242	-0.129
	(0.315)	(0.517)	(0.380)	(0.439)	(0.357)
Prior FDI Home Country Focal Industry * Masculinity	0.827	0.961	0.525	1.450	-1.555***
	(0.876)	(1.212)	(1.196)	(0.977)	(0.564)
Prior FDI Home Country Other Industry	0.753***	1.138***	0.470**	0.997***	0.465**
	(0.145)	(0.191)	(0.207)	(0.181)	(0.219)
Prior FDI Home Country Other Industry * Masculinity	-0.119	0.0452	-0.263	0.0122	-0.793
	(0.377)	(0.493)	(0.500)	(0.436)	(0.537)
Prior FDI Other Country Focal Industry	1.146***	1.238***	1.024***	1.262***	0.955***
	(0.151)	(0.194)	(0.219)	(0.183)	(0.224)
Investor's Experience	3.040***	4.575***	3.052***	3.675***	3.306***
	(0.277)	(0.618)	(0.304)	(0.0901)	(0.323)
GDP per capita	1.213***	1.428***	0.886**	1.370***	0.921**
	(0.225)	(0.279)	(0.362)	(0.249)	(0.415)
Population Density	4.548***	5.007***	3.829***	5.141***	3.461***
	(0.703)	(0.848)	(1.152)	(0.754)	(1.163)
Population Density Squared	-2.477***	-2.590***	-2.223***	-2.643***	-2.082***
	(0.457)	(0.526)	(0.774)	(0.475)	(0.775)
Corporate Tax Rate	0.199***	0.139	0.273**	0.131	0.294**
	(0.0761)	(0.0932)	(0.121)	(0.0847)	(0.120)
Educational Attainment	0.105	0.246	-0.0340	0.338	-0.198
	(0.225)	(0.284)	(0.348)	(0.264)	(0.362)
Labor Costs	0.141	-0.799	1.223	-0.607	1.111
	(0.607)	(0.755)	(0.911)	(0.770)	(0.896)
Employment	0.0733***	0.0876***	0.0577	0.0771***	0.0682*
	(0.0234)	(0.0273)	(0.0366)	(0.0252)	(0.0381)
Rent Costs	-1.676***	-1.022***	-2.421***	-1.478***	-1.896***
	(0.312)	(0.368)	(0.500)	(0.363)	(0.514)
Supplier Fit	0.729***	0.345	1.129***	0.570**	0.999**
	(0.239)	(0.329)	(0.325)	(0.278)	(0.396)
Buyer Fit	0.344*	0.681**	0.118	0.565**	-0.0989
	(0.206)	(0.310)	(0.254)	(0.235)	(0.387)
Labor Fit	1.344***	1.218***	1.500***	1.462***	1.191***
	(0.235)	(0.326)	(0.351)	(0.325)	(0.330)
Knowledge Fit	0.164**	0.284***	0.0463	0.303***	-0.0125
	(0.0698)	(0.0820)	(0.107)	(0.0740)	(0.113)
Geographical Distance	0.0730	0.112	-0.0477	0.0423	0.186
	(0.201)	(0.239)	(0.324)	(0.223)	(0.415)
Air Traffic Intensity	2.117***	1.415**	2.844**	1.743***	2.511**
	(0.621)	(0.642)	(1.168)	(0.662)	(1.124)
Number of firms	460	341	121	380	127
Number of home countries	20	20	14	20	15
Number of projects	793	426	367	463	330
Wald chi-square	843.30***	652.79***	669.19***	652.45***	582.49***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.0984 (0.327)	-0.181 (0.526)	0.392 (0.400)	0.135 (0.433)	0.106 (0.379)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	2.545* (1.300)	2.792** (1.241)	1.640 (2.448)	2.810* (1.439)	0.909 (2.573)
Prior FDI Home Country Other Industry	0.733*** (0.147)	1.095*** (0.192)	0.474** (0.206)	0.932*** (0.185)	0.510** (0.219)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.553 (0.588)	1.202** (0.545)	-0.441 (0.652)	0.933* (0.544)	-0.599 (0.652)
Prior FDI Other Country Focal Industry	1.145*** (0.151)	1.246*** (0.195)	1.020*** (0.219)	1.266*** (0.183)	0.946*** (0.225)
Investor's Experience	3.039*** (0.276)	4.563*** (0.622)	3.054*** (0.303)	3.685*** (0.0810)	3.290*** (0.322)
GDP per capita	1.212*** (0.225)	1.429*** (0.280)	0.884** (0.362)	1.373*** (0.250)	0.909** (0.412)
Population Density	4.555*** (0.702)	5.009*** (0.848)	3.824*** (1.153)	5.149*** (0.754)	3.471*** (1.163)
Population Density Squared	-2.478*** (0.456)	-2.586*** (0.525)	-2.218*** (0.773)	-2.646*** (0.474)	-2.083*** (0.777)
Corporate Tax Rate	0.198*** (0.0759)	0.140 (0.0931)	0.272** (0.120)	0.131 (0.0846)	0.289** (0.120)
Educational Attainment	0.103 (0.225)	0.242 (0.285)	-0.0344 (0.347)	0.334 (0.264)	-0.198 (0.358)
Labor Costs	0.143 (0.608)	-0.778 (0.760)	1.226 (0.912)	-0.597 (0.770)	1.128 (0.893)
Employment	0.0730*** (0.0234)	0.0871*** (0.0273)	0.0577 (0.0367)	0.0769*** (0.0252)	0.0683* (0.0383)
Rent Costs	-1.679*** (0.312)	-1.042*** (0.370)	-2.420*** (0.500)	-1.488*** (0.364)	-1.895*** (0.516)
Supplier Fit	0.727*** (0.239)	0.335 (0.331)	1.128*** (0.325)	0.568** (0.278)	0.988** (0.394)
Buyer Fit	0.348* (0.207)	0.698** (0.317)	0.119 (0.254)	0.569** (0.238)	-0.0825 (0.387)
Labor Fit	1.348*** (0.235)	1.227*** (0.326)	1.500*** (0.352)	1.468*** (0.324)	1.190*** (0.333)
Knowledge Fit	0.166** (0.0695)	0.285*** (0.0820)	0.0467 (0.107)	0.304*** (0.0739)	-0.00810 (0.112)
Geographical Distance	0.0703 (0.201)	0.111 (0.239)	-0.0486 (0.324)	0.0419 (0.223)	0.187 (0.415)
Air Traffic Intensity	2.116*** (0.618)	1.431** (0.641)	2.833** (1.165)	1.754*** (0.660)	2.475** (1.121)
Number of firms	460	341	121	380	127
Number of home countries	20	20	14	20	15
Number of projects	793	426	367	463	330
Wald chi-square	838.04***	645.08***	676.46***	622.33***	602.24***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 15 Conditional Logit Estimates – Summation of Hofstede dimensions

	Full Sample	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.406	0.388	0.466	0.258	0.0329
	(0.335)	(0.604)	(0.388)	(0.594)	(0.390)
Prior FDI Home Country Focal Industry *	0.0193*	0.0284*	0.00886	0.0281**	-0.0185
Hofstede sum	(0.0107)	(0.0145)	(0.0150)	(0.0140)	(0.0194)
Prior FDI Home Country Other Industry	0.829***	1.248***	0.600***	1.135***	0.489**
	(0.136)	(0.194)	(0.182)	(0.171)	(0.200)
Prior FDI Home Country Other Industry *	0.00137	0.00907*	-0.00375	0.00619	-0.00924*
Hofstede sum	(0.00380)	(0.00510)	(0.00462)	(0.00430)	(0.00482)
Prior FDI Other Country Focal Industry	0.988***	0.937***	0.987***	1.126***	0.882***
	(0.133)	(0.209)	(0.193)	(0.172)	(0.167)
Investor's Experience	2.971***	3.827***	3.052***	3.690***	3.288***
	(0.259)	(1.132)	(0.274)	(0.0818)	(0.298)
GDP per capita	0.956***	1.095***	0.782**	1.115***	0.653*
	(0.201)	(0.255)	(0.316)	(0.226)	(0.351)
Population Density	3.949***	4.625***	3.106***	4.431***	2.932***
	(0.564)	(0.690)	(0.927)	(0.631)	(0.961)
Population Density Squared	-2.060***	-2.226***	-1.827***	-2.098***	-1.797***
	(0.347)	(0.404)	(0.604)	(0.369)	(0.623)
Corporate Tax Rate	0.194***	0.202**	0.180*	0.182**	0.186*
	(0.0672)	(0.0932)	(0.0950)	(0.0769)	(0.0999)
Educational Attainment	0.453**	0.605**	0.317	0.623***	0.214
	(0.199)	(0.257)	(0.298)	(0.233)	(0.314)
Labor Costs	-0.356	-1.039	0.237	-1.099*	0.715
	(0.548)	(0.646)	(0.885)	(0.647)	(0.828)
Employment	0.0844***	0.0958***	0.0716**	0.0909***	0.0740**
	(0.0200)	(0.0244)	(0.0313)	(0.0226)	(0.0313)
Rent Costs	-1.494***	-1.057***	-1.963***	-1.196***	-1.874***
	(0.269)	(0.316)	(0.432)	(0.317)	(0.422)
Supplier Fit	0.587***	0.295	0.945***	0.537**	0.647*
	(0.223)	(0.312)	(0.292)	(0.261)	(0.384)
Buyer Fit	0.421**	0.379	0.484**	0.473**	0.323
	(0.206)	(0.333)	(0.240)	(0.228)	(0.404)
Labor Fit	1.225***	1.133***	1.335***	1.165***	1.298***
	(0.206)	(0.299)	(0.292)	(0.298)	(0.285)
Knowledge Fit	0.135**	0.215***	0.0461	0.257***	-0.0199
	(0.0602)	(0.0785)	(0.0908)	(0.0667)	(0.0966)
Geographical Distance	0.0176	0.0822	-0.166	-0.0377	0.166
	(0.194)	(0.238)	(0.306)	(0.218)	(0.400)
Air Traffic Intensity	2.423***	1.738***	3.139***	1.601***	3.366***
	(0.506)	(0.582)	(0.812)	(0.594)	(0.803)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1013.38***	589.71***	818.74***	905.33***	880.24***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 16 Conditional Logit Estimates – Ethnic Fractionalization

	Full Sample	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.069* (0.638)	0.918 (0.975)	1.258* (0.684)	1.571** (0.614)	-0.882 (0.750)
Prior FDI Home Country Focal Industry * Ethnic Fractionalization	-3.904 (4.705)	-2.177 (6.003)	-5.840 (5.036)	-7.205 (5.793)	7.184* (3.909)
Prior FDI Home Country Other Industry	0.764*** (0.228)	1.638*** (0.301)	0.343 (0.277)	1.294*** (0.242)	-0.0935 (0.318)
Prior FDI Home Country Other Industry * Ethnic Fractionalization	0.316 (1.078)	-1.893 (1.425)	1.461 (1.539)	-1.083 (1.166)	3.878** (1.595)
Prior FDI Other Country Focal Industry	1.006*** (0.150)	1.053*** (0.205)	0.942*** (0.210)	1.161*** (0.180)	0.765*** (0.219)
Investor's Experience	3.255*** (0.278)	5.218*** (0.756)	3.198*** (0.292)	3.652*** (0.0785)	3.598*** (0.315)
GDP per capita	0.925*** (0.216)	0.963*** (0.272)	0.832** (0.336)	1.095*** (0.243)	0.579 (0.390)
Population Density	3.842*** (0.594)	4.374*** (0.711)	3.279*** (1.012)	4.322*** (0.652)	2.748*** (1.045)
Population Density Squared	-2.024*** (0.366)	-2.102*** (0.423)	-1.959*** (0.664)	-2.045*** (0.386)	-1.753*** (0.679)
Corporate Tax Rate	0.204*** (0.0728)	0.192** (0.0964)	0.219** (0.105)	0.189** (0.0814)	0.210* (0.112)
Educational Attainment	0.419** (0.212)	0.502* (0.270)	0.322 (0.321)	0.550** (0.244)	0.246 (0.347)
Labor Costs	-0.231 (0.576)	-0.550 (0.661)	0.0302 (0.941)	-0.902 (0.684)	0.628 (0.904)
Employment	0.0862*** (0.0217)	0.0952*** (0.0251)	0.0739** (0.0343)	0.0929*** (0.0236)	0.0757** (0.0347)
Rent Costs	-1.449*** (0.288)	-1.054*** (0.335)	-1.846*** (0.465)	-1.195*** (0.334)	-1.714*** (0.465)
Supplier Fit	0.638*** (0.233)	0.344 (0.321)	0.920*** (0.321)	0.484* (0.275)	0.949** (0.387)
Buyer Fit	0.364* (0.204)	0.519 (0.345)	0.301 (0.219)	0.598*** (0.229)	-0.190 (0.411)
Labor Fit	1.280*** (0.218)	1.227*** (0.314)	1.372*** (0.307)	1.216*** (0.315)	1.354*** (0.301)
Knowledge Fit	0.148** (0.0639)	0.268*** (0.0770)	0.0387 (0.0964)	0.275*** (0.0687)	-0.0179 (0.105)
Geographical Distance	-0.0239 (0.195)	0.0619 (0.240)	-0.246 (0.302)	-0.0429 (0.220)	-0.0152 (0.404)
Air Traffic Intensity	2.333*** (0.553)	1.705*** (0.636)	2.964*** (0.903)	1.695*** (0.621)	3.108*** (0.953)
Number of firms	567	401	169	464	160
Number of home countries	31	30	23	31	22
Number of projects	943	493	450	556	387
Wald chi-square	847.21***	641.18***	716.72***	620.33***	599.74***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 17 Conditional Logit Estimates – First entries only

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.128 (0.430)	0.113 (0.642)	0.206 (0.561)	-0.117 (0.633)	0.113 (0.537)
Prior FDI Home Country Focal Industry * Collectivism	0.0805*** (0.0240)	0.0846*** (0.0240)	0.0611 (0.0641)	0.0976*** (0.0264)	-0.0308 (0.0484)
Prior FDI Home Country Other Industry	0.952*** (0.140)	1.371*** (0.188)	0.625*** (0.181)	1.189*** (0.173)	0.395* (0.209)
Prior FDI Home Country Other Industry * Collectivism	0.0106 (0.0110)	0.0319*** (0.0111)	-0.0107 (0.0149)	0.0206* (0.0111)	-0.0338* (0.0179)
Prior FDI Other Country Focal Industry	1.099*** (0.152)	1.179*** (0.193)	0.971*** (0.237)	1.129*** (0.181)	1.070*** (0.250)
Investor's Experience	2.108*** (0.251)	2.715*** (0.851)	2.248*** (0.293)	-8.638*** (1.028)	2.315*** (0.313)
GDP per capita	0.995*** (0.194)	0.995*** (0.250)	0.962*** (0.308)	1.043*** (0.231)	0.884*** (0.337)
Population Density	4.313*** (0.521)	4.632*** (0.682)	3.871*** (0.821)	4.370*** (0.626)	4.092*** (0.914)
Population Density Squared	-2.168*** (0.315)	-2.179*** (0.388)	-2.134*** (0.533)	-2.064*** (0.365)	-2.259*** (0.582)
Corporate Tax Rate	0.188*** (0.0643)	0.211** (0.0870)	0.150 (0.0955)	0.163** (0.0787)	0.221** (0.104)
Educational Attainment	0.405** (0.181)	0.430* (0.245)	0.392 (0.272)	0.599** (0.233)	0.0868 (0.280)
Labor Costs	-0.150 (0.525)	-0.411 (0.632)	0.114 (0.885)	-0.871 (0.662)	1.028 (0.847)
Employment	0.0816*** (0.0181)	0.0836*** (0.0239)	0.0800*** (0.0275)	0.0936*** (0.0226)	0.0636** (0.0278)
Rent Costs	-1.328*** (0.257)	-1.081*** (0.325)	-1.635*** (0.404)	-1.105*** (0.315)	-1.688*** (0.426)
Supplier Fit	0.605*** (0.219)	0.391 (0.306)	0.882*** (0.290)	0.645** (0.258)	0.534 (0.382)
Buyer Fit	0.516** (0.201)	0.397 (0.318)	0.646*** (0.229)	0.512** (0.226)	0.494 (0.363)
Labor Fit	1.104*** (0.229)	0.952*** (0.325)	1.268*** (0.324)	1.069*** (0.327)	1.149*** (0.314)
Knowledge Fit	0.230*** (0.0577)	0.276*** (0.0744)	0.174* (0.0908)	0.282*** (0.0680)	0.145 (0.102)
Geographical Distance	-0.0209 (0.197)	0.0466 (0.239)	-0.199 (0.316)	-0.0586 (0.222)	0.100 (0.429)
Air Traffic Intensity	2.417*** (0.477)	1.735*** (0.592)	3.151*** (0.718)	1.581*** (0.572)	3.555*** (0.745)
Number of firms	622	441	182	497	157
Number of home countries	35	34	26	35	24
Number of projects	894	500	394	561	333
Wald chi-square	1291.05***	754.00***	966.98***	868.06***	834.48***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.704** (0.348)	0.864* (0.499)	0.482 (0.513)	0.830** (0.422)	-0.303 (0.887)
Prior FDI Home Country Focal Industry * Power Distance	0.0416 (0.0304)	0.0678** (0.0320)	0.00143 (0.0512)	0.0766** (0.0373)	-0.0738 (0.0862)
Prior FDI Home Country Other Industry	0.944*** (0.143)	1.342*** (0.193)	0.598*** (0.189)	1.218*** (0.170)	0.482** (0.231)
Prior FDI Home Country Other Industry * Power Distance	0.00557 (0.0123)	0.0169 (0.0147)	-0.00365 (0.0175)	0.0102 (0.0152)	-0.0104 (0.0201)
Prior FDI Other Country Focal Industry	1.091*** (0.150)	1.157*** (0.193)	0.979*** (0.235)	1.112*** (0.181)	1.083*** (0.251)
Investor's Experience	2.105*** (0.252)	2.662*** (0.864)	2.246*** (0.294)	-8.634*** (1.028)	2.302*** (0.309)
GDP per capita	0.986*** (0.195)	0.983*** (0.251)	0.962*** (0.308)	1.028*** (0.233)	0.894*** (0.337)
Population Density	4.302*** (0.520)	4.601*** (0.683)	3.873*** (0.819)	4.342*** (0.626)	4.120*** (0.910)
Population Density Squared	-2.163*** (0.314)	-2.165*** (0.390)	-2.135*** (0.532)	-2.051*** (0.365)	-2.275*** (0.580)
Corporate Tax Rate	0.192*** (0.0641)	0.216** (0.0872)	0.152 (0.0944)	0.168** (0.0788)	0.222** (0.104)
Educational Attainment	0.414** (0.183)	0.454* (0.248)	0.392 (0.273)	0.622*** (0.236)	0.0807 (0.279)
Labor Costs	-0.152 (0.525)	-0.466 (0.636)	0.133 (0.887)	-0.912 (0.664)	1.037 (0.844)
Employment	0.0818*** (0.0181)	0.0838*** (0.0239)	0.0799*** (0.0275)	0.0939*** (0.0226)	0.0636** (0.0278)
Rent Costs	-1.326*** (0.256)	-1.053*** (0.323)	-1.641*** (0.403)	-1.085*** (0.313)	-1.693*** (0.426)
Supplier Fit	0.603*** (0.218)	0.388 (0.306)	0.886*** (0.288)	0.637** (0.257)	0.539 (0.381)
Buyer Fit	0.516** (0.201)	0.388 (0.319)	0.638*** (0.229)	0.519** (0.226)	0.487 (0.358)
Labor Fit	1.106*** (0.229)	0.959*** (0.324)	1.270*** (0.324)	1.078*** (0.326)	1.151*** (0.313)
Knowledge Fit	0.231*** (0.0576)	0.279*** (0.0739)	0.175* (0.0903)	0.284*** (0.0678)	0.146 (0.101)
Geographical Distance	-0.00822 (0.197)	0.0625 (0.240)	-0.191 (0.315)	-0.0407 (0.223)	0.0936 (0.426)
Air Traffic Intensity	2.412*** (0.478)	1.710*** (0.592)	3.143*** (0.717)	1.566*** (0.573)	3.567*** (0.743)
Number of firms	622	441	182	497	157
Number of home countries	35	34	26	35	24
Number of projects	894	500	394	561	333
Wald chi-square	1318.23***	744.32***	976.39***	850.15***	824.18***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.444	0.400	0.455	0.435	0.267
	(0.367)	(0.581)	(0.453)	(0.517)	(0.460)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0212	0.0423	0.00279	0.0348	-0.0314
	(0.0218)	(0.0332)	(0.0282)	(0.0242)	(0.0313)
Prior FDI Home Country Other Industry	0.915***	1.252***	0.650***	1.148***	0.560***
	(0.139)	(0.193)	(0.186)	(0.179)	(0.202)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	0.00224	0.0190	-0.00667	0.00771	-0.0140
	(0.00832)	(0.0119)	(0.0114)	(0.00954)	(0.0127)
Prior FDI Other Country Focal Industry	1.090***	1.153***	0.979***	1.104***	1.078***
	(0.150)	(0.195)	(0.233)	(0.182)	(0.252)
Investor's Experience	2.106***	2.691***	2.248***	-8.638***	2.307***
	(0.253)	(0.857)	(0.296)	(1.029)	(0.311)
GDP per capita	0.985***	0.983***	0.961***	1.025***	0.889***
	(0.195)	(0.252)	(0.308)	(0.234)	(0.337)
Population Density	4.301***	4.620***	3.868***	4.347***	4.109***
	(0.521)	(0.683)	(0.820)	(0.626)	(0.913)
Population Density Squared	-2.163***	-2.175***	-2.132***	-2.055***	-2.268***
	(0.315)	(0.389)	(0.533)	(0.365)	(0.582)
Corporate Tax Rate	0.192***	0.218**	0.151	0.170**	0.220**
	(0.0641)	(0.0872)	(0.0943)	(0.0790)	(0.103)
Educational Attainment	0.413**	0.452*	0.392	0.620***	0.0828
	(0.183)	(0.247)	(0.273)	(0.235)	(0.279)
Labor Costs	-0.145	-0.465	0.132	-0.893	1.038
	(0.523)	(0.634)	(0.885)	(0.660)	(0.844)
Employment	0.0819***	0.0843***	0.0798***	0.0945***	0.0635**
	(0.0181)	(0.0239)	(0.0275)	(0.0226)	(0.0279)
Rent Costs	-1.326***	-1.051***	-1.641***	-1.090***	-1.694***
	(0.256)	(0.323)	(0.403)	(0.313)	(0.426)
Supplier Fit	0.605***	0.388	0.885***	0.639**	0.535
	(0.218)	(0.307)	(0.288)	(0.257)	(0.381)
Buyer Fit	0.512**	0.389	0.639***	0.516**	0.492
	(0.200)	(0.319)	(0.228)	(0.225)	(0.361)
Labor Fit	1.105***	0.956***	1.270***	1.073***	1.152***
	(0.229)	(0.324)	(0.324)	(0.326)	(0.314)
Knowledge Fit	0.230***	0.280***	0.174*	0.284***	0.145
	(0.0577)	(0.0738)	(0.0905)	(0.0676)	(0.101)
Geographical Distance	-0.00869	0.0553	-0.188	-0.0409	0.0992
	(0.198)	(0.241)	(0.316)	(0.224)	(0.427)
Air Traffic Intensity	2.419***	1.720***	3.143***	1.574***	3.550***
	(0.478)	(0.591)	(0.716)	(0.573)	(0.742)
Number of firms	622	441	182	497	157
Number of home countries	35	34	26	35	24
Number of projects	894	500	394	561	333
Wald chi-square	1318.98***	725.72***	978.44***	837.65***	833.04***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.914**	0.949*	0.760	1.135**	0.411
	(0.357)	(0.486)	(0.560)	(0.472)	(0.484)
Prior FDI Home Country Focal Industry * Masculinity	-0.0405**	-0.0544*	-0.0251	-0.0410	-0.0428**
	(0.0207)	(0.0298)	(0.0288)	(0.0274)	(0.0204)
Prior FDI Home Country Other Industry	0.953***	1.246***	0.680***	1.213***	0.608***
	(0.147)	(0.203)	(0.206)	(0.194)	(0.208)
Prior FDI Home Country Other Industry * Masculinity	-0.00426	0.00806	-0.00674	-0.00302	-0.0130
	(0.00808)	(0.0119)	(0.0110)	(0.00942)	(0.0104)
Prior FDI Other Country Focal Industry	1.099***	1.143***	0.990***	1.095***	1.082***
	(0.148)	(0.197)	(0.228)	(0.184)	(0.250)
Investor's Experience	2.122***	2.682***	2.251***	-8.629***	2.315***
	(0.261)	(0.860)	(0.298)	(1.027)	(0.312)
GDP per capita	0.985***	0.982***	0.961***	1.031***	0.888***
	(0.195)	(0.251)	(0.309)	(0.232)	(0.338)
Population Density	4.285***	4.577***	3.868***	4.316***	4.115***
	(0.518)	(0.683)	(0.815)	(0.626)	(0.907)
Population Density Squared	-2.155***	-2.155***	-2.131***	-2.044***	-2.268***
	(0.314)	(0.390)	(0.530)	(0.366)	(0.576)
Corporate Tax Rate	0.193***	0.216**	0.153	0.172**	0.225**
	(0.0639)	(0.0874)	(0.0946)	(0.0790)	(0.105)
Educational Attainment	0.417**	0.457*	0.394	0.622***	0.0863
	(0.184)	(0.247)	(0.275)	(0.235)	(0.282)
Labor Costs	-0.147	-0.458	0.126	-0.875	1.007
	(0.525)	(0.632)	(0.890)	(0.658)	(0.853)
Employment	0.0820***	0.0848***	0.0800***	0.0946***	0.0638**
	(0.0181)	(0.0239)	(0.0274)	(0.0226)	(0.0276)
Rent Costs	-1.327***	-1.051***	-1.641***	-1.093***	-1.686***
	(0.256)	(0.323)	(0.402)	(0.312)	(0.425)
Supplier Fit	0.598***	0.384	0.880***	0.632**	0.516
	(0.215)	(0.306)	(0.284)	(0.257)	(0.376)
Buyer Fit	0.507**	0.387	0.635***	0.518**	0.494
	(0.200)	(0.318)	(0.229)	(0.222)	(0.365)
Labor Fit	1.108***	0.959***	1.268***	1.076***	1.144***
	(0.229)	(0.325)	(0.324)	(0.325)	(0.313)
Knowledge Fit	0.231***	0.280***	0.176**	0.283***	0.149
	(0.0573)	(0.0740)	(0.0898)	(0.0678)	(0.101)
Geographical Distance	0.00129	0.0716	-0.185	-0.0206	0.0900
	(0.198)	(0.241)	(0.315)	(0.224)	(0.426)
Air Traffic Intensity	2.414***	1.699***	3.145***	1.577***	3.558***
	(0.478)	(0.594)	(0.716)	(0.573)	(0.747)
Number of firms	622	441	182	497	157
Number of home countries	35	34	26	35	24
Number of projects	894	500	394	561	333
Wald chi-square	1372.97***	741.92***	967.78***	843.19***	832.65***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.278***	1.630***	0.760	1.503***	-0.662
	(0.481)	(0.590)	(0.812)	(0.458)	(1.182)
Prior FDI Home Country Focal Industry *	1.197*	1.709**	0.474	1.726**	-0.943
Domestic Conformity Forces	(0.655)	(0.806)	(0.961)	(0.828)	(1.046)
Prior FDI Home Country Other Industry	1.039***	1.786***	0.500*	1.408***	0.124
	(0.225)	(0.288)	(0.290)	(0.233)	(0.370)
Prior FDI Home Country Other Industry *	0.136	0.590**	-0.165	0.297	-0.462
Domestic Conformity Forces	(0.221)	(0.285)	(0.293)	(0.248)	(0.344)
Prior FDI Other Country Focal Industry	1.092***	1.170***	0.975***	1.119***	1.081***
	(0.151)	(0.193)	(0.235)	(0.181)	(0.250)
Investor's Experience	2.104***	2.690***	2.246***	-8.639***	2.310***
	(0.251)	(0.859)	(0.294)	(1.029)	(0.312)
GDP per capita	0.988***	0.990***	0.961***	1.030***	0.887***
	(0.195)	(0.250)	(0.308)	(0.232)	(0.337)
Population Density	4.309***	4.631***	3.870***	4.359***	4.101***
	(0.521)	(0.683)	(0.820)	(0.626)	(0.913)
Population Density Squared	-2.167***	-2.180***	-2.133***	-2.058***	-2.264***
	(0.315)	(0.389)	(0.533)	(0.365)	(0.582)
Corporate Tax Rate	0.191***	0.213**	0.151	0.165**	0.220**
	(0.0643)	(0.0871)	(0.0948)	(0.0788)	(0.103)
Educational Attainment	0.412**	0.445*	0.392	0.616***	0.0836
	(0.183)	(0.247)	(0.273)	(0.235)	(0.279)
Labor Costs	-0.157	-0.452	0.126	-0.906	1.037
	(0.525)	(0.635)	(0.885)	(0.664)	(0.844)
Employment	0.0818***	0.0837***	0.0799***	0.0940***	0.0636**
	(0.0181)	(0.0239)	(0.0275)	(0.0226)	(0.0278)
Rent Costs	-1.323***	-1.062***	-1.638***	-1.088***	-1.691***
	(0.257)	(0.324)	(0.403)	(0.314)	(0.426)
Supplier Fit	0.603***	0.389	0.884***	0.641**	0.538
	(0.219)	(0.307)	(0.289)	(0.258)	(0.381)
Buyer Fit	0.517**	0.393	0.643***	0.515**	0.489
	(0.201)	(0.320)	(0.229)	(0.227)	(0.361)
Labor Fit	1.104***	0.953***	1.270***	1.072***	1.153***
	(0.229)	(0.325)	(0.324)	(0.326)	(0.314)
Knowledge Fit	0.231***	0.278***	0.174*	0.283***	0.144
	(0.0578)	(0.0744)	(0.0907)	(0.0679)	(0.102)
Geographical Distance	-0.0151	0.0505	-0.193	-0.0518	0.100
	(0.197)	(0.239)	(0.316)	(0.223)	(0.428)
Air Traffic Intensity	2.412***	1.714***	3.148***	1.565***	3.555***
	(0.478)	(0.591)	(0.717)	(0.573)	(0.741)
Number of firms	622	441	182	497	157
Number of home countries	35	34	26	35	24
Number of projects	894	500	394	561	333
Wald chi-square	1293.51***	734.92***	978.82***	838.85***	830.67***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 18 Conditional Logit Estimates – Without Home Countries with little FDI

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.190 (0.359)	0.175 (0.606)	0.303 (0.439)	-0.0890 (0.596)	0.176 (0.354)
Prior FDI Home Country Focal Industry * Collectivism	0.0751*** (0.0213)	0.0754*** (0.0234)	0.0632 (0.0496)	0.0926*** (0.0263)	-0.0205 (0.0319)
Prior FDI Home Country Other Industry	0.835*** (0.137)	1.260*** (0.194)	0.596*** (0.180)	1.132*** (0.168)	0.466** (0.203)
Prior FDI Home Country Other Industry * Collectivism	0.00755 (0.0108)	0.0288*** (0.0109)	-0.0134 (0.0133)	0.0203* (0.0109)	-0.0279* (0.0155)
Prior FDI Other Country Focal Industry	1.022*** (0.136)	0.974*** (0.216)	1.012*** (0.194)	1.192*** (0.176)	0.838*** (0.167)
Investor's Experience	3.014*** (0.266)	4.077*** (1.238)	3.064*** (0.276)	3.694*** (0.0820)	3.333*** (0.304)
GDP per capita	0.961*** (0.209)	1.145*** (0.266)	0.751** (0.322)	1.185*** (0.233)	0.597* (0.359)
Population Density	4.194*** (0.628)	5.006*** (0.776)	3.237*** (0.971)	5.027*** (0.690)	2.774*** (1.015)
Population Density Squared	-2.305*** (0.404)	-2.586*** (0.476)	-1.919*** (0.643)	-2.531*** (0.417)	-1.794*** (0.682)
Corporate Tax Rate	0.202*** (0.0713)	0.207** (0.100)	0.192* (0.0984)	0.186** (0.0813)	0.206** (0.104)
Educational Attainment	0.471** (0.206)	0.675** (0.269)	0.295 (0.299)	0.685*** (0.242)	0.210 (0.317)
Labor Costs	-0.174 (0.559)	-0.994 (0.666)	0.537 (0.878)	-1.193* (0.675)	1.179 (0.810)
Employment	0.0836*** (0.0209)	0.0974*** (0.0257)	0.0696** (0.0317)	0.0910*** (0.0238)	0.0737** (0.0316)
Rent Costs	-1.624*** (0.279)	-1.115*** (0.336)	-2.159*** (0.434)	-1.269*** (0.338)	-2.079*** (0.416)
Supplier Fit	0.600*** (0.228)	0.231 (0.327)	0.973*** (0.289)	0.535** (0.271)	0.679* (0.380)
Buyer Fit	0.470** (0.204)	0.541* (0.327)	0.485** (0.243)	0.566** (0.228)	0.326 (0.412)
Labor Fit	1.281*** (0.211)	1.217*** (0.307)	1.369*** (0.296)	1.245*** (0.311)	1.307*** (0.288)
Knowledge Fit	0.140** (0.0633)	0.235*** (0.0850)	0.0456 (0.0927)	0.268*** (0.0725)	-0.0105 (0.0984)
Geographical Distance	0.0869 (0.196)	0.143 (0.244)	-0.0566 (0.289)	0.0149 (0.219)	0.318 (0.395)
Air Traffic Intensity	2.453*** (0.541)	1.704*** (0.621)	3.186*** (0.850)	1.512** (0.639)	3.474*** (0.840)
Number of firms	562	498	172	448	172
Number of home countries	19	19	18	19	19
Number of projects	981	393	483	547	434
Wald chi-square	988.71***	600.06***	818.02***	802.52***	795.16***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.699**	0.857*	0.557	0.814**	-0.431
	(0.308)	(0.484)	(0.414)	(0.404)	(0.845)
Prior FDI Home Country Focal Industry * Power Distance	0.0454	0.0659**	0.0126	0.0731**	-0.0784
	(0.0297)	(0.0307)	(0.0481)	(0.0355)	(0.0949)
Prior FDI Home Country Other Industry	0.829***	1.235***	0.563***	1.163***	0.436**
	(0.139)	(0.210)	(0.178)	(0.164)	(0.202)
Prior FDI Home Country Other Industry * Power Distance	0.00182	0.00804	-0.00693	0.0159	-0.0215
	(0.0125)	(0.0186)	(0.0168)	(0.0147)	(0.0166)
Prior FDI Other Country Focal Industry	1.016***	0.953***	1.010***	1.182***	0.886***
	(0.137)	(0.220)	(0.195)	(0.175)	(0.178)
Investor's Experience	3.013***	4.074***	3.063***	3.641***	3.333***
	(0.266)	(1.237)	(0.278)	(0.0745)	(0.301)
GDP per capita	0.953***	1.125***	0.756**	1.165***	0.603*
	(0.210)	(0.270)	(0.321)	(0.235)	(0.355)
Population Density	4.186***	4.977***	3.242***	4.999***	2.771***
	(0.627)	(0.779)	(0.971)	(0.690)	(1.010)
Population Density Squared	-2.301***	-2.579***	-1.924***	-2.515***	-1.793***
	(0.404)	(0.481)	(0.644)	(0.417)	(0.679)
Corporate Tax Rate	0.206***	0.215**	0.193**	0.192**	0.198*
	(0.0709)	(0.0994)	(0.0978)	(0.0813)	(0.102)
Educational Attainment	0.482**	0.704***	0.296	0.709***	0.198
	(0.208)	(0.272)	(0.301)	(0.244)	(0.317)
Labor Costs	-0.177	-1.053	0.548	-1.230*	1.224
	(0.561)	(0.670)	(0.879)	(0.678)	(0.806)
Employment	0.0838***	0.0978***	0.0696**	0.0911***	0.0732**
	(0.0209)	(0.0257)	(0.0317)	(0.0238)	(0.0315)
Rent Costs	-1.624***	-1.083***	-2.165***	-1.251***	-2.084***
	(0.279)	(0.333)	(0.434)	(0.336)	(0.415)
Supplier Fit	0.602***	0.231	0.984***	0.526*	0.681*
	(0.228)	(0.326)	(0.289)	(0.271)	(0.381)
Buyer Fit	0.471**	0.534	0.478*	0.571**	0.317
	(0.206)	(0.326)	(0.245)	(0.227)	(0.405)
Labor Fit	1.283***	1.216***	1.369***	1.255***	1.315***
	(0.210)	(0.305)	(0.294)	(0.309)	(0.285)
Knowledge Fit	0.140**	0.238***	0.0436	0.272***	-0.00819
	(0.0636)	(0.0848)	(0.0930)	(0.0721)	(0.0968)
Geographical Distance	0.101	0.163	-0.0482	0.0313	0.306
	(0.196)	(0.245)	(0.288)	(0.219)	(0.392)
Air Traffic Intensity	2.448***	1.691***	3.178***	1.497**	3.481***
	(0.542)	(0.624)	(0.849)	(0.641)	(0.834)
Number of firms	562	498	172	448	172
Number of home countries	19	19	18	19	19
Number of projects	981	393	483	547	434
Wald chi-square	972.01***	574.70***	800.74***	880.35***	866.65***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.412 (0.366)	0.410 (0.561)	0.491 (0.458)	0.406 (0.515)	0.272 (0.374)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0214 (0.0238)	0.0421 (0.0323)	0.00315 (0.0341)	0.0362 (0.0236)	-0.0500 (0.0423)
Prior FDI Home Country Other Industry	0.819*** (0.139)	1.166*** (0.195)	0.634*** (0.195)	1.077*** (0.179)	0.595*** (0.206)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	4.11e-05 (0.00815)	0.0169 (0.0125)	-0.00840 (0.0103)	0.00983 (0.00937)	-0.0192* (0.0104)
Prior FDI Other Country Focal Industry	1.013*** (0.137)	0.950*** (0.224)	1.008*** (0.194)	1.173*** (0.177)	0.872*** (0.168)
Investor's Experience	3.013*** (0.267)	4.071*** (1.252)	3.065*** (0.279)	3.669*** (0.0851)	3.338*** (0.304)
GDP per capita	0.954*** (0.210)	1.127*** (0.271)	0.756** (0.321)	1.163*** (0.236)	0.596* (0.357)
Population Density	4.186*** (0.629)	5.002*** (0.778)	3.235*** (0.974)	5.008*** (0.690)	2.758*** (1.015)
Population Density Squared	-2.303*** (0.405)	-2.591*** (0.479)	-1.921*** (0.645)	-2.521*** (0.417)	-1.785*** (0.682)
Corporate Tax Rate	0.206*** (0.0708)	0.216** (0.0997)	0.192** (0.0977)	0.194** (0.0815)	0.198* (0.103)
Educational Attainment	0.482** (0.208)	0.701** (0.273)	0.299 (0.301)	0.705*** (0.244)	0.204 (0.317)
Labor Costs	-0.173 (0.559)	-1.051 (0.671)	0.547 (0.879)	-1.209* (0.672)	1.215 (0.807)
Employment	0.0840*** (0.0209)	0.0984*** (0.0257)	0.0695** (0.0318)	0.0917*** (0.0238)	0.0731** (0.0315)
Rent Costs	-1.624*** (0.279)	-1.084*** (0.334)	-2.167*** (0.434)	-1.256*** (0.335)	-2.087*** (0.415)
Supplier Fit	0.605*** (0.228)	0.232 (0.327)	0.985*** (0.288)	0.529* (0.271)	0.679* (0.381)
Buyer Fit	0.467** (0.205)	0.533 (0.327)	0.477* (0.244)	0.567** (0.227)	0.320 (0.408)
Labor Fit	1.282*** (0.210)	1.213*** (0.306)	1.370*** (0.295)	1.251*** (0.309)	1.319*** (0.287)
Knowledge Fit	0.139** (0.0639)	0.238*** (0.0853)	0.0419 (0.0932)	0.272*** (0.0719)	-0.00856 (0.0975)
Geographical Distance	0.102 (0.196)	0.156 (0.245)	-0.0427 (0.289)	0.0309 (0.219)	0.318 (0.394)
Air Traffic Intensity	2.452*** (0.541)	1.696*** (0.623)	3.178*** (0.847)	1.506** (0.641)	3.458*** (0.835)
Number of firms	562	498	172	448	172
Number of home countries	19	19	18	19	19
Number of projects	981	393	483	547	434
Wald chi-square	975.03***	551.86***	805.54***	870.63***	857.93***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.856**	0.932**	0.747	1.106**	0.528
	(0.357)	(0.470)	(0.552)	(0.491)	(0.412)
Prior FDI Home Country Focal Industry * Masculinity	-0.0367	-0.0533*	-0.0215	-0.0299	-0.0533*
	(0.0226)	(0.0295)	(0.0324)	(0.0269)	(0.0273)
Prior FDI Home Country Other Industry	0.868***	1.144***	0.687***	1.187***	0.619***
	(0.149)	(0.215)	(0.217)	(0.186)	(0.221)
Prior FDI Home Country Other Industry * Masculinity	-0.00569	0.0127	-0.00891	-0.00555	-0.0123
	(0.00777)	(0.0121)	(0.00966)	(0.00887)	(0.00928)
Prior FDI Other Country Focal Industry	1.014***	0.940***	1.011***	1.160***	0.842***
	(0.137)	(0.218)	(0.194)	(0.178)	(0.170)
Investor's Experience	3.022***	4.117***	3.069***	3.621***	3.331***
	(0.272)	(1.206)	(0.281)	(0.0722)	(0.304)
GDP per capita	0.958***	1.122***	0.758**	1.171***	0.603*
	(0.211)	(0.269)	(0.324)	(0.235)	(0.362)
Population Density	4.172***	4.971***	3.235***	4.978***	2.785***
	(0.627)	(0.780)	(0.972)	(0.692)	(1.008)
Population Density Squared	-2.298***	-2.581***	-1.921***	-2.515***	-1.794***
	(0.405)	(0.483)	(0.645)	(0.421)	(0.676)
Corporate Tax Rate	0.208***	0.215**	0.197**	0.197**	0.209**
	(0.0712)	(0.0992)	(0.0984)	(0.0816)	(0.105)
Educational Attainment	0.486**	0.706***	0.300	0.710***	0.205
	(0.209)	(0.273)	(0.302)	(0.244)	(0.320)
Labor Costs	-0.180	-1.029	0.539	-1.197*	1.171
	(0.557)	(0.663)	(0.881)	(0.670)	(0.815)
Employment	0.0840***	0.0982***	0.0697**	0.0918***	0.0736**
	(0.0209)	(0.0256)	(0.0317)	(0.0238)	(0.0314)
Rent Costs	-1.627***	-1.087***	-2.169***	-1.259***	-2.084***
	(0.278)	(0.333)	(0.433)	(0.334)	(0.415)
Supplier Fit	0.607***	0.222	0.985***	0.525*	0.667*
	(0.227)	(0.328)	(0.286)	(0.270)	(0.380)
Buyer Fit	0.459**	0.537	0.473*	0.567**	0.320
	(0.206)	(0.327)	(0.246)	(0.223)	(0.417)
Labor Fit	1.282***	1.219***	1.366***	1.252***	1.304***
	(0.210)	(0.305)	(0.295)	(0.309)	(0.287)
Knowledge Fit	0.137**	0.240***	0.0421	0.270***	-0.00718
	(0.0641)	(0.0842)	(0.0927)	(0.0723)	(0.0979)
Geographical Distance	0.112	0.172	-0.0394	0.0537	0.302
	(0.196)	(0.245)	(0.288)	(0.220)	(0.394)
Air Traffic Intensity	2.452***	1.679***	3.189***	1.511**	3.487***
	(0.541)	(0.626)	(0.848)	(0.643)	(0.840)
Number of firms	562	498	172	448	172
Number of home countries	19	19	18	19	19
Number of projects	981	393	483	547	434
Wald chi-square	981.08***	587.44***	800.75***	775.45***	750.46***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.263***	1.578***	0.878	1.439***	-0.756
	(0.431)	(0.576)	(0.665)	(0.429)	(1.038)
Prior FDI Home Country Focal Industry *	1.151*	1.599**	0.555	1.659**	-1.019
Domestic Conformity Forces	(0.592)	(0.762)	(0.855)	(0.792)	(1.084)
Prior FDI Home Country Other Industry	0.877***	1.602***	0.434*	1.375***	0.0848
	(0.212)	(0.304)	(0.243)	(0.218)	(0.290)
Prior FDI Home Country Other Industry *	0.0681	0.480*	-0.215	0.340	-0.535*
Domestic Conformity Forces	(0.216)	(0.285)	(0.264)	(0.242)	(0.279)
Prior FDI Other Country Focal Industry	1.017***	0.962***	1.010***	1.187***	0.873***
	(0.137)	(0.223)	(0.194)	(0.176)	(0.170)
Investor's Experience	3.012***	4.060***	3.064***	3.676***	3.338***
	(0.266)	(1.262)	(0.277)	(0.0821)	(0.303)
GDP per capita	0.954***	1.137***	0.753**	1.169***	0.597*
	(0.210)	(0.268)	(0.322)	(0.234)	(0.357)
Population Density	4.192***	5.005***	3.237***	5.016***	2.757***
	(0.628)	(0.778)	(0.972)	(0.690)	(1.013)
Population Density Squared	-2.304***	-2.590***	-1.920***	-2.523***	-1.786***
	(0.404)	(0.479)	(0.644)	(0.416)	(0.680)
Corporate Tax Rate	0.205***	0.211**	0.193**	0.189**	0.200*
	(0.0711)	(0.100)	(0.0980)	(0.0814)	(0.103)
Educational Attainment	0.479**	0.693**	0.297	0.701***	0.204
	(0.207)	(0.271)	(0.300)	(0.244)	(0.317)
Labor Costs	-0.181	-1.044	0.545	-1.222*	1.212
	(0.561)	(0.674)	(0.879)	(0.677)	(0.806)
Employment	0.0838***	0.0977***	0.0696**	0.0913***	0.0733**
	(0.0209)	(0.0257)	(0.0317)	(0.0238)	(0.0315)
Rent Costs	-1.621***	-1.092***	-2.163***	-1.254***	-2.083***
	(0.279)	(0.334)	(0.434)	(0.337)	(0.415)
Supplier Fit	0.600***	0.234	0.980***	0.530*	0.681*
	(0.228)	(0.326)	(0.289)	(0.272)	(0.381)
Buyer Fit	0.472**	0.535	0.481**	0.568**	0.319
	(0.205)	(0.328)	(0.244)	(0.228)	(0.408)
Labor Fit	1.281***	1.213***	1.370***	1.249***	1.316***
	(0.210)	(0.307)	(0.295)	(0.310)	(0.287)
Knowledge Fit	0.141**	0.236***	0.0438	0.271***	-0.00986
	(0.0636)	(0.0858)	(0.0932)	(0.0722)	(0.0978)
Geographical Distance	0.0942	0.149	-0.0495	0.0206	0.316
	(0.196)	(0.245)	(0.288)	(0.219)	(0.394)
Air Traffic Intensity	2.448***	1.691***	3.182***	1.496**	3.468***
	(0.542)	(0.621)	(0.849)	(0.640)	(0.835)
Number of firms	562	498	172	448	172
Number of home countries	19	19	18	19	19
Number of projects	981	393	483	547	434
Wald chi-square	968.15***	561.01***	809.37***	873.85***	860.63***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 19 Conditional Logit Estimates – Without MSAs with little FDI

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.210 (0.354)	0.311 (0.594)	0.230 (0.442)	0.0947 (0.610)	0.112 (0.357)
Prior FDI Home Country Focal Industry * Collectivism	0.0653*** (0.0230)	0.0637** (0.0253)	0.0586 (0.0499)	0.0790*** (0.0294)	-0.0204 (0.0325)
Prior FDI Home Country Other Industry	0.786*** (0.137)	1.237*** (0.192)	0.514*** (0.178)	1.119*** (0.170)	0.378* (0.201)
Prior FDI Home Country Other Industry * Collectivism	0.00953 (0.0108)	0.0306*** (0.0111)	-0.0126 (0.0131)	0.0222** (0.0110)	-0.0259* (0.0155)
Prior FDI Other Country Focal Industry	1.002*** (0.133)	0.933*** (0.198)	1.029*** (0.198)	1.120*** (0.176)	0.860*** (0.167)
Investor's Experience	2.874*** (0.266)	3.449*** (1.218)	2.980*** (0.272)	-8.377*** (1.019)	3.171*** (0.301)
GDP per capita	1.097*** (0.238)	1.031*** (0.307)	1.154*** (0.371)	1.086*** (0.281)	1.031*** (0.394)
Population Density	4.087*** (0.626)	4.953*** (0.761)	3.013*** (1.037)	4.628*** (0.706)	2.975*** (1.021)
Population Density Squared	-2.153*** (0.384)	-2.428*** (0.432)	-1.772** (0.688)	-2.279*** (0.411)	-1.748*** (0.662)
Corporate Tax Rate	0.285*** (0.0746)	0.374*** (0.107)	0.181* (0.104)	0.342*** (0.0901)	0.189* (0.106)
Educational Attainment	0.517** (0.225)	0.623** (0.298)	0.435 (0.329)	0.546** (0.267)	0.487 (0.354)
Labor Costs	-0.645 (0.585)	-1.108 (0.679)	-0.321 (0.968)	-1.137 (0.707)	-0.00137 (0.863)
Employment	0.0940*** (0.0217)	0.107*** (0.0276)	0.0823** (0.0334)	0.104*** (0.0251)	0.0789** (0.0320)
Rent Costs	-1.576*** (0.295)	-1.037*** (0.341)	-2.202*** (0.478)	-1.086*** (0.329)	-2.222*** (0.465)
Supplier Fit	0.693** (0.270)	0.142 (0.392)	1.207*** (0.328)	0.610* (0.323)	0.777* (0.422)
Buyer Fit	0.489** (0.235)	0.439 (0.406)	0.572** (0.262)	0.487* (0.288)	0.511 (0.378)
Labor Fit	1.050*** (0.275)	1.140*** (0.383)	0.996** (0.396)	1.064*** (0.351)	1.053** (0.426)
Knowledge Fit	0.183*** (0.0699)	0.249*** (0.0909)	0.112 (0.103)	0.305*** (0.0793)	0.0311 (0.109)
Geographical Distance	0.125 (0.194)	0.205 (0.234)	-0.128 (0.325)	0.140 (0.214)	0.0166 (0.410)
Air Traffic Intensity	2.580*** (0.552)	2.094*** (0.659)	3.097*** (0.872)	1.893*** (0.668)	3.452*** (0.883)
Number of firms	539	377	163	427	162
Number of home countries	35	34	23	35	24
Number of projects	899	473	426	515	384
Wald chi-square	977.98***	614.82***	820.08***	806.41***	798.41***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.627**	0.833	0.462	0.857**	-0.488
	(0.317)	(0.507)	(0.412)	(0.418)	(0.870)
Prior FDI Home Country Focal Industry * Power Distance	0.0346	0.0503	0.00640	0.0540	-0.0778
	(0.0307)	(0.0323)	(0.0489)	(0.0387)	(0.0976)
Prior FDI Home Country Other Industry	0.783***	1.202***	0.491***	1.147***	0.358*
	(0.138)	(0.202)	(0.177)	(0.166)	(0.202)
Prior FDI Home Country Other Industry * Power Distance	0.00381	0.00733	-0.00287	0.0167	-0.0190
	(0.0122)	(0.0170)	(0.0161)	(0.0142)	(0.0168)
Prior FDI Other Country Focal Industry	0.995***	0.916***	1.025***	1.116***	0.904***
	(0.134)	(0.200)	(0.200)	(0.174)	(0.179)
Investor's Experience	2.874***	3.460***	2.979***	-9.373***	3.173***
	(0.267)	(1.226)	(0.274)	(1.018)	(0.298)
GDP per capita	1.090***	1.011***	1.161***	1.070***	1.035***
	(0.241)	(0.312)	(0.370)	(0.284)	(0.388)
Population Density	4.084***	4.939***	3.017***	4.619***	2.965***
	(0.626)	(0.761)	(1.037)	(0.705)	(1.018)
Population Density Squared	-2.152***	-2.424***	-1.776***	-2.273***	-1.745***
	(0.384)	(0.436)	(0.689)	(0.411)	(0.660)
Corporate Tax Rate	0.289***	0.380***	0.182*	0.345***	0.180*
	(0.0742)	(0.106)	(0.103)	(0.0902)	(0.104)
Educational Attainment	0.528**	0.656**	0.437	0.571**	0.476
	(0.228)	(0.303)	(0.331)	(0.271)	(0.353)
Labor Costs	-0.652	-1.168*	-0.320	-1.175*	0.0488
	(0.587)	(0.683)	(0.966)	(0.709)	(0.856)
Employment	0.0942***	0.107***	0.0824**	0.104***	0.0782**
	(0.0217)	(0.0276)	(0.0334)	(0.0251)	(0.0320)
Rent Costs	-1.576***	-1.010***	-2.205***	-1.072***	-2.227***
	(0.295)	(0.338)	(0.478)	(0.327)	(0.464)
Supplier Fit	0.696**	0.144	1.223***	0.600*	0.782*
	(0.271)	(0.391)	(0.328)	(0.323)	(0.424)
Buyer Fit	0.487**	0.432	0.561**	0.490*	0.500
	(0.236)	(0.406)	(0.265)	(0.286)	(0.369)
Labor Fit	1.050***	1.134***	0.997**	1.075***	1.069**
	(0.275)	(0.383)	(0.395)	(0.350)	(0.426)
Knowledge Fit	0.182***	0.248***	0.110	0.307***	0.0331
	(0.0701)	(0.0913)	(0.103)	(0.0788)	(0.107)
Geographical Distance	0.139	0.227	-0.120	0.159	0.00782
	(0.195)	(0.235)	(0.324)	(0.215)	(0.407)
Air Traffic Intensity	2.575***	2.078***	3.087***	1.871***	3.458***
	(0.553)	(0.663)	(0.870)	(0.670)	(0.877)
Number of firms	539	377	163	427	162
Number of home countries	35	34	23	35	24
Number of projects	899	473	426	515	384
Wald chi-square	962.41***	585.14***	791.20***	830.49***	848.57***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.408 (0.374)	0.462 (0.579)	0.456 (0.466)	0.579 (0.530)	0.219 (0.382)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0155 (0.0243)	0.0364 (0.0355)	-0.00233 (0.0347)	0.0247 (0.0241)	-0.0559 (0.0491)
Prior FDI Home Country Other Industry	0.761*** (0.138)	1.142*** (0.194)	0.534*** (0.191)	1.059*** (0.178)	0.499** (0.203)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	0.00194 (0.00806)	0.0179 (0.0124)	-0.00546 (0.00990)	0.0115 (0.00906)	-0.0177* (0.0106)
Prior FDI Other Country Focal Industry	0.995*** (0.133)	0.916*** (0.204)	1.024*** (0.199)	1.112*** (0.174)	0.893*** (0.169)
Investor's Experience	2.873*** (0.268)	3.454*** (1.253)	2.981*** (0.276)	-8.629*** (1.019)	3.177*** (0.300)
GDP per capita	1.091*** (0.241)	1.011*** (0.314)	1.164*** (0.370)	1.067*** (0.285)	1.033*** (0.391)
Population Density	4.083*** (0.628)	4.962*** (0.760)	3.010*** (1.040)	4.629*** (0.705)	2.956*** (1.024)
Population Density Squared	-2.152*** (0.385)	-2.435*** (0.435)	-1.773** (0.691)	-2.280*** (0.411)	-1.738*** (0.664)
Corporate Tax Rate	0.289*** (0.0742)	0.382*** (0.106)	0.182* (0.104)	0.348*** (0.0903)	0.180* (0.104)
Educational Attainment	0.527** (0.227)	0.655** (0.304)	0.438 (0.330)	0.569** (0.271)	0.483 (0.354)
Labor Costs	-0.647 (0.584)	-1.172* (0.686)	-0.323 (0.964)	-1.160* (0.704)	0.0265 (0.855)
Employment	0.0943*** (0.0217)	0.107*** (0.0276)	0.0823** (0.0334)	0.104*** (0.0251)	0.0781** (0.0319)
Rent Costs	-1.576*** (0.295)	-1.011*** (0.339)	-2.208*** (0.477)	-1.076*** (0.327)	-2.232*** (0.463)
Supplier Fit	0.699*** (0.271)	0.145 (0.391)	1.225*** (0.328)	0.602* (0.323)	0.780* (0.423)
Buyer Fit	0.484** (0.236)	0.429 (0.406)	0.560** (0.265)	0.487* (0.286)	0.499 (0.373)
Labor Fit	1.049*** (0.275)	1.132*** (0.383)	0.997** (0.395)	1.069*** (0.350)	1.069** (0.425)
Knowledge Fit	0.181** (0.0704)	0.249*** (0.0920)	0.108 (0.103)	0.307*** (0.0786)	0.0327 (0.108)
Geographical Distance	0.139 (0.195)	0.217 (0.236)	-0.114 (0.325)	0.156 (0.215)	0.0188 (0.409)
Air Traffic Intensity	2.578*** (0.552)	2.092*** (0.662)	3.083*** (0.868)	1.881*** (0.670)	3.432*** (0.879)
Number of firms	539	377	163	427	162
Number of home countries	35	34	23	35	24
Number of projects	899	473	426	515	384
Wald chi-square	961.65***	569.12***	794.31***	804.96***	864.24***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.829**	0.935*	0.732	1.217**	0.484
	(0.385)	(0.498)	(0.568)	(0.533)	(0.430)
Prior FDI Home Country Focal Industry * Masculinity	-0.0359	-0.0494	-0.0257	-0.0292	-0.0571*
	(0.0255)	(0.0385)	(0.0334)	(0.0273)	(0.0328)
Prior FDI Home Country Other Industry	0.801***	1.114***	0.564***	1.168***	0.510**
	(0.149)	(0.212)	(0.214)	(0.187)	(0.220)
Prior FDI Home Country Other Industry * Masculinity	-0.00376	0.0138	-0.00572	-0.00394	-0.0102
	(0.00777)	(0.0123)	(0.00941)	(0.00879)	(0.00962)
Prior FDI Other Country Focal Industry	0.995***	0.909***	1.027***	1.100***	0.868***
	(0.133)	(0.197)	(0.199)	(0.176)	(0.170)
Investor's Experience	2.882***	3.518***	2.984***	-9.370***	3.172***
	(0.272)	(1.184)	(0.277)	(1.018)	(0.301)
GDP per capita	1.100***	1.007***	1.168***	1.084***	1.040***
	(0.242)	(0.310)	(0.373)	(0.283)	(0.397)
Population Density	4.061***	4.927***	3.002***	4.588***	2.969***
	(0.626)	(0.760)	(1.039)	(0.705)	(1.020)
Population Density Squared	-2.142***	-2.420***	-1.769**	-2.261***	-1.739***
	(0.385)	(0.437)	(0.691)	(0.412)	(0.658)
Corporate Tax Rate	0.291***	0.379***	0.187*	0.349***	0.193*
	(0.0748)	(0.105)	(0.105)	(0.0905)	(0.107)
Educational Attainment	0.534**	0.656**	0.443	0.575**	0.493
	(0.228)	(0.304)	(0.333)	(0.271)	(0.358)
Labor Costs	-0.669	-1.147*	-0.338	-1.181*	-0.0355
	(0.580)	(0.677)	(0.965)	(0.703)	(0.862)
Employment	0.0945***	0.107***	0.0827**	0.104***	0.0792**
	(0.0216)	(0.0275)	(0.0333)	(0.0251)	(0.0319)
Rent Costs	-1.578***	-1.016***	-2.209***	-1.073***	-2.226***
	(0.294)	(0.339)	(0.476)	(0.326)	(0.462)
Supplier Fit	0.704***	0.135	1.226***	0.597*	0.766*
	(0.270)	(0.392)	(0.326)	(0.322)	(0.423)
Buyer Fit	0.473**	0.431	0.553**	0.490*	0.495
	(0.237)	(0.403)	(0.268)	(0.282)	(0.388)
Labor Fit	1.047***	1.129***	0.991**	1.069***	1.049**
	(0.275)	(0.381)	(0.395)	(0.351)	(0.428)
Knowledge Fit	0.179**	0.251***	0.108	0.305***	0.0337
	(0.0708)	(0.0904)	(0.103)	(0.0790)	(0.108)
Geographical Distance	0.148	0.233	-0.112	0.178	-0.00156
	(0.195)	(0.236)	(0.324)	(0.217)	(0.407)
Air Traffic Intensity	2.570***	2.077***	3.088***	1.866***	3.456***
	(0.552)	(0.664)	(0.871)	(0.671)	(0.888)
Number of firms	539	377	163	427	162
Number of home countries	35	34	23	35	24
Number of projects	899	473	426	515	384
Wald chi-square	970.48***	610.50***	798.53***	831.56***	788.42***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.097**	1.457**	0.729	1.345***	-0.862
	(0.449)	(0.645)	(0.655)	(0.464)	(1.140)
Prior FDI Home Country Focal Industry *	0.938	1.295*	0.449	1.286	-1.067
Domestic Conformity Forces	(0.597)	(0.775)	(0.853)	(0.794)	(1.188)
Prior FDI Home Country Other Industry	0.861***	1.596***	0.391	1.387***	0.0301
	(0.213)	(0.297)	(0.242)	(0.222)	(0.294)
Prior FDI Home Country Other Industry *	0.115	0.509*	-0.160	0.383	-0.491*
Domestic Conformity Forces	(0.214)	(0.280)	(0.256)	(0.240)	(0.280)
Prior FDI Other Country Focal Industry	0.997***	0.922***	1.026***	1.120***	0.893***
	(0.134)	(0.204)	(0.199)	(0.175)	(0.170)
Investor's Experience	2.872***	3.427***	2.979***	-8.379***	3.177***
	(0.267)	(1.261)	(0.274)	(1.019)	(0.299)
GDP per capita	1.090***	1.023***	1.159***	1.071***	1.032***
	(0.240)	(0.310)	(0.371)	(0.283)	(0.391)
Population Density	4.090***	4.963***	3.013***	4.634***	2.954***
	(0.627)	(0.762)	(1.038)	(0.706)	(1.022)
Population Density Squared	-2.154***	-2.436***	-1.773**	-2.281***	-1.738***
	(0.385)	(0.435)	(0.689)	(0.411)	(0.662)
Corporate Tax Rate	0.288***	0.378***	0.182*	0.344***	0.181*
	(0.0743)	(0.107)	(0.104)	(0.0902)	(0.104)
Educational Attainment	0.525**	0.646**	0.436	0.562**	0.482
	(0.227)	(0.302)	(0.330)	(0.270)	(0.354)
Labor Costs	-0.651	-1.162*	-0.318	-1.158	0.0299
	(0.587)	(0.688)	(0.965)	(0.708)	(0.855)
Employment	0.0942***	0.107***	0.0824**	0.104***	0.0784**
	(0.0217)	(0.0276)	(0.0334)	(0.0251)	(0.0319)
Rent Costs	-1.574***	-1.020***	-2.204***	-1.076***	-2.226***
	(0.296)	(0.339)	(0.478)	(0.328)	(0.464)
Supplier Fit	0.693**	0.149	1.218***	0.605*	0.781*
	(0.271)	(0.390)	(0.328)	(0.324)	(0.423)
Buyer Fit	0.489**	0.430	0.566**	0.487*	0.500
	(0.236)	(0.407)	(0.264)	(0.288)	(0.373)
Labor Fit	1.049***	1.133***	0.997**	1.068***	1.066**
	(0.275)	(0.384)	(0.395)	(0.350)	(0.425)
Knowledge Fit	0.183***	0.247***	0.110	0.307***	0.0318
	(0.0701)	(0.0924)	(0.103)	(0.0790)	(0.108)
Geographical Distance	0.132	0.212	-0.121	0.147	0.0169
	(0.194)	(0.234)	(0.325)	(0.215)	(0.409)
Air Traffic Intensity	2.577***	2.087***	3.090***	1.879***	3.442***
	(0.553)	(0.660)	(0.870)	(0.669)	(0.878)
Number of firms	539	377	163	427	162
Number of home countries	35	34	23	35	24
Number of projects	899	473	426	515	384
Wald chi-square	958.90***	577.89***	800.79***	798.98***	852.26***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 20 Conditional Logit Estimates – Third Country Prior FDI

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.278 (0.363)	0.178 (0.598)	0.472 (0.444)	-0.0286 (0.610)	0.272 (0.361)
Prior FDI Home Country Focal Industry * Collectivism	0.0707*** (0.0222)	0.0773*** (0.0245)	0.0525 (0.0467)	0.0916*** (0.0271)	-0.0240 (0.0307)
Prior FDI Home Country Other Industry	0.286** (0.142)	0.643*** (0.193)	0.130 (0.199)	0.489*** (0.177)	0.0461 (0.220)
Prior FDI Home Country Other Industry * Collectivism	0.00685 (0.0107)	0.0287*** (0.0106)	-0.0149 (0.0133)	0.0203* (0.0109)	-0.0300* (0.0154)
Prior FDI Third Countries	0.638*** (0.0637)	0.725*** (0.0796)	0.521*** (0.0987)	0.752*** (0.0763)	0.478*** (0.0977)
Investor's Experience	2.913*** (0.254)	3.849*** (1.021)	2.990*** (0.278)	3.672*** (0.0841)	3.249*** (0.299)
GDP per capita	0.755*** (0.211)	0.858*** (0.268)	0.630* (0.328)	0.906*** (0.240)	0.482 (0.362)
Population Density	3.249*** (0.561)	3.824*** (0.698)	2.553*** (0.917)	3.662*** (0.637)	2.379** (0.950)
Population Density Squared	-1.728*** (0.336)	-1.856*** (0.395)	-1.555*** (0.585)	-1.743*** (0.359)	-1.533** (0.607)
Corporate Tax Rate	0.197*** (0.0699)	0.214** (0.0994)	0.181* (0.0973)	0.193** (0.0819)	0.191* (0.102)
Educational Attainment	0.451** (0.200)	0.576** (0.259)	0.335 (0.301)	0.591** (0.236)	0.240 (0.318)
Labor Costs	-0.484 (0.555)	-1.089* (0.650)	0.0562 (0.909)	-1.232* (0.660)	0.617 (0.849)
Employment	0.0619*** (0.0195)	0.0655*** (0.0237)	0.0558* (0.0308)	0.0619*** (0.0222)	0.0599* (0.0309)
Rent Costs	-1.244*** (0.274)	-0.778** (0.328)	-1.762*** (0.435)	-0.924*** (0.328)	-1.687*** (0.423)
Supplier Fit	0.537** (0.238)	0.211 (0.330)	0.920*** (0.306)	0.489* (0.272)	0.601 (0.410)
Buyer Fit	0.328 (0.222)	0.247 (0.348)	0.439* (0.265)	0.343 (0.239)	0.276 (0.452)
Labor Fit	1.413*** (0.206)	1.394*** (0.279)	1.467*** (0.303)	1.424*** (0.283)	1.406*** (0.301)
Knowledge Fit	0.152** (0.0604)	0.228*** (0.0773)	0.0644 (0.0910)	0.269*** (0.0674)	0.00384 (0.0965)
Geographical Distance	-0.0334 (0.200)	0.0486 (0.250)	-0.229 (0.310)	-0.0903 (0.229)	0.123 (0.407)
Air Traffic Intensity	2.208*** (0.519)	1.497** (0.593)	2.979*** (0.830)	1.393** (0.607)	3.211*** (0.819)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1071.20***	761.85***	774.69***	773.64***	740.24***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.748**	0.852*	0.652	0.889**	-0.386
	(0.301)	(0.459)	(0.418)	(0.382)	(0.856)
Prior FDI Home Country Focal Industry * Power Distance	0.0328	0.0570*	-0.000307	0.0614*	-0.0910
	(0.0296)	(0.0298)	(0.0477)	(0.0349)	(0.0941)
Prior FDI Home Country Other Industry	0.285**	0.635***	0.0932	0.529***	0.0469
	(0.143)	(0.202)	(0.196)	(0.173)	(0.210)
Prior FDI Home Country Other Industry * Power Distance	0.00381	0.00997	-0.00762	0.0157	-0.0151
	(0.0114)	(0.0157)	(0.0164)	(0.0145)	(0.0154)
Prior FDI Third Countries	0.637***	0.716***	0.525***	0.747***	0.485***
	(0.0635)	(0.0796)	(0.0985)	(0.0766)	(0.0984)
Investor's Experience	2.911***	3.832***	2.987***	3.614***	3.247***
	(0.255)	(1.036)	(0.280)	(0.0745)	(0.297)
GDP per capita	0.750***	0.842***	0.634*	0.885***	0.486
	(0.212)	(0.271)	(0.328)	(0.243)	(0.360)
Population Density	3.238***	3.798***	2.547***	3.637***	2.383**
	(0.561)	(0.699)	(0.919)	(0.636)	(0.948)
Population Density Squared	-1.725***	-1.846***	-1.557***	-1.730***	-1.537**
	(0.336)	(0.399)	(0.587)	(0.360)	(0.606)
Corporate Tax Rate	0.201***	0.222**	0.182*	0.196**	0.182*
	(0.0696)	(0.0991)	(0.0967)	(0.0820)	(0.101)
Educational Attainment	0.463**	0.609**	0.336	0.620***	0.227
	(0.202)	(0.263)	(0.303)	(0.239)	(0.318)
Labor Costs	-0.500	-1.166*	0.0683	-1.278*	0.667
	(0.557)	(0.655)	(0.910)	(0.663)	(0.848)
Employment	0.0621***	0.0660***	0.0555*	0.0622***	0.0593*
	(0.0195)	(0.0237)	(0.0308)	(0.0222)	(0.0308)
Rent Costs	-1.239***	-0.745**	-1.765***	-0.906***	-1.697***
	(0.274)	(0.326)	(0.435)	(0.327)	(0.422)
Supplier Fit	0.542**	0.215	0.933***	0.482*	0.602
	(0.238)	(0.329)	(0.305)	(0.272)	(0.412)
Buyer Fit	0.326	0.242	0.431	0.348	0.271
	(0.223)	(0.348)	(0.264)	(0.239)	(0.446)
Labor Fit	1.413***	1.389***	1.467***	1.431***	1.413***
	(0.206)	(0.279)	(0.302)	(0.282)	(0.300)
Knowledge Fit	0.151**	0.228***	0.0621	0.270***	0.00719
	(0.0606)	(0.0780)	(0.0913)	(0.0674)	(0.0951)
Geographical Distance	-0.0204	0.0692	-0.220	-0.0713	0.112
	(0.200)	(0.250)	(0.309)	(0.229)	(0.405)
Air Traffic Intensity	2.206***	1.490**	2.974***	1.378**	3.214***
	(0.519)	(0.595)	(0.829)	(0.609)	(0.814)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1069.33***	750.29***	766.96***	752.32***	732.24***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.545 (0.342)	0.456 (0.525)	0.679 (0.440)	0.561 (0.478)	0.388 (0.372)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0150 (0.0218)	0.0396 (0.0315)	-0.00300 (0.0310)	0.0301 (0.0221)	-0.0492 (0.0372)
Prior FDI Home Country Other Industry	0.274* (0.145)	0.564*** (0.198)	0.172 (0.211)	0.454** (0.185)	0.175 (0.219)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	-0.000534 (0.00798)	0.0165 (0.0117)	-0.00934 (0.0103)	0.00835 (0.00924)	-0.0179* (0.0103)
Prior FDI Third Countries	0.639*** (0.0633)	0.716*** (0.0795)	0.527*** (0.0982)	0.746*** (0.0765)	0.485*** (0.0981)
Investor's Experience	2.913*** (0.256)	3.835*** (1.051)	2.990*** (0.282)	3.638*** (0.0868)	3.253*** (0.299)
GDP per capita	0.750*** (0.212)	0.844*** (0.272)	0.633* (0.328)	0.885*** (0.243)	0.479 (0.362)
Population Density	3.232*** (0.563)	3.817*** (0.699)	2.537*** (0.922)	3.639*** (0.636)	2.364** (0.953)
Population Density Squared	-1.723*** (0.337)	-1.857*** (0.398)	-1.552*** (0.588)	-1.733*** (0.360)	-1.525** (0.609)
Corporate Tax Rate	0.201*** (0.0695)	0.223** (0.0993)	0.182* (0.0967)	0.198** (0.0821)	0.181* (0.101)
Educational Attainment	0.463** (0.202)	0.608** (0.263)	0.339 (0.303)	0.619*** (0.239)	0.232 (0.317)
Labor Costs	-0.496 (0.555)	-1.170* (0.655)	0.0662 (0.911)	-1.267* (0.658)	0.662 (0.847)
Employment	0.0622*** (0.0195)	0.0664*** (0.0237)	0.0554* (0.0308)	0.0627*** (0.0222)	0.0592* (0.0308)
Rent Costs	-1.239*** (0.274)	-0.742** (0.326)	-1.766*** (0.435)	-0.907*** (0.326)	-1.700*** (0.422)
Supplier Fit	0.544** (0.238)	0.215 (0.330)	0.934*** (0.305)	0.484* (0.272)	0.600 (0.412)
Buyer Fit	0.324 (0.222)	0.242 (0.347)	0.431 (0.265)	0.346 (0.238)	0.272 (0.449)
Labor Fit	1.412*** (0.206)	1.387*** (0.279)	1.468*** (0.303)	1.425*** (0.282)	1.418*** (0.302)
Knowledge Fit	0.150** (0.0608)	0.228*** (0.0784)	0.0610 (0.0915)	0.270*** (0.0673)	0.00724 (0.0956)
Geographical Distance	-0.0193 (0.201)	0.0614 (0.251)	-0.215 (0.310)	-0.0721 (0.229)	0.122 (0.406)
Air Traffic Intensity	2.210*** (0.518)	1.494** (0.594)	2.975*** (0.826)	1.385** (0.608)	3.195*** (0.814)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1087.92***	738.06***	773.01***	763.48***	747.13***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.991***	0.993**	0.939*	1.270***	0.645
	(0.340)	(0.437)	(0.532)	(0.459)	(0.420)
Prior FDI Home Country Focal Industry * Masculinity	-0.0395*	-0.0571*	-0.0248	-0.0341	-0.0537**
	(0.0218)	(0.0302)	(0.0300)	(0.0262)	(0.0263)
Prior FDI Home Country Other Industry	0.338**	0.559***	0.228	0.570***	0.222
	(0.150)	(0.208)	(0.226)	(0.186)	(0.227)
Prior FDI Home Country Other Industry * Masculinity	-0.00825	0.00929	-0.00975	-0.00768	-0.0149*
	(0.00729)	(0.0114)	(0.00951)	(0.00869)	(0.00826)
Prior FDI Third Countries	0.644***	0.717***	0.530***	0.751***	0.481***
	(0.0629)	(0.0794)	(0.0981)	(0.0764)	(0.0972)
Investor's Experience	2.920***	3.883***	2.992***	3.593***	3.245***
	(0.260)	(1.000)	(0.284)	(0.0712)	(0.298)
GDP per capita	0.755***	0.841***	0.636*	0.893***	0.492
	(0.213)	(0.270)	(0.330)	(0.241)	(0.366)
Population Density	3.208***	3.775***	2.532***	3.594***	2.388**
	(0.561)	(0.698)	(0.919)	(0.635)	(0.946)
Population Density Squared	-1.714***	-1.838***	-1.551***	-1.715***	-1.534**
	(0.336)	(0.399)	(0.586)	(0.361)	(0.603)
Corporate Tax Rate	0.206***	0.224**	0.188*	0.202**	0.196*
	(0.0701)	(0.0990)	(0.0976)	(0.0824)	(0.103)
Educational Attainment	0.466**	0.608**	0.339	0.620***	0.233
	(0.203)	(0.263)	(0.304)	(0.238)	(0.320)
Labor Costs	-0.514	-1.144*	0.0547	-1.260*	0.601
	(0.555)	(0.648)	(0.912)	(0.656)	(0.854)
Employment	0.0620***	0.0663***	0.0554*	0.0627***	0.0596*
	(0.0195)	(0.0237)	(0.0307)	(0.0222)	(0.0307)
Rent Costs	-1.235***	-0.742**	-1.764***	-0.904***	-1.688***
	(0.273)	(0.326)	(0.434)	(0.326)	(0.421)
Supplier Fit	0.549**	0.211	0.932***	0.485*	0.591
	(0.237)	(0.331)	(0.303)	(0.271)	(0.409)
Buyer Fit	0.314	0.240	0.427	0.344	0.267
	(0.224)	(0.348)	(0.267)	(0.236)	(0.457)
Labor Fit	1.411***	1.389***	1.464***	1.422***	1.403***
	(0.206)	(0.278)	(0.302)	(0.282)	(0.300)
Knowledge Fit	0.148**	0.230***	0.0614	0.269***	0.00570
	(0.0612)	(0.0772)	(0.0910)	(0.0675)	(0.0961)
Geographical Distance	-0.00970	0.0779	-0.212	-0.0486	0.109
	(0.201)	(0.251)	(0.308)	(0.229)	(0.405)
Air Traffic Intensity	2.216***	1.481**	2.990***	1.387**	3.221***
	(0.519)	(0.598)	(0.827)	(0.612)	(0.819)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1096.01***	770.06***	761.94***	750.23***	713.71***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.241***	1.593***	0.893	1.472***	-0.723
	(0.431)	(0.563)	(0.643)	(0.417)	(0.983)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	0.987*	1.605**	0.364	1.580*	-1.117
	(0.594)	(0.807)	(0.806)	(0.846)	(1.017)
Prior FDI Home Country Other Industry	0.332	1.000***	-0.0503	0.731***	-0.298
	(0.210)	(0.280)	(0.258)	(0.225)	(0.290)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.0711	0.490*	-0.239	0.327	-0.495*
	(0.212)	(0.268)	(0.262)	(0.241)	(0.272)
Prior FDI Third Countries	0.637***	0.720***	0.524***	0.748***	0.485***
	(0.0635)	(0.0794)	(0.0984)	(0.0764)	(0.0982)
Investor's Experience	2.911***	3.816***	2.988***	3.650***	3.254***
	(0.255)	(1.062)	(0.280)	(0.0839)	(0.298)
GDP per capita	0.750***	0.852***	0.632*	0.889***	0.480
	(0.212)	(0.270)	(0.328)	(0.242)	(0.362)
Population Density	3.246***	3.827***	2.544***	3.655***	2.362**
	(0.562)	(0.700)	(0.919)	(0.636)	(0.952)
Population Density Squared	-1.728***	-1.860***	-1.554***	-1.738***	-1.525**
	(0.337)	(0.398)	(0.587)	(0.360)	(0.607)
Corporate Tax Rate	0.200***	0.218**	0.182*	0.194**	0.183*
	(0.0697)	(0.0996)	(0.0969)	(0.0820)	(0.101)
Educational Attainment	0.460**	0.599**	0.337	0.612***	0.232
	(0.201)	(0.261)	(0.302)	(0.238)	(0.318)
Labor Costs	-0.498	-1.153*	0.0637	-1.270*	0.658
	(0.556)	(0.657)	(0.909)	(0.661)	(0.846)
Employment	0.0622***	0.0658***	0.0556*	0.0623***	0.0594*
	(0.0195)	(0.0237)	(0.0308)	(0.0222)	(0.0308)
Rent Costs	-1.239***	-0.754**	-1.763***	-0.909***	-1.694***
	(0.274)	(0.327)	(0.435)	(0.327)	(0.422)
Supplier Fit	0.538**	0.215	0.928***	0.484*	0.602
	(0.238)	(0.329)	(0.305)	(0.273)	(0.412)
Buyer Fit	0.328	0.242	0.434	0.345	0.271
	(0.223)	(0.348)	(0.265)	(0.240)	(0.449)
Labor Fit	1.412***	1.389***	1.467***	1.427***	1.416***
	(0.206)	(0.279)	(0.303)	(0.282)	(0.301)
Knowledge Fit	0.152**	0.226***	0.0627	0.270***	0.00606
	(0.0606)	(0.0786)	(0.0914)	(0.0674)	(0.0960)
Geographical Distance	-0.0263	0.0550	-0.221	-0.0832	0.121
	(0.200)	(0.250)	(0.310)	(0.229)	(0.406)
Air Traffic Intensity	2.204***	1.486**	2.978***	1.377**	3.204***
	(0.520)	(0.592)	(0.829)	(0.608)	(0.815)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1067.50***	734.72***	773.15***	770.98***	743.54***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 21 Conditional Logit Estimates – Third Country Prior FDI including services

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.321	0.202	0.509	-0.0174	0.337
	(0.354)	(0.576)	(0.446)	(0.587)	(0.364)
Prior FDI Home Country Focal Industry * Collectivism	0.0684***	0.0734***	0.0534	0.0888***	-0.0210
	(0.0213)	(0.0238)	(0.0454)	(0.0263)	(0.0302)
Prior FDI Home Country Other Industry	0.407***	0.783***	0.230	0.616***	0.171
	(0.137)	(0.189)	(0.193)	(0.172)	(0.211)
Prior FDI Home Country Other Industry * Collectivism	0.00674	0.0275***	-0.0144	0.0193*	-0.0293*
	(0.0104)	(0.0101)	(0.0131)	(0.0106)	(0.0152)
Prior FDI Third Countries (incl. Services)	0.552***	0.615***	0.454***	0.665***	0.380***
	(0.0480)	(0.0571)	(0.0788)	(0.0550)	(0.0778)
Investor's Experience	2.843***	3.756***	2.942***	3.592***	3.213***
	(0.257)	(1.049)	(0.283)	(0.0861)	(0.301)
GDP per capita	0.625***	0.714**	0.526	0.745***	0.403
	(0.217)	(0.278)	(0.333)	(0.248)	(0.369)
Population Density	3.369***	3.907***	2.676***	3.729***	2.536**
	(0.600)	(0.745)	(0.972)	(0.689)	(0.988)
Population Density Squared	-2.107***	-2.229***	-1.895***	-2.141***	-1.836***
	(0.402)	(0.469)	(0.684)	(0.438)	(0.693)
Corporate Tax Rate	0.215***	0.234**	0.197**	0.216**	0.204**
	(0.0697)	(0.103)	(0.0953)	(0.0843)	(0.100)
Educational Attainment	0.523***	0.664**	0.386	0.677***	0.286
	(0.201)	(0.259)	(0.303)	(0.236)	(0.321)
Labor Costs	-0.897	-1.595**	-0.247	-1.794***	0.394
	(0.558)	(0.640)	(0.922)	(0.657)	(0.859)
Employment	0.0483**	0.0495**	0.0457	0.0437*	0.0526*
	(0.0196)	(0.0239)	(0.0308)	(0.0223)	(0.0309)
Rent Costs	-1.782***	-1.381***	-2.200***	-1.544***	-2.107***
	(0.292)	(0.354)	(0.463)	(0.355)	(0.450)
Supplier Fit	0.458*	0.116	0.863***	0.389	0.544
	(0.242)	(0.338)	(0.312)	(0.282)	(0.414)
Buyer Fit	0.275	0.195	0.393	0.295	0.230
	(0.218)	(0.361)	(0.254)	(0.246)	(0.434)
Labor Fit	1.554***	1.536***	1.585***	1.573***	1.513***
	(0.205)	(0.281)	(0.306)	(0.281)	(0.304)
Knowledge Fit	0.172***	0.245***	0.0834	0.287***	0.0223
	(0.0586)	(0.0763)	(0.0890)	(0.0667)	(0.0939)
Geographical Distance	-0.0683	0.0127	-0.273	-0.140	0.106
	(0.202)	(0.253)	(0.314)	(0.232)	(0.412)
Air Traffic Intensity	2.169***	1.406**	2.972***	1.275**	3.256***
	(0.535)	(0.616)	(0.854)	(0.626)	(0.840)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1038.94***	816.73***	727.13***	720.49***	685.56***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.778***	0.845*	0.700*	0.870**	-0.287
	(0.290)	(0.447)	(0.409)	(0.372)	(0.867)
Prior FDI Home Country Focal Industry * Power Distance	0.0335	0.0548*	0.00211	0.0611*	-0.0850
	(0.0276)	(0.0281)	(0.0464)	(0.0331)	(0.0944)
Prior FDI Home Country Other Industry	0.402***	0.767***	0.193	0.649***	0.169
	(0.137)	(0.196)	(0.189)	(0.167)	(0.202)
Prior FDI Home Country Other Industry * Power Distance	0.00188	0.00739	-0.00903	0.0132	-0.0164
	(0.0112)	(0.0154)	(0.0161)	(0.0143)	(0.0151)
Prior FDI Third Countries (incl. Services)	0.552***	0.614***	0.457***	0.664***	0.386***
	(0.0479)	(0.0574)	(0.0785)	(0.0551)	(0.0778)
Investor's Experience	2.840***	3.736***	2.938***	3.536***	3.211***
	(0.258)	(1.063)	(0.285)	(0.0774)	(0.299)
GDP per capita	0.617***	0.694**	0.530	0.722***	0.406
	(0.219)	(0.281)	(0.334)	(0.251)	(0.367)
Population Density	3.355***	3.879***	2.669***	3.698***	2.540***
	(0.600)	(0.749)	(0.971)	(0.690)	(0.984)
Population Density Squared	-2.104***	-2.224***	-1.899***	-2.127***	-1.843***
	(0.402)	(0.476)	(0.685)	(0.440)	(0.690)
Corporate Tax Rate	0.219***	0.241**	0.198**	0.220***	0.196**
	(0.0695)	(0.102)	(0.0949)	(0.0842)	(0.0994)
Educational Attainment	0.534***	0.695***	0.387	0.704***	0.274
	(0.203)	(0.262)	(0.305)	(0.238)	(0.321)
Labor Costs	-0.910	-1.662***	-0.237	-1.828***	0.437
	(0.560)	(0.644)	(0.924)	(0.658)	(0.858)
Employment	0.0485**	0.0498**	0.0454	0.0439**	0.0519*
	(0.0196)	(0.0240)	(0.0308)	(0.0223)	(0.0309)
Rent Costs	-1.774***	-1.335***	-2.204***	-1.519***	-2.122***
	(0.292)	(0.351)	(0.464)	(0.353)	(0.451)
Supplier Fit	0.461*	0.119	0.876***	0.382	0.546
	(0.242)	(0.337)	(0.312)	(0.282)	(0.417)
Buyer Fit	0.273	0.189	0.384	0.300	0.222
	(0.218)	(0.360)	(0.254)	(0.245)	(0.428)
Labor Fit	1.555***	1.533***	1.586***	1.582***	1.523***
	(0.205)	(0.280)	(0.304)	(0.280)	(0.304)
Knowledge Fit	0.171***	0.244***	0.0809	0.288***	0.0260
	(0.0587)	(0.0768)	(0.0892)	(0.0666)	(0.0925)
Geographical Distance	-0.0553	0.0338	-0.266	-0.120	0.0935
	(0.202)	(0.253)	(0.313)	(0.231)	(0.409)
Air Traffic Intensity	2.164***	1.389**	2.968***	1.250**	3.263***
	(0.536)	(0.619)	(0.853)	(0.628)	(0.835)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1032.32***	796.20***	720.96***	716.17***	690.12***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.564*	0.448	0.712	0.530	0.441
	(0.338)	(0.517)	(0.443)	(0.471)	(0.374)
Prior FDI Home Country Focal Industry *	0.0169	0.0421	-0.00201	0.0316	-0.0474
Uncertainty Avoidance	(0.0211)	(0.0305)	(0.0308)	(0.0217)	(0.0379)
Prior FDI Home Country Other Industry	0.398***	0.705***	0.276	0.582***	0.301
	(0.140)	(0.192)	(0.206)	(0.179)	(0.213)
Prior FDI Home Country Other Industry *	-0.000952	0.0153	-0.00949	0.00757	-0.0180*
Uncertainty Avoidance	(0.00780)	(0.0115)	(0.0101)	(0.00907)	(0.0102)
Prior FDI Third Countries (incl. Services)	0.553***	0.614***	0.457***	0.664***	0.386***
	(0.0479)	(0.0572)	(0.0786)	(0.0550)	(0.0778)
Investor's Experience	2.842***	3.732***	2.941***	3.559***	3.217***
	(0.259)	(1.082)	(0.287)	(0.0887)	(0.301)
GDP per capita	0.617***	0.696**	0.528	0.720***	0.400
	(0.219)	(0.282)	(0.334)	(0.251)	(0.369)
Population Density	3.352***	3.903***	2.661***	3.703***	2.520**
	(0.602)	(0.748)	(0.975)	(0.691)	(0.990)
Population Density Squared	-2.104***	-2.238***	-1.895***	-2.133***	-1.831***
	(0.404)	(0.476)	(0.687)	(0.440)	(0.693)
Corporate Tax Rate	0.219***	0.242**	0.198**	0.221***	0.195*
	(0.0694)	(0.103)	(0.0949)	(0.0844)	(0.0997)
Educational Attainment	0.535***	0.695***	0.390	0.703***	0.278
	(0.203)	(0.262)	(0.305)	(0.238)	(0.321)
Labor Costs	-0.908	-1.676***	-0.239	-1.821***	0.435
	(0.559)	(0.644)	(0.924)	(0.654)	(0.857)
Employment	0.0486**	0.0502**	0.0453	0.0444**	0.0519*
	(0.0196)	(0.0240)	(0.0308)	(0.0223)	(0.0308)
Rent Costs	-1.773***	-1.331***	-2.207***	-1.517***	-2.126***
	(0.292)	(0.352)	(0.463)	(0.353)	(0.449)
Supplier Fit	0.463*	0.120	0.877***	0.384	0.544
	(0.242)	(0.337)	(0.311)	(0.282)	(0.416)
Buyer Fit	0.270	0.188	0.384	0.296	0.224
	(0.218)	(0.360)	(0.254)	(0.244)	(0.431)
Labor Fit	1.554***	1.529***	1.588***	1.576***	1.527***
	(0.205)	(0.280)	(0.305)	(0.280)	(0.305)
Knowledge Fit	0.170***	0.244***	0.0798	0.288***	0.0257
	(0.0589)	(0.0772)	(0.0895)	(0.0666)	(0.0929)
Geographical Distance	-0.0550	0.0250	-0.261	-0.122	0.104
	(0.203)	(0.254)	(0.314)	(0.232)	(0.411)
Air Traffic Intensity	2.166***	1.393**	2.967***	1.253**	3.241***
	(0.535)	(0.617)	(0.851)	(0.627)	(0.835)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1042.75***	779.19***	724.53***	723.68***	696.47***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.994***	0.994**	0.946*	1.252***	0.667
	(0.337)	(0.430)	(0.524)	(0.455)	(0.423)
Prior FDI Home Country Focal Industry * Masculinity	-0.0365*	-0.0573*	-0.0220	-0.0338	-0.0495*
	(0.0215)	(0.0302)	(0.0289)	(0.0263)	(0.0269)
Prior FDI Home Country Other Industry	0.459***	0.699***	0.328	0.696***	0.344
	(0.145)	(0.202)	(0.223)	(0.182)	(0.222)
Prior FDI Home Country Other Industry * Masculinity	-0.00759	0.00944	-0.00922	-0.00731	-0.0141*
	(0.00714)	(0.0111)	(0.00940)	(0.00846)	(0.00825)
Prior FDI Third Countries (incl. Services)	0.555***	0.615***	0.458***	0.667***	0.380***
	(0.0481)	(0.0572)	(0.0791)	(0.0550)	(0.0777)
Investor's Experience	2.846***	3.782***	2.942***	3.519***	3.210***
	(0.263)	(1.030)	(0.289)	(0.0746)	(0.301)
GDP per capita	0.621***	0.693**	0.531	0.726***	0.415
	(0.220)	(0.280)	(0.336)	(0.250)	(0.372)
Population Density	3.329***	3.859***	2.659***	3.656***	2.544***
	(0.600)	(0.748)	(0.973)	(0.691)	(0.982)
Population Density Squared	-2.097***	-2.219***	-1.895***	-2.115***	-1.835***
	(0.403)	(0.477)	(0.686)	(0.441)	(0.687)
Corporate Tax Rate	0.224***	0.242**	0.204**	0.226***	0.208**
	(0.0701)	(0.102)	(0.0957)	(0.0846)	(0.102)
Educational Attainment	0.539***	0.694***	0.391	0.704***	0.281
	(0.203)	(0.262)	(0.307)	(0.237)	(0.323)
Labor Costs	-0.922*	-1.653***	-0.249	-1.810***	0.381
	(0.558)	(0.638)	(0.925)	(0.652)	(0.863)
Employment	0.0486**	0.0501**	0.0455	0.0445**	0.0526*
	(0.0196)	(0.0239)	(0.0307)	(0.0223)	(0.0308)
Rent Costs	-1.774***	-1.327***	-2.207***	-1.514***	-2.112***
	(0.292)	(0.352)	(0.463)	(0.352)	(0.448)
Supplier Fit	0.466*	0.115	0.875***	0.383	0.534
	(0.241)	(0.339)	(0.310)	(0.280)	(0.413)
Buyer Fit	0.259	0.184	0.380	0.291	0.220
	(0.219)	(0.361)	(0.256)	(0.241)	(0.440)
Labor Fit	1.555***	1.534***	1.584***	1.575***	1.510***
	(0.204)	(0.280)	(0.305)	(0.279)	(0.303)
Knowledge Fit	0.168***	0.246***	0.0804	0.287***	0.0243
	(0.0593)	(0.0762)	(0.0889)	(0.0668)	(0.0933)
Geographical Distance	-0.0455	0.0411	-0.258	-0.0978	0.0917
	(0.202)	(0.253)	(0.313)	(0.231)	(0.410)
Air Traffic Intensity	2.172***	1.375**	2.983***	1.245**	3.269***
	(0.537)	(0.622)	(0.852)	(0.631)	(0.840)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1049.14***	808.47***	717.19***	690.44***	666.73***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.277***	1.573***	0.951	1.452***	-0.607
	(0.406)	(0.536)	(0.622)	(0.402)	(1.021)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	0.998*	1.570**	0.393	1.574*	-1.053
	(0.569)	(0.766)	(0.792)	(0.817)	(1.045)
Prior FDI Home Country Other Industry	0.440**	1.109***	0.0471	0.835***	-0.175
	(0.203)	(0.273)	(0.249)	(0.217)	(0.280)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.0543	0.454*	-0.245	0.300	-0.500*
	(0.207)	(0.261)	(0.258)	(0.237)	(0.268)
Prior FDI Third Countries (incl. Services)	0.552***	0.615***	0.456***	0.665***	0.386***
	(0.0479)	(0.0572)	(0.0786)	(0.0551)	(0.0779)
Investor's Experience	2.840***	3.717***	2.940***	3.570***	3.218***
	(0.258)	(1.092)	(0.285)	(0.0862)	(0.300)
GDP per capita	0.618***	0.706**	0.527	0.727***	0.399
	(0.218)	(0.280)	(0.334)	(0.250)	(0.369)
Population Density	3.364***	3.912***	2.667***	3.719***	2.518**
	(0.601)	(0.748)	(0.973)	(0.690)	(0.988)
Population Density Squared	-2.107***	-2.240***	-1.895***	-2.138***	-1.832***
	(0.403)	(0.474)	(0.685)	(0.439)	(0.692)
Corporate Tax Rate	0.218***	0.238**	0.198**	0.217***	0.197**
	(0.0696)	(0.103)	(0.0951)	(0.0843)	(0.0998)
Educational Attainment	0.532***	0.685***	0.388	0.697***	0.279
	(0.202)	(0.261)	(0.305)	(0.237)	(0.321)
Labor Costs	-0.910	-1.655**	-0.240	-1.826***	0.432
	(0.560)	(0.646)	(0.923)	(0.657)	(0.856)
Employment	0.0485**	0.0496**	0.0455	0.0440**	0.0520*
	(0.0196)	(0.0240)	(0.0308)	(0.0223)	(0.0308)
Rent Costs	-1.773***	-1.350***	-2.203***	-1.524***	-2.121***
	(0.292)	(0.352)	(0.463)	(0.354)	(0.449)
Supplier Fit	0.458*	0.121	0.872***	0.384	0.545
	(0.242)	(0.337)	(0.312)	(0.282)	(0.417)
Buyer Fit	0.275	0.190	0.388	0.297	0.222
	(0.218)	(0.362)	(0.254)	(0.246)	(0.431)
Labor Fit	1.554***	1.531***	1.587***	1.577***	1.525***
	(0.205)	(0.281)	(0.305)	(0.281)	(0.305)
Knowledge Fit	0.172***	0.243***	0.0816	0.288***	0.0246
	(0.0588)	(0.0775)	(0.0894)	(0.0667)	(0.0933)
Geographical Distance	-0.0613	0.0196	-0.266	-0.133	0.103
	(0.202)	(0.254)	(0.314)	(0.232)	(0.411)
Air Traffic Intensity	2.162***	1.391**	2.969***	1.253**	3.252***
	(0.536)	(0.616)	(0.853)	(0.627)	(0.836)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1030.27***	748.48***	725.29***	715.33***	693.87***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 22 Conditional Logit Estimates – Prior FDI HCOI including Service Firms

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.275 (0.355)	0.305 (0.574)	0.399 (0.441)	0.0197 (0.589)	0.229 (0.357)
Prior FDI Home Country Focal Industry * Collectivism	0.0725*** (0.0211)	0.0726*** (0.0234)	0.0589 (0.0490)	0.0919*** (0.0260)	-0.0209 (0.0307)
Prior FDI Home Country Other Industries (incl. Services)	0.618*** (0.108)	1.005*** (0.124)	0.329** (0.144)	0.891*** (0.118)	0.251 (0.160)
Prior FDI Home Country Other Industries (incl. Services) * Collectivism	0.00927 (0.00657)	0.0187*** (0.00530)	0.000433 (0.00950)	0.0168*** (0.00535)	-0.00939 (0.0111)
Prior FDI Other Country Focal Industry	0.994*** (0.131)	0.919*** (0.197)	0.991*** (0.195)	1.108*** (0.173)	0.866*** (0.169)
Investor's Experience	2.962*** (0.261)	3.861*** (1.102)	3.058*** (0.276)	3.769*** (0.0672)	3.286*** (0.305)
GDP per capita	0.943*** (0.201)	1.055*** (0.254)	0.784** (0.316)	1.091*** (0.227)	0.657* (0.349)
Population Density	4.189*** (0.588)	4.917*** (0.722)	3.298*** (0.959)	4.741*** (0.660)	3.128*** (1.005)
Population Density Squared	-2.294*** (0.381)	-2.543*** (0.448)	-1.987*** (0.649)	-2.414*** (0.408)	-1.959*** (0.682)
Corporate Tax Rate	0.187*** (0.0665)	0.201** (0.0934)	0.170* (0.0933)	0.182** (0.0770)	0.181* (0.0982)
Educational Attainment	0.481** (0.198)	0.642** (0.254)	0.333 (0.296)	0.661*** (0.230)	0.232 (0.313)
Labor Costs	-0.483 (0.545)	-1.176* (0.632)	0.139 (0.889)	-1.259* (0.644)	0.615 (0.828)
Employment	0.0788*** (0.0201)	0.0857*** (0.0246)	0.0700** (0.0313)	0.0822*** (0.0227)	0.0724** (0.0312)
Rent Costs	-1.632*** (0.274)	-1.278*** (0.329)	-2.044*** (0.439)	-1.396*** (0.326)	-1.960*** (0.430)
Supplier Fit	0.547** (0.225)	0.242 (0.315)	0.914*** (0.293)	0.498* (0.261)	0.614 (0.385)
Buyer Fit	0.414** (0.205)	0.371 (0.335)	0.484** (0.238)	0.466** (0.229)	0.328 (0.403)
Labor Fit	1.272*** (0.206)	1.218*** (0.292)	1.352*** (0.295)	1.223*** (0.294)	1.320*** (0.291)
Knowledge Fit	0.140** (0.0597)	0.225*** (0.0763)	0.0502 (0.0902)	0.262*** (0.0663)	-0.0154 (0.0960)
Geographical Distance	0.0219 (0.196)	0.0988 (0.243)	-0.177 (0.307)	-0.0344 (0.221)	0.174 (0.403)
Air Traffic Intensity	2.486*** (0.507)	1.842*** (0.588)	3.144*** (0.815)	1.727*** (0.599)	3.362*** (0.803)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1057.42***	683.23***	789.25***	850.10***	830.08***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.780**	0.987**	0.635	0.957**	-0.373
	(0.303)	(0.461)	(0.416)	(0.391)	(0.838)
Prior FDI Home Country Focal Industry * Power Distance	0.0425	0.0579**	0.0129	0.0708**	-0.0801
	(0.0285)	(0.0290)	(0.0478)	(0.0353)	(0.0932)
Prior FDI Home Country Other Industries (incl. Services)	0.561***	0.878***	0.286**	0.809***	0.271*
	(0.103)	(0.119)	(0.146)	(0.114)	(0.163)
Prior FDI Home Country Other Industries (incl. Services) * Power Distance	0.00198	0.0107	-0.0116	0.0122	-0.0116
	(0.00790)	(0.00784)	(0.0111)	(0.00793)	(0.0118)
Prior FDI Other Country Focal Industry	0.986***	0.907***	0.984***	1.099***	0.879***
	(0.131)	(0.199)	(0.194)	(0.172)	(0.173)
Investor's Experience	2.970***	3.887***	3.064***	3.763***	3.286***
	(0.262)	(1.100)	(0.277)	(0.0653)	(0.299)
GDP per capita	0.940***	1.050***	0.790**	1.084***	0.658*
	(0.202)	(0.256)	(0.315)	(0.228)	(0.347)
Population Density	4.181***	4.902***	3.269***	4.719***	3.086***
	(0.592)	(0.726)	(0.964)	(0.660)	(1.003)
Population Density Squared	-2.287***	-2.525***	-1.973***	-2.393***	-1.932***
	(0.383)	(0.452)	(0.652)	(0.408)	(0.678)
Corporate Tax Rate	0.189***	0.206**	0.172*	0.186**	0.179*
	(0.0663)	(0.0927)	(0.0931)	(0.0769)	(0.0981)
Educational Attainment	0.491**	0.665***	0.333	0.685***	0.223
	(0.200)	(0.256)	(0.298)	(0.233)	(0.314)
Labor Costs	-0.501	-1.242*	0.151	-1.318**	0.653
	(0.548)	(0.638)	(0.889)	(0.649)	(0.829)
Employment	0.0798***	0.0874***	0.0703**	0.0838***	0.0716**
	(0.0201)	(0.0245)	(0.0312)	(0.0226)	(0.0313)
Rent Costs	-1.633***	-1.265***	-2.043***	-1.390***	-1.951***
	(0.273)	(0.327)	(0.437)	(0.325)	(0.429)
Supplier Fit	0.552**	0.253	0.924***	0.496*	0.614
	(0.224)	(0.314)	(0.293)	(0.261)	(0.385)
Buyer Fit	0.413**	0.365	0.481**	0.468**	0.323
	(0.206)	(0.337)	(0.240)	(0.229)	(0.401)
Labor Fit	1.271***	1.207***	1.355***	1.223***	1.324***
	(0.207)	(0.293)	(0.295)	(0.294)	(0.288)
Knowledge Fit	0.139**	0.225***	0.0447	0.262***	-0.0160
	(0.0598)	(0.0761)	(0.0906)	(0.0660)	(0.0952)
Geographical Distance	0.0340	0.112	-0.164	-0.0205	0.165
	(0.196)	(0.242)	(0.305)	(0.221)	(0.402)
Air Traffic Intensity	2.476***	1.841***	3.130***	1.727***	3.361***
	(0.505)	(0.585)	(0.811)	(0.597)	(0.795)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1047.59***	644.68***	808.70***	870.40***	857.59***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.503	0.528	0.587	0.541	0.329
	(0.358)	(0.542)	(0.453)	(0.497)	(0.377)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0209	0.0440	0.00194	0.0338	-0.0453
	(0.0230)	(0.0305)	(0.0328)	(0.0225)	(0.0383)
Prior FDI Home Country Other Industries (incl. Services)	0.558***	0.908***	0.322**	0.809***	0.293*
	(0.101)	(0.119)	(0.146)	(0.114)	(0.155)
Prior FDI Home Country Other Industries (incl. Services) * Uncertainty Avoidance	0.00197	0.0115**	-0.00221	0.0111**	-0.0103
	(0.00484)	(0.00500)	(0.00674)	(0.00449)	(0.00762)
Prior FDI Other Country Focal Industry	0.984***	0.909***	0.986***	1.104***	0.883***
	(0.132)	(0.202)	(0.194)	(0.173)	(0.168)
Investor's Experience	2.964***	3.886***	3.062***	3.768***	3.299***
	(0.265)	(1.118)	(0.280)	(0.0669)	(0.304)
GDP per capita	0.941***	1.050***	0.790**	1.078***	0.657*
	(0.202)	(0.256)	(0.315)	(0.229)	(0.348)
Population Density	4.179***	4.890***	3.289***	4.719***	3.109***
	(0.591)	(0.720)	(0.965)	(0.658)	(1.005)
Population Density Squared	-2.286***	-2.514***	-1.986***	-2.393***	-1.954***
	(0.382)	(0.447)	(0.653)	(0.406)	(0.680)
Corporate Tax Rate	0.189***	0.206**	0.171*	0.187**	0.177*
	(0.0663)	(0.0928)	(0.0929)	(0.0771)	(0.0980)
Educational Attainment	0.490**	0.661***	0.337	0.679***	0.228
	(0.200)	(0.256)	(0.298)	(0.233)	(0.313)
Labor Costs	-0.495	-1.227*	0.139	-1.279**	0.631
	(0.546)	(0.635)	(0.889)	(0.642)	(0.827)
Employment	0.0798***	0.0871***	0.0702**	0.0835***	0.0722**
	(0.0201)	(0.0245)	(0.0313)	(0.0226)	(0.0312)
Rent Costs	-1.631***	-1.250***	-2.049***	-1.379***	-1.958***
	(0.274)	(0.327)	(0.438)	(0.324)	(0.430)
Supplier Fit	0.554**	0.246	0.926***	0.495*	0.615
	(0.225)	(0.314)	(0.292)	(0.261)	(0.386)
Buyer Fit	0.410**	0.367	0.478**	0.466**	0.326
	(0.205)	(0.335)	(0.239)	(0.228)	(0.402)
Labor Fit	1.270***	1.209***	1.353***	1.223***	1.329***
	(0.207)	(0.292)	(0.295)	(0.294)	(0.292)
Knowledge Fit	0.138**	0.226***	0.0457	0.263***	-0.0170
	(0.0602)	(0.0764)	(0.0910)	(0.0659)	(0.0958)
Geographical Distance	0.0335	0.107	-0.162	-0.0215	0.174
	(0.197)	(0.243)	(0.307)	(0.222)	(0.402)
Air Traffic Intensity	2.480***	1.834***	3.136***	1.714***	3.329***
	(0.505)	(0.584)	(0.810)	(0.598)	(0.802)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1041.47***	640.35***	786.33***	870.69***	858.26***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.952***	1.066**	0.870	1.279***	0.592
	(0.349)	(0.458)	(0.537)	(0.476)	(0.410)
Prior FDI Home Country Focal Industry *	-0.0374*	-0.0506*	-0.0243	-0.0306	-0.0553**
Masculinity	(0.0222)	(0.0297)	(0.0313)	(0.0255)	(0.0263)
Prior FDI Home Country Other Industries	0.558***	0.833***	0.313*	0.763***	0.349**
(incl. Services)	(0.103)	(0.120)	(0.162)	(0.122)	(0.159)
Prior FDI Home Country Other Industries	-0.00133	0.00766	0.000653	0.00124	-0.00801
(incl. Services) * Masculinity	(0.00575)	(0.00691)	(0.00748)	(0.00594)	(0.00708)
Prior FDI Other Country Focal Industry	0.986***	0.898***	0.991***	1.080***	0.869***
	(0.132)	(0.200)	(0.194)	(0.175)	(0.171)
Investor's Experience	2.978***	3.916***	3.060***	3.765***	3.292***
	(0.269)	(1.078)	(0.282)	(0.0648)	(0.306)
GDP per capita	0.946***	1.053***	0.789**	1.095***	0.656*
	(0.202)	(0.255)	(0.318)	(0.227)	(0.354)
Population Density	4.164***	4.868***	3.288***	4.681***	3.109***
	(0.590)	(0.720)	(0.963)	(0.658)	(0.998)
Population Density Squared	-2.279***	-2.496***	-1.985***	-2.368***	-1.944***
	(0.382)	(0.446)	(0.653)	(0.406)	(0.676)
Corporate Tax Rate	0.190***	0.206**	0.173*	0.189**	0.185*
	(0.0664)	(0.0926)	(0.0934)	(0.0770)	(0.0992)
Educational Attainment	0.491**	0.660***	0.339	0.677***	0.235
	(0.200)	(0.256)	(0.299)	(0.232)	(0.316)
Labor Costs	-0.500	-1.240**	0.151	-1.297**	0.586
	(0.544)	(0.632)	(0.893)	(0.643)	(0.836)
Employment	0.0800***	0.0879***	0.0699**	0.0850***	0.0720**
	(0.0201)	(0.0245)	(0.0313)	(0.0227)	(0.0310)
Rent Costs	-1.634***	-1.241***	-2.053***	-1.382***	-1.964***
	(0.273)	(0.326)	(0.438)	(0.324)	(0.428)
Supplier Fit	0.558**	0.238	0.928***	0.500*	0.612
	(0.225)	(0.315)	(0.291)	(0.260)	(0.385)
Buyer Fit	0.404*	0.370	0.474**	0.463**	0.315
	(0.206)	(0.333)	(0.240)	(0.226)	(0.411)
Labor Fit	1.272***	1.202***	1.354***	1.215***	1.317***
	(0.207)	(0.293)	(0.294)	(0.295)	(0.290)
Knowledge Fit	0.136**	0.226***	0.0465	0.260***	-0.0116
	(0.0599)	(0.0758)	(0.0897)	(0.0662)	(0.0952)
Geographical Distance	0.0421	0.116	-0.157	-0.00394	0.172
	(0.196)	(0.243)	(0.306)	(0.221)	(0.403)
Air Traffic Intensity	2.473***	1.813***	3.143***	1.714***	3.383***
	(0.506)	(0.587)	(0.812)	(0.596)	(0.804)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1060.44***	653.03***	827.05***	815.93***	792.60***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.323***	1.676***	0.937	1.532***	-0.663
	(0.421)	(0.535)	(0.655)	(0.418)	(0.962)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	1.110*	1.564**	0.506	1.615**	-0.996
	(0.577)	(0.725)	(0.839)	(0.784)	(1.005)
Prior FDI Home Country Other Industries (incl. Services)	0.582***	0.959***	0.311**	0.853***	0.251
	(0.105)	(0.123)	(0.143)	(0.117)	(0.155)
Prior FDI Home Country Other Industries (incl. Services) * Domestic Conformity Forces	0.109	0.366***	-0.0794	0.323***	-0.256
	(0.134)	(0.128)	(0.184)	(0.121)	(0.209)
Prior FDI Other Country Focal Industry	0.988***	0.917***	0.986***	1.110***	0.877***
	(0.132)	(0.200)	(0.194)	(0.172)	(0.169)
Investor's Experience	2.962***	3.868***	3.062***	3.767***	3.295***
	(0.263)	(1.114)	(0.278)	(0.0669)	(0.303)
GDP per capita	0.939***	1.054***	0.788**	1.080***	0.658*
	(0.201)	(0.255)	(0.316)	(0.228)	(0.348)
Population Density	4.192***	4.929***	3.290***	4.738***	3.099***
	(0.591)	(0.725)	(0.964)	(0.660)	(1.007)
Population Density Squared	-2.294***	-2.549***	-1.985***	-2.409***	-1.944***
	(0.383)	(0.452)	(0.652)	(0.408)	(0.681)
Corporate Tax Rate	0.189***	0.203**	0.171*	0.184**	0.179*
	(0.0664)	(0.0931)	(0.0931)	(0.0770)	(0.0979)
Educational Attainment	0.489**	0.658***	0.336	0.678***	0.227
	(0.199)	(0.255)	(0.298)	(0.232)	(0.314)
Labor Costs	-0.500	-1.213*	0.137	-1.286**	0.634
	(0.548)	(0.637)	(0.889)	(0.647)	(0.826)
Employment	0.0794***	0.0863***	0.0703**	0.0829***	0.0722**
	(0.0201)	(0.0246)	(0.0312)	(0.0226)	(0.0312)
Rent Costs	-1.631***	-1.272***	-2.047***	-1.389***	-1.955***
	(0.274)	(0.328)	(0.438)	(0.325)	(0.430)
Supplier Fit	0.549**	0.250	0.921***	0.495*	0.614
	(0.225)	(0.314)	(0.293)	(0.262)	(0.386)
Buyer Fit	0.414**	0.366	0.482**	0.468**	0.325
	(0.205)	(0.337)	(0.239)	(0.230)	(0.402)
Labor Fit	1.270***	1.213***	1.353***	1.225***	1.326***
	(0.207)	(0.293)	(0.296)	(0.294)	(0.291)
Knowledge Fit	0.140**	0.224***	0.0472	0.263***	-0.0172
	(0.0599)	(0.0767)	(0.0909)	(0.0661)	(0.0960)
Geographical Distance	0.0284	0.105	-0.168	-0.0296	0.172
	(0.196)	(0.243)	(0.306)	(0.221)	(0.402)
Air Traffic Intensity	2.482***	1.843***	3.137***	1.721***	3.342***
	(0.506)	(0.585)	(0.812)	(0.598)	(0.799)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1036.60***	654.03***	788.24***	870.33***	854.76***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 23 Conditional Logit Estimates – Prior FDI Home Country other manufacturing + service industry

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.209	0.196	0.317	-0.0589	0.172
	(0.358)	(0.599)	(0.437)	(0.595)	(0.355)
Prior FDI Home Country Focal Industry * Collectivism	0.0744***	0.0747***	0.0634	0.0930***	-0.0189
	(0.0211)	(0.0235)	(0.0489)	(0.0261)	(0.0313)
Prior FDI Home Country Other Manufacturing Industry	0.848***	1.279***	0.597***	1.153***	0.460**
	(0.137)	(0.189)	(0.179)	(0.168)	(0.202)
Prior FDI Home Country Other Manufacturing Industry * Collectivism	0.00948	0.0295***	-0.0133	0.0218**	-0.0269*
	(0.0105)	(0.0105)	(0.0129)	(0.0106)	(0.0149)
Prior FDI Home Country Other Service Industry	0.360**	0.706***	0.0542	0.586***	0.0511
	(0.153)	(0.178)	(0.232)	(0.170)	(0.265)
Prior FDI Home Country Other Service Industry * Collectivism	0.00277	0.00766	0.000119	0.00765	-0.00725
	(0.00788)	(0.00661)	(0.0139)	(0.00670)	(0.0153)
Prior FDI Other Country Focal Industry	0.988***	0.927***	0.988***	1.113***	0.844***
	(0.132)	(0.199)	(0.195)	(0.172)	(0.166)
Investor's Experience	2.953***	3.833***	3.050***	3.743***	3.282***
	(0.261)	(1.118)	(0.274)	(0.0841)	(0.303)
GDP per capita	0.940***	1.058***	0.776**	1.089***	0.648*
	(0.201)	(0.254)	(0.316)	(0.226)	(0.351)
Population Density	4.048***	4.771***	3.123***	4.573***	2.970***
	(0.588)	(0.716)	(0.957)	(0.655)	(1.014)
Population Density Squared	-2.175***	-2.408***	-1.844***	-2.266***	-1.837***
	(0.378)	(0.438)	(0.643)	(0.399)	(0.685)
Corporate Tax Rate	0.192***	0.203**	0.179*	0.183**	0.193*
	(0.0675)	(0.0943)	(0.0954)	(0.0773)	(0.101)
Educational Attainment	0.464**	0.619**	0.318	0.637***	0.223
	(0.198)	(0.254)	(0.299)	(0.231)	(0.316)
Labor Costs	-0.432	-1.124*	0.214	-1.189*	0.651
	(0.550)	(0.637)	(0.900)	(0.649)	(0.839)
Employment	0.0799***	0.0872***	0.0710**	0.0838***	0.0735**
	(0.0199)	(0.0245)	(0.0308)	(0.0226)	(0.0308)
Rent Costs	-1.557***	-1.197***	-1.968***	-1.304***	-1.886***
	(0.270)	(0.330)	(0.427)	(0.323)	(0.420)
Supplier Fit	1.261***	1.207***	1.339***	1.215***	1.302***
	(0.207)	(0.295)	(0.296)	(0.296)	(0.293)
Buyer Fit	0.563**	0.254	0.933***	0.513*	0.637
	(0.225)	(0.316)	(0.294)	(0.262)	(0.389)
Labor Fit	0.414**	0.369	0.487**	0.462**	0.328
	(0.206)	(0.336)	(0.240)	(0.230)	(0.409)
Knowledge Fit	0.138**	0.221***	0.0487	0.259***	-0.0198
	(0.0597)	(0.0769)	(0.0907)	(0.0665)	(0.0975)
Geographical Distance	0.0175	0.0882	-0.173	-0.0389	0.172
	(0.195)	(0.241)	(0.306)	(0.220)	(0.403)
Air Traffic Intensity	2.466***	1.809***	3.150***	1.675***	3.379***
	(0.503)	(0.583)	(0.807)	(0.596)	(0.800)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1065.18***	696.95***	828.55***	840.78***	831.91***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.715**	0.869*	0.573	0.858**	-0.424
	(0.305)	(0.476)	(0.415)	(0.401)	(0.841)
Prior FDI Home Country Focal Industry *	0.0448	0.0625**	0.0133	0.0739**	-0.0770
Power Distance	(0.0288)	(0.0296)	(0.0482)	(0.0359)	(0.0941)
Prior FDI Home Country Other	0.843***	1.249***	0.571***	1.187***	0.434**
Manufacturing Industry	(0.137)	(0.200)	(0.178)	(0.163)	(0.203)
Prior FDI Home Country Other	0.00257	0.00704	-0.00517	0.0159	-0.0207
Manufacturing Industry * Power Distance	(0.0120)	(0.0167)	(0.0166)	(0.0142)	(0.0165)
Prior FDI Home Country Other Service	0.329**	0.643***	-0.0352	0.515***	0.109
Industry	(0.140)	(0.153)	(0.213)	(0.157)	(0.233)
Prior FDI Home Country Other Service	0.000745	0.0123	-0.0209	0.00663	-0.00636
Industry * Power Distance	(0.0101)	(0.00912)	(0.0153)	(0.0104)	(0.0171)
Prior FDI Other Country Focal Industry	0.979***	0.908***	0.975***	1.104***	0.887***
	(0.133)	(0.203)	(0.194)	(0.171)	(0.178)
Investor's Experience	2.953***	3.860***	3.055***	3.680***	3.280***
	(0.261)	(1.105)	(0.274)	(0.0754)	(0.298)
GDP per capita	0.934***	1.042***	0.782**	1.075***	0.651*
	(0.202)	(0.257)	(0.316)	(0.228)	(0.348)
Population Density	4.031***	4.742***	3.098***	4.531***	2.972***
	(0.586)	(0.720)	(0.950)	(0.652)	(1.003)
Population Density Squared	-2.164***	-2.398***	-1.827***	-2.236***	-1.842***
	(0.376)	(0.443)	(0.636)	(0.396)	(0.677)
Corporate Tax Rate	0.196***	0.209**	0.181*	0.187**	0.186*
	(0.0671)	(0.0935)	(0.0949)	(0.0773)	(0.0995)
Educational Attainment	0.473**	0.649**	0.312	0.659***	0.212
	(0.201)	(0.257)	(0.300)	(0.233)	(0.315)
Labor Costs	-0.437	-1.184*	0.238	-1.224*	0.703
	(0.552)	(0.641)	(0.900)	(0.653)	(0.836)
Employment	0.0805***	0.0882***	0.0714**	0.0846***	0.0724**
	(0.0200)	(0.0245)	(0.0310)	(0.0226)	(0.0311)
Rent Costs	-1.552***	-1.162***	-1.962***	-1.280***	-1.895***
	(0.270)	(0.326)	(0.425)	(0.322)	(0.419)
Supplier Fit	1.261***	1.201***	1.339***	1.220***	1.312***
	(0.207)	(0.294)	(0.295)	(0.295)	(0.289)
Buyer Fit	0.566**	0.263	0.942***	0.508*	0.632
	(0.225)	(0.314)	(0.293)	(0.262)	(0.386)
Labor Fit	0.414**	0.361	0.483**	0.466**	0.321
	(0.207)	(0.337)	(0.242)	(0.229)	(0.402)
Knowledge Fit	0.138**	0.222***	0.0456	0.261***	-0.0171
	(0.0598)	(0.0767)	(0.0905)	(0.0663)	(0.0956)
Geographical Distance	0.0311	0.112	-0.169	-0.0215	0.160
	(0.196)	(0.242)	(0.304)	(0.220)	(0.401)
Air Traffic Intensity	2.462***	1.808***	3.112***	1.664***	3.385***
	(0.503)	(0.583)	(0.806)	(0.595)	(0.794)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1053.41***	650.97***	878.49***	890.25***	893.40***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.425	0.424	0.500	0.439	0.256
	(0.364)	(0.561)	(0.454)	(0.514)	(0.372)
Prior FDI Home Country Focal Industry *	0.0222	0.0437	0.00383	0.0362	-0.0465
Uncertainty Avoidance	(0.0234)	(0.0318)	(0.0337)	(0.0234)	(0.0402)
Prior FDI Home Country Other	0.828***	1.188***	0.630***	1.102***	0.583***
Manufacturing Industry	(0.138)	(0.192)	(0.193)	(0.177)	(0.205)
Prior FDI Home Country Other	0.000851	0.0168	-0.00757	0.00987	-0.0176*
Manufacturing Industry * Uncertainty					
Avoidance	(0.00784)	(0.0119)	(0.00996)	(0.00917)	(0.0100)
Prior FDI Home Country Other Service	0.310**	0.673***	0.0252	0.557***	0.0429
Industry	(0.143)	(0.168)	(0.210)	(0.166)	(0.223)
Prior FDI Home Country Other Service	-0.00222	0.00571	-0.00525	0.00674	-0.0121
Industry * Uncertainty Avoidance	(0.00584)	(0.00577)	(0.00866)	(0.00566)	(0.00980)
Prior FDI Other Country Focal Industry	0.975***	0.905***	0.980***	1.101***	0.872***
	(0.133)	(0.207)	(0.194)	(0.173)	(0.167)
Investor's Experience	2.957***	3.847***	3.055***	3.706***	3.294***
	(0.263)	(1.140)	(0.277)	(0.0871)	(0.302)
GDP per capita	0.935***	1.046***	0.781**	1.072***	0.648*
	(0.202)	(0.257)	(0.315)	(0.229)	(0.349)
Population Density	4.024***	4.753***	3.106***	4.556***	2.943***
	(0.589)	(0.716)	(0.958)	(0.657)	(1.005)
Population Density Squared	-2.159***	-2.400***	-1.835***	-2.258***	-1.823***
	(0.378)	(0.439)	(0.642)	(0.401)	(0.676)
Corporate Tax Rate	0.196***	0.210**	0.180*	0.189**	0.185*
	(0.0671)	(0.0938)	(0.0948)	(0.0774)	(0.0999)
Educational Attainment	0.471**	0.645**	0.318	0.658***	0.212
	(0.201)	(0.257)	(0.300)	(0.233)	(0.315)
Labor Costs	-0.431	-1.190*	0.230	-1.206*	0.690
	(0.551)	(0.642)	(0.902)	(0.647)	(0.837)
Employment	0.0808***	0.0883***	0.0714**	0.0847***	0.0734**
	(0.0199)	(0.0245)	(0.0309)	(0.0226)	(0.0307)
Rent Costs	-1.549***	-1.162***	-1.969***	-1.289***	-1.881***
	(0.269)	(0.327)	(0.425)	(0.321)	(0.419)
Supplier Fit	1.259***	1.200***	1.340***	1.218***	1.312***
	(0.208)	(0.295)	(0.296)	(0.295)	(0.293)
Buyer Fit	0.570**	0.257	0.948***	0.507*	0.638
	(0.226)	(0.315)	(0.293)	(0.262)	(0.389)
Labor Fit	0.411**	0.363	0.481**	0.465**	0.327
	(0.207)	(0.336)	(0.241)	(0.228)	(0.406)
Knowledge Fit	0.136**	0.223***	0.0442	0.262***	-0.0201
	(0.0603)	(0.0772)	(0.0912)	(0.0661)	(0.0967)
Geographical Distance	0.0299	0.100	-0.162	-0.0214	0.166
	(0.196)	(0.242)	(0.305)	(0.221)	(0.401)
Air Traffic Intensity	2.460***	1.806***	3.126***	1.669***	3.333***
	(0.501)	(0.582)	(0.802)	(0.596)	(0.796)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1052.27***	630.61***	831.06***	890.48***	882.63***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.869** (0.356)	0.957** (0.466)	0.754 (0.550)	1.151** (0.491)	0.525 (0.411)
Prior FDI Home Country Focal Industry * Masculinity	-0.0365 (0.0229)	-0.0535* (0.0302)	-0.0212 (0.0323)	-0.0299 (0.0270)	-0.0540** (0.0273)
Prior FDI Home Country Other Manufacturing Industry	0.883*** (0.147)	1.177*** (0.206)	0.686*** (0.215)	1.214*** (0.183)	0.610*** (0.219)
Prior FDI Home Country Other Manufacturing Industry * Masculinity	-0.00596 (0.00755)	0.0108 (0.0118)	-0.00882 (0.00945)	-0.00617 (0.00875)	-0.0117 (0.00909)
Prior FDI Home Country Other Service Industry	0.331** (0.134)	0.613*** (0.152)	0.0375 (0.219)	0.487*** (0.158)	0.144 (0.215)
Prior FDI Home Country Other Service Industry * Masculinity	-0.00236 (0.00708)	0.00112 (0.00868)	0.00334 (0.0102)	0.00160 (0.00788)	-0.00912 (0.00928)
Prior FDI Other Country Focal Industry	0.977*** (0.133)	0.893*** (0.202)	0.988*** (0.194)	1.084*** (0.175)	0.850*** (0.169)
Investor's Experience	2.965*** (0.269)	3.892*** (1.091)	3.053*** (0.279)	3.661*** (0.0718)	3.284*** (0.304)
GDP per capita	0.939*** (0.203)	1.044*** (0.256)	0.781** (0.319)	1.082*** (0.228)	0.653* (0.355)
Population Density	4.011*** (0.586)	4.702*** (0.714)	3.130*** (0.958)	4.498*** (0.653)	2.975*** (1.002)
Population Density Squared	-2.156*** (0.376)	-2.369*** (0.438)	-1.855*** (0.645)	-2.223*** (0.396)	-1.837*** (0.676)
Corporate Tax Rate	0.198*** (0.0674)	0.209** (0.0936)	0.184* (0.0955)	0.192** (0.0775)	0.196* (0.102)
Educational Attainment	0.476** (0.201)	0.644** (0.257)	0.323 (0.302)	0.657*** (0.233)	0.222 (0.318)
Labor Costs	-0.440 (0.548)	-1.173* (0.635)	0.225 (0.900)	-1.193* (0.646)	0.619 (0.844)
Employment	0.0808*** (0.0200)	0.0888*** (0.0244)	0.0708** (0.0310)	0.0856*** (0.0226)	0.0731** (0.0307)
Rent Costs	-1.554*** (0.269)	-1.149*** (0.326)	-1.982*** (0.425)	-1.280*** (0.320)	-1.893*** (0.417)
Supplier Fit	1.259*** (0.208)	1.199*** (0.294)	1.337*** (0.295)	1.213*** (0.295)	1.298*** (0.291)
Buyer Fit	0.573** (0.225)	0.250 (0.316)	0.944*** (0.291)	0.509* (0.261)	0.630 (0.388)
Labor Fit	0.402* (0.208)	0.367 (0.335)	0.476** (0.242)	0.463** (0.226)	0.315 (0.416)
Knowledge Fit	0.135** (0.0602)	0.223*** (0.0764)	0.0450 (0.0901)	0.259*** (0.0665)	-0.0148 (0.0960)
Geographical Distance	0.0418 (0.196)	0.115 (0.242)	-0.156 (0.305)	0.000581 (0.221)	0.163 (0.402)
Air Traffic Intensity	2.466*** (0.504)	1.778*** (0.586)	3.156*** (0.806)	1.670*** (0.597)	3.397*** (0.802)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1054.17***	679.20***	865.81***	800.82***	788.58***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.280***	1.596***	0.900	1.478***	-0.724
	(0.422)	(0.551)	(0.664)	(0.423)	(1.003)
Prior FDI Home Country Focal Industry *	1.148**	1.598**	0.566	1.665**	-0.976
Domestic Conformity Forces	(0.581)	(0.749)	(0.850)	(0.797)	(1.048)
Prior FDI Home Country Other	0.840***	1.268***	0.592***	1.148***	0.473**
Manufacturing Industry	(0.136)	(0.194)	(0.179)	(0.170)	(0.199)
Prior FDI Home Country Other	0.0967	0.487*	-0.197	0.360	-0.507*
Manufacturing Industry * Domestic					
Conformity Forces	(0.209)	(0.271)	(0.257)	(0.240)	(0.269)
Prior FDI Home Country Other Service	0.332**	0.710***	-0.00252	0.569***	0.0416
Industry	(0.149)	(0.169)	(0.219)	(0.167)	(0.246)
Prior FDI Home Country Other Service	0.00693	0.222	-0.164	0.171	-0.228
Industry * Domestic Conformity Forces	(0.163)	(0.147)	(0.254)	(0.150)	(0.290)
Prior FDI Other Country Focal Industry	0.980***	0.917***	0.981***	1.111***	0.873***
	(0.133)	(0.205)	(0.194)	(0.172)	(0.169)
Investor's Experience	2.952***	3.825***	3.053***	3.719***	3.290***
	(0.261)	(1.144)	(0.275)	(0.0845)	(0.301)
GDP per capita	0.935***	1.053***	0.779**	1.076***	0.648*
	(0.202)	(0.255)	(0.316)	(0.228)	(0.350)
Population Density	4.039***	4.782***	3.106***	4.565***	2.942***
	(0.590)	(0.721)	(0.956)	(0.657)	(1.010)
Population Density Squared	-2.168***	-2.422***	-1.833***	-2.260***	-1.822***
	(0.379)	(0.443)	(0.640)	(0.400)	(0.680)
Corporate Tax Rate	0.195***	0.205**	0.180*	0.185**	0.187*
	(0.0673)	(0.0942)	(0.0950)	(0.0773)	(0.0999)
Educational Attainment	0.470**	0.640**	0.315	0.654***	0.214
	(0.200)	(0.256)	(0.300)	(0.233)	(0.316)
Labor Costs	-0.440	-1.175*	0.227	-1.216*	0.691
	(0.552)	(0.644)	(0.901)	(0.651)	(0.835)
Employment	0.0804***	0.0875***	0.0715**	0.0842***	0.0732**
	(0.0199)	(0.0245)	(0.0309)	(0.0226)	(0.0308)
Rent Costs	-1.550***	-1.180***	-1.964***	-1.291***	-1.885***
	(0.270)	(0.328)	(0.426)	(0.322)	(0.419)
Supplier Fit	1.259***	1.203***	1.340***	1.218***	1.311***
	(0.208)	(0.295)	(0.296)	(0.295)	(0.292)
Buyer Fit	0.563**	0.260	0.942***	0.508*	0.636
	(0.225)	(0.315)	(0.293)	(0.263)	(0.389)
Labor Fit	0.415**	0.363	0.485**	0.464**	0.325
	(0.207)	(0.337)	(0.241)	(0.230)	(0.405)
Knowledge Fit	0.138**	0.221***	0.0460	0.261***	-0.0200
	(0.0600)	(0.0776)	(0.0911)	(0.0663)	(0.0969)
Geographical Distance	0.0241	0.0971	-0.169	-0.0322	0.167
	(0.196)	(0.241)	(0.305)	(0.220)	(0.401)
Air Traffic Intensity	2.460***	1.808***	3.129***	1.664***	3.358***
	(0.503)	(0.582)	(0.804)	(0.595)	(0.795)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1047.56***	642.33***	839.89***	730.45***	889.19***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 2. 24 Conditional Logit Estimates – Including Prior FDI Home Country (manufacturing + services) and Prior FDI other countries other industries (manufacturing + services)

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.394 (0.353)	0.344 (0.551)	0.567 (0.457)	0.0757 (0.580)	0.383 (0.370)
Prior FDI Home Country Focal Industry * Collectivism	0.0663*** (0.0214)	0.0700*** (0.0240)	0.0491 (0.0464)	0.0871*** (0.0263)	-0.0245 (0.0300)
Prior FDI Home Country Other Industries	0.0562 (0.117)	0.405*** (0.136)	-0.159 (0.172)	0.232* (0.132)	-0.153 (0.178)
Prior FDI Home Country Other Industries * Collectivism	0.00567 (0.00644)	0.0156*** (0.00542)	-0.00297 (0.00930)	0.0138** (0.00547)	-0.0128 (0.0107)
Prior FDI Other Country Focal Industry	0.578*** (0.0526)	0.602*** (0.0627)	0.512*** (0.0886)	0.676*** (0.0597)	0.425*** (0.0854)
Investor's Experience	2.868*** (0.260)	3.800*** (1.013)	2.956*** (0.287)	3.607*** (0.0747)	3.224*** (0.305)
GDP per capita	0.632*** (0.217)	0.722*** (0.277)	0.530 (0.333)	0.759*** (0.248)	0.406 (0.367)
Population Density	3.429*** (0.619)	4.133*** (0.765)	2.622*** (0.998)	3.896*** (0.701)	2.530** (1.033)
Population Density Squared	-2.161*** (0.419)	-2.418*** (0.500)	-1.859*** (0.701)	-2.283*** (0.458)	-1.836** (0.727)
Corporate Tax Rate	0.209*** (0.0691)	0.228** (0.101)	0.191** (0.0945)	0.212** (0.0839)	0.195** (0.0986)
Educational Attainment	0.534*** (0.201)	0.694*** (0.259)	0.391 (0.301)	0.699*** (0.236)	0.288 (0.319)
Labor Costs	-0.914 (0.557)	-1.641** (0.638)	-0.258 (0.918)	-1.848*** (0.656)	0.386 (0.854)
Employment	0.0482** (0.0196)	0.0489** (0.0240)	0.0461 (0.0308)	0.0431* (0.0224)	0.0529* (0.0308)
Rent Costs	-1.845*** (0.293)	-1.492*** (0.358)	-2.231*** (0.464)	-1.637*** (0.357)	-2.151*** (0.451)
Supplier Fit	0.453* (0.241)	0.106 (0.337)	0.874*** (0.309)	0.380 (0.280)	0.545 (0.412)
Buyer Fit	0.273 (0.215)	0.206 (0.359)	0.380 (0.248)	0.304 (0.244)	0.219 (0.425)
Labor Fit	1.555*** (0.205)	1.543*** (0.278)	1.584*** (0.306)	1.570*** (0.281)	1.521*** (0.307)
Knowledge Fit	0.171*** (0.0592)	0.251*** (0.0752)	0.0779 (0.0900)	0.289*** (0.0665)	0.0204 (0.0942)
Geographical Distance	-0.0750 (0.202)	0.0286 (0.255)	-0.308 (0.309)	-0.142 (0.233)	0.0862 (0.407)
Air Traffic Intensity	2.153*** (0.532)	1.498** (0.618)	2.878*** (0.851)	1.343** (0.628)	3.162*** (0.830)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	997.64***	796.85***	669.97***	660.78***	649.47***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.840***	0.977**	0.740*	0.972***	-0.255
	(0.291)	(0.434)	(0.415)	(0.362)	(0.855)
Prior FDI Home Country Focal Industry * Power Distance	0.0313	0.0489*	0.00149	0.0572*	-0.0877
	(0.0273)	(0.0274)	(0.0466)	(0.0325)	(0.0933)
Prior FDI Home Country Other Industries	0.0149	0.304**	-0.200	0.168	-0.109
	(0.116)	(0.132)	(0.175)	(0.128)	(0.184)
Prior FDI Home Country Other Industries * Power Distance	-0.000477	0.00841	-0.0148	0.00811	-0.0120
	(0.00782)	(0.00767)	(0.0109)	(0.00789)	(0.0119)
Prior FDI Other Country Focal Industry	0.581***	0.603***	0.518***	0.677***	0.424***
	(0.0528)	(0.0623)	(0.0898)	(0.0593)	(0.0872)
Investor's Experience	2.870***	3.805***	2.958***	3.607***	3.222***
	(0.260)	(1.016)	(0.288)	(0.0728)	(0.300)
GDP per capita	0.625***	0.708**	0.531	0.741***	0.409
	(0.218)	(0.280)	(0.334)	(0.250)	(0.367)
Population Density	3.404***	4.110***	2.568**	3.860***	2.499**
	(0.620)	(0.769)	(1.000)	(0.700)	(1.026)
Population Density Squared	-2.147***	-2.401***	-1.834***	-2.256***	-1.816**
	(0.421)	(0.505)	(0.702)	(0.457)	(0.721)
Corporate Tax Rate	0.213***	0.235**	0.195**	0.217***	0.192*
	(0.0689)	(0.101)	(0.0942)	(0.0839)	(0.0984)
Educational Attainment	0.543***	0.716***	0.391	0.722***	0.279
	(0.203)	(0.261)	(0.303)	(0.238)	(0.320)
Labor Costs	-0.930*	-1.690***	-0.244	-1.884***	0.429
	(0.559)	(0.641)	(0.919)	(0.658)	(0.856)
Employment	0.0486**	0.0497**	0.0458	0.0440**	0.0521*
	(0.0196)	(0.0240)	(0.0307)	(0.0224)	(0.0308)
Rent Costs	-1.839***	-1.476***	-2.226***	-1.629***	-2.144***
	(0.292)	(0.356)	(0.462)	(0.356)	(0.450)
Supplier Fit	0.458*	0.114	0.886***	0.377	0.545
	(0.241)	(0.336)	(0.309)	(0.280)	(0.413)
Buyer Fit	0.269	0.196	0.374	0.302	0.217
	(0.216)	(0.361)	(0.249)	(0.244)	(0.423)
Labor Fit	1.557***	1.538***	1.588***	1.574***	1.525***
	(0.205)	(0.279)	(0.305)	(0.281)	(0.304)
Knowledge Fit	0.170***	0.249***	0.0725	0.289***	0.0207
	(0.0592)	(0.0754)	(0.0904)	(0.0664)	(0.0933)
Geographical Distance	-0.0627	0.0442	-0.298	-0.121	0.0715
	(0.202)	(0.255)	(0.308)	(0.231)	(0.405)
Air Traffic Intensity	2.135***	1.482**	2.864***	1.319**	3.173***
	(0.531)	(0.618)	(0.847)	(0.629)	(0.820)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1012.21***	789.87***	706.11***	680.99***	665.78***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.647* (0.335)	0.581 (0.501)	0.782* (0.451)	0.645 (0.454)	0.493 (0.380)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0157 (0.0207)	0.0419 (0.0292)	-0.00399 (0.0302)	0.0287 (0.0207)	-0.0456 (0.0347)
Prior FDI Home Country Other Industries	0.0133 (0.112)	0.328** (0.132)	-0.152 (0.174)	0.167 (0.128)	-0.0951 (0.178)
Prior FDI Home Country Other Industries * Uncertainty Avoidance	-0.000371 (0.00474)	0.00984* (0.00510)	-0.00496 (0.00655)	0.00912** (0.00458)	-0.0121* (0.00734)
Prior FDI Other Country Focal Industry	0.582*** (0.0525)	0.604*** (0.0624)	0.518*** (0.0888)	0.678*** (0.0592)	0.432*** (0.0865)
Investor's Experience	2.870*** (0.263)	3.803*** (1.033)	2.959*** (0.291)	3.608*** (0.0743)	3.237*** (0.304)
GDP per capita	0.625*** (0.218)	0.709** (0.280)	0.531 (0.334)	0.737*** (0.250)	0.400 (0.368)
Population Density	3.403*** (0.622)	4.109*** (0.765)	2.588** (1.005)	3.860*** (0.700)	2.491** (1.032)
Population Density Squared	-2.148*** (0.421)	-2.401*** (0.503)	-1.848*** (0.705)	-2.260*** (0.457)	-1.823** (0.724)
Corporate Tax Rate	0.213*** (0.0689)	0.233** (0.101)	0.194** (0.0941)	0.217*** (0.0840)	0.191* (0.0986)
Educational Attainment	0.544*** (0.203)	0.714*** (0.262)	0.395 (0.303)	0.721*** (0.238)	0.284 (0.319)
Labor Costs	-0.932* (0.557)	-1.689*** (0.639)	-0.260 (0.920)	-1.870*** (0.654)	0.410 (0.855)
Employment	0.0486** (0.0196)	0.0496** (0.0240)	0.0459 (0.0307)	0.0440** (0.0224)	0.0523* (0.0307)
Rent Costs	-1.837*** (0.293)	-1.456*** (0.356)	-2.233*** (0.464)	-1.613*** (0.356)	-2.157*** (0.451)
Supplier Fit	0.460* (0.242)	0.107 (0.337)	0.887*** (0.309)	0.377 (0.280)	0.546 (0.414)
Buyer Fit	0.266 (0.215)	0.199 (0.359)	0.372 (0.249)	0.302 (0.243)	0.217 (0.424)
Labor Fit	1.556*** (0.205)	1.538*** (0.279)	1.589*** (0.306)	1.572*** (0.280)	1.533*** (0.308)
Knowledge Fit	0.169*** (0.0596)	0.250*** (0.0757)	0.0734 (0.0908)	0.289*** (0.0664)	0.0192 (0.0941)
Geographical Distance	-0.0635 (0.203)	0.0384 (0.256)	-0.296 (0.309)	-0.127 (0.232)	0.0800 (0.406)
Air Traffic Intensity	2.136*** (0.531)	1.472** (0.615)	2.864*** (0.848)	1.306** (0.628)	3.128*** (0.828)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1015.77***	785.53***	689.36***	680.58***	668.12***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.084*** (0.332)	1.116*** (0.424)	1.050** (0.519)	1.381*** (0.439)	0.741* (0.422)
Prior FDI Home Country Focal Industry * Masculinity	-0.0379* (0.0208)	-0.0542* (0.0295)	-0.0256 (0.0278)	-0.0348 (0.0246)	-0.0523** (0.0254)
Prior FDI Home Country Other Industries	0.0187 (0.116)	0.261* (0.133)	-0.157 (0.190)	0.128 (0.133)	-0.0268 (0.185)
Prior FDI Home Country Other Industries * Masculinity	-0.00143 (0.00568)	0.00842 (0.00675)	0.000307 (0.00741)	0.00164 (0.00572)	-0.00831 (0.00713)
Prior FDI Other Country Focal Industry	0.584*** (0.0528)	0.609*** (0.0624)	0.515*** (0.0892)	0.681*** (0.0588)	0.418*** (0.0862)
Investor's Experience	2.874*** (0.267)	3.833*** (0.994)	2.953*** (0.293)	3.612*** (0.0726)	3.229*** (0.306)
GDP per capita	0.630*** (0.219)	0.708** (0.278)	0.532 (0.337)	0.749*** (0.248)	0.414 (0.372)
Population Density	3.384*** (0.618)	4.067*** (0.764)	2.599*** (0.998)	3.808*** (0.698)	2.525** (1.024)
Population Density Squared	-2.140*** (0.419)	-2.373*** (0.500)	-1.853*** (0.703)	-2.227*** (0.454)	-1.827** (0.721)
Corporate Tax Rate	0.215*** (0.0693)	0.237** (0.101)	0.196** (0.0949)	0.221*** (0.0841)	0.198** (0.0997)
Educational Attainment	0.546*** (0.203)	0.709*** (0.261)	0.396 (0.305)	0.716*** (0.237)	0.289 (0.322)
Labor Costs	-0.939* (0.557)	-1.695*** (0.636)	-0.252 (0.923)	-1.873*** (0.653)	0.365 (0.862)
Employment	0.0486** (0.0195)	0.0497** (0.0240)	0.0456 (0.0307)	0.0445** (0.0224)	0.0529* (0.0305)
Rent Costs	-1.840*** (0.292)	-1.449*** (0.355)	-2.233*** (0.464)	-1.615*** (0.355)	-2.154*** (0.449)
Supplier Fit	0.464* (0.242)	0.100 (0.338)	0.887*** (0.307)	0.381 (0.279)	0.545 (0.412)
Buyer Fit	0.257 (0.217)	0.192 (0.359)	0.369 (0.251)	0.293 (0.241)	0.205 (0.434)
Labor Fit	1.558*** (0.205)	1.534*** (0.278)	1.587*** (0.304)	1.569*** (0.280)	1.514*** (0.304)
Knowledge Fit	0.168*** (0.0593)	0.250*** (0.0751)	0.0761 (0.0893)	0.287*** (0.0665)	0.0248 (0.0931)
Geographical Distance	-0.0548 (0.202)	0.0462 (0.254)	-0.294 (0.308)	-0.106 (0.231)	0.0855 (0.408)
Air Traffic Intensity	2.135*** (0.534)	1.446** (0.620)	2.881*** (0.850)	1.287** (0.630)	3.196*** (0.830)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1014.99***	798.64***	722.99***	680.48***	642.50***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.322***	1.663***	0.965	1.508***	-0.582
	(0.406)	(0.519)	(0.623)	(0.397)	(0.964)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	0.959*	1.513**	0.333	1.506*	-1.090
	(0.566)	(0.738)	(0.792)	(0.801)	(0.990)
Prior FDI Home Country Other Industries	0.0277	0.370***	-0.176	0.202	-0.144
	(0.116)	(0.135)	(0.173)	(0.130)	(0.177)
Prior FDI Home Country Other Industries * Domestic Conformity Forces	0.0409	0.308**	-0.153	0.257**	-0.306
	(0.132)	(0.132)	(0.180)	(0.124)	(0.203)
Prior FDI Other Country Focal Industry	0.580***	0.602***	0.517***	0.676***	0.429***
	(0.0526)	(0.0625)	(0.0890)	(0.0595)	(0.0865)
Investor's Experience	2.868***	3.795***	2.958***	3.607***	3.233***
	(0.260)	(1.029)	(0.289)	(0.0743)	(0.303)
GDP per capita	0.626***	0.717***	0.530	0.742***	0.403
	(0.218)	(0.278)	(0.334)	(0.249)	(0.368)
Population Density	3.421***	4.144***	2.593***	3.888***	2.488**
	(0.622)	(0.768)	(1.003)	(0.701)	(1.034)
Population Density Squared	-2.156***	-2.427***	-1.847***	-2.277***	-1.816**
	(0.421)	(0.505)	(0.703)	(0.458)	(0.726)
Corporate Tax Rate	0.211***	0.230**	0.194**	0.214**	0.192*
	(0.0690)	(0.101)	(0.0943)	(0.0839)	(0.0985)
Educational Attainment	0.542***	0.709***	0.393	0.718***	0.284
	(0.202)	(0.260)	(0.303)	(0.237)	(0.320)
Labor Costs	-0.930*	-1.674***	-0.259	-1.872***	0.411
	(0.559)	(0.640)	(0.919)	(0.657)	(0.854)
Employment	0.0485**	0.0492**	0.0460	0.0436*	0.0524*
	(0.0196)	(0.0240)	(0.0307)	(0.0224)	(0.0307)
Rent Costs	-1.839***	-1.481***	-2.231***	-1.627***	-2.150***
	(0.293)	(0.357)	(0.464)	(0.357)	(0.451)
Supplier Fit	0.454*	0.112	0.882***	0.376	0.546
	(0.241)	(0.336)	(0.309)	(0.280)	(0.414)
Buyer Fit	0.272	0.201	0.376	0.305	0.216
	(0.216)	(0.361)	(0.249)	(0.245)	(0.424)
Labor Fit	1.556***	1.540***	1.588***	1.573***	1.529***
	(0.205)	(0.279)	(0.306)	(0.281)	(0.307)
Knowledge Fit	0.171***	0.249***	0.0746	0.289***	0.0188
	(0.0594)	(0.0758)	(0.0907)	(0.0665)	(0.0944)
Geographical Distance	-0.0680	0.0356	-0.300	-0.135	0.0802
	(0.202)	(0.255)	(0.309)	(0.233)	(0.406)
Air Traffic Intensity	2.141***	1.491**	2.866***	1.326**	3.143***
	(0.531)	(0.616)	(0.849)	(0.628)	(0.825)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1003.20***	788.94***	686.23***	679.55***	668.81***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 25 Conditional Logit Estimates – Including home country buyer supplier following

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.220	0.216	0.317	-0.0197	0.177
	(0.359)	(0.602)	(0.436)	(0.598)	(0.354)
Prior FDI Home Country Focal Industry *	0.0741***	0.0746***	0.0631	0.0914***	-0.0198
Collectivism	(0.0213)	(0.0234)	(0.0491)	(0.0264)	(0.0314)
Prior FDI Home Country Other Industry	1.062***	1.352***	0.921***	1.288***	0.809***
	(0.186)	(0.271)	(0.231)	(0.230)	(0.274)
Prior FDI Home Country Other Industry *	0.00884	0.0295***	-0.0141	0.0219**	-0.0283*
Collectivism	(0.0107)	(0.0106)	(0.0134)	(0.0107)	(0.0156)
Prior FDI Other Country Focal Industry	0.997***	0.951***	0.998***	1.134***	0.851***
	(0.133)	(0.202)	(0.193)	(0.172)	(0.165)
Investor's Experience	2.971***	3.841***	3.048***	3.747***	3.278***
	(0.258)	(1.109)	(0.271)	(0.0927)	(0.297)
GDP per capita	0.964***	1.103***	0.779**	1.132***	0.654*
	(0.200)	(0.253)	(0.315)	(0.225)	(0.351)
Population Density	3.958***	4.631***	3.116***	4.449***	2.955***
	(0.562)	(0.688)	(0.922)	(0.630)	(0.957)
Population Density Squared	-2.059***	-2.225***	-1.822***	-2.105***	-1.802***
	(0.345)	(0.401)	(0.599)	(0.368)	(0.620)
Corporate Tax Rate	0.185***	0.197**	0.167*	0.177**	0.180*
	(0.0672)	(0.0931)	(0.0951)	(0.0766)	(0.100)
Educational Attainment	0.446**	0.587**	0.317	0.606***	0.221
	(0.198)	(0.255)	(0.297)	(0.231)	(0.315)
Labor Costs	-0.369	-0.995	0.204	-1.081*	0.652
	(0.552)	(0.641)	(0.897)	(0.649)	(0.849)
Employment	0.0840***	0.0954***	0.0717**	0.0903***	0.0748**
	(0.0200)	(0.0244)	(0.0313)	(0.0226)	(0.0314)
Rent Costs	-1.490***	-1.077***	-1.949***	-1.208***	-1.854***
	(0.271)	(0.318)	(0.436)	(0.318)	(0.428)
Supplier Fit	0.588***	0.290	0.943***	0.539**	0.656*
	(0.223)	(0.313)	(0.294)	(0.260)	(0.385)
Buyer Fit	0.420**	0.386	0.484**	0.473**	0.327
	(0.204)	(0.332)	(0.238)	(0.228)	(0.407)
Labor Fit	1.225***	1.139***	1.329***	1.164***	1.282***
	(0.207)	(0.299)	(0.295)	(0.299)	(0.289)
Knowledge Fit	0.133**	0.214***	0.0451	0.254***	-0.0246
	(0.0601)	(0.0778)	(0.0911)	(0.0670)	(0.0979)
Geographical Distance	0.00941	0.0760	-0.174	-0.0440	0.163
	(0.194)	(0.238)	(0.305)	(0.218)	(0.401)
Air Traffic Intensity	2.391***	1.737***	3.089***	1.594***	3.319***
	(0.510)	(0.585)	(0.822)	(0.596)	(0.818)
Client Supplier Following	-1.809	-0.643	-2.780*	-1.068	-3.141
	(1.217)	(1.367)	(1.678)	(1.293)	(2.090)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1048.27***	636.10***	857.42***	840.98***	825.83***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.721**	0.886*	0.566	0.876**	-0.431
	(0.307)	(0.479)	(0.413)	(0.401)	(0.836)
Prior FDI Home Country Focal Industry * Power Distance	0.0435	0.0635**	0.0117	0.0709**	-0.0779
	(0.0294)	(0.0302)	(0.0481)	(0.0357)	(0.0937)
Prior FDI Home Country Other Industry	1.059***	1.344***	0.888***	1.319***	0.794***
	(0.185)	(0.275)	(0.231)	(0.229)	(0.280)
Prior FDI Home Country Other Industry * Power Distance	0.000774	0.00734	-0.00928	0.0159	-0.0245
	(0.0124)	(0.0176)	(0.0170)	(0.0145)	(0.0163)
Prior FDI Other Country Focal Industry	0.990***	0.928***	0.997***	1.123***	0.905***
	(0.133)	(0.206)	(0.193)	(0.171)	(0.176)
Investor's Experience	2.970***	3.844***	3.046***	3.689***	3.278***
	(0.258)	(1.107)	(0.273)	(0.0889)	(0.294)
GDP per capita	0.956***	1.086***	0.785**	1.114***	0.658*
	(0.202)	(0.256)	(0.315)	(0.227)	(0.347)
Population Density	3.947***	4.590***	3.125***	4.419***	2.955***
	(0.561)	(0.689)	(0.921)	(0.630)	(0.953)
Population Density Squared	-2.054***	-2.206***	-1.830***	-2.089***	-1.804***
	(0.345)	(0.404)	(0.600)	(0.368)	(0.618)
Corporate Tax Rate	0.189***	0.203**	0.168*	0.181**	0.170*
	(0.0667)	(0.0924)	(0.0945)	(0.0767)	(0.0987)
Educational Attainment	0.457**	0.614**	0.319	0.629***	0.210
	(0.200)	(0.258)	(0.298)	(0.233)	(0.314)
Labor Costs	-0.376	-1.058	0.214	-1.118*	0.695
	(0.553)	(0.646)	(0.896)	(0.651)	(0.844)
Employment	0.0843***	0.0958***	0.0716**	0.0905***	0.0743**
	(0.0200)	(0.0244)	(0.0312)	(0.0226)	(0.0313)
Rent Costs	-1.488***	-1.043***	-1.956***	-1.188***	-1.859***
	(0.270)	(0.316)	(0.435)	(0.317)	(0.427)
Supplier Fit	0.590***	0.291	0.955***	0.530**	0.657*
	(0.224)	(0.313)	(0.293)	(0.260)	(0.386)
Buyer Fit	0.420**	0.382	0.477**	0.477**	0.318
	(0.206)	(0.332)	(0.239)	(0.227)	(0.399)
Labor Fit	1.226***	1.136***	1.329***	1.174***	1.289***
	(0.206)	(0.298)	(0.293)	(0.297)	(0.286)
Knowledge Fit	0.133**	0.216***	0.0423	0.257***	-0.0235
	(0.0605)	(0.0776)	(0.0916)	(0.0667)	(0.0965)
Geographical Distance	0.0228	0.0951	-0.165	-0.0272	0.151
	(0.194)	(0.238)	(0.305)	(0.218)	(0.399)
Air Traffic Intensity	2.387***	1.719***	3.081***	1.580***	3.321***
	(0.510)	(0.588)	(0.820)	(0.597)	(0.812)
Client Supplier Following	-1.842	-0.735	-2.818*	-1.025	-3.322
	(1.214)	(1.417)	(1.674)	(1.312)	(2.042)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1041.36***	606.83***	840.54***	930.33***	916.32***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.449 (0.368)	0.456 (0.560)	0.510 (0.457)	0.493 (0.512)	0.272 (0.376)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0207 (0.0236)	0.0412 (0.0318)	0.00271 (0.0339)	0.0344 (0.0234)	-0.0497 (0.0419)
Prior FDI Home Country Other Industry	1.057*** (0.186)	1.297*** (0.270)	0.961*** (0.246)	1.265*** (0.236)	0.938*** (0.275)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	8.41e-05 (0.00809)	0.0169 (0.0121)	-0.00858 (0.0103)	0.00997 (0.00930)	-0.0191* (0.0104)
Prior FDI Other Country Focal Industry	0.987*** (0.133)	0.925*** (0.210)	0.994*** (0.193)	1.115*** (0.172)	0.886*** (0.166)
Investor's Experience	2.969*** (0.259)	3.839*** (1.125)	3.049*** (0.274)	3.725*** (0.0979)	3.282*** (0.296)
GDP per capita	0.957*** (0.202)	1.088*** (0.257)	0.784** (0.315)	1.114*** (0.227)	0.653* (0.349)
Population Density	3.948*** (0.562)	4.613*** (0.688)	3.118*** (0.923)	4.428*** (0.630)	2.946*** (0.957)
Population Density Squared	-2.056*** (0.346)	-2.217*** (0.403)	-1.826*** (0.601)	-2.094*** (0.368)	-1.798*** (0.621)
Corporate Tax Rate	0.188*** (0.0667)	0.204** (0.0927)	0.167* (0.0945)	0.183** (0.0767)	0.172* (0.0995)
Educational Attainment	0.457** (0.199)	0.612** (0.258)	0.321 (0.298)	0.626*** (0.233)	0.215 (0.314)
Labor Costs	-0.374 (0.552)	-1.062 (0.646)	0.211 (0.897)	-1.107* (0.648)	0.686 (0.845)
Employment	0.0844*** (0.0200)	0.0963*** (0.0244)	0.0716** (0.0313)	0.0910*** (0.0226)	0.0741** (0.0313)
Rent Costs	-1.488*** (0.271)	-1.043*** (0.316)	-1.957*** (0.435)	-1.191*** (0.317)	-1.864*** (0.427)
Supplier Fit	0.593*** (0.223)	0.291 (0.313)	0.956*** (0.293)	0.533** (0.260)	0.656* (0.385)
Buyer Fit	0.417** (0.205)	0.380 (0.332)	0.477** (0.239)	0.474** (0.226)	0.321 (0.403)
Labor Fit	1.225*** (0.206)	1.135*** (0.298)	1.330*** (0.294)	1.170*** (0.298)	1.293*** (0.288)
Knowledge Fit	0.131** (0.0607)	0.217*** (0.0780)	0.0412 (0.0916)	0.257*** (0.0665)	-0.0230 (0.0970)
Geographical Distance	0.0231 (0.195)	0.0868 (0.239)	-0.160 (0.306)	-0.0280 (0.218)	0.163 (0.401)
Air Traffic Intensity	2.389*** (0.509)	1.723*** (0.586)	3.079*** (0.818)	1.582*** (0.597)	3.301*** (0.813)
Client Supplier Following	-1.891 (1.218)	-0.864 (1.418)	-2.784* (1.669)	-1.253 (1.345)	-3.129 (2.064)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1039.60***	581.13***	841.26***	915.33***	897.35***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.895**	0.977**	0.769	1.190**	0.536
	(0.359)	(0.469)	(0.559)	(0.488)	(0.412)
Prior FDI Home Country Focal Industry * Masculinity	-0.0369	-0.0527*	-0.0219	-0.0301	-0.0547**
	(0.0225)	(0.0294)	(0.0328)	(0.0262)	(0.0272)
Prior FDI Home Country Other Industry	1.116***	1.316***	1.025***	1.400***	0.959***
	(0.194)	(0.282)	(0.270)	(0.246)	(0.283)
Prior FDI Home Country Other Industry * Masculinity	-0.00596	0.0118	-0.00943	-0.00571	-0.0123
	(0.00767)	(0.0120)	(0.00957)	(0.00868)	(0.00918)
Prior FDI Other Country Focal Industry	0.987***	0.916***	0.996***	1.101***	0.855***
	(0.133)	(0.204)	(0.192)	(0.174)	(0.168)
Investor's Experience	2.978***	3.885***	3.052***	3.686***	3.275***
	(0.264)	(1.080)	(0.276)	(0.0876)	(0.297)
GDP per capita	0.962***	1.084***	0.788**	1.121***	0.662*
	(0.202)	(0.255)	(0.317)	(0.226)	(0.354)
Population Density	3.936***	4.580***	3.120***	4.398***	2.974***
	(0.560)	(0.688)	(0.921)	(0.629)	(0.951)
Population Density Squared	-2.052***	-2.202***	-1.828***	-2.083***	-1.809***
	(0.345)	(0.405)	(0.600)	(0.369)	(0.616)
Corporate Tax Rate	0.190***	0.201**	0.172*	0.184**	0.184*
	(0.0671)	(0.0923)	(0.0951)	(0.0768)	(0.101)
Educational Attainment	0.461**	0.616**	0.321	0.631***	0.214
	(0.200)	(0.258)	(0.300)	(0.233)	(0.316)
Labor Costs	-0.384	-1.051	0.204	-1.106*	0.654
	(0.551)	(0.641)	(0.899)	(0.648)	(0.850)
Employment	0.0844***	0.0962***	0.0717**	0.0911***	0.0745**
	(0.0200)	(0.0243)	(0.0312)	(0.0226)	(0.0311)
Rent Costs	-1.490***	-1.041***	-1.959***	-1.190***	-1.864***
	(0.270)	(0.317)	(0.434)	(0.316)	(0.426)
Supplier Fit	0.596***	0.282	0.956***	0.530**	0.646*
	(0.223)	(0.314)	(0.291)	(0.259)	(0.384)
Buyer Fit	0.410**	0.385	0.473**	0.475**	0.322
	(0.206)	(0.332)	(0.241)	(0.223)	(0.410)
Labor Fit	1.226***	1.140***	1.325***	1.171***	1.280***
	(0.207)	(0.298)	(0.294)	(0.297)	(0.288)
Knowledge Fit	0.129**	0.218***	0.0413	0.255***	-0.0213
	(0.0609)	(0.0772)	(0.0911)	(0.0669)	(0.0974)
Geographical Distance	0.0323	0.102	-0.157	-0.00640	0.151
	(0.195)	(0.239)	(0.305)	(0.219)	(0.400)
Air Traffic Intensity	2.388***	1.701***	3.090***	1.582***	3.331***
	(0.509)	(0.589)	(0.820)	(0.598)	(0.818)
Client Supplier Following	-1.956	-1.133	-2.837*	-1.442	-3.110
	(1.216)	(1.457)	(1.671)	(1.384)	(2.080)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1041.48***	616.51***	835.69***	802.04***	784.01***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.275***	1.591***	0.887	1.485***	-0.758
	(0.426)	(0.564)	(0.663)	(0.425)	(1.034)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	1.126*	1.565**	0.547	1.622**	-1.020
	(0.587)	(0.751)	(0.854)	(0.794)	(1.077)
Prior FDI Home Country Other Industry	1.111***	1.697***	0.747***	1.546***	0.423
	(0.248)	(0.357)	(0.278)	(0.282)	(0.352)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.0752	0.490*	-0.237	0.362	-0.561**
	(0.216)	(0.272)	(0.266)	(0.242)	(0.276)
Prior FDI Other Country Focal Industry	0.991***	0.938***	0.996***	1.129***	0.888***
	(0.133)	(0.208)	(0.192)	(0.171)	(0.167)
Investor's Experience	2.968***	3.822***	3.047***	3.727***	3.283***
	(0.258)	(1.136)	(0.272)	(0.0950)	(0.296)
GDP per capita	0.957***	1.097***	0.782**	1.119***	0.653*
	(0.201)	(0.254)	(0.315)	(0.226)	(0.349)
Population Density	3.954***	4.625***	3.118***	4.437***	2.941***
	(0.562)	(0.690)	(0.922)	(0.630)	(0.956)
Population Density Squared	-2.057***	-2.224***	-1.825***	-2.097***	-1.796***
	(0.345)	(0.404)	(0.599)	(0.368)	(0.619)
Corporate Tax Rate	0.188***	0.200**	0.168*	0.179**	0.172*
	(0.0669)	(0.0931)	(0.0947)	(0.0767)	(0.0993)
Educational Attainment	0.454**	0.604**	0.319	0.621***	0.215
	(0.199)	(0.257)	(0.298)	(0.233)	(0.315)
Labor Costs	-0.378	-1.043	0.209	-1.109*	0.680
	(0.554)	(0.647)	(0.897)	(0.650)	(0.846)
Employment	0.0843***	0.0957***	0.0717**	0.0906***	0.0744**
	(0.0200)	(0.0244)	(0.0313)	(0.0226)	(0.0313)
Rent Costs	-1.486***	-1.056***	-1.953***	-1.193***	-1.857***
	(0.271)	(0.317)	(0.435)	(0.318)	(0.427)
Supplier Fit	0.587***	0.294	0.951***	0.534**	0.657*
	(0.224)	(0.312)	(0.293)	(0.261)	(0.386)
Buyer Fit	0.421**	0.381	0.480**	0.474**	0.320
	(0.205)	(0.333)	(0.239)	(0.228)	(0.403)
Labor Fit	1.225***	1.135***	1.330***	1.168***	1.290***
	(0.207)	(0.299)	(0.294)	(0.298)	(0.288)
Knowledge Fit	0.133**	0.214***	0.0430	0.257***	-0.0246
	(0.0605)	(0.0785)	(0.0917)	(0.0667)	(0.0975)
Geographical Distance	0.0164	0.0820	-0.167	-0.0382	0.161
	(0.194)	(0.238)	(0.305)	(0.218)	(0.400)
Air Traffic Intensity	2.387***	1.726***	3.084***	1.580***	3.309***
	(0.511)	(0.585)	(0.820)	(0.596)	(0.813)
Client Supplier Following	-1.809	-0.575	-2.799*	-1.037	-3.253
	(1.214)	(1.371)	(1.672)	(1.306)	(2.061)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1031.32***	591.58***	849.56***	920.33***	902.99***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 26 Conditional Logit Estimates – Including Ethnic Similarity

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.208 (0.358)	0.202 (0.601)	0.316 (0.437)	-0.0364 (0.596)	0.171 (0.354)
Prior FDI Home Country Focal Industry * Collectivism	0.0745*** (0.0212)	0.0750*** (0.0233)	0.0633 (0.0488)	0.0920*** (0.0263)	-0.0196 (0.0315)
Prior FDI Home Country Other Industry	0.842*** (0.138)	1.270*** (0.191)	0.597*** (0.180)	1.151*** (0.168)	0.455** (0.203)
Prior FDI Home Country Other Industry * Collectivism	0.00862 (0.0106)	0.0292*** (0.0108)	-0.0138 (0.0130)	0.0210* (0.0108)	-0.0267* (0.0153)
Prior FDI Other Country Focal Industry	0.997*** (0.133)	0.954*** (0.202)	0.991*** (0.195)	1.133*** (0.172)	0.843*** (0.167)
Investor's Experience	2.975*** (0.258)	3.843*** (1.108)	3.053*** (0.272)	3.714*** (0.0807)	3.285*** (0.300)
GDP per capita	0.960*** (0.200)	1.100*** (0.253)	0.773** (0.316)	1.125*** (0.225)	0.642* (0.349)
Population Density	3.963*** (0.569)	4.658*** (0.696)	3.104*** (0.931)	4.477*** (0.636)	2.905*** (0.976)
Population Density Squared	-2.065*** (0.348)	-2.240*** (0.406)	-1.823*** (0.604)	-2.123*** (0.373)	-1.786*** (0.630)
Corporate Tax Rate	0.191*** (0.0675)	0.198** (0.0929)	0.179* (0.0961)	0.179** (0.0765)	0.194* (0.101)
Educational Attainment	0.430** (0.196)	0.571** (0.256)	0.302 (0.294)	0.585** (0.232)	0.233 (0.310)
Labor Costs	-0.373 (0.556)	-1.025 (0.648)	0.222 (0.894)	-1.132* (0.655)	0.722 (0.837)
Employment	0.0840*** (0.0200)	0.0952*** (0.0244)	0.0716** (0.0311)	0.0905*** (0.0226)	0.0748** (0.0312)
Rent Costs	-1.495*** (0.268)	-1.085*** (0.316)	-1.952*** (0.431)	-1.226*** (0.314)	-1.869*** (0.422)
Supplier Fit	0.589*** (0.222)	0.293 (0.312)	0.939*** (0.292)	0.547** (0.261)	0.643* (0.381)
Buyer Fit	0.423** (0.205)	0.386 (0.332)	0.490** (0.239)	0.473** (0.227)	0.326 (0.410)
Labor Fit	1.225*** (0.206)	1.137*** (0.298)	1.334*** (0.293)	1.159*** (0.298)	1.288*** (0.286)
Knowledge Fit	0.134** (0.0598)	0.214*** (0.0778)	0.0475 (0.0902)	0.255*** (0.0670)	-0.0186 (0.0965)
Geographical Distance	0.0235 (0.193)	0.0863 (0.236)	-0.155 (0.297)	-0.0300 (0.215)	0.123 (0.417)
Air Traffic Intensity	2.420*** (0.506)	1.740*** (0.582)	3.141*** (0.814)	1.602*** (0.593)	3.382*** (0.809)
Ethnic Similarity	0.0581 (0.106)	0.0812 (0.115)	0.0337 (0.171)	0.106 (0.113)	-0.0799 (0.173)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1030.61***	638.50***	827.98***	830.56***	815.18***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.712**	0.871*	0.570	0.861**	-0.429
	(0.306)	(0.478)	(0.412)	(0.401)	(0.841)
Prior FDI Home Country Focal Industry * Power Distance	0.0445	0.0638**	0.0129	0.0720**	-0.0775
	(0.0290)	(0.0300)	(0.0478)	(0.0355)	(0.0942)
Prior FDI Home Country Other Industry	0.837***	1.252***	0.563***	1.186***	0.426**
	(0.138)	(0.203)	(0.178)	(0.163)	(0.202)
Prior FDI Home Country Other Industry * Power Distance	0.00218	0.00799	-0.00708	0.0156	-0.0206
	(0.0122)	(0.0173)	(0.0167)	(0.0145)	(0.0164)
Prior FDI Other Country Focal Industry	0.990***	0.933***	0.989***	1.123***	0.888***
	(0.134)	(0.206)	(0.195)	(0.171)	(0.179)
Investor's Experience	2.974***	3.843***	3.052***	3.657***	3.286***
	(0.258)	(1.108)	(0.274)	(0.0728)	(0.297)
GDP per capita	0.952***	1.083***	0.778**	1.107***	0.645*
	(0.202)	(0.256)	(0.316)	(0.227)	(0.346)
Population Density	3.957***	4.627***	3.107***	4.456***	2.896***
	(0.569)	(0.698)	(0.931)	(0.637)	(0.973)
Population Density Squared	-2.062***	-2.226***	-1.827***	-2.111***	-1.783***
	(0.348)	(0.409)	(0.605)	(0.373)	(0.628)
Corporate Tax Rate	0.194***	0.205**	0.180*	0.184**	0.187*
	(0.0671)	(0.0923)	(0.0956)	(0.0764)	(0.100)
Educational Attainment	0.438**	0.594**	0.305	0.604***	0.225
	(0.198)	(0.259)	(0.295)	(0.234)	(0.309)
Labor Costs	-0.382	-1.094*	0.239	-1.174*	0.773
	(0.558)	(0.651)	(0.893)	(0.657)	(0.832)
Employment	0.0842***	0.0957***	0.0716**	0.0906***	0.0744**
	(0.0200)	(0.0244)	(0.0311)	(0.0226)	(0.0311)
Rent Costs	-1.495***	-1.057***	-1.958***	-1.213***	-1.875***
	(0.268)	(0.313)	(0.431)	(0.312)	(0.421)
Supplier Fit	0.592***	0.295	0.950***	0.539**	0.645*
	(0.223)	(0.312)	(0.291)	(0.261)	(0.382)
Buyer Fit	0.423**	0.382	0.483**	0.478**	0.317
	(0.206)	(0.332)	(0.241)	(0.227)	(0.403)
Labor Fit	1.226***	1.134***	1.334***	1.168***	1.295***
	(0.206)	(0.297)	(0.291)	(0.297)	(0.284)
Knowledge Fit	0.134**	0.217***	0.0457	0.258***	-0.0161
	(0.0602)	(0.0777)	(0.0904)	(0.0667)	(0.0949)
Geographical Distance	0.0387	0.108	-0.150	-0.0117	0.104
	(0.193)	(0.237)	(0.298)	(0.215)	(0.416)
Air Traffic Intensity	2.416***	1.723***	3.134***	1.587***	3.389***
	(0.507)	(0.585)	(0.813)	(0.594)	(0.804)
Ethnic Similarity	0.0676	0.101	0.0260	0.121	-0.0956
	(0.107)	(0.115)	(0.172)	(0.112)	(0.175)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1017.29***	608.67***	811.30***	890.33***	882.32***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.427 (0.366)	0.432 (0.557)	0.500 (0.455)	0.461 (0.511)	0.263 (0.374)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0217 (0.0236)	0.0421 (0.0321)	0.00351 (0.0337)	0.0356 (0.0235)	-0.0488 (0.0422)
Prior FDI Home Country Other Industry	0.827*** (0.139)	1.186*** (0.192)	0.635*** (0.195)	1.106*** (0.177)	0.577*** (0.205)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	-0.000183 (0.00795)	0.0166 (0.0122)	-0.00846 (0.0101)	0.00906 (0.00929)	-0.0182* (0.0103)
Prior FDI Other Country Focal Industry	0.988*** (0.134)	0.929*** (0.209)	0.987*** (0.194)	1.114*** (0.173)	0.876*** (0.170)
Investor's Experience	2.974*** (0.259)	3.840*** (1.124)	3.055*** (0.275)	3.683*** (0.0840)	3.290*** (0.299)
GDP per capita	0.953*** (0.202)	1.084*** (0.257)	0.778** (0.316)	1.106*** (0.228)	0.640* (0.348)
Population Density	3.956*** (0.570)	4.647*** (0.697)	3.103*** (0.933)	4.462*** (0.637)	2.889*** (0.977)
Population Density Squared	-2.064*** (0.349)	-2.236*** (0.408)	-1.826*** (0.606)	-2.115*** (0.373)	-1.778*** (0.631)
Corporate Tax Rate	0.194*** (0.0670)	0.206** (0.0925)	0.179* (0.0955)	0.185** (0.0766)	0.186* (0.101)
Educational Attainment	0.437** (0.198)	0.592** (0.259)	0.306 (0.295)	0.601** (0.234)	0.228 (0.310)
Labor Costs	-0.378 (0.556)	-1.093* (0.652)	0.234 (0.893)	-1.155* (0.652)	0.759 (0.833)
Employment	0.0844*** (0.0200)	0.0962*** (0.0244)	0.0715** (0.0311)	0.0912*** (0.0226)	0.0742** (0.0311)
Rent Costs	-1.496*** (0.268)	-1.057*** (0.314)	-1.960*** (0.431)	-1.217*** (0.312)	-1.878*** (0.421)
Supplier Fit	0.594*** (0.222)	0.295 (0.313)	0.952*** (0.291)	0.542** (0.261)	0.644* (0.382)
Buyer Fit	0.420** (0.206)	0.381 (0.332)	0.482** (0.240)	0.476** (0.226)	0.319 (0.406)
Labor Fit	1.225*** (0.206)	1.132*** (0.297)	1.335*** (0.291)	1.163*** (0.297)	1.298*** (0.286)
Knowledge Fit	0.133** (0.0604)	0.217*** (0.0780)	0.0440 (0.0907)	0.259*** (0.0665)	-0.0166 (0.0955)
Geographical Distance	0.0398 (0.194)	0.0989 (0.237)	-0.141 (0.298)	-0.0120 (0.216)	0.119 (0.417)
Air Traffic Intensity	2.420*** (0.506)	1.730*** (0.584)	3.133*** (0.810)	1.595*** (0.594)	3.366*** (0.805)
Ethnic Similarity	0.0695 (0.106)	0.0961 (0.115)	0.0341 (0.171)	0.120 (0.112)	-0.0871 (0.173)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1022.75***	586.18***	815.97***	880.42***	873.97***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.869** (0.356)	0.953** (0.465)	0.755 (0.551)	1.157** (0.487)	0.518 (0.410)
Prior FDI Home Country Focal Industry * Masculinity	-0.0365 (0.0227)	-0.0529* (0.0298)	-0.0213 (0.0323)	-0.0299 (0.0266)	-0.0531* (0.0273)
Prior FDI Home Country Other Industry	0.883*** (0.148)	1.173*** (0.209)	0.689*** (0.216)	1.224*** (0.182)	0.600*** (0.220)
Prior FDI Home Country Other Industry * Masculinity	-0.00664 (0.00749)	0.0106 (0.0118)	-0.00905 (0.00945)	-0.00708 (0.00868)	-0.0115 (0.00896)
Prior FDI Other Country Focal Industry	0.989*** (0.134)	0.921*** (0.204)	0.990*** (0.194)	1.103*** (0.174)	0.847*** (0.170)
Investor's Experience	2.983*** (0.264)	3.883*** (1.079)	3.058*** (0.277)	3.637*** (0.0706)	3.284*** (0.300)
GDP per capita	0.957*** (0.203)	1.081*** (0.255)	0.781** (0.318)	1.112*** (0.226)	0.646* (0.352)
Population Density	3.947*** (0.568)	4.612*** (0.697)	3.104*** (0.932)	4.439*** (0.636)	2.912*** (0.972)
Population Density Squared	-2.061*** (0.348)	-2.221*** (0.410)	-1.827*** (0.605)	-2.109*** (0.374)	-1.786*** (0.627)
Corporate Tax Rate	0.196*** (0.0673)	0.204** (0.0921)	0.184* (0.0960)	0.188** (0.0765)	0.197* (0.102)
Educational Attainment	0.439** (0.198)	0.595** (0.259)	0.306 (0.297)	0.600** (0.233)	0.231 (0.313)
Labor Costs	-0.391 (0.554)	-1.078* (0.645)	0.225 (0.895)	-1.158* (0.650)	0.721 (0.840)
Employment	0.0844*** (0.0200)	0.0961*** (0.0243)	0.0717** (0.0310)	0.0913*** (0.0226)	0.0747** (0.0310)
Rent Costs	-1.500*** (0.267)	-1.058*** (0.314)	-1.963*** (0.430)	-1.226*** (0.311)	-1.876*** (0.421)
Supplier Fit	0.597*** (0.222)	0.286 (0.314)	0.952*** (0.289)	0.540** (0.259)	0.632* (0.381)
Buyer Fit	0.413** (0.207)	0.384 (0.331)	0.479** (0.242)	0.476** (0.223)	0.319 (0.414)
Labor Fit	1.226*** (0.206)	1.137*** (0.297)	1.331*** (0.291)	1.163*** (0.297)	1.285*** (0.285)
Knowledge Fit	0.131** (0.0606)	0.219*** (0.0772)	0.0441 (0.0902)	0.257*** (0.0669)	-0.0152 (0.0958)
Geographical Distance	0.0515 (0.194)	0.114 (0.238)	-0.135 (0.298)	0.0130 (0.216)	0.103 (0.416)
Air Traffic Intensity	2.420*** (0.506)	1.715*** (0.586)	3.144*** (0.811)	1.602*** (0.595)	3.393*** (0.810)
Ethnic Similarity	0.0799 (0.106)	0.100 (0.114)	0.0386 (0.172)	0.144 (0.112)	-0.0915 (0.172)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1027.73***	624.45***	812.28***	750.65***	773.30***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.273***	1.585***	0.894	1.480***	-0.741
	(0.425)	(0.565)	(0.660)	(0.426)	(1.025)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	1.141*	1.573**	0.561	1.642**	-0.995
	(0.583)	(0.750)	(0.848)	(0.792)	(1.069)
Prior FDI Home Country Other Industry	0.892***	1.621***	0.431*	1.400***	0.0900
	(0.209)	(0.292)	(0.240)	(0.218)	(0.289)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.0785	0.485*	-0.220	0.343	-0.512*
	(0.212)	(0.276)	(0.260)	(0.243)	(0.277)
Prior FDI Other Country Focal Industry	0.991***	0.941***	0.989***	1.128***	0.877***
	(0.134)	(0.208)	(0.194)	(0.172)	(0.171)
Investor's Experience	2.973***	3.823***	3.053***	3.693***	3.291***
	(0.258)	(1.135)	(0.273)	(0.0809)	(0.299)
GDP per capita	0.953***	1.094***	0.776**	1.112***	0.641*
	(0.201)	(0.255)	(0.316)	(0.226)	(0.348)
Population Density	3.962***	4.656***	3.103***	4.469***	2.888***
	(0.569)	(0.698)	(0.931)	(0.637)	(0.976)
Population Density Squared	-2.064***	-2.241***	-1.825***	-2.117***	-1.778***
	(0.348)	(0.408)	(0.604)	(0.372)	(0.630)
Corporate Tax Rate	0.193***	0.201**	0.180*	0.181**	0.188*
	(0.0673)	(0.0928)	(0.0957)	(0.0765)	(0.101)
Educational Attainment	0.436**	0.587**	0.304	0.599**	0.228
	(0.198)	(0.258)	(0.295)	(0.233)	(0.310)
Labor Costs	-0.383	-1.078*	0.232	-1.162*	0.756
	(0.558)	(0.655)	(0.893)	(0.656)	(0.832)
Employment	0.0842***	0.0956***	0.0716**	0.0908***	0.0745**
	(0.0200)	(0.0244)	(0.0311)	(0.0226)	(0.0311)
Rent Costs	-1.492***	-1.066***	-1.956***	-1.213***	-1.873***
	(0.268)	(0.314)	(0.431)	(0.313)	(0.421)
Supplier Fit	0.589***	0.297	0.947***	0.542**	0.645*
	(0.223)	(0.312)	(0.291)	(0.261)	(0.382)
Buyer Fit	0.424**	0.382	0.486**	0.475**	0.319
	(0.206)	(0.333)	(0.240)	(0.228)	(0.406)
Labor Fit	1.225***	1.133***	1.335***	1.162***	1.296***
	(0.206)	(0.298)	(0.292)	(0.298)	(0.285)
Knowledge Fit	0.134**	0.215***	0.0458	0.258***	-0.0178
	(0.0601)	(0.0786)	(0.0906)	(0.0668)	(0.0959)
Geographical Distance	0.0316	0.0932	-0.148	-0.0235	0.120
	(0.193)	(0.236)	(0.297)	(0.215)	(0.417)
Air Traffic Intensity	2.415***	1.725***	3.138***	1.587***	3.376***
	(0.508)	(0.582)	(0.812)	(0.594)	(0.805)
Ethnic Similarity	0.0641	0.0892	0.0326	0.111	-0.0833
	(0.106)	(0.115)	(0.171)	(0.113)	(0.173)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445
Wald chi-square	1011.18***	594.17***	820.00***	880.35***	876.64***

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 27 Conditional Logit Model – with non-linear effects of focal variables

	Full Sample	Full Sample	Full Sample
Prior FDI Home Country Focal Industry	0.575* (0.310)	2.520** (1.040)	2.559** (1.041)
Prior FDI Home Country Focal Industry Squared		-2.225* (1.257)	-2.271* (1.260)
Prior FDI Home Country Other Industry	0.822*** (0.135)	1.603*** (0.379)	1.639*** (0.376)
Prior FDI Home Country Other Industry Squared		-0.780** (0.386)	-0.813** (0.385)
Prior FDI Other Country Focal Industry	0.985*** (0.133)	0.980*** (0.133)	1.613*** (0.240)
Prior FDI Other Country Focal Industry Squared			-0.573*** (0.176)
Investor's Experience	2.974*** (0.261)	2.972*** (0.260)	2.998*** (0.254)
GDP per capita	0.957*** (0.202)	0.947*** (0.202)	0.934*** (0.201)
Population Density	3.939*** (0.561)	3.948*** (0.560)	3.935*** (0.557)
Population Density Squared	-2.058*** (0.347)	-2.057*** (0.347)	-2.043*** (0.343)
Corporate Tax Rate	0.195*** (0.0671)	0.186*** (0.0667)	0.174*** (0.0659)
Educational Attainment	0.456** (0.200)	0.467** (0.200)	0.457** (0.200)
Labor Costs	-0.344 (0.544)	-0.435 (0.560)	-0.375 (0.556)
Employment	0.0845*** (0.0201)	0.0837*** (0.0200)	0.0825*** (0.0199)
Rent Costs	-1.500*** (0.269)	-1.476*** (0.272)	-1.487*** (0.272)
Supplier Fit	0.595*** (0.223)	0.581*** (0.222)	0.555** (0.226)
Buyer Fit	0.414** (0.205)	0.413** (0.205)	0.414** (0.205)
Labor Fit	1.227*** (0.206)	1.227*** (0.206)	1.237*** (0.205)
Knowledge Fit	0.133** (0.0601)	0.134** (0.0600)	0.145** (0.0591)
Geographical Distance	0.0283 (0.195)	0.0249 (0.195)	0.0201 (0.195)
Air Traffic Intensity	2.429*** (0.504)	2.365*** (0.513)	2.334*** (0.514)
Number of firms	622	622	622
Number of home countries	35	35	35
Number of projects	1050	1050	1050
Wald chi-square	1011.74***	1015.98***	1124.35***
Log Likelihood test		9.98*** (vs. Model 1)	6.19 (vs. Model 2)

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	1.615 (1.156)	2.625 (2.175)	1.041 (1.555)	0.849 (1.429)	3.199** (1.544)
Prior FDI Home Country Focal Industry Squared	-1.567 (1.173)	-2.857 (2.415)	-0.779 (1.552)	-0.978 (1.231)	-3.634* (2.077)
Prior FDI Home Country Focal Industry * Collectivism	0.0699*** (0.0237)	0.0721*** (0.0246)	0.0571 (0.0554)	0.0903*** (0.0277)	-0.0330 (0.0301)
Prior FDI Home Country Other Industry	1.588*** (0.382)	1.543*** (0.505)	1.575*** (0.541)	1.567*** (0.460)	1.414** (0.612)
Prior FDI Home Country Other Industry Squared	-0.753* (0.391)	-0.277 (0.467)	-0.992* (0.570)	-0.426 (0.454)	-0.949 (0.632)
Prior FDI Home Country Other Industry * Collectivism	0.0102 (0.0106)	0.0299*** (0.0106)	-0.0125 (0.0136)	0.0226** (0.0108)	-0.0258* (0.0156)
Prior FDI Other Country Focal Industry	0.986*** (0.133)	0.942*** (0.200)	0.984*** (0.191)	1.128*** (0.171)	0.840*** (0.166)
Investor's Experience	2.971*** (0.258)	3.845*** (1.110)	3.053*** (0.272)	3.695*** (0.0816)	3.280*** (0.299)
GDP per capita	0.953*** (0.200)	1.102*** (0.253)	0.760** (0.317)	1.128*** (0.225)	0.630* (0.353)
Population Density	3.964*** (0.563)	4.635*** (0.690)	3.113*** (0.923)	4.452*** (0.631)	2.949*** (0.962)
Population Density Squared	-2.064*** (0.347)	-2.229*** (0.403)	-1.822*** (0.602)	-2.108*** (0.369)	-1.801*** (0.626)
Corporate Tax Rate	0.184*** (0.0669)	0.197** (0.0935)	0.166* (0.0938)	0.177** (0.0768)	0.182* (0.0996)
Educational Attainment	0.455** (0.198)	0.593** (0.255)	0.326 (0.298)	0.613*** (0.232)	0.232 (0.315)
Labor Costs	-0.414 (0.559)	-1.024 (0.644)	0.163 (0.903)	-1.115* (0.653)	0.605 (0.860)
Employment	0.0835*** (0.0200)	0.0951*** (0.0244)	0.0709** (0.0312)	0.0901*** (0.0226)	0.0735** (0.0312)
Rent Costs	-1.484*** (0.272)	-1.072*** (0.319)	-1.949*** (0.438)	-1.203*** (0.319)	-1.854*** (0.431)
Supplier Fit	1.226*** (0.207)	1.136*** (0.299)	1.335*** (0.294)	1.162*** (0.299)	1.288*** (0.288)
Buyer Fit	0.576*** (0.222)	0.292 (0.312)	0.923*** (0.293)	0.539** (0.260)	0.627* (0.380)
Labor Fit	0.421** (0.205)	0.382 (0.331)	0.488** (0.240)	0.470** (0.227)	0.326 (0.407)
Knowledge Fit	0.133** (0.0598)	0.209*** (0.0782)	0.0506 (0.0896)	0.252*** (0.0671)	-0.0154 (0.0959)
Geographical Distance	0.00813 (0.194)	0.0767 (0.237)	-0.181 (0.306)	-0.0448 (0.218)	0.160 (0.401)
Air Traffic Intensity	2.373*** (0.513)	1.731*** (0.583)	3.077*** (0.826)	1.586*** (0.596)	3.315*** (0.821)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	2.282**	3.112	1.735	1.694	3.355**
	(1.127)	(1.933)	(1.498)	(1.177)	(1.534)
Prior FDI Home Country Focal Industry	-1.831	-2.667	-1.388	-0.924	-4.861**
Squared	(1.384)	(2.341)	(2.013)	(1.206)	(2.103)
Prior FDI Home Country Focal Industry *	0.0324	0.0581*	-0.00163	0.0677*	-0.119
Power Distance	(0.0353)	(0.0339)	(0.0609)	(0.0381)	(0.0924)
Prior FDI Home Country Other Industry	1.583***	1.476***	1.647***	1.524***	1.606***
	(0.377)	(0.504)	(0.546)	(0.456)	(0.604)
Prior FDI Home Country Other Industry	-0.758**	-0.230	-1.107*	-0.344	-1.204*
Squared	(0.384)	(0.456)	(0.582)	(0.444)	(0.638)
Prior FDI Home Country Other Industry *	-0.00105	0.00762	-0.0127	0.0160	-0.0303*
Power Distance	(0.0126)	(0.0174)	(0.0177)	(0.0146)	(0.0172)
Prior FDI Other Country Focal Industry	0.981***	0.924***	0.986***	1.118***	0.899***
	(0.133)	(0.204)	(0.190)	(0.170)	(0.173)
Investor's Experience	2.972***	3.846***	3.053***	3.634***	3.289***
	(0.259)	(1.107)	(0.274)	(0.0752)	(0.296)
GDP per capita	0.946***	1.084***	0.764**	1.111***	0.627*
	(0.202)	(0.256)	(0.315)	(0.227)	(0.348)
Population Density	3.949***	4.588***	3.117***	4.419***	2.936***
	(0.562)	(0.691)	(0.923)	(0.631)	(0.955)
Population Density Squared	-2.057***	-2.207***	-1.828***	-2.091***	-1.797***
	(0.347)	(0.406)	(0.603)	(0.370)	(0.623)
Corporate Tax Rate	0.187***	0.203**	0.165*	0.182**	0.168*
	(0.0664)	(0.0928)	(0.0928)	(0.0768)	(0.0974)
Educational Attainment	0.465**	0.618**	0.331	0.634***	0.224
	(0.200)	(0.258)	(0.300)	(0.234)	(0.314)
Labor Costs	-0.430	-1.075*	0.150	-1.146*	0.628
	(0.559)	(0.650)	(0.902)	(0.655)	(0.858)
Employment	0.0837***	0.0957***	0.0705**	0.0903***	0.0724**
	(0.0200)	(0.0244)	(0.0311)	(0.0226)	(0.0311)
Rent Costs	-1.477***	-1.040***	-1.949***	-1.184***	-1.852***
	(0.272)	(0.316)	(0.438)	(0.317)	(0.432)
Supplier Fit	0.578***	0.292	0.934***	0.530**	0.630*
	(0.222)	(0.312)	(0.292)	(0.260)	(0.382)
Buyer Fit	0.419**	0.377	0.478**	0.475**	0.309
	(0.206)	(0.331)	(0.241)	(0.227)	(0.399)
Labor Fit	1.227***	1.132***	1.337***	1.171***	1.299***
	(0.206)	(0.298)	(0.292)	(0.298)	(0.286)
Knowledge Fit	0.134**	0.214***	0.0484	0.256***	-0.0132
	(0.0601)	(0.0777)	(0.0898)	(0.0668)	(0.0941)
Geographical Distance	0.0225	0.0971	-0.172	-0.0272	0.146
	(0.194)	(0.238)	(0.305)	(0.218)	(0.398)
Air Traffic Intensity	2.366***	1.717***	3.062***	1.575***	3.311***
	(0.513)	(0.587)	(0.823)	(0.598)	(0.817)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	2.306*	3.104	1.779	1.626	3.609**
	(1.191)	(1.996)	(1.569)	(1.238)	(1.548)
Prior FDI Home Country Focal Industry Squared	-2.076	-3.134	-1.387	-1.250	-3.955*
	(1.317)	(2.330)	(1.733)	(1.142)	(2.095)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0133	0.0402	-0.00435	0.0327	-0.0531
	(0.0246)	(0.0317)	(0.0356)	(0.0237)	(0.0329)
Prior FDI Home Country Other Industry	1.591***	1.517***	1.676***	1.557***	1.595***
	(0.381)	(0.529)	(0.548)	(0.462)	(0.606)
Prior FDI Home Country Other Industry Squared	-0.772**	-0.338	-1.053*	-0.468	-1.006
	(0.391)	(0.492)	(0.580)	(0.461)	(0.631)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	0.00100	0.0178	-0.00806	0.0108	-0.0189*
	(0.00812)	(0.0124)	(0.0104)	(0.00955)	(0.0106)
Prior FDI Other Country Focal Industry	0.979***	0.922***	0.983***	1.110***	0.874***
	(0.133)	(0.207)	(0.190)	(0.171)	(0.166)
Investor's Experience	2.971***	3.838***	3.055***	3.664***	3.287***
	(0.260)	(1.127)	(0.275)	(0.0854)	(0.298)
GDP per capita	0.947***	1.085***	0.764**	1.110***	0.627*
	(0.202)	(0.257)	(0.316)	(0.227)	(0.350)
Population Density	3.952***	4.613***	3.112***	4.431***	2.937***
	(0.563)	(0.691)	(0.926)	(0.631)	(0.962)
Population Density Squared	-2.058***	-2.220***	-1.825***	-2.098***	-1.796***
	(0.347)	(0.406)	(0.604)	(0.370)	(0.627)
Corporate Tax Rate	0.187***	0.203**	0.165*	0.182**	0.172*
	(0.0665)	(0.0931)	(0.0930)	(0.0769)	(0.0985)
Educational Attainment	0.466**	0.615**	0.332	0.633***	0.228
	(0.200)	(0.258)	(0.300)	(0.234)	(0.314)
Labor Costs	-0.433	-1.088*	0.150	-1.149*	0.634
	(0.560)	(0.650)	(0.904)	(0.653)	(0.857)
Employment	0.0838***	0.0961***	0.0705**	0.0907***	0.0728**
	(0.0200)	(0.0244)	(0.0312)	(0.0226)	(0.0312)
Rent Costs	-1.476***	-1.038***	-1.951***	-1.183***	-1.862***
	(0.272)	(0.317)	(0.438)	(0.317)	(0.430)
Supplier Fit	0.579***	0.291	0.934***	0.532**	0.628*
	(0.222)	(0.313)	(0.292)	(0.260)	(0.380)
Buyer Fit	0.415**	0.376	0.479**	0.471**	0.318
	(0.205)	(0.331)	(0.241)	(0.226)	(0.403)
Labor Fit	1.226***	1.130***	1.338***	1.166***	1.299***
	(0.206)	(0.298)	(0.293)	(0.298)	(0.288)
Knowledge Fit	0.134**	0.214***	0.0484	0.256***	-0.0139
	(0.0602)	(0.0782)	(0.0897)	(0.0667)	(0.0949)
Geographical Distance	0.0218	0.0875	-0.169	-0.0291	0.162
	(0.195)	(0.239)	(0.306)	(0.219)	(0.401)
Air Traffic Intensity	2.367***	1.719***	3.059***	1.571***	3.293***
	(0.513)	(0.585)	(0.823)	(0.597)	(0.818)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	2.910***	3.165	2.185	2.317**	3.413**
	(1.049)	(2.128)	(1.346)	(1.024)	(1.522)
Prior FDI Home Country Focal Industry Squared	-2.350*	-2.622	-1.586	-1.282	-3.458*
	(1.301)	(2.653)	(1.560)	(1.117)	(2.038)
Prior FDI Home Country Focal Industry * Masculinity	-0.0351*	-0.0448	-0.0242	-0.0289	-0.0484**
	(0.0192)	(0.0292)	(0.0287)	(0.0246)	(0.0223)
Prior FDI Home Country Other Industry	1.630***	1.563***	1.732***	1.651***	1.544**
	(0.378)	(0.515)	(0.542)	(0.451)	(0.607)
Prior FDI Home Country Other Industry Squared	-0.764**	-0.406	-1.058*	-0.449	-0.952
	(0.383)	(0.474)	(0.578)	(0.437)	(0.639)
Prior FDI Home Country Other Industry * Masculinity	-0.00473	0.0126	-0.00841	-0.00524	-0.0100
	(0.00770)	(0.0120)	(0.00962)	(0.00880)	(0.00957)
Prior FDI Other Country Focal Industry	0.984***	0.923***	0.988***	1.103***	0.846***
	(0.133)	(0.202)	(0.189)	(0.172)	(0.168)
Investor's Experience	2.981***	3.882***	3.059***	3.609***	3.278***
	(0.265)	(1.083)	(0.277)	(0.0728)	(0.298)
GDP per capita	0.950***	1.080***	0.765**	1.118***	0.635*
	(0.202)	(0.255)	(0.318)	(0.226)	(0.355)
Population Density	3.937***	4.576***	3.111***	4.397***	2.965***
	(0.561)	(0.690)	(0.923)	(0.631)	(0.955)
Population Density Squared	-2.052***	-2.203***	-1.823***	-2.085***	-1.806***
	(0.347)	(0.407)	(0.603)	(0.371)	(0.621)
Corporate Tax Rate	0.188***	0.199**	0.170*	0.183**	0.185*
	(0.0669)	(0.0924)	(0.0938)	(0.0769)	(0.101)
Educational Attainment	0.471**	0.618**	0.335	0.637***	0.227
	(0.201)	(0.258)	(0.301)	(0.234)	(0.317)
Labor Costs	-0.450	-1.066*	0.133	-1.146*	0.606
	(0.559)	(0.647)	(0.907)	(0.653)	(0.860)
Employment	0.0836***	0.0958***	0.0706**	0.0907***	0.0735**
	(0.0200)	(0.0243)	(0.0310)	(0.0226)	(0.0310)
Rent Costs	-1.474***	-1.037***	-1.949***	-1.179***	-1.862***
	(0.271)	(0.317)	(0.438)	(0.316)	(0.428)
Supplier Fit	0.579***	0.278	0.930***	0.526**	0.614
	(0.222)	(0.314)	(0.290)	(0.259)	(0.378)
Buyer Fit	0.408**	0.381	0.474*	0.471**	0.320
	(0.207)	(0.331)	(0.244)	(0.223)	(0.412)
Labor Fit	1.228***	1.136***	1.333***	1.168***	1.284***
	(0.206)	(0.298)	(0.293)	(0.298)	(0.287)
Knowledge Fit	0.133**	0.216***	0.0500	0.255***	-0.0126
	(0.0602)	(0.0771)	(0.0890)	(0.0669)	(0.0955)
Geographical Distance	0.0294	0.103	-0.169	-0.00739	0.144
	(0.195)	(0.239)	(0.305)	(0.219)	(0.399)
Air Traffic Intensity	2.361***	1.695***	3.066***	1.569***	3.329***
	(0.513)	(0.588)	(0.826)	(0.598)	(0.822)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	2.630***	3.977**	1.748	2.435**	2.526
	(0.988)	(1.819)	(1.238)	(1.048)	(1.586)
Prior FDI Home Country Focal Industry Squared	-1.645	-2.898	-1.092	-1.094	-4.235**
	(1.261)	(2.337)	(1.826)	(1.204)	(2.096)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	0.981	1.517*	0.380	1.600*	-1.329
	(0.651)	(0.776)	(0.991)	(0.818)	(0.883)
Prior FDI Home Country Other Industry	1.629***	1.852***	1.455**	1.806***	1.110*
	(0.424)	(0.582)	(0.571)	(0.521)	(0.645)
Prior FDI Home Country Other Industry Squared	-0.737*	-0.222	-1.048*	-0.392	-1.062*
	(0.388)	(0.477)	(0.574)	(0.460)	(0.627)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.0863	0.502*	-0.237	0.376	-0.577**
	(0.216)	(0.271)	(0.272)	(0.248)	(0.284)
Prior FDI Other Country Focal Industry	0.980***	0.930***	0.983***	1.123***	0.876***
	(0.133)	(0.206)	(0.190)	(0.171)	(0.166)
Investor's Experience	2.969***	3.825***	3.053***	3.676***	3.290***
	(0.259)	(1.136)	(0.274)	(0.0822)	(0.298)
GDP per capita	0.947***	1.095***	0.762**	1.115***	0.625*
	(0.202)	(0.255)	(0.316)	(0.226)	(0.351)
Population Density	3.958***	4.626***	3.112***	4.439***	2.927***
	(0.563)	(0.692)	(0.924)	(0.631)	(0.961)
Population Density Squared	-2.060***	-2.227***	-1.824***	-2.101***	-1.791***
	(0.347)	(0.405)	(0.603)	(0.369)	(0.626)
Corporate Tax Rate	0.187***	0.201**	0.166*	0.179**	0.173*
	(0.0667)	(0.0935)	(0.0932)	(0.0769)	(0.0984)
Educational Attainment	0.462**	0.609**	0.329	0.627***	0.230
	(0.200)	(0.257)	(0.299)	(0.233)	(0.315)
Labor Costs	-0.426	-1.068	0.156	-1.141*	0.621
	(0.560)	(0.650)	(0.903)	(0.654)	(0.859)
Employment	0.0838***	0.0956***	0.0707**	0.0904***	0.0728**
	(0.0200)	(0.0245)	(0.0311)	(0.0226)	(0.0312)
Rent Costs	-1.478***	-1.053***	-1.950***	-1.188***	-1.855***
	(0.272)	(0.317)	(0.438)	(0.318)	(0.431)
Supplier Fit	0.576***	0.296	0.930***	0.534**	0.629*
	(0.222)	(0.312)	(0.292)	(0.261)	(0.381)
Buyer Fit	0.421**	0.377	0.483**	0.472**	0.315
	(0.206)	(0.332)	(0.241)	(0.227)	(0.404)
Labor Fit	1.226***	1.131***	1.337***	1.165***	1.298***
	(0.207)	(0.299)	(0.293)	(0.298)	(0.287)
Knowledge Fit	0.134**	0.211***	0.0492	0.255***	-0.0148
	(0.0601)	(0.0787)	(0.0899)	(0.0669)	(0.0951)
Geographical Distance	0.0157	0.0831	-0.174	-0.0390	0.159
	(0.194)	(0.238)	(0.306)	(0.218)	(0.400)
Air Traffic Intensity	2.370***	1.723***	3.068***	1.573***	3.298***
	(0.513)	(0.584)	(0.824)	(0.597)	(0.818)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on clustered standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

Table 2. 28 Mixed Logit Models

Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.196	-0.682	0.169	-2.267	0.304
	(0.391)	(1.335)	(0.812)	(1.485)	(0.814)
Prior FDI Home Country Focal Industry * Collectivism	0.0402*	0.0697**	0.0198	0.0897**	-0.0402
	(0.0245)	(0.0330)	(0.0476)	(0.0369)	(0.0419)
Prior FDI Home Country Other Industry	0.667***	1.209***	0.568***	0.824**	0.619***
	(0.245)	(0.227)	(0.187)	(0.356)	(0.210)
Prior FDI Home Country Other Industry * Collectivism	0.0102	0.0270**	-0.00717	0.0245	-0.0310**
	(0.0115)	(0.0112)	(0.0147)	(0.0123)	(0.0142)
Prior FDI Other Country Focal Industry	0.133	0.0315	-0.262	-0.250	0.657
	(0.434)	(0.623)	(0.648)	(0.843)	(0.489)
Investor's Experience	4.256**	8.380***	3.725***	4.195***	9.317***
	(1.735)	(1.702)	(0.389)	(0.146)	(2.155)
GDP per capita	0.769***	0.801***	0.571*	0.970***	0.590
	(0.217)	(0.265)	(0.339)	(0.241)	(0.372)
Population Density	7.588***	7.406***	6.338***	5.465***	15.15***
	(1.825)	(1.226)	(1.817)	(1.184)	(3.343)
Population Density Squared	-6.098***	-5.370***	-5.632***	-3.546***	-14.60***
	(1.771)	(1.090)	(1.932)	(1.012)	(3.618)
Corporate Tax Rate	0.193***	0.194**	0.206**	0.175**	0.222**
	(0.0658)	(0.0923)	(0.103)	(0.0819)	(0.0935)
Educational Attainment	0.371*	0.620**	0.374	0.674***	-0.0396
	(0.221)	(0.263)	(0.333)	(0.247)	(0.377)
Labor Costs	-0.579	-1.230*	-0.232	-1.698**	1.182
	(0.597)	(0.671)	(0.975)	(0.697)	(0.906)
Employment	0.238***	0.330***	0.220***	0.260***	0.109**
	(0.0495)	(0.0568)	(0.0627)	(0.0495)	(0.0496)
Rent Costs	-1.230***	-0.951***	-1.780***	-1.150***	-1.768***
	(0.283)	(0.348)	(0.464)	(0.356)	(0.466)
Labor Fit	0.822***	0.479	0.830*	0.719**	0.926**
	(0.240)	(0.406)	(0.438)	(0.346)	(0.392)
Supplier Fit	0.712***	0.293	1.137***	0.584**	1.045**
	(0.242)	(0.332)	(0.332)	(0.271)	(0.440)
Buyer Fit	0.380*	0.386	0.322	0.471*	0.197
	(0.200)	(0.350)	(0.248)	(0.249)	(0.423)
Knowledge Fit	0.0975	0.185**	-0.00418	0.222***	-0.000648
	(0.0620)	(0.0780)	(0.120)	(0.0710)	(0.0952)
Geographical Distance	-0.0575	0.119	-0.294	-0.00262	-0.0567
	(0.184)	(0.207)	(0.336)	(0.213)	(0.411)
Air Traffic Intensity	1.989***	1.271*	1.234	1.445**	2.180*
	(0.559)	(0.652)	(1.060)	(0.670)	(1.216)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Continuation Table - Collectivism	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Random parts coefficients					
Prior FDI Home Country Focal Industry				3.375*** (1.296)	
Prior FDI Home Country Focal Industry * Collectivism	0.0920*** (0.0222)		0.0833*** (0.0304)	0.0709*** (0.0170)	
Prior FDI Home Country Other Industry * Collectivism	0.0528** (0.0267)	0.0503** (0.0254)	0.0373* (0.0222)		
Prior FDI Other Country Focal Industry	2.190*** (0.567)	2.412*** (0.699)	2.725*** (0.760)	2.667** (1.075)	1.649** (0.682)
Investor's Experience		99.07*** (23.60)	2.225** (0.868)		21.17*** (4.737)
GDP per Capita			1.364*** (0.412)		
Population Density	4.015*** (1.452)	2.818*** (0.685)		1.211* (0.618)	9.990*** (2.985)
Population Density Squared		0.652** (0.296)	1.776*** (0.593)	0.636** (0.313)	1.212** (0.519)
Educational Attainment		0.523* (0.271)			
Labor Cost		2.222*** (0.710)		2.476*** (0.920)	
Employment	0.408*** (0.0710)	0.470*** (0.0640)	0.403*** (0.0869)	0.410*** (0.0632)	
Geographical Distance	0.742*** (0.245)	1.299*** (0.325)		0.925*** (0.345)	1.154** (0.533)
Air Traffic Intensity			3.811*** (1.195)		

Results are for 1050 manufacturing investments in the US by 622 MNEs from 35 different home countries. The continuous variables are in natural logarithm causing their coefficients to be interpretable as elasticities. P-values are shown between brackets. Error terms are clustered by investing firms. Only significant random components of the coefficients are reported. Buyer Fit remained fixed due to convergence problems.

Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	-0.198	-1.490	-0.657	-0.132	-1.151
	(1.133)	(1.542)	(1.667)	(0.753)	(0.904)
Prior FDI Home Country Focal Industry * Power Distance	0.0298	-0.0479	0.0659	0.0633	-0.0968*
	(0.0366)	(0.0587)	(0.0486)	(0.0520)	(0.0582)
Prior FDI Home Country Other Industry	0.700***	0.465*	1.104***	0.952***	0.0568
	(0.254)	(0.277)	(0.322)	(0.318)	(0.396)
Prior FDI Home Country Other Industry * Power Distance	0.00845	-0.00674	0.0240	0.0239	-0.0235
	(0.0139)	(0.0185)	(0.0150)	(0.0155)	(0.0184)
Prior FDI Other Country Focal Industry	0.176	0.0193	-0.571	-1.209	0.380
	(0.476)	(0.612)	(0.844)	(1.284)	(0.579)
Investor's Experience	4.532***	4.420***	14.94***	-0.810	4.565***
	(1.361)	(0.672)	(1.978)	(3.128)	(0.791)
GDP per capita	0.777***	0.621*	0.808***	0.924***	0.520
	(0.218)	(0.352)	(0.269)	(0.239)	(0.393)
Population Density	7.704***	15.19***	5.965***	5.164***	6.997***
	(1.842)	(3.121)	(0.954)	(0.876)	(1.734)
Population Density Squared	-6.179***	-15.10***	-3.960***	-3.259***	-6.130***
	(1.801)	(3.162)	(0.751)	(0.677)	(1.712)
Corporate Tax Rate	0.198***	0.253*	0.192**	0.192**	0.264**
	(0.0669)	(0.138)	(0.0936)	(0.0816)	(0.108)
Educational Attainment	0.373*	0.196	0.639**	0.713***	0.0549
	(0.221)	(0.351)	(0.263)	(0.242)	(0.371)
Labor Costs	-0.555	0.0369	-1.124*	-1.509**	0.863
	(0.594)	(0.984)	(0.671)	(0.686)	(0.937)
Employment	0.222***	0.231***	0.301***	0.267	0.212**
	(0.0493)	(0.0564)	(0.0598)	(0.0635)	(0.0836)
Rent Costs	-1.214***	-1.726***	-0.942***	-1.115***	-1.779***
	(0.290)	(0.471)	(0.343)	(0.337)	(0.440)
Labor Fit	0.875***	0.989**	0.658*	0.650*	0.913***
	(0.238)	(0.441)	(0.388)	(0.386)	(0.306)
Supplier Fit	0.720***	1.250***	0.300	0.541*	0.899**
	(0.245)	(0.320)	(0.335)	(0.281)	(0.402)
Buyer Fit	0.382*	0.423	0.427	0.511**	0.184
	(0.202)	(0.295)	(0.348)	(0.251)	(0.465)
Knowledge Fit	0.104*	0.0128	0.188**	0.213***	-0.0614
	(0.0588)	(0.0930)	(0.0775)	(0.0714)	(0.115)
Geographical Distance	-0.0416	-0.155	0.127	0.0777	0.147
	(0.211)	(0.334)	(0.241)	(0.206)	(0.415)
Air Traffic Intensity	2.019***	1.979	1.320**	1.260*	0.971
	(0.555)	(1.203)	(0.668)	(0.696)	(1.451)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Continuation Table - Power Distance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Random parts coefficients					
Prior FDI Home Country Focal Industry		2.235** (1.092)	2.910** (1.391)		
Prior FDI Home Country Focal Industry * Power Distance		0.238** (0.105)	0.109** (0.0526)	0.200** (0.0814)	0.171*** (0.0525)
Prior FDI Home Country Other Industry * Power Distance	0.0608* (0.0332)	0.0770** (0.0357)			0.0817*** (0.0264)
Prior FDI Other Country Focal Industry	2.124*** (0.619)	2.387*** (0.700)	3.078*** (0.848)	3.820*** (1.390)	1.903*** (0.541)
Investor's Experience	14.65** (6.414)	5.301*** (1.813)	192.7*** (28.62)	20.10* (10.34)	9.285** (3.776)
Population Density	4.067*** (1.437)	12.06*** (2.453)	1.292*** (0.465)	1.571*** (0.502)	
Population Density Squared			0.770** (0.335)		2.170*** (0.747)
Employment	0.382*** (0.0746)	0.449*** (0.0907)	0.435*** (0.0681)	0.420*** (0.0584)	0.401** (0.158)
Rent Cost					0.998* (0.551)
Labor Fit			1.396** (0.710)		
Geographical Distance			1.278*** (0.324)	1.004*** (0.246)	
Air Traffic Intensity					4.340** (1.776)

Results are for 1050 manufacturing investments in the US by 622 MNEs from 35 different home countries. The continuous variables are in natural logarithm causing their coefficients to be interpretable as elasticities. P-values are shown between brackets. Error terms are clustered by investing firms. Only significant random components of the coefficients are reported. Buyer Fit remained fixed due to convergence problems.

Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.300 (0.490)	-5.611 (4.368)	-2.056 (1.713)	-3.305 (2.641)	0.433 (0.514)
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.00837 (0.0220)	0.105* (0.0591)	-0.0214 (0.0324)	0.0624* (0.0376)	-0.0636** (0.0283)
Prior FDI Home Country Other Industry	0.717*** (0.239)	1.059*** (0.256)	0.411 (0.268)	0.726* (0.408)	0.738*** (0.218)
Prior FDI Home Country Other Industry * Uncertainty Avoidance	0.00826 (0.00854)	0.0338*** (0.0120)	-0.00669 (0.0116)	0.0167 (0.002)	-0.00962 (0.0122)
Prior FDI Other Country Focal Industry	0.346 (0.426)	-0.368 (0.817)	0.381 (0.432)	-0.200 (1.063)	0.639 (0.482)
Investor's Experience	4.271*** (0.929)	7.650*** (2.295)	3.831*** (0.511)	4.203*** (0.141)	9.331*** (2.112)
GDP per capita	0.753*** (0.220)	0.771*** (0.266)	0.600* (0.343)	0.940*** (0.242)	0.610* (0.367)
Population Density	10.93*** (1.908)	7.903*** (1.381)	6.779*** (2.193)	5.400*** (1.132)	15.16*** (3.359)
Population Density Squared	-9.574*** (1.956)	-5.987*** (1.287)	-6.134** (2.394)	-3.494*** (0.954)	-14.61*** (3.588)
Corporate Tax Rate	0.185*** (0.0665)	0.203** (0.0948)	0.255* (0.146)	0.177** (0.0824)	0.222** (0.0924)
Educational Attainment	0.361 (0.228)	0.627** (0.270)	0.300 (0.365)	0.719*** (0.248)	-0.0487 (0.377)
Labor Costs	-0.495 (0.618)	-1.283* (0.683)	-0.331 (0.997)	-1.790*** (0.694)	1.163 (0.910)
Employment	0.236*** (0.0458)	0.347*** (0.0587)	0.273*** (0.0730)	0.260*** (0.0495)	0.109** (0.0495)
Rent Costs	-1.197*** (0.285)	-0.803** (0.351)	-1.641*** (0.463)	-1.125*** (0.355)	-1.778*** (0.466)
Labor Fit	0.829*** (0.243)	0.595 (0.391)	0.802** (0.353)	0.720** (0.347)	0.925** (0.391)
Supplier Fit	0.772*** (0.239)	0.315 (0.346)	1.166*** (0.296)	0.582** (0.272)	1.042** (0.437)
Buyer Fit	0.348 (0.214)	0.385 (0.368)	0.390 (0.261)	0.477* (0.248)	0.209 (0.409)
Knowledge Fit	0.0967 (0.0638)	0.172** (0.0803)	-0.00258 (0.0994)	0.225*** (0.0710)	0.00162 (0.0950)
Geographical Distance	-0.0513 (0.190)	0.0947 (0.219)	-0.310 (0.330)	0.00850 (0.213)	-0.0553 (0.412)
Air Traffic Intensity	1.863*** (0.578)	1.060 (0.678)	1.399 (1.163)	1.441** (0.669)	2.189* (1.223)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Continuation Table - Uncertainty Avoidance	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Random parts coefficients					
Prior FDI Home Country Focal Industry		6.494** (2.970)	3.955*** (1.383)	4.707** (2.050)	
Prior FDI Home Country Focal Industry * Uncertainty Avoidance	0.0923*** (0.0290)	0.136* (0.0737)			
Prior FDI Home Country Other Industry * Uncertainty Avoidance	0.0473** (0.0186)	0.0504*** (0.0191)	0.0513*** (0.0175)		
Prior FDI Other Country Focal Industry	1.970*** (0.550)	2.938*** (0.843)	1.971*** (0.640)	2.573* (1.353)	1.684** (0.662)
Investor's Experience	9.241* (4.873)	51.87*** (10.55)	3.257* (1.669)		20.94*** (4.615)
Population Density	6.774*** (1.534)	3.601*** (0.912)		1.198** (0.564)	9.984*** (2.931)
Population Density Squared	0.385** (0.194)		2.159** (0.972)	0.622** (0.301)	1.236*** (0.474)
Labor Cost			2.117* (1.261)	2.536*** (0.888)	
Employment	0.402*** (0.0675)	0.523*** (0.0812)	0.476*** (0.0947)	0.405*** (0.0647)	
Labor Fit					1.061* (0.639)
Geographical Distance		1.141*** (0.229)		0.932*** (0.348)	1.156** (0.525)
Air Traffic Intensity			3.481** (1.556)		

Results are for 1050 manufacturing investments in the US by 622 MNEs from 35 different home countries. The continuous variables are in natural logarithm causing their coefficients to be interpretable as elasticities. P-values are shown between brackets. Error terms are clustered by investing firms. Only significant random components of the coefficients are reported. Buyer Fit remained fixed due to convergence problems.

Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.368	-1.690	0.632	-1.480	-0.658
	(0.530)	(1.440)	(0.621)	(2.185)	(1.582)
Prior FDI Home Country Focal Industry * Masculinity	-0.0398*	-0.0542	-0.0524	-0.0443	-0.0826*
	(0.0234)	(0.0378)	(0.0335)	(0.0352)	(0.0434)
Prior FDI Home Country Other Industry	0.794***	1.098***	0.604**	0.930**	0.794***
	(0.224)	(0.244)	(0.279)	(0.374)	(0.271)
Prior FDI Home Country Other Industry * Masculinity	-0.00688	0.00717	-0.0130	-0.0108	-0.0133
	(0.00757)	(0.0103)	(0.0105)	(0.0107)	(0.00953)
Prior FDI Other Country Focal Industry	0.167	-0.230	0.370	-0.205	1.128***
	(0.433)	(0.656)	(0.615)	(1.105)	(0.415)
Investor's Experience	4.203***	7.671***	5.384***	4.152	12.55**
	(1.482)	(1.976)	(1.475)	(0)	(5.500)
GDP per capita	0.759***	0.775***	0.567	0.933***	0.572
	(0.218)	(0.263)	(0.357)	(0.242)	(0.427)
Population Density	7.662***	7.671***	10.15***	5.244***	18.03**
	(1.680)	(1.284)	(2.360)	(1.135)	(7.617)
Population Density Squared	-6.175***	-5.745***	-9.721***	-3.365***	-17.44**
	(1.620)	(1.166)	(2.498)	(0.953)	(7.826)
Corporate Tax Rate	0.197***	0.203**	0.218**	0.176**	0.247**
	(0.0664)	(0.0933)	(0.108)	(0.0820)	(0.105)
Educational Attainment	0.392*	0.623**	0.243	0.731***	-0.0481
	(0.224)	(0.269)	(0.355)	(0.247)	(0.355)
Labor Costs	-0.638	-1.222*	-0.0399	-1.815***	1.108
	(0.597)	(0.679)	(1.008)	(0.694)	(1.023)
Employment	0.236***	0.337***	0.224***	0.260	0.129
	(0.0474)	(0.0568)	(0.0680)	(0)	(0.123)
Rent Costs	-1.206***	-0.818**	-1.663***	-1.141***	-1.776***
	(0.280)	(0.350)	(0.459)	(0.357)	(0.544)
Labor Fit	0.837***	0.591*	0.956***	0.722**	1.024**
	(0.240)	(0.359)	(0.335)	(0.349)	(0.421)
Supplier Fit	0.707***	0.246	1.182***	0.581**	1.066**
	(0.242)	(0.345)	(0.309)	(0.272)	(0.470)
Buyer Fit	0.373*	0.347	0.335	0.479*	0.238
	(0.201)	(0.368)	(0.264)	(0.246)	(0.436)
Knowledge Fit	0.0994	0.177**	0.0209	0.220***	0.0163
	(0.0608)	(0.0796)	(0.0893)	(0.0711)	(0.0995)
Geographical Distance	-0.0522	0.117	-0.268	0.0216	0.0376
	(0.183)	(0.216)	(0.333)	(0.214)	(0.413)
Air Traffic Intensity	1.965***	1.071	1.739	1.477**	1.908*
	(0.559)	(0.671)	(1.142)	(0.672)	(1.076)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Continuation Table - Masculinity	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Random parts coefficients					
Prior FDI Home Country Focal Industry		3.823*** (1.249)		3.859* (2.298)	2.419* (1.313)
Prior FDI Home Country Focal Industry * Masculinity	0.0839*** (0.0223)	0.0955* (0.0493)	0.0839* (0.0462)		
Prior FDI Home Country Other Industry * Masculinity	0.0378** (0.0155)	0.0353** (0.0156)	0.0378** (0.0189)	0.0452** (0.0200)	
Prior FDI Other Country Focal Industry	2.118*** (0.600)	2.794*** (0.684)	1.922* (1.124)	2.580* (1.391)	
Investor's Experience		49.10*** (9.311)	12.40** (5.470)		90.87** (40.05)
GDP per capita		-0.749* (0.418)			
Population Density	4.071*** (1.306)	3.402*** (0.792)	7.179*** (1.907)	1.045* (0.589)	13.55** (6.622)
Labor Costs				2.722*** (0.861)	
Employment	0.402*** (0.0665)	0.513*** (0.0779)	0.423*** (0.110)	0.406*** (0.0641)	
Supplier Fit					0.519** (0.210)
Geographical Distance	0.736*** (0.256)	1.151*** (0.236)		0.940*** (0.352)	
Air Traffic Intensity			2.921* (1.648)		3.127** (1.227)

Results are for 1050 manufacturing investments in the US by 622 MNEs from 35 different home countries. The continuous variables are in natural logarithm causing their coefficients to be interpretable as elasticities. P-values are shown between brackets. Error terms are clustered by investing firms. Only significant random components of the coefficients are reported. Buyer Fit remained fixed due to convergence problems.

Domestic Conformity Forces	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	0.553 (0.690)	-0.671 (2.349)	0.00840 (1.071)	-0.900 (0.751)	-1.943 (2.360)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	3.453* (1.779)	2.737 (2.166)	2.101 (3.004)	-0.164 (1.618)	5.144** (2.395)
Prior FDI Home Country Other Industry	0.801** (0.331)	1.846*** (0.347)	0.573* (0.302)	0.393 (0.295)	1.340*** (0.249)
Prior FDI Home Country Other Industry * Domestic Conformity Forces	0.267 (0.241)	0.945*** (0.350)	-0.168 (0.290)	-0.372 (0.306)	1.332* (0.710)
Prior FDI Other Country Focal Industry	0.0621 (0.489)	0.0296 (0.776)	0.415 (0.489)	0.638 (0.494)	-0.295 (0.737)
Investor's Experience	4.391*** (1.345)	1.818 (2.385)	4.035*** (0.527)	9.260*** (1.993)	4.249 (0.435)
GDP per capita	0.783*** (0.214)	0.848*** (0.266)	0.696* (0.373)	0.614* (0.366)	0.951*** (0.242)
Population Density	7.221*** (1.514)	8.166*** (1.721)	13.71*** (5.008)	15.01*** (2.825)	5.465*** (1.048)
Population Density Squared	-5.698*** (1.443)	-6.108*** (1.670)	-13.21*** (4.998)	-14.47*** (2.991)	-3.573*** (0.853)
Corporate Tax Rate	0.197*** (0.0662)	0.198** (0.0939)	0.220** (0.0978)	0.223** (0.0939)	0.168** (0.0817)
Educational Attainment	0.381* (0.222)	0.614** (0.271)	0.214 (0.353)	-0.0414 (0.377)	0.687*** (0.246)
Labor Costs	-0.626 (0.592)	-1.164* (0.676)	0.0926 (1.068)	1.110 (0.896)	-1.777** (0.701)
Employment	0.235*** (0.0460)	0.283*** (0.0547)	0.175* (0.0925)	0.110** (0.0490)	0.267 (0.001)
Rent Costs	-1.243*** (0.284)	-0.902*** (0.342)	-1.872*** (0.483)	-1.784*** (0.469)	-1.147*** (0.354)
Labor Fit	0.843*** (0.238)	0.709* (0.424)	0.462 (0.400)	0.906** (0.395)	0.726** (0.339)
Supplier Fit	0.706*** (0.240)	0.355 (0.333)	1.337*** (0.343)	1.071** (0.437)	0.580** (0.274)
Buyer Fit	0.383* (0.203)	0.402 (0.351)	0.383 (0.246)	0.154 (0.437)	0.493** (0.246)
Knowledge Fit	0.101* (0.0607)	0.180** (0.0790)	0.0381 (0.0976)	0.00232 (0.0946)	0.222*** (0.0707)
Geographical Distance	-0.0471 (0.183)	0.0863 (0.205)	-0.272 (0.335)	-0.0494 (0.411)	-0.0310 (0.210)
Air Traffic Intensity	2.023*** (0.553)	1.210* (0.652)	1.612* (0.932)	2.132* (1.217)	1.531** (0.652)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Continuation Table - DCF	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Random parts coefficients					
Prior FDI Home Country Focal Industry		4.193* (2.180)	1.547** (0.688)	0.818* (0.424)	3.293* (1.782)
Prior FDI Home Country Focal Industry * Domestic Conformity Forces	3.935** (1.758)				5.984*** (2.257)
Prior FDI Home Country Other Industry	1.121** (0.535)				
Prior FDI Home Country Other Industry * Domestic Conformity Forces					1.642** (0.795)
Prior FDI Other Country Focal Industry	2.305*** (0.610)	2.352** (1.006)	1.828*** (0.641)	1.720*** (0.648)	2.776*** (0.935)
Investor's Experience		141.8*** (35.83)	4.791* (2.461)	21.00*** (4.230)	
Population Density	3.691*** (1.155)	3.669*** (1.144)	9.230** (3.728)	9.878*** (2.425)	1.278*** (0.454)
Population Density Squared			0.722* (0.415)	1.263*** (0.429)	0.605** (0.278)
Employment	0.404*** (0.0648)	0.447*** (0.0807)			0.424*** (0.0638)
Labor Cost					2.579*** (0.795)
Labor Fit			1.501*** (0.412)	1.095* (0.645)	
Geographical Distance	0.757*** (0.244)	1.135*** (0.251)	0.777** (0.358)	1.187** (0.503)	0.791** (0.386)
Air Traffic Intensity			3.244*** (0.881)		

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Table 2. 29 Two Stage Mixed Logit

First Stage

	Full Sample	*Less Legitimacy*	*High Legitimacy*	*Low # foreign affiliates*	*High # foreign affiliates*
Prior FDI Home Country Focal Industry	-1.512	-0.281	0.242	-1.921	0.231
	(1.449)	(2.018)	(1.268)	(1.806)	(0.541)
Prior FDI Home Country Other Industry	0.688**	1.042***	0.610**	0.957***	0.456*
	(0.273)	(0.357)	(0.256)	(0.338)	(0.246)
Prior FDI Other Country Focal Industry	0.213	-0.306	0.465	-0.622	0.635
	(0.495)	(0.767)	(0.647)	(0.914)	(0.432)
Investor's Experience	5.429***	-21.45***	4.841***	3.936***	7.746***
	(1.683)	(5.256)	(1.191)	(0.126)	(2.526)
GDP per capita	0.791***	0.823***	0.699**	0.907***	0.454
	(0.218)	(0.277)	(0.341)	(0.244)	(0.396)
Population Density	8.444***	5.824***	15.05***	6.399***	8.373***
	(1.419)	(0.940)	(3.094)	(1.119)	(1.671)
Population Density Squared	-6.929***	-3.782***	-15.20***	-4.530***	-7.734***
	(1.411)	(0.748)	(3.685)	(0.997)	(1.817)
Corporate Tax Rate	0.213***	0.190**	0.199*	0.189**	0.267**
	(0.0676)	(0.0925)	(0.109)	(0.0827)	(0.117)
Educational Attainment	0.432*	0.635**	0.222	0.722***	0.0610
	(0.221)	(0.267)	(0.368)	(0.247)	(0.385)
Labor Costs	-0.569	-1.103	0.124	-1.582**	0.754
	(0.598)	(0.671)	(1.044)	(0.682)	(0.905)
Employment	0.219***	0.260***	0.152**	0.283***	0.251***
	(0.0464)	(0.0681)	(0.0635)	(0.0561)	(0.0604)
Rent Costs	-1.346***	-0.944***	-1.803***	-1.118***	-1.642***
	(0.287)	(0.362)	(0.467)	(0.343)	(0.477)
Labor Fit	0.730**	0.786**	0.961***	0.616*	0.837**
	(0.290)	(0.367)	(0.347)	(0.360)	(0.332)
Supplier Fit	0.807***	0.319	1.271***	0.565**	0.913**
	(0.240)	(0.327)	(0.315)	(0.280)	(0.384)
Buyer Fit	0.346	0.371	0.391	0.512**	0.225
	(0.215)	(0.349)	(0.273)	(0.246)	(0.369)
Knowledge Fit	0.120**	0.190**	0.0318	0.213***	-0.117
	(0.0599)	(0.0790)	(0.0934)	(0.0726)	(0.103)
Geographical Distance	0.0530	0.175	-0.241	0.0772	-0.0812
	(0.191)	(0.251)	(0.342)	(0.193)	(0.438)
Air Traffic Intensity	1.147	1.385**	1.486	1.369**	1.296
	(0.832)	(0.655)	(1.040)	(0.678)	(1.079)
Number of firms	622	441	184	503	179
Number of home countries	35	34	26	35	25
Number of projects	1050	553	497	605	445

Continuation Table 2.29	*Full Sample*	*Less Legitimacy*	*High Legitimacy*	*Low no. foreign affiliates*	*High no. foreign affiliates*
Random parts coefficients					
Prior FDI Home Country Focal Industry	3.561*** (1.274)			4.109*** (1.343)	
Prior FDI Other Country Focal Industry	2.191*** (0.639)	2.745*** (0.841)	1.840* (1.007)	3.165*** (1.031)	1.581** (0.733)
Investor's Experience		203.8*** (39.82)		1.893** (0.937)	31.44*** (11.96)
Population Density	4.711*** (1.069)	1.058** (0.455)	10.20*** (2.476)	2.191*** (0.598)	2.704*** (1.032)
Population Density Squared		0.764*** (0.248)	2.285*** (0.687)	0.684** (0.281)	2.495*** (0.725)
Employment	0.356*** (0.0667)	0.390*** (0.0907)	0.243** (0.119)		0.457*** (0.119)
Labor Cost	1.673* (0.957)			2.513*** (0.884)	
Labor Fit				1.006* (0.524)	
Knowledge Fit					0.447** (0.178)
Geographical Distance	1.048*** (0.290)			0.913*** (0.233)	1.329** (0.636)
Air Traffic Intensity	2.756** (1.232)		3.382*** (1.291)		3.575*** (1.131)

Results are for 1050 manufacturing investments in the US by 622 MNEs from 35 different home countries. The continuous variables are in natural logarithm causing their coefficients to be interpretable as elasticities. P-values are shown between brackets. Error terms are clustered by investing firms. Only significant random components of the coefficients are reported. Buyer Fit remained fixed due to convergence problems.

Second Stage: Full Sample

Prior FDI Home Country Focal Industry	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Collectivism	0.0960*				
	(2.48)				
Power Distance		0.0661			
		(1.23)			
Uncertainty Avoidance			0.0316		
			(0.71)		
Masculinity				-0.0604*	
				(-2.21)	
Domestic Conformity Forces					0.0497*
					(2.04)
Firm Age	0.0160	0.0129	0.0137	0.0189	0.0117
	(0.66)	(0.53)	(0.56)	(0.78)	(0.48)
Firm Size	-0.0267***	-0.0226**	-0.0222**	-0.0189*	-0.0252***
	(-3.48)	(-3.02)	(-2.96)	(-2.53)	(-3.31)
Foreign Affiliates	-0.00660	-0.0106	-0.0117	-0.0169	-0.00650
	(-0.65)	(-1.05)	(-1.17)	(-1.69)	(-0.63)
Developing Country	-0.0834	-0.0326	0.000191	0.00171	-0.0721
	(-1.20)	(-0.49)	(0.00)	(0.03)	(-1.03)
Prior FDI Home Country Other Industry	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Collectivism	-0.0625				
	(-1.70)				
Power Distance		-0.0433			
		(-0.85)			
Uncertainty Avoidance			-0.0168		
			(-0.40)		
Masculinity				-0.00254	
				(-0.10)	
Domestic Conformity Forces					-0.0309
					(-1.33)
Firm Age	-0.00775	-0.00569	-0.00645	-0.00724	-0.00508
	(-0.33)	(-0.24)	(-0.28)	(-0.31)	(-0.22)
Firm Size	-0.0423***	-0.0451***	-0.0454***	-0.0457***	-0.0434***
	(-5.77)	(-6.33)	(-6.36)	(-6.41)	(-5.97)
Foreign Affiliates	0.0368***	0.0394***	0.0403***	0.0409***	0.0369***
	(3.79)	(4.11)	(4.21)	(4.28)	(3.73)
Developing Country	0.130*	0.0974	0.0757	0.0745	0.121
	(1.97)	(1.54)	(1.32)	(1.30)	(1.80)
Observations	715	715	715	715	715

Second Stage: Less Legitimate Sample

Prior FDI Home Country Focal Industry	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Collectivism	0.745*** (5.47)				
Power Distance		-0.108 (-0.57)			
Uncertainty Avoidance			0.342* (2.07)		
Masculinity				0.0487 (0.45)	
Domestic Conformity Forces					0.271** (3.14)
Foreign Affiliates	0.177*** (5.91)	0.166*** (5.48)	0.168*** (5.56)	0.167*** (5.53)	0.175*** (5.78)
Developing Country	-0.309 (-1.35)	0.358 (1.59)	0.326 (1.61)	0.307 (1.52)	-0.0644 (-0.28)
Prior FDI Home Country Other Industry	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Collectivism	-0.0663 (-1.76)				
Power Distance		-0.171*** (-3.34)			
Uncertainty Avoidance			-0.0909* (-2.01)		
Masculinity				-0.0909* (-2.01)	
Domestic Conformity Forces					-0.0771** (-3.27)
Foreign Affiliates	-0.00881 (-1.06)	-0.00927 (-1.12)	-0.00826 (-1.00)	-0.00969 (-1.18)	-0.0102 (-1.24)
Developing Country	0.264*** (4.17)	0.299*** (4.88)	0.203*** (3.67)	0.199*** (3.62)	0.314*** (4.93)
Observations	1050	1050	1050	1050	1050

Second Stage: Firms with no or limited foreign operations

Prior FDI Home Country Focal Industry	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Collectivism	0.264* (2.03)				
Power Distance		-0.187 (-1.03)			
Uncertainty Avoidance			-0.107 (-0.70)		
Masculinity				-0.275** (-2.96)	
Domestic Conformity Forces					0.0343 (0.43)
Firm Age	0.190* (2.32)	0.179* (2.20)	0.180* (2.19)	0.181* (2.23)	0.177* (2.17)
Firm Size	-0.0382 (-1.56)	-0.0267 (-1.10)	-0.0268 (-1.10)	-0.0214 (-0.89)	-0.0297 (-1.22)
Developing Country	0.145 (0.60)	0.485* (2.10)	0.393 (1.87)	0.385 (1.85)	0.332 (1.37)
Prior FDI Home Country Other Industry	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Collectivism	-0.0742 (-1.68)				
Power Distance		-0.0172 (-0.28)			
Uncertainty Avoidance			-0.0770 (-1.49)		
Masculinity				-0.117*** (-3.70)	
Domestic Conformity Forces					-0.0343 (-1.26)
Firm Age	0.0492 (1.77)	0.0531 (1.92)	0.0550* (1.99)	0.0548* (2.00)	0.0525 (1.90)
Firm Size	-0.0467*** (-5.59)	-0.0493*** (-6.02)	-0.0484*** (-5.90)	-0.0466*** (-5.72)	-0.0480*** (-5.81)
Developing Country	0.0747 (0.92)	0.0166 (0.21)	0.0134 (0.19)	0.00768 (0.11)	0.0597 (0.73)
Observations	715	715	715	715	715

A.3 Principal Component Analysis of the cultural indicators defined by Hofstede

Panel A: Results Sample adequacy (Kaiser-Meyer-Olkin-measure)	KMO	KMO
Overall	0,5	0,56
Power Distance	0,5	0,54
Uncertainty Avoidance	0,77	0,8
Collectivism	0,51	0,54
Masculinity	0,22	*Not included*

Panel B: Factor analysis of the three indicators of culture	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	1,76	0,9	0,59	0,59
Factor 2	0,86	0,49	0,29	0,87
Factor 3	0,38	.	0,13	1

Panel C: Factor loadings and unique variances of the indicators of culture	Factor 1	Uniqueness
Power Distance	0,87	0,25
Uncertainty Avoidance	0,52	0,73
Collectivism	0,86	0,26

Chapter 3. Global Cities' Cross-Border Collaboration on Innovation[14]

ABSTRACT

The world's premier metropolitan areas ('global cities') are key nodes in international business networks and function as important international innovation hubs. They are prominent spaces for knowledge exchange and collaboration on innovation, yet their specific and changing role in these global innovation collaborations has not received due attention. We contribute an analysis of the changing role of global cities in global collaboration on innovation, 2000-2014, by examining co-invention linkages across 125 global cities in 46 countries. The international linkages of global cities have increased substantially over the period. Growth has been most pronounced in a number of Asian cities that rank among the top cities in the world in the most recent period. The patterns attest to the growing importance of international collaboration for innovation and the premier position of global cities as spaces facilitating such collaboration.

[14] Joint work with René Belderbos (KU Leuven), Geon Ho Lee (KU Leuven), Samuel Edet (IMT Lucca) and Massimo Riccaboni (IMT Lucca)

3.1 Introduction

Metropolitan areas are increasingly important as locations of knowledge creation (OECD, 2011). In particular, global cities, such as London, New York, Singapore, and Shanghai, are seen as important spaces in world innovation and global innovation networks due to their high degree of global connectivity, cosmopolitan environment, rich supply of skilled labor and advanced producer services, and the presence of MNEs (Taylor, 2001; Sassen, 2001; McKinsey & Company, 2013; Goerzen et al., 2013; Blevins et al. 2016; Chakravarty, 2019; Belderbos et al., 2020). Many innovations originated in global cities, and these cities have been viewed as the engines of the technological growth of countries (Jacobs, 2016). The strong international connectedness facilitates the role of global cities as innovation hubs, by fostering knowledge exchange (Carlino, 2001; Laud et al., 2009; Belderbos et al., 2017).

While the role of global cities and their connectivity in the world economy has received substantial attention in the geography literature (Sassen, 2001; Taylor, 2001; Beaverstock et al., 2002; Doel & Hubbard, 2002; Alderson & Beckfield, 2004; Bel & Fageda, 2008; Derudder et al., 2010), this literature has focused on connectivity provided by the international offices of advanced producer services firms or on the strength of the (airport) infrastructure of global cities. Much less is known about the changing role of global cities in international collaboration on innovation (Belderbos et al., 2017). Such international knowledge linkages are important for local innovation, since access to extra-local knowledge is conducive to the diversity of the local knowledge base (Malmberg & Maskell, 2002; Bathelt et al., 2004; Asheim & Coenen, 2006; Bell & Zaheer, 2007; Boschma & Frenken, 2010), facilitating knowledge recombination, and innovation performance (Rosenkopf & Almeida, 2003; Scalera et al., 2018).

In this chapter, we contribute a detailed analysis of the changing role of global cities in global collaboration on innovation. We examine the co-invention linkages across 125 cities in 46 countries that are considered core metropolitan areas in global economic connections (Globalization and World Cities Research Network (GaWC), e.g. Derudder et al., 2010; A.T. Kearney, 2012) over the period 2000-2014. We draw on a new extensive database of geocoded inventor’s addresses at the patent family level, drawing on information from all patent authorities and identifying more than 7 million patents with inventors located in (global) cities. Patents are allocated to cities using the methodology to define functional urban areas developed by the OECD (OECD, 2012), relying on population density and travel-to-work flows to determine the economic, rather than administrative, delineation of cities.

We show how the global city's collaborative innovation landscape of co-invention linkages has developed over time. We distinguish between the number of cross-border linkages in the global city's collaboration on innovation and their international network depth (the ratio of the number of foreign co-invention linkages to the number of patents invented in the city). We also compare the foreign linkages with domestic innovation collaboration involvement of the global cities by examining the foreign linkage share (the share of foreign linkages in the total number of co-invention linkages of the city). We also evaluate the aforementioned indicators by city size categories. Furthermore, we demonstrate the growing or declining role of cities in the US, Europe, Asia or elsewhere in the world and provide rankings of cross-border innovation collaboration strengths of these cities. The findings and methods provide ample ideas and opportunities for future research on global cities as special spaces for innovation and collaboration.

3.2 Background and Theory

3.2.1 Global Cities

Many definitions have been used to conceptualize a global city: 'world cities', 'supervilles', 'imperial cities', 'great industrial cities' or 'primate cities', to name a few. A first attempt was made by Patrick Geddes in 1915 (Geddes, 1915), who defined a world city as a city with a disproportional share of business activities with global connections. These cities in a hierarchical world urban system emerged as global centers of command of control as a result of the decentralization of management and production due to advances in transportation and communication. This conceptualization was further developed by Friedmann (1986) who focused on the form and extent of integration of these cities into the world economy. Instead of considering a city as an isolated space, it is now seen as a part of a system in which interactions with other spaces plays a vital role. Sassen (1991) similarly emphasized the interconnectedness between global cities and local and global markets, with global cities playing a key role in the global integration of spatially distributed economic activities. In current research, it is generally acknowledged that global cities are defined by what flows through them and not necessarily what is contained in them (Derudder & Witlox, 2003; Verginer & Riccaboni, 2021).

Four characteristics appear essential in distinguishing global cities from other (concepts of) cities: the presence of high skilled labor and advanced producers services, the cosmopolitan environment, the presence of multinational enterprises (MNEs), and a high degree of connectivity with other cities (e.g. Goerzen et al., 2013). Global cities house a disproportionate presence of expatriates, (migrant) entrepreneurs (Murphree, 2022), skilled employees, and major universities (Castells, 2000). Global cities often attract workers from neighboring areas as they offer a wide range of job opportunities and higher salaries due to the presence of multinational corporations. This leads to a self-reinforcing mechanism in which employees are attracted to global cities due to highly concentrated economic activities and MNEs locating in these global cities to benefit from the highly qualified labor pool (Florida, 2005). The presence of such a labor-pool provides a favorable environment for knowledge exchange as it enables job-hopping and the establishment of informal knowledge collaborations (Breschi & Lissoni, 2003; Miguélez & Moreno, 2013). This has led to the presence of knowledge workers, inventors, and entrepreneurs with different nationalities (Chacua-Delgado et al., 2022).

In the work of Sassen (2001) in particular, the role of global cities as centers of advanced producer services is emphasized. Advanced producer services firms such as those providing legal services, accountancy, insurance, and banking services were encouraged to follow their multinational clients abroad and became global players themselves (Beaverstock et al., 2002). The presence of advanced producer services ensures an economic infrastructure for managing global operations, as they offer specialized knowledge and advice while reducing the costs of global coordination and control (Goerzen et al., 2013; Belderbos et al., 2017). This presence is becoming ever more important as firms are increasingly outsourcing their non-core activities to service firms (Klier & Testa, 2002).

Finally, a disproportionally large number of headquarters and subsidiaries of MNEs is located in global cities (Beugelsdijk et al., 2010; Wall & Van der Knaap, 2011; Goerzen et al., 2013; Belderbos et al., 2017). MNEs are attracted to global cities (Goerzen et al., 2013) as they serve as command and control centers of worldwide production and services (Friedmann, 1986). These MNEs in turn contribute to the connectivity of the global cities through their intensive inter-firm linkages to coordinate global activities (Musil, 2009).

3.2.2 Connectivity of Global Cities

A key feature of global cities is their global connectedness and in particular their connectedness with other global cities. Existing literature has put forward two approaches for measuring and understanding connectivity and inter-city relations: the infrastructure approach (e.g. Smith & Timberlake, 2001; Derudder & Witlox, 2008; Otiso et al., 2011) and the corporate organization approach (e.g. Beaverstock et al., 2002; Derudder et al., 2003; Alderson & Beckfield, 2004).

The infrastructure approach focuses on the role of facilitating infrastructure bound to cities such as telecommunication, non-voice data transfer systems, and transportation infrastructure in generating global city connectivity (e.g. Knox & Taylor, 1995). The availability of this type of infrastructures enables the flow of capital and people and the exchange of knowledge and information (Mahutga et al., 2010; Castellani et al., 2021).

In contrast, the corporate organization approach focuses on the relations between cities that are primarily created by MNCs (e.g. Alderson et al., 2010; Wall & Van der Knaap, 2011) through their day-to-day operations and management control. Perhaps the most influential research based on this approach is the World City Network developed by the Globalization and World Cities Research Network (GaWC). In this approach, inter-city connectivity is analyzed based on networks and branches of advanced producer services firms, with a city's role in the global city network dependent on the size and functions of pairs of city offices (Taylor, 2001). The World City Network methodology has its roots in the work of Sassen (1991) on advanced producer service firms creating an interlocking network that links cities together across the world (Derudder & Taylor, 2016).

3.2.3 Global Cities as Spaces of Knowledge Creation and Connectivity

With global competition shifting towards a race for knowledge, the role of global cities in innovation, and international knowledge collaborations have become increasingly important (Cano-Kollmann et al., 2016), yet this has received relatively limited attention in prior research (Matthiessen et al., 2010; Castellani et al., 2021). The presence of MNEs, entrepreneurs (Murphree, 2022), research centers and universities creates an ideal space for knowledge spillovers (Cantwell & Piscitello, 2005) as firms and knowledge creating institutions cluster in close geographical proximity. Co-location facilitates knowledge spillovers through formal interactions and informal encounters in which tacit knowledge is exchanged (Jaffe et al., 1993; Boschma, 2005; McCann, 2011). These knowledge spillovers and intensified inter-firm collaborations may result in higher levels of innovation (Duranton & Puga, 2004; Adler et al., 2019; Chacua-Delgado et al., 2022). Social ties and inter-personal contacts mediate knowledge exchange and are key factors in the concentration of innovative activities in urban areas (Beaudry & Schiffauerova, 2009).

Perhaps even more salient, global cities have strong international connections and are part of a 'global space' of knowledge flows (Doel & Hubbard, 2002). The production of knowledge is spreading globally and increasingly involves emerging economies (Chacua-Delgado et al., 2022). International linkages between innovation clusters guarantee the diversity of knowledge flows and ideas (Bathelt et al., 2004) and facilitate the recombination of knowledge (Rosenkopf & Almeida, 2003; Maggioni et al., 2007). There is evidence that geographical diversity in knowledge connections may lead to shorter development cycles, increased innovation quality (Lahiri, 2010), increased local patent output (Miguélez & Moreno, 2013), and stronger overall innovation performance (Ferreras et al., 2015). Generally, external linkages may avoid that cities start to become too inwardly oriented (Neal, 2010) and that they converge into spaces of common and homogenous pools of knowledge (Uzzi, 1996). Such connections may make cities more attractive for R&D investments by multinational firms (Castellani et al., 2021).

The linkages to external knowledge sources are due to channels of ingoing and outgoing resource and knowledge flows established by organizations and individuals (Saxenian & Hsu, 2001; Owen-Smith & Powell, 2004; Soda & Zaheer, 2012; Lorenzen & Mudambi, 2013; Verginer & Riccaboni, 2021). Intra-organizational linkages or organizational 'pipelines' are created by firms (primarily MNEs) in an attempt to maximize the effectiveness of moving resources between firms' R&D locations, causing connectivity to be more focused and directed (Lorenzen & Mudambi, 2013). Inter-organizational linkages are often based on contracts which regulate the transmission of knowledge in the form of licensing or formal collaborations (Breschi & Lissoni, 2009). Individuals create personal relationships due to social proximity and underlying trust, leading to a more decentralized and dispersed form of connectivity. Inventors stand between these two categories as their collaboration can be facilitated by both intra-organizational tasks and inter-organizational formal agreements or informal agreements between individuals (Breschi & Lissoni, 2009; Morescalchi et al., 2015).

3.2.4 This chapter

This chapter contributes to the literature by examining the changing role of global cities in global innovation collaboration. Instead of relying on service firm activities, we establish indicators of global city collaboration based on patented co-inventions. The collaboration between inventors is found to play a central role in the diffusion of ideas and knowledge between them (Singh, 2005). Instead of operating in isolation, inventors usually rely on knowledge and ideas from different places and individuals (Breschi & Lissoni, 2001; Fleming, 2001). By geocoding inventor addresses, we can establish the role of each global city in cross-border collaborations, and how this has changed over time (2000-2014). The collaboration indicators are based on more than 7 million patents and include 125 global cities in 46 countries.

3.3 Data and Methods

To define global cities, we rely on the classification developed by the Globalization and World Cities research network (GaWC) (Taylor et al., 1999) and a number of other global city rankings. The GaWC classification includes 350 cities worldwide based primarily on their role in the networks of advanced producer services firms. Cities are divided based on levels of world city network integration, with alpha cities considered as leading global cities, followed by beta cities, and gamma cities linking smaller regions into the world economy. We include all alpha cities (fifty-three) and beta cities (seventy) that have been listed in GWAC ranking. We complement this with twenty gamma cities that showed the highest level of patent activity. The global city status of these cities was confirmed by their position and frequent citation in other global city rankings such as A.T. Kearney's (2012), MasterCard (2008) and the Economist Intelligence Unit (2014) that use different criteria for selection[15]. Based on these rankings, an additional twenty-six cities were included. Of those 169 cities, a subset was selected based on a minimum of 50 patents per year and a population of at least one million people on average[16]. This aligns our selection of global cities more closely with the notion of innovation hotspots in Chacua-Delgado et al., 2022). As a result, our dataset includes 125 global cities located in forty-six different countries.

We define the boundaries of each global city based on the functional urban area (FUA) methodology developed by the OECD in collaboration with the European Union (OECD, 2012). National definitions of metropolitan areas are rarely consistent as they are based on country-dependent administrative boundaries that do not necessarily coincide with the actual economic boundaries of the agglomeration. By using population density and travel-to-work flows as key information, a functional urban area is defined as a densely inhabited urban core with a surrounding hinterland whose labor market is highly integrated with the core (OECD, 2012). This leads to a harmonized definition of functional urban areas that enables a uniform comparison of cities across countries and the identification of knowledge clusters (cf. Alcácer & Zhao, 2016). For those (43) cities for which no OECD FUA delineation was available, we defined the city delineation using a similar methodology based on average travel-to-work time between urban areas and surrounding hinterlands, using GIS techniques and the Open Street Map (OSM) application.

[15] For the selection criteria used to select and rank global cities, we refer to the appendix.
[16] For the population of the city, we relied on data of Oxford Economics. Population data includes both the population of the city core and the highly integrated economic surrounding area. For details of each of the municipalities included within the global city, we refer to the report by the OECD (OECD, 2012).

We used the Patent Statistical (PATSTAT) database of the European Patent Office (EPO) to collect patent and inventor information. This database covers patent activities from over ninety worldwide patent offices such as those of the U.S., Japan, China, Brazil and India. Patents contain information on the address inventors and assignees, citations, and information on technological content (IPC classes) of the inventions. We avoid double counting of patent information by grouping patents by patent family ('docdb') if patents are filed in multiple jurisdictions or in multiple variants.

We geocoded addresses of inventors listed on each patent to assign patents to the previously identified global cities and to establish cross-global city inventor collaboration (Deyle & Grupp, 2005). We employed different matching algorithms to reduce missing address information across patent offices for the same patent family. In doing so, we built further on disambiguation and geocoding efforts of Morrison et al. (2017), De Rassenfosse et al. (2019) and USPTO PatentsView. Additional geocoding was performed for addresses without coordinates by using Google API, and a Japanese geocoding application for Japanese patents. The matching and geocoding steps were taken iteratively until no additional significant improvement in coordinate coverage could be made. This allowed us to geocode 16 million patents and their inventors, 2000-2014, of which 7.04 million (41 percent) had at least one inventor in one of the 125 global cities. We were able to geocode 89 percent of the patents with information on the country of inventors. The 45 percent share of the 125 global cities in worldwide patenting compares to a 15 percent share in the world's population, attesting to their role as innovation hubs. Further information on the included countries, their number of global cities, the share of global city patents over country patents and the share of global city population over country population is provided in Table 3.1.

Table 3. 1 Global cities – Shares in country patenting and population

Country	*Region*	*No. of Global cities*	*Share of Global City Patents/ Country Patents*	*Share of Global City Population/ Country Population*	*Global Cities*
Argentina	South America	1	0,29	0,31	Buenos Aires
Australia	Oceania	5	0,63	0,56	Adelaide, Brisbane, Melbourne, Perth, Sydney
Austria	Europe	1	0,21	0,30	Vienna
Belgium	Europe	1	0,27	0,22	Brussels
Brazil	South America	4	0,38	0,20	Belo Horizonte, Curitiba, Rio De Janeiro, Sao Paulo
Bulgaria	Europe	1	0,40	0,21	Sofia
Canada	North America	6	0,55	0,42	Calgary, Edmonton, Montreal, Ottawa, Toronto, Vancouver
Chile	South America	1	0,47	0,37	Santiago
China	Asia	19	0,49	0,11	Beijing, Changsha, Chengdu, Chongqing, Dalian, Fuzhou, Guangzhou, Hangzhou, Hefei, Jinan, Kunming, Qingdao, Shanghai, Shenyang, Shenzhen, Wuhan, Xiamen, Xian, Zhengzhou
Czech Republic	Europe	1	0,16	0,19	Prague
Denmark	Europe	1	0,46	0,34	Copenhagen
Finland	Europe	1	0,40	0,24	Helsinki
France	Europe	4	0,40	0,25	Lyon, Marseille, Paris, Toulouse
Germany	Europe	9	0,33	0,26	Berlin, Dresden, Dusseldorf, Frankfurt Am Main, Hamburg, Mannheim-Ludwigshafen, Munich, Nuremberg, Stuttgart
Greece	Europe	1	0,44	0,35	Athens
Hong Kong	Asia	1	0,64	0,96	Hong Kong
Hungary	Europe	1	0,44	0,29	Budapest
India	Asia	4	0,43	0,04	Bangalore, Chennai, Mumbai, New Delhi
Indonesia	Asia	1	0,24	0,11	Jakarta
Ireland	Europe	1	0,36	0,37	Dublin
Israel	Middle East	1	0,73	0,40	Tel Aviv
Italy	Europe	2	0,21	0,15	Milan, Rome
Japan	Asia	3	0,47	0,35	Fukuoka, Shizuoka, Tokyo
Malaysia	Asia	2	0,42	0,25	Kuala Lumpur, Penang
Mexico	North America	2	0,18	0,18	Mexico City, Monterrey
Netherlands	Europe	2	0,13	0,21	Amsterdam, The Hague
New Zealand	Oceania	1	0,42	0,30	Auckland
Norway	Europe	1	0,29	0,23	Oslo
Philippines	Asia	1	0,54	0,11	Manilla
Poland	Europe	1	0,09	0,08	Warsaw
Portugal	Europe	1	0,20	0,27	Lisbon
Romania	Europe	1	0,17	0,11	Bucharest
Russia	Europe	2	0,05	0,11	Moscow, St. Petersburg

Table 3. 1 (Continued)

Country	*Region*	*Number of Global cities*	*Share of Global City Patents/ Country Patents*	*Share of Global City Population/ Country Population*	*Global Cities*
Saudi Arabia	Asia	1	0,25	0,15	Riyadh
Singapore	Asia	1	0,74	0,85	Singapore
South Africa	Africa	2	0,65	0,20	Cape Town, Johannesburg
South Korea	Asia	1	0,46	0,20	Seoul
Spain	Europe	3	0,35	0,27	Barcelona, Madrid, Valencia
Sweden	Europe	1	0,29	0,20	Stockholm
Switzerland	Europe	1	0,17	0,14	Zurich
Taiwan	Asia	2	0,42	0,40	Taichung, Taipei
Thailand	Asia	1	0,62	0,20	Bangkok
Turkey	Middle East	1	0,32	0,16	Istanbul
Ukraine	Europe	1	0,03	0,06	Kiev
United Kingdom	Europe	2	0,18	0,21	London, Manchester
United States	North America	24	0,53	0,37	Albany, Atlanta, Austin, Boston, Chicago, Columbus, Dallas, Detroit , Houston, Indianapolis, Los Angeles , Miami, Milwaukee, Minneapolis, New York, Philadelphia, Phoenix, Pittsburgh, Sacramento, Salt Lake, San Antonio, San Diego, San Francisco, Seattle, Washington
Total & Average		*125*	*0,41*	*0,15*	

3.3.1 Inter-City Collaboration in Innovation

A global city collaboration link is created when two co-inventors are named on the same patent document while they are located in two distinct countries, with at least one inventor located in a global city. Given the purpose of the paper to examine the position and changing role of global cities within the collaborative innovation landscape and hence to analyze all international collaboration linkages of the global city, we take into account the linkages of the global city with all other foreign locations instead of restricting the analysis to linkages with other global cities[17].

We use several complementary indicators to characterize the position of a global city in the global collaborative innovation landscape: the number of foreign co-inventor linkages, international depth and foreign linkage share. The number of foreign co-inventor linkages is the number of connections in the form of a co-invention established between inventors in the focal city and inventors located abroad. International depth measures the degree to which a global city's innovation (patent) activities draw on international connections: the ratio of the number of foreign co-invention linkages to the number of patents invented in the city. International depth thus reflects the dependence of the global city's innovation efforts on knowledge resources in foreign locations. Foreign linkages share is the number of foreign co-inventor linkages as a share of the total number of co-inventor linkages (domestic and foreign). It indicates the international orientation of the city's co-inventor linkages and also varies in the strength of domestic innovation of the city. For expositional purposes, we present averages for three 5-year periods: 2000-2004, 2005-2009, and 2010-2014.

The 125 global cities and their share in their countries' (geocoded) patents are listed in Table 3.1. The United States has the largest number of global cities (24) followed by China (19) and Germany (9). A little bit more than half (US) or about half (China) of inventive activities are concentrated in the selected global cities; for Germany this is lower, at 33 percent. In some countries (e.g. Israel, South Africa and Thailand) the global city dominates the innovation landscape but in others (e.g. The Netherlands and the UK) patented inventions are more distributed and take place outside the global cities. Overall, 41 percent of patented inventions have an inventor located in at least one global city.

[17] Hence, this definition renders us unable to refer to the innovation collaborations as a network.

3.4. The global City Innovation Collaboration

Figure 3.1 illustrates the average innovation collaboration indicators of the 125 global cities. They show clearly increasing trends in collaboration connectivity. The average number of foreign linkages doubled from 616 to 1563. The average international depth increased from 0.63 to 0.69 while the average foreign linkage share increased from 0.26 to 0.35. After a decline in the aftermath of the financial crisis in 2008, clearly the connectedness of global cities' innovation activities has risen strongly.

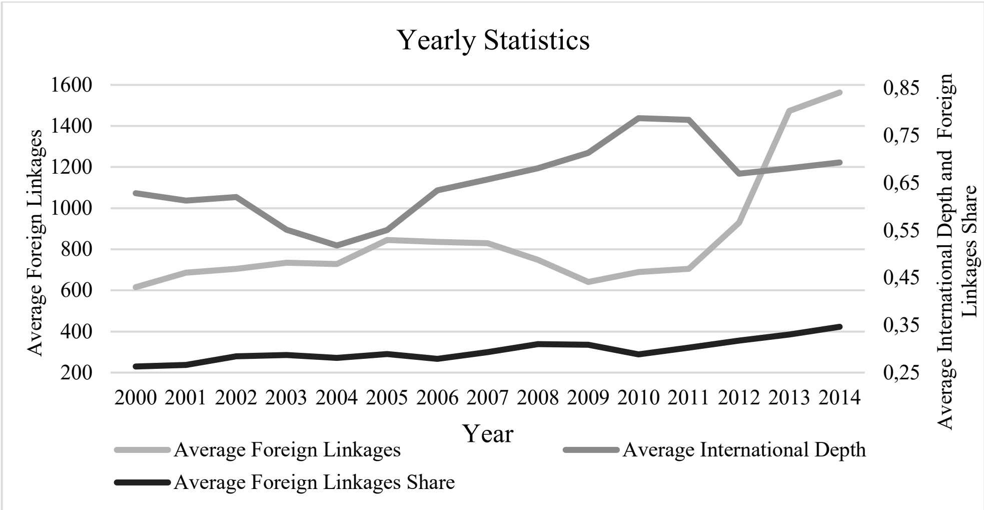


Figure 3. 1 Evolution of the number of foreign linkages, international depth & foreign linkage share

3.4.1 Foreign Linkage rankings

Table 3.2 shows the top 40 global cities in terms of the number of foreign co-invention linkages in three time periods. We observe a dominance of cities from the United States and Europe; more than 65 percent of the top connected cities are either American or European. The top connected US cities in 2000-2004 were: New York, San Francisco, and Boston, with Tokyo ranked fourth, and Paris and London ranked fifth and sixth, respectively. Over time, we observe a notable increase in the ranking of Asian cities with Beijing and Bangalore entering the top 40 in 2005-2009 and Shenzhen entering in 2010-2014. By that time, Shanghai, Taipei and Tokyo are outperforming most European cities in the top 40.

Table 3. 2 Top 40 global cities – Number of foreign linkages

Global City	*Foreign Linkages 2000-2004*	*Rank*	*Foreign Linkages 2005-2009*	*Rank*	*Foreign Linkages 2010-2014*	*Rank*
San Francisco	4913	(2)	5285	(2)	9301	(1)
Shanghai	1057	(26)	3034	(7)	7566	(2)
New York	6004	(1)	6384	(1)	7105	(3)
Taipei	1021	(29)	2083	(11)	4600	(4)
Boston	3271	(4)	3285	(5)	4570	(5)
Tokyo	4484	(3)	3779	(3)	4131	(6)
Philadelphia	2608	(7)	3070	(6)	3679	(7)
Paris	3162	(5)	3409	(4)	3607	(8)
Bangalore	519	(48)	1117	(30)	3566	(9)
Tel Aviv	1304	(19)	1509	(22)	3082	(10)
London	2936	(6)	2864	(8)	2926	(11)
Seoul	1052	(27)	1872	(17)	2633	(12)
Houston	1651	(14)	1786	(18)	2616	(13)
Los Angeles	2140	(9)	2081	(12)	2591	(14)
Beijing	483	(51)	1056	(33)	2554	(15)
Munich	1946	(10)	2354	(9)	2485	(16)
Brussels	1877	(11)	1948	(14)	2408	(17)
Toronto	2424	(8)	2117	(10)	2374	(18)
Chicago	1504	(15)	1749	(19)	2348	(19)
San Diego	1730	(13)	1732	(20)	2271	(20)
Mannheim-Ludwigshafen	1325	(18)	1899	(16)	2270	(21)
Zurich	1285	(20)	1629	(21)	2202	(22)
Frankfurt Am Main	1767	(12)	2020	(13)	2136	(23)
Singapore	740	(38)	1184	(27)	1897	(24)
Montreal	1379	(17)	1941	(15)	1883	(25)
Shenzhen	273	(66)	760	(42)	1880	(26)
Stockholm	1002	(30)	1223	(26)	1793	(27)
Dusseldorf	1223	(22)	1420	(23)	1674	(28)
Washington	1469	(16)	1300	(24)	1487	(29)
Dallas	911	(32)	925	(38)	1469	(30)
Lyon	814	(34)	971	(35)	1362	(31)
Stuttgart	1040	(28)	1247	(25)	1316	(32)
Seattle	861	(33)	872	(40)	1307	(33)
Vancouver	1068	(25)	929	(37)	1298	(34)
Helsinki	772	(37)	889	(39)	1255	(35)
Copenhagen	1132	(23)	1177	(29)	1250	(36)
Berlin	809	(35)	1062	(32)	1234	(37)
Minneapolis	779	(36)	954	(36)	1182	(38)
Detroit	1247	(21)	1074	(31)	1113	(39)
Ottawa	632	(43)	555	(51)	1108	(40)
Vienna	1079	(24)	1180	(28)	1046	(41)
Milan	992	(31)	1012	(34)	927	(43)
Amsterdam	725	(39)	729	(45)	866	(45)
Melbourne	722	(40)	623	(49)	709	(48)
Average	*685*		*777*		*1072*	

3.4.2 International depth rankings and foreign linkage share

A complementary dimension of a global city's collaboration position is the depth of its foreign co-invention linkages (the number of foreign linkages per patent). Table 3.3 indicates the top 40 of the global cities in terms of international depth. We observe some relatively strong changes in the rankings, leading to the inclusion of thirteen new cities in more recent years compared to the ranking in 2000-2004. Prague was one of the leading cities in 2000-2004 but was listed thirty-fifth in 2010-2014. The opposite trend is observed for Penang, which became the leading city in 2010-2014 while it listed as twenty-second in 2000-2004. Kiev, Bangkok and Bangalore are the only three high ranking cities maintaining a stable position in the rankings. Overall, smaller and more peripheral cities with a greater need for international collaboration tend to be more present in the rankings. The ranking in terms of international depth does not contain any US city, while almost all of the Canadian and Australian global cities are included.

Table 3.3 also displays the foreign linkage share (the number of foreign co-inventor linkages to the total co-inventor linkages) for the three time periods. The ranking remains rather stable with Singapore and Bangkok having the largest shares of foreign linkages. For Singapore this is a natural consequence of its status as city-state; for other cities it signals a strong concentration of innovation activities in the country in the major global city with little opportunity for domestic collaboration.

Table 3. 3 Top 40 global cities – International depth and foreign linkage share

Global City	*Internat. Depth 2000-2004*	*Rank*	*Foreign Linkage Share 2000-2004*	*Internat. Depth 2005-2009*	*Rank*	*Foreign Linkage Share 2005-2009*	*Internat. Depth 2010-2014*	*Rank*	*Foreign Linkage Share 2010-2014*
Penang	1,04	(22)	0,79	1,15	(20)	0,79	2,67	(1)	0,89
Kiev	1,79	(1)	0,94	1,86	(4)	0,92	2,51	(2)	0,90
Bangkok	1,67	(2)	0,97	2,14	(3)	0,98	2,15	(3)	0,96
Jakarta	1,59	(7)	0,97	1,30	(14)	0,75	2,11	(4)	0,85
Bangalore	1,47	(9)	0,85	1,70	(5)	0,83	1,81	(5)	0,81
Monterrey	1,10	(20)	0,75	2,23	(2)	0,85	1,74	(6)	0,74
Brussels	1,45	(10)	0,64	1,50	(8)	0,64	1,71	(7)	0,64
Brisbane	0,62	(53)	0,58	1,00	(30)	0,64	1,69	(8)	0,72
Montreal	0,94	(26)	0,71	1,48	(9)	0,76	1,68	(9)	0,75
Lisbon	1,37	(13)	0,85	1,04	(27)	0,71	1,47	(10)	0,69
Riyadh	0,63	(51)	0,83	2,26	(1)	0,94	1,44	(11)	0,88
Singapore	0,68	(46)	1,00	1,18	(16)	1,00	1,43	(12)	1,00
Kuala Lumpur	0,70	(43)	0,71	1,12	(21)	0,77	1,42	(13)	0,80
Auckland	0,64	(50)	0,74	1,15	(19)	0,83	1,39	(14)	0,86
Budapest	1,04	(23)	0,61	1,02	(29)	0,61	1,37	(15)	0,67
Vancouver	0,95	(25)	0,77	1,10	(23)	0,72	1,36	(16)	0,72
Chennai	1,31	(14)	0,67	1,33	(13)	0,70	1,33	(17)	0,66
Edmonton	1,12	(19)	0,72	1,18	(15)	0,67	1,31	(18)	0,63
Buenos Aires	1,39	(12)	0,92	1,17	(18)	0,92	1,28	(19)	0,85
Zurich	0,91	(28)	0,57	1,06	(25)	0,59	1,26	(20)	0,60
Manila	1,64	(6)	0,91	1,63	(6)	0,89	1,22	(21)	0,87
Dublin	0,94	(27)	0,76	1,05	(26)	0,74	1,14	(22)	0,79
Sofia	1,50	(8)	0,89	1,41	(12)	0,91	1,13	(23)	0,94
Perth	0,70	(44)	0,64	0,78	(45)	0,62	1,12	(24)	0,63
Athens	1,43	(11)	0,92	1,03	(28)	0,81	1,11	(25)	0,82
Toronto	0,86	(32)	0,76	0,95	(32)	0,66	1,10	(26)	0,62
Santiago	1,64	(5)	0,87	1,47	(11)	0,91	1,07	(27)	0,81

Table 3. 3 (Continued)

Global City	*Internat. Depth* 2000-2004	*Rank*	*Foreign Linkage Share* 2000-2004	*Internat. Depth* 2005-2009	*Rank*	*Foreign Linkage Share* 2005-2009	*Internat. Depth* 2010-2014	*Rank*	*Foreign Linkage Share* 2010-2014
Ottawa	0,52	(57)	0,64	0,68	(54)	0,57	1,07	(28)	0,66
Vienna	1,14	(18)	0,78	1,09	(24)	0,74	1,07	(29)	0,67
Amsterdam	0,85	(37)	0,43	0,84	(37)	0,41	1,02	(30)	0,52
Melbourne	0,98	(24)	0,71	0,98	(31)	0,64	1,01	(31)	0,61
Manchester	0,78	(40)	0,50	1,12	(22)	0,52	1,01	(32)	0,44
Mannheim-Ludwigshafen	0,45	(62)	0,18	0,71	(52)	0,22	1,01	(33)	0,27
New Delhi	0,91	(29)	0,53	0,85	(36)	0,49	1,00	(34)	0,53
Prague	1,66	(3)	0,76	0,77	(47)	0,56	1,00	(35)	0,66
London	0,87	(31)	0,53	0,94	(33)	0,58	0,97	(36)	0,58
Bucharest	1,64	(4)	0,90	1,48	(10)	0,79	0,95	(37)	0,65
Oslo	0,68	(47)	0,62	0,79	(43)	0,64	0,95	(38)	0,64
Calgary	0,66	(48)	0,64	0,81	(41)	0,62	0,93	(39)	0,60
Copenhagen	0,83	(38)	0,72	0,87	(35)	0,72	0,93	(40)	0,68
Mexico City	1,18	(17)	0,72	0,82	(39)	0,65	0,92	(41)	0,60
Sao Paulo	0,74	(41)	0,69	0,88	(34)	0,66	0,91	(42)	0,63
Barcelona	0,85	(35)	0,75	0,77	(46)	0,70	0,83	(47)	0,60
Adelaide	0,85	(36)	0,64	0,72	(51)	0,54	0,82	(48)	0,57
Cape Town	0,88	(30)	0,73	1,50	(7)	0,77	0,73	(52)	0,76
Madrid	1,18	(16)	0,77	0,81	(42)	0,68	0,73	(54)	0,64
The Hague	0,86	(33)	0,37	0,70	(53)	0,32	0,71	(55)	0,36
St. Petersburg	0,72	(42)	0,58	1,17	(17)	0,68	0,66	(61)	0,52
Curitiba	0,38	(69)	0,73	0,83	(38)	0,76	0,59	(69)	0,59
Moscow	0,79	(39)	0,67	0,81	(40)	0,57	0,57	(70)	0,46
Belo Horizonte	0,85	(34)	0,71	0,38	(77)	0,52	0,42	(81)	0,44
Istanbul	1,27	(15)	0,92	0,45	(68)	0,86	0,38	(85)	0,73
Warsaw	1,08	(21)	0,71	0,65	(57)	0,47	0,36	(92)	0,29
Average	*0,58*		*0,55*	*0,65*		*0,53*	*0,72*		*0,50*

3.4.3 Cross-border collaboration according to city population size

Table 3.4 takes into account the role of city size in innovation activities (e.g. Bettencourt et al., 2010; Schläpfer et al., 2014) by showing the foreign linkages, international depth and foreign linkage share per size category of the global cities. Cities within the lowest size category (Table 3.4a) seems to be characterized by average rankings in terms of foreign linkages and foreign linkages share with about half of the included cities ranking relatively low in terms of foreign linkages and foreign linkages share. In contrast, cities within this category tend to draw heavily on international collaborations for their innovation activities (*international depth*) including cities like Penang, Brussels and Brisbane.

Within the group of cities with a population size between 2.5-5 million (Table 3.4b), the majority of cities ranks relatively high in terms of foreign linkages and even includes top cities such as San Francisco, Boston, Tel Aviv and Munich. In addition, about half of the included cities score relatively high in terms of international depth and foreign linkages share including cities such as Singapore, Kiev and Riyadh which are the leading cities in terms of foreign linkages share.

Within the group of cities with a population size between 5-10 million (Table 3.4c), the majority of cities ranks relatively low in terms of foreign linkages including several of the lowest scoring cities such as Changsha, Shenyang, Zhengzhou, Jinan and Kunming. The majority of the included cities also draws relatively less on international collaborations for their innovation activities (international depth) while also scoring relatively low in terms of foreign linkages share.

Comparing the cities in the highest size category (Table 3.4d), we again observe large differences in terms of foreign linkages. While the majority of cities within this group ranks relatively low in terms of foreign linkages, it also includes cities that take on leading positions such as Shanghai, New York, Tokyo, Paris and London. About half of the included cities score relatively high in terms of international depth while also including some of the cities with very little international depth such as Guangzhou, Chengdu and Seoul. In terms of foreign linkages share, cities within this group tend to score relatively higher again including cities at both sides of the spectrum: leading cities such as Bangkok and Manila and lagging cities such as Tokyo and Seoul.

Table 3. 4 International Collaboration indicators by Size Category

Table 3. 4a: International Collaboration indicators for cities with average population between 1 000 000 and 2 500 000 people

Global City	*Foreign Linkages 2000-2004*	*International Depth 2000-2004*	*Foreign Linkage Share 2000-2004*	*Foreign Linkages 2005-2009*	*International Depth 2005-2009*	*Foreign Linkage Share 2005-2009*	*Foreign Linkages 2010-2014*	*International Depth 2010-2014*	*Foreign Linkage Share 2010-2014*	*Overall Population Average*
Frankfurt Am Main	1767	0,46	0,19	2020	0,53	0,20	2136	0,69	0,25	2493
Brussels	1877	1,45	0,64	1948	1,50	0,64	2408	1,71	0,64	2425
Pittsburgh	393	0,33	0,23	312	0,33	0,18	260	0,32	0,15	2379
Vancouver	1068	0,95	0,77	929	1,10	0,72	1298	1,36	0,72	2239
Bucharest	44	1,64	0,90	91	1,48	0,79	185	0,95	0,65	2183
Sacramento	255	0,21	0,17	200	0,35	0,19	423	0,60	0,24	2062
San Antonio	95	0,22	0,19	104	0,39	0,20	130	0,51	0,25	2007
Prague	161	1,66	0,76	124	0,77	0,56	237	1,00	0,66	1979
Brisbane	179	0,62	0,58	245	1,00	0,64	410	1,69	0,72	1971
Stockholm	1002	0,46	0,49	1223	0,66	0,56	1793	0,75	0,52	1963
Copenhagen	1132	0,83	0,72	1177	0,87	0,72	1250	0,93	0,68	1909
Lyon	814	0,49	0,35	971	0,60	0,39	1362	0,83	0,41	1874
Columbus	277	0,28	0,20	210	0,32	0,18	298	0,52	0,24	1838
Indianapolis	524	0,34	0,22	362	0,37	0,22	478	0,44	0,21	1820
Dublin	467	0,94	0,76	392	1,05	0,74	589	1,14	0,79	1703
Marseille	186	0,27	0,29	184	0,29	0,27	248	0,33	0,29	1701
Perth	154	0,70	0,64	184	0,78	0,62	260	1,12	0,63	1671
Valencia	128	0,69	0,67	103	0,75	0,65	112	0,73	0,52	1652
Penang	115	1,04	0,79	159	1,15	0,79	489	2,67	0,89	1604
Austin	488	0,14	0,18	533	0,24	0,22	694	0,36	0,23	1579
Milwaukee	183	0,14	0,13	196	0,22	0,14	272	0,32	0,18	1538
Sofia	50	1,50	0,89	68	1,41	0,91	146	1,13	0,94	1503
Dusseldorf	1223	0,43	0,17	1420	0,51	0,17	1674	0,66	0,19	1501
Auckland	188	0,64	0,74	322	1,15	0,83	508	1,39	0,86	1371
Dresden	379	0,33	0,26	563	0,40	0,27	389	0,34	0,23	1344
Helsinki	772	0,34	0,40	889	0,44	0,45	1255	0,63	0,52	1318
Nuremberg	444	0,16	0,16	744	0,21	0,18	1026	0,28	0,22	1268
Adelaide	152	0,85	0,64	110	0,72	0,54	126	0,82	0,57	1214
Ottawa	632	0,52	0,64	555	0,68	0,57	1108	1,07	0,66	1198
Toulouse	237	0,32	0,28	268	0,26	0,26	300	0,28	0,28	1195
Zurich	1285	0,91	0,57	1629	1,06	0,59	2202	1,26	0,60	1178
Oslo	398	0,68	0,62	423	0,79	0,64	546	0,95	0,64	1165

Table 3. 4 (Continued)

Global City	*Foreign Linkages 2000-2004*	*International Depth 2000-2004*	*Foreign Linkage Share 2000-2004*	*Foreign Linkages 2005-2009*	*International Depth 2005-2009*	*Foreign Linkage Share 2005-2009*	*Foreign Linkages 2010-2014*	*International Depth 2010-2014*	*Foreign Linkage Share 2010-2014*	*Overall Population Average*
Calgary	259	0,66	0,64	273	0,81	0,62	417	0,93	0,60	1153
Mannheim-Ludwigshafen	1325	0,45	0,18	1899	0,71	0,22	2270	1,01	0,27	1133
Edmonton	349	1,12	0,72	265	1,18	0,67	309	1,31	0,63	1108
Salt Lake	376	0,26	0,24	311	0,32	0,24	323	0,32	0,20	1040
The Hague	442	0,86	0,37	435	0,70	0,32	442	0,71	0,36	1000
Average	*536*	*0,65*	*0,47*	*590*	*0,71*	*0,46*	*767*	*0,87*	*0,48*	*1629*

Table 3. 4b: International Collaboration indicators for cities with average population between 2 500 000 and 5 000 000 people

Global City	*Foreign Linkages 2000-2004*	*International Depth 2000-2004*	*Foreign Linkage Share 2000-2004*	*Foreign Linkages 2005-2009*	*International Depth 2005-2009*	*Foreign Linkage Share 2005-2009*	*Foreign Linkages 2010-2014*	*International Depth 2010-2014*	*Foreign Linkage Share 2010-2014*	*Overall Population Average*
Atlanta	560	0,19	0,16	764	0,38	0,23	834	0,43	0,22	4980
Berlin	809	0,32	0,25	1062	0,35	0,24	1234	0,43	0,24	4887
Milan	992	0,42	0,37	1012	0,49	0,38	927	0,54	0,37	4815
St. Petersburgh	99	0,72	0,58	182	1,17	0,68	105	0,66	0,52	4815
Riyadh	15	0,63	0,83	74	2,26	0,94	115	1,44	0,88	4740
Singapore	740	0,68	1,00	1184	1,18	1,00	1897	1,43	1,00	4677
Barcelona	603	0,85	0,75	648	0,77	0,70	683	0,83	0,60	4663
Boston	3271	0,37	0,23	3285	0,52	0,25	4570	0,64	0,28	4515
Sydney	685	0,63	0,66	740	0,73	0,68	779	0,76	0,62	4395
Detroit	1247	0,25	0,26	1074	0,30	0,28	1113	0,32	0,27	4381
San Francisco	4913	0,21	0,24	5285	0,35	0,29	9301	0,46	0,34	4271
Rome	304	0,59	0,44	356	0,67	0,49	324	0,69	0,42	4048
Phoenix	376	0,14	0,17	486	0,30	0,25	557	0,40	0,23	3920
Melbourne	722	0,98	0,71	623	0,98	0,64	709	1,01	0,61	3904
Athens	176	1,43	0,92	108	1,03	0,81	151	1,11	0,82	3744
Montreal	1379	0,94	0,71	1941	1,48	0,76	1883	1,68	0,75	3735
Monterrey	33	1,10	0,75	119	2,23	0,85	112	1,74	0,74	3619
Cape Town	62	0,88	0,73	101	1,50	0,77	123	0,73	0,76	3368
Seattle	861	0,18	0,22	872	0,20	0,21	1307	0,23	0,22	3322

Table 3. 4b (Continued)

Global City	*Foreign Linkages 2000-2004*	*International Depth 2000-2004*	*Foreign Linkage Share 2000-2004*	*Foreign Linkages 2005-2009*	*International Depth 2005-2009*	*Foreign Linkage Share 2005-2009*	*Foreign Linkages 2010-2014*	*International Depth 2010-2014*	*Foreign Linkage Share 2010-2014*	*Overall Population Average*
Tel Aviv	1304	0,49	0,69	1509	0,60	0,67	3082	0,88	0,74	3176
Manchester	651	0,78	0,50	676	1,12	0,52	580	1,01	0,44	3133
Curitiba	7	0,38	0,73	27	0,83	0,76	48	0,59	0,59	3131
Hamburg	594	0,27	0,25	650	0,27	0,24	904	0,37	0,30	3097
Xiamen	16	0,16	0,75	16	0,07	0,63	102	0,16	0,60	3029
San Diego	1730	0,30	0,24	1732	0,33	0,24	2271	0,34	0,26	3016
Warsaw	154	1,08	0,71	104	0,65	0,47	159	0,36	0,29	2958
Shizuoka	145	0,05	0,10	70	0,03	0,06	61	0,03	0,06	2893
Budapest	269	1,04	0,61	325	1,02	0,61	529	1,37	0,67	2836
Lisbon	61	1,37	0,85	98	1,04	0,71	121	1,47	0,69	2760
Kiev	101	1,79	0,94	83	1,86	0,92	174	2,51	0,90	2681
Stuttgart	1040	0,13	0,15	1247	0,14	0,14	1316	0,15	0,16	2616
Amsterdam	725	0,85	0,43	729	0,84	0,41	866	1,02	0,52	2609
Taichung	157	0,06	0,14	345	0,14	0,18	562	0,20	0,20	2605
Vienna	1079	1,14	0,78	1180	1,09	0,74	1046	1,07	0,67	2604
Munich	1946	0,27	0,26	2354	0,33	0,26	2485	0,37	0,29	2584
Average	*795*	*0,61*	*0,51*	*889*	*0,76*	*0,51*	*1173*	*0,77*	*0,49*	*3605*

Table 3. 4c: International Collaboration indicators for cities with average population between 5 000 000 and 10 000 000 people

Global City	*Foreign Linkages 2000-2004*	*International Depth 2000-2004*	*Foreign Linkage Share 2000-2004*	*Foreign Linkages 2005-2009*	*International Depth 2005-2009*	*Foreign Linkage Share 2005-2009*	*Foreign Linkages 2010-2014*	*International Depth 2010-2014*	*Foreign Linkage Share 2010-2014*	*Overall Population Average*
Chicago	1504	0,21	0,19	1749	0,35	0,25	2348	0,49	0,29	9359
Wuhan	41	0,08	0,90	100	0,18	0,76	450	0,37	0,63	9229
Shenzhen	273	0,14	0,78	760	0,08	0,72	1880	0,10	0,56	9178
Qingdao	31	0,15	0,91	54	0,16	0,71	108	0,12	0,50	8313
Chennai	77	1,31	0,67	142	1,33	0,70	418	1,33	0,66	8159
Zhengzhou	1	0,01	0,75	4	0,02	0,85	8	0,04	0,46	8152
Xian	42	0,13	0,97	101	0,15	0,84	142	0,14	0,58	8146
Hangzhou	21	0,03	0,71	61	0,04	0,68	122	0,07	0,47	8062
Shenyang	17	0,04	0,85	15	0,03	0,72	18	0,05	0,45	7809
Johannesburg	144	0,56	0,67	184	0,79	0,74	187	0,59	0,72	7741
Bangalore	519	1,47	0,85	1117	1,70	0,83	3566	1,81	0,81	7611
Fuzhou	1	0,04	0,80	19	0,07	0,72	150	0,36	0,51	6908
Hong Kong	227	0,34	1,00	227	0,49	1,00	212	0,65	1,00	6865
Taipei	1021	0,17	0,37	2083	0,23	0,38	4600	0,40	0,52	6838
Changsha	6	0,02	0,76	14	0,04	0,63	18	0,05	0,43	6725
Santiago	59	1,64	0,87	96	1,47	0,91	139	1,07	0,81	6672
Jinan	8	0,04	0,77	9	0,02	0,78	7	0,02	0,23	6523
Dalian	10	0,04	0,66	19	0,05	0,60	88	0,11	0,71	6453
Kunming	2	0,02	1,00	5	0,02	0,44	4	0,03	0,33	6248
Madrid	496	1,18	0,77	474	0,81	0,68	566	0,73	0,64	6232
Dallas	911	0,20	0,25	925	0,39	0,31	1469	0,60	0,36	6069
Kuala Lumpur	67	0,70	0,71	174	1,12	0,77	270	1,42	0,80	5915
Philadelphia	2608	0,39	0,21	3070	0,58	0,25	3679	0,79	0,29	5882
Houston	1651	0,41	0,31	1786	0,52	0,34	2616	0,60	0,33	5547
Fukuoka	73	0,03	0,06	44	0,02	0,05	64	0,06	0,07	5532
Miami	290	0,14	0,16	280	0,19	0,17	417	0,42	0,25	5461
Washington	1469	0,28	0,21	1300	0,40	0,24	1487	0,46	0,23	5424
Toronto	2424	0,86	0,76	2117	0,95	0,66	2374	1,10	0,62	5410
Hefei	4	0,03	0,61	57	0,31	0,91	43	0,07	0,51	5388
Belo Horizonte	21	0,85	0,71	16	0,38	0,52	37	0,42	0,44	5215
Average	*467*	*0,38*	*0,64*	*567*	*0,43*	*0,60*	*916*	*0,48*	*0,51*	*6902*

Table 3. 4d: International Collaboration indicators for cities with average population > 10 000 000 people

Global City	*Foreign Linkages 2000-2004*	*International Depth 2000-2004*	*Foreign Linkage Share 2000-2004*	*Foreign Linkages 2005-2009*	*International Depth 2005-2009*	*Foreign Linkage Share 2005-2009*	*Foreign Linkages 2010-2014*	*International Depth 2010-2014*	*Foreign Linkage Share 2010-2014*	*Overall Population Average*
Tokyo	4484	0,02	0,15	3779	0,02	0,15	4131	0,04	0,16	36134
Jakarta	29	1,59	0,97	18	1,30	0,75	52	2,11	0,85	27466
Shanghai	1057	0,32	0,93	3034	0,44	0,90	7566	0,71	0,83	20604
New York	6004	0,40	0,27	6384	0,57	0,30	7105	0,71	0,32	19424
Mexico City	77	1,18	0,72	70	0,82	0,65	108	0,92	0,60	18586
Mumbai	71	0,65	0,70	145	0,77	0,62	213	0,85	0,63	18280
Beijing	483	0,13	0,79	1056	0,15	0,75	2554	0,21	0,60	17466
New Delhi	203	0,91	0,53	200	0,85	0,49	389	1,00	0,53	16303
Bangkok	169	1,67	0,97	203	2,14	0,98	312	2,15	0,96	13387
Buenos Aires	162	1,39	0,92	123	1,17	0,92	109	1,28	0,85	13138
Chengdu	10	0,02	0,70	26	0,03	0,52	87	0,07	0,39	12961
Los Angeles	2140	0,19	0,23	2081	0,29	0,25	2591	0,39	0,25	12771
Istanbul	99	1,27	0,92	96	0,45	0,86	168	0,38	0,73	12461
Sao Paulo	144	0,74	0,69	247	0,88	0,66	329	0,91	0,63	11782
Rio De Janeiro	53	0,60	0,61	51	0,42	0,46	147	0,86	0,60	11781
Paris	3162	0,31	0,40	3409	0,35	0,41	3607	0,37	0,35	11544
Manila	65	1,64	0,91	95	1,63	0,89	148	1,22	0,87	11525
Moscow	427	0,79	0,67	361	0,81	0,57	320	0,57	0,46	11314
Guangzhou	391	0,41	0,86	169	0,07	0,70	318	0,09	0,52	11232
London	2936	0,87	0,53	2864	0,94	0,58	2926	0,97	0,58	10778
Chongqing	5	0,02	0,85	16	0,03	0,56	96	0,19	0,70	10410
Seoul	1052	0,02	0,06	1872	0,03	0,06	2633	0,03	0,05	10104
Average	*1056*	*0,69*	*0,65*	*1195*	*0,64*	*0,59*	*1632*	*0,73*	*0,57*	*15430*

3.4.4 Comparisons between regions of the World

Table 3.5 shows the average foreign linkages, the average international depth, the average foreign linkage share and the percentage of inter-regional linkages to foreign linkages for six world regions. North America has, on average, the highest number of foreign linkages followed by Europe, Africa-Middle East and Asia. South American global cities have considerably fewer foreign linkages. While we observe a general trend of increasing foreign linkages over the years, the strongest increases can be found for Asia and Africa-Middle East, with 177 percent and 130 percent growth over the period, respectively.

In terms of international depth, South American and European cities rank comparatively higher, while North America and Asia have comparatively low depth. Cities in Africa and the Middle East have by far the largest international depth in 2005-2009 but were surpassed by Oceania in 2010-2014. Overall, we observe a general increase in international depth for all regions except Africa Middle East and South America. The latter region even shows a decreasing trend (-8.5 percent).

South America, African-Middle East and Asian cities have the largest share of foreign to total co-inventor linkages while North American and Europe have the lowest share. The presence of multiple domestic cities with innovation clusters in these regions is associated with a greater intensity of domestic co-inventor linkages. The foreign linkages share remains stable over time for North America, Europe, Africa-Middle East and Oceania, but decreasing trend can be observed for South America (-13.5 percent) and Asia (-19.9 percent). In Asia this is related to the emergence of multiple (global) cities as strong innovation hubs, in particular in China, fostering domestic co-inventor linkages.

In terms of inter-regional linkages as a percentage of foreign co-inventor linkages, we observe that Africa-Middle East, South America and Oceania predominantly collaborate with other regions while this is considerably less so for Europe. The scores remain stable for most regions with the partial exception of Europe and Asia, which experience a slight decrease over the years, respectively -6.9 percent and -5.9 percent.

Table 3. 5 Average International Collaboration indicators by World Region

Region	*2000-2004*	*2005-2009*	*2010-2014*	*Proportional Change 2000-2014*
		Foreign Linkages		
North America	1223	1266	1667	36,3%
Europe	753	844	970	28,9%
Asia	338	489	938	177,5%
Africa-Middle East	381	467	877	130,0%
Oceania	347	371	465	34,2%
South America	74	93	135	82,0%
World	*685*	*777*	*1072*	*54,5%*
		International Depth		
North America	0,41	0,55	0,66	59,3%
Europe	0,79	0,76	0,81	3,0%
Asia	0,41	0,45	0,57	37,5%
Africa-Middle East	0,64	1,28	0,91	41,9%
Oceania	0,74	0,90	1,13	53,8%
South America	0,93	0,86	0,85	-8,5%
World	*0,58*	*0,65*	*0,72*	*22,0%*
		Foreign Linkage Share		
North America	0,34	0,35	0,36	6,3%
Europe	0,53	0,51	0,50	-6,1%
Asia	0,70	0,64	0,56	-19,9%
Africa-Middle East	0,73	0,78	0,77	6,0%
Oceania	0,66	0,66	0,67	1,0%
South America	0,76	0,70	0,65	-13,5%
World	*0,49*	*0.49*	*0.50*	*2%*
		Inter-regional Linkages as a percentage of Foreign Linkages		
North America	0,76	0,76	0,76	0,0%
Europe	0,50	0,47	0,46	-6,9%
Asia	0,81	0,78	0,76	-5,9%
Africa-Middle East	0,98	0,99	0,98	0,0%
Oceania	0,96	0,95	0,96	0,0%
South America	0,98	0,97	0,98	0,0%
World	*0,71*	*0,69*	*0,71*	*0,0%*

3.4.5 Fastest growing and declining cities

Table 3.6 shows the cities with the fastest growth or greatest decline in foreign linkages. The fastest growth (Table 3.6a) is found for Asian cities, with Shanghai even increasing its foreign linkages by seven times. Large increases in foreign linkages are also found for some American cities such as San Francisco, Boston, New York and Philadelphia, and some European cities such as Mannheim-Ludwigshafen, Zurich, Stockholm, Nuremberg and Lyon. Although declines (Table 3.6b) in foreign linkages have been less pronounced, it is clear that the cities with declining breadth are mostly located in North America (Detroit, Pittsburgh, Salt Lake, Toronto, Indianapolis and Edmonton) or Europe (Moscow, Manchester, Milan, Vienna, Athens, Valencia and London). Some Asian cities, such as Tokyo, Shizuoka, Guangzhou and Hong Kong also experienced declines.

Table 3. 6 Top 20 cities – Fastest growing or declining number of foreign linkages

Table 3. 6a: Top 20 cities with the fastest growing number of foreign linkages

Global City	*Foreign Linkages 2000-2004*	*Rank*	*Foreign Linkages 2005-2009*	*Rank*	*Foreign Linkages 2010-2014*	*Rank*	*Change 2000-2014*
Shanghai	1057	(26)	3034	(7)	7566	(2)	6510
San Francisco	4913	(2)	5285	(2)	9301	(1)	4387
Taipei	1021	(29)	2083	(11)	4600	(4)	3579
Bangalore	519	(48)	1117	(30)	3566	(9)	3047
Beijing	483	(51)	1056	(33)	2554	(15)	2071
Tel Aviv	1304	(19)	1509	(22)	3082	(10)	1779
Shenzhen	273	(66)	760	(42)	1880	(26)	1607
Seoul	1052	(27)	1872	(17)	2633	(12)	1581
Boston	3271	(4)	3285	(5)	4570	(5)	1299
Singapore	740	(38)	1184	(27)	1897	(24)	1157
New York	6004	(1)	6384	(1)	7105	(3)	1101
Philadelphia	2608	(7)	3070	(6)	3679	(7)	1071
Houston	1651	(14)	1786	(18)	2616	(13)	965
Mannheim-Ludwigshafen	1325	(18)	1899	(16)	2270	(21)	945
Zurich	1285	(20)	1629	(21)	2202	(22)	917
Chicago	1504	(15)	1749	(19)	2348	(19)	844
Stockholm	1002	(30)	1223	(26)	1793	(27)	790
Nuremberg	444	(53)	744	(43)	1026	(42)	582
Dallas	911	(32)	925	(38)	1469	(30)	558
Lyon	814	(34)	971	(35)	1362	(31)	548

Table 3. 6b: Top 20 cities with the fastest declining number of foreign linkages

Global City	*Foreign Linkages 2000-2004*	*Rank*	*Foreign Linkages 2005-2009*	*Rank*	*Foreign Linkages 2010-2014*	*Rank*	*Change 2000-2014*
Tokyo	4484	(3)	3779	(3)	4131	(6)	-353
Detroit	1247	(21)	1074	(31)	1113	(39)	-134
Pittsburgh	393	(57)	312	(64)	260	(81)	-133
Moscow	427	(55)	361	(59)	320	(73)	-107
Shizuoka	145	(85)	70	(106)	61	(116)	-84
Guangzhou	391	(58)	169	(83)	318	(74)	-73
Manchester	651	(42)	676	(46)	580	(52)	-71
Milan	992	(31)	1012	(34)	927	(43)	-65
Buenos Aires	162	(79)	123	(88)	109	(107)	-53
Salt Lake	376	(61)	311	(65)	323	(72)	-53
Toronto	2424	(8)	2117	(10)	2374	(18)	-50
Indianapolis	524	(47)	362	(58)	478	(60)	-46
Edmonton	349	(62)	265	(69)	309	(76)	-40
Vienna	1079	(24)	1180	(28)	1046	(41)	-33
Adelaide	152	(84)	110	(90)	126	(100)	-26
Athens	176	(77)	108	(91)	151	(92)	-25
Valencia	128	(88)	103	(94)	112	(106)	-16
Hong Kong	227	(71)	227	(72)	212	(86)	-15
Melbourne	722	(40)	623	(49)	709	(48)	-14
London	2936	(6)	2864	(8)	2926	(11)	-11

3.5. Discussion and Conclusions

The world's premier metropolitan areas ('global cities') are key nodes in domestic and international business collaborations, hold disproportional shares of high skilled workers, universities, and research units, and function as important innovation hubs. They are important R&D locations, with their high degree of global connectivity, a cosmopolitan environment and rich supply of advanced producer services (Taylor, 2001; Goerzen et al., 2013; Belderbos et al., 2017). Hence, they are distinct and prominent spaces for knowledge exchange and collaboration on innovation, yet their specific and changing role in global innovation collaboration has not received due attention in the literature. In this chapter, we contribute a detailed analysis of the changing role of global cities in the global collaborative innovation landscape, 2000-2014, by examining co-invention linkages across 125 cities in 46 countries.

More than forty percent of the world's patented inventions have their origin in these global cities. The number of international co-inventor ties has doubled over the period, in particular in the last few years. The depth of such ties (the intensity of international ties) and foreign linkages share (the ratio of foreign linkages to total linkages including domestic co-inventions) have also increased. These patterns attest to the growing importance of international collaboration for innovation and the premier position of global cities as spaces facilitating such collaboration.

US cities such as San Francisco, New York and Boston take up leading positions in the global innovation collaboration landscape and have seen substantial growth in their foreign linkages. At the same time Asian cities (such as Shanghai, Taipei, Bangalore) are increasingly taking up important collaboration roles, showing even steeper growth in their international connectivity. Cross-border connections remain roughly stable for European cities (such as Paris, London, Munich and Brussels), while international depth and reliance on international collaboration ties is prominent in smaller and more peripheral cities. The share of foreign linkages has declined for Asia cities due to rapid increase in domestic linkages between knowledge hubs. These observed patterns are consistent with the findings in Chacua-Delgado et al., (2022), of an increasing dispersion of global knowledge production.

Interestingly, when splitting the cities into groups based on their overall population average, a larger city does not necessarily imply a higher number of foreign linkages or a lower international depth or foreign linkages share. All population groups show large differences in terms of foreign linkages, international depth and foreign linkages share rankings often including both leading and lagging cities, especially when either having a low or a high population average. Within the middle groups, patterns are clearer with the lower middle group (population of 2.5 to 5 million people) mainly characterized by a higher ranking in the international connectivity indicators in contrast to the higher middle group (population group of 5 to 10 million).

Our findings suggest ample opportunities for future research seeking to answer relevant research questions. Are foreign linkages allowing global cities to increase their innovation performance? Which global network characteristics of cities are associated with high impact innovations representing high novelty and radical change? Are domestic ties or international ties most salient in this? Are (foreign) collaboration ties or is intra-city technology agglomeration a key driver of the attractiveness for firms to locate R&D units in global cities? What are the roles in collaborative ties of organizational pipelines (intra-firm cross-border collaborations) versus more distributed forms of collaboration by universities, small firms, and individual inventors and entrepreneurs, since cross-border co-invention linkages of MNCs are also seen as organizational mechanisms to limit knowledge spillovers (Alcácer & Zhao, 2012; Cantwell & Mudambi, 2011)? Does it matter whether foreign linkages are created by MNCs headquarter in the focal country (or global city) or that they are created by foreign MNCs (e.g. see Chacua-Delgado et al., 2022)? Does reliance on inter-city connections for innovation activities influence technological specialization or diversification of innovation in global cities? Are foreign collaboration linkages also driving internationalization and knowledge exchange through migration? Are there highly innovative cities besides global cities and do they have different collaboration patterns? Do growing cities increase their network position or are network positions fostering growth[18]? We hope that future research endeavors can build on the insights in this chapter to address these important issues.

In closing, we also note a number of limitations of our research. While this research is based on the best geocoding effort to date, not all patent information in PATSTAT allows researchers to identify the location of inventors. Inventor address information can be absent, as not all patent offices systematically collect this data. We expect that the eleven percent of patents that list inventors' countries of residence but that could not be geocoded are not likely to be unevenly spread across global cities, such that the statistics presented in this chapter provide a representative picture. Second, it is well known that indicators of networks such as network

[18] Within the next chapter of this dissertation (Chapter 4), we analyze one side of this relationship, namely if network positions foster growth.

centrality are sometime more difficult to interpret when there are important scale differences across the nodes (cities). Thus, it is difficult to determine whether the observed value of the network-level measure is a direct result of structural network characteristics or whether it is an indirect effect of a city's patent size. Future research should discuss and examine alternative measures of cities' roles in the global innovation network.

3.7 Appendix: Global Cities' Cross-Border Collaboration on Innovation

Appendix

This appendix describes the selection criteria used in other reports to select and rank global cities (A3.7.1).

A3.7.1. Selection criteria in selecting and ranking global cities

MasterCard: The MasterCard Global Destination Cities index ranks cities based on analysis of two main criteria: the number of international overnight visitor arrivals that stay at least one night within the destination city and the number of cross-border spending within these cities.

A.T. Kearney: The Global Cities index assesses cities based on 5 dimensions: business activity, human capital, information exchange, cultural experience and political engagement. Each of these dimensions is assessed based on a number of metrics. For each included dimension, they analyze at least 5 different underlying metrics. For the specific metrics used within each dimension, we refer to the company website.

Economist Intelligence Unit: The Global City Competitiveness index analyses cities across 8 distinct categories of competitiveness: economic strength, human capital, institutional effectiveness, financial maturity, global appeal, physical capital, social and cultural character and environment and natural hazards. Each dimension is analyzed through the usage of several underlying metrics. The final ranking of the city is a weighted score of the underlying categories. For the precise metrics and weight of these metrics and dimensions in the final score, we refer to the company website.

Chapter 4. World City Innovation and Service Networks and Economic Growth [19]

ABSTRACT

In addition to their well-documented role as global service hubs, world cities are also global innovation hubs with their connectivity in myriad border-crossing networks being crucial for the sustainability of the innovation clusters they harbor. Both aspects of world cities' international connectivity may allow their economies to grow, yet it remains unclear whether both networks are complements or substitutes. This paper provides systematic evidence on the (changing) position of world cities in inter-city collaborative innovation networks by drawing on information on patented co-inventions, and compares this with their ranking on established indicators based affiliate networks of advance service firms. We examine co-invention linkages across 129 world cities located in 76 countries between 2000-2012, and discuss key parallels and differences between both types of networks. Fixed effects panel analysis of GDP growth suggest that the two networks are partial substitutes, and specialization in one of the two networks may therefore improve the economic performance of cities. We discuss implications and the opportunities for future research of using innovation-based network indicators.

[19] Joint work with René Belderbos (KU Leuven) and Ben Derudder (KU Leuven).

4.1 Introduction

The increasing interest in the economic role of 'global' and 'world cities' has led to an expanding academic literature of sizable diversity (Acuto, 2011; Derudder et al., 2011; van Meeteren et al., 2016; Clark, 2016; Ren & Keil, 2017). Perhaps the most prominent focus in this research field, which commonly entails including references to Friedmann (1986), Sassen (1991), and Taylor (2001), is the international network relationships of world cities. In research carried out under the umbrella of the Globalization and World cities (GaWC) research network, for example, cities' global network connectivity (GNC) is estimated based on analyses of the office networks of producer services firms (firms delivering high value services such as banking, insurance, accounting, legal advice, advertising and consulting). This line of research has become a key approach to making sense of world/global cities (henceforth 'world cities' for the sake of simplicity): analyzing world cities' connectivity by looking at agents 'interlocking' them across space (Neal, 2014), and considering world cities as hotspots of internationally operating advanced producer services firms providing impetus to cities' economic growth (Coffey, 2000; Beyers, 2005; Lundquist et al., 2006; Bryson & Daniels, 2007).

There are, however, myriad other ways to look at how cities are globalizing (Ren & Keil, 2017). Another central function is that world cities can also be envisaged as hotspots for the creation of innovations and flows of knowledge. Throughout the twentieth century, there has been a marked increase in collaboration in knowledge creation (Meyer & Bhattacharya, 2004; Fleming & Frenken, 2007; Crescenzi et al., 2016), with interconnected metropolitan areas playing a major role as knowledge hubs (OECD, 2011). Strong connections to 'external' knowledge hubs allow for increasing the diversity of ideas within the local knowledge base, enriching local innovation dynamics (Bell & Zaheer, 2007; Boschma & Frenken, 2010), enhancing innovation competitiveness (Bathelt et al., 2004; Asheim & Coenen, 2006), and thus leading to sustained economic growth (Lorenzen et al., 2020). World cities' position in a global knowledge-based economy can be said to be co-determined by their global connectivity in terms of their position in cross-border knowledge networks and co-created knowledge flows (e.g. Matthiessen et al., 2010). With inter-city competition, cooperation, and integration jointly leading to a race for knowledge, there is a need to also examine (changing) world city network connectivity through the lens of knowledge networks.

The current paper contributes to both streams in prior literature by juxtaposing and comparing cities' positions in producer services and co-invention networks and by analyzing their simultaneous and interrelated association with economic growth. Based on extant theory and prior studies, we argue that both the strength of inter-city producer service firm networks and inter-city co-inventor networks underpin GDP growth, but both networks may either decrease or enhance each other's association with economic growth.

We provide systematic evidence on the (changing) role and characteristics of world cities in inter-city collaborative innovation networks by drawing on information on patented co-inventions. We examine co-invention linkages across 129 world cities located in 76 countries by drawing on a novel and extensive database of geocoded patent inventor addresses, utilizing information from all main patent authorities. Patents are allocated to functional urban areas as defined by the OECD (2012). We use this to calculate indicators of cities' centrality in the global inter-city innovation network (WCIN, world city innovation network) by means of an established social network analysis indicator: weighted degree centrality, which is conceptually and methodologically on par with Taylor's (2001) global network connectivity (GNC) for gauging cities' connectivity in the office networks of advanced service networks. This produces city-level indicators that can be compared across cities and for different time periods – here we focus on trends between 2000 and 2012. We observe parallels between GNC and WCIN strength, but also key differences in the position of cities in the two networks suggesting specialization advantages. We examine this in detail by estimating panel fixed effects models of the association of cities' GDP growth with GNC and WCIN, the lagged value of GDP and a set of control variables. Empirical results suggest that the two networks are partial substitutes, so that specialization in one of the two networks strength may improve the economic performance of cities.

The main contributions of the paper are threefold. Conceptually, we contribute to the literature's increasing focus on 'the multiple globalizations of cities', emphasizing that cities throughout the world function as locational anchoring points for very different types of flows (Krätke, 2014; Breul, 2019). Empirically, we show that cities' centrality in terms of both GNC and WCIN have simultaneous positive consequences for economic growth but that specialization in one of these networks may be most effective, insights that are also relevant for policy makers. And finally, methodologically, we develop a set of new metrics – the co-invention based indicators of WCIN – that allow for a more direct measurement of the intensity of flows across cities: co-invented patents represent more direct knowledge exchanges and joint contributions of inventors in different locations to an invention than co-located service firms (e.g. Deyle & Grupp, 2005; Crescenzi et al., 2016). In addition, the time series generate a stable base for comparisons over time and an accurate measurement of changing urban geographies, avoiding the influence of changes in data collection (Taylor & Aranya, 2008). The word city innovation network indicators will be published under the aegis of GaWC and made available for future research. We discuss implications and the opportunities for future research of using innovation-based network indicators.

4.2 Background

Prior research has suggested that, in spite of a range of differences between and variability among world cities, four characteristics regularly re-emerge: the presence of a vast pool of skilled labor and producer services firms, a cosmopolitan environment, the presence of multinational corporations (MNCs), and a high degree of connectivity with other cities (e.g. Goerzen et al, 2013; Belderbos et al., 2017). World cities host a disproportionate number of expatriates, skilled employees, and major universities (Castells, 2000). These cities often attract skilled workers both from surrounding areas and globally as they offer the promise of a wide range of job opportunities and higher salaries due to the presence of multinational corporations. This leads to a self-reinforcing mechanism in which skilled workers are attracted to world cities, while MNCs are locating in these cities to benefit from the highly qualified labor pool (Florida, 2005). At the same time, the highly concentrated economic activities within world cities also attract low skilled (migrant) workers, leading to a highly segmented labor market (Wills et al., 2010). Overall, the presence of a skilled labor pool provides a favorable environment for knowledge exchange as it enables job-hopping and the establishment of (informal) knowledge networks (Miguelez & Moreno, 2013).

4.2.1 Global Network Connectivity (GNC) provided by Advanced Producer Services

The observation of world cities being connected by means of hosting offices of globally operating advanced producer services (APS) firms has inspired one of the most influential approaches towards the formal measurement of global inter-city connections: the Global Network Connectivity (GNC) measure developed in the context of the Globalization and World Cities research network (GaWC). The methodology at the root of the GNC measure has its foundation in both the work of Sassen (1991) on the centrality of APS firms to world city-formation as well as the work of Castells (1996) on the identification of a network logic in how world cities are connected (see Taylor et al., 2002). Formally, GNC is derived from a specification of world cities within a structure with three distinct structural levels: cities as nodes, the world economy as the supra-nodal network level, and APS firms as the critical sub-nodal level (re)producing the networks (Taylor, 2001). The approach relies on a number of assumptions, such as the notion that offices of the same firm in two cities generate substantive workflows and that larger offices will generate more flows.

This approach has become a key way of making sense of world cities and has inspired both empirical diversification by focusing on an ever-broader range of agents and processes including universities (Chow & Loo, 2015), maritime producer services (Jacobs et al., 2011), media firms (Hoyler & Watson, 2013), spatial organization of connections in specific regions (Hall & Pain, 2006), changes in sectoral network connectivity (Taylor & Aranya, 2008) and methodological diversification by introducing alternative connectivity measures (Neal, 2011) and different network specifications (Hennemann & Derudder, 2014).

In spite of their differences, much of the above-referenced research draws on what Patzika et al. (2020) have called an 'office location approach': inter-city connections are inferred from the co-presences of firms/organizations across cities. They point out that a shared weakness of research efforts within this approach rests in their often far-reaching assumptions regarding how co-presences of the offices of firms and organizations are 'transformed' into inter-city connections. Although Neal (2020) and Derudder (2020) argue that some of Patzika et al.'s (2020) critiques overstate things, it is clear that the assumptions associated with network projections of office locations are rarely explicitly tested.

4.2.2 World City Innovation Network connectivity through Co-Inventions

Cities have always played a crucial role in the development of innovations[20] (Jacobs, 1984; Bairoch, 1988). Major cities are recognized as key clusters of innovation, with cities such as Tokyo, Shenzhen, Hong Kong, Seoul, Beijing, San Francisco and New York scoring high on indices of innovation performance such as the number of patent applications and scientific publications (Bergquist & Fink, 2020). With the presence of disproportionately large numbers of inventors (Bettencourt et al., 2004) and innovation active firms residing in close geographical proximity, world cities are often seen as key engines and incubators of innovation and knowledge creation (see, however, Fritsch & Wyrwich, 2021). Co-location of firms and individuals encourages the creation of a web of social interactions and professional networks that enables the rapid diffusion of ideas and (tacit) knowledge (Gertler, 2003; Owen-Smith &

[20] We define innovation as the creation of new knowledge or the combination of existing knowledge through the interaction between heterogeneous knowledge sources (Laursen & Salter, 2006).

Powel, 2004) and creates localized capabilities. This furthermore boosts the inventive productivity of local actors (Jaffe et al., 1993; Fleming et al., 2007) through agglomeration economies (i.e. knowledge spillovers) and the generation of mutual trust and reciprocity (Granovetter, 1985) due to repeated interactions.

Due to these synergies and systemic relations, the knowledge creation of the agglomeration far exceeds the sum of individual knowledge and skills (Sassen, 2001; Van der Wouden & Rigby, 2019). However, to avoid a lock-in in existing knowledge trajectories and expertise, local knowledge exchanges has to be complemented by the involvement of external knowledge networks with global partners such as firms, research centres and universities (Neal, 2010). The global character of innovation and the wide range of benefits the inflow of external knowledge may bring, have been substantially analyzed in prior research (e.g. Bell & Zaheer, 2007; Breschi & Lenzi, 2015) and have been associated with the economic growth of regions (e.g., Bathelt et al., 2004; Rutten & Boekema, 2007).

4.3 Theory and Research Questions

Both the presence and networks of advanced producer services firms (e.g., Coffey, 2000; Beyers, 2005; Lundquist et al., 2006; Bryson & Daniels, 2007), provide a favorable environment not only for highly-skilled employees benefitting from various job opportunities and higher salaries, but also for firms facilitating their global operations with business partners from various origins (Sassen, 2001; Breschi & Lissoni, 2003; Florida, 2005). World cities, therefore, function as centers of command and control for global business networks (Sassen, 2001) with MNCs gravitating toward these cities, especially for sales, service and headquarter investments (Dunning & Norman, 1987; Goerzen et al., 2013).

The presence of producer services firms ensures an economic infrastructure for managing global operations, as they offer specialized knowledge and advice, and reduce the costs of global coordination and control (Goerzen et al., 2013; Belderbos et al. 2017). This presence has become more important over time as firms are increasingly outsourcing their non-core activities to service firms (Klier & Testa, 2002). While producer services initially followed their globalizing clients to avoid loss of business, they have increasingly turned to actively seeking new clients thus often taking the lead in globalization practices (Aharoni & Nachum, 2000). These producer service firms 'interlock' cities through their transnational city-centered location strategies: advanced producer services (APS) offices link cities through their day-to-day operations and management control through the underlying transmission of information, communication, knowledge, travel and face-to-face meetings (Taylor, 2001).

Advanced producer services contribute directly to economic growth by their increasing role in regional employment and job creation (Beyers, 2003) and their high propensity to be exported. The latter contributes to interregional trade and creating important multiplier effects to the regional economy base. Parallel to these direct contributions, advanced producer services also contribute indirectly to city growth in three ways. First, they support local firms in decision making and day-to-day activities (e.g. via consulting or accounting services). Most production processes could not operate if it was not for the presence of a vast range of service activities. Second, as advanced producer services support a variety of firms within multiple industries, they enable the spread of ideas and best practices across industries (Jacobs, 1969) and thereby enhancing the competitiveness and productivity of local firms (Catin, 1995). Lastly, a diverse and connected advanced producer services base creates an environment capable of attracting further investments, firms and labor. Hence, we may expect that:

The strength of the advanced producer services (GNC) network of a world city is positively associated with a city's economic growth.

World cities are characterized by strong international connections to outside knowledge networks through collaborations thus enabling global reach. This global reach can avoid that cities converge towards a common and homogenous pool of knowledge that subsequently decreases its inventive potential (Boschma, 2005; Neal, 2010). External linkages can provide considerable resource and information advantages that are not locally available (Bell & Zaheer, 2007). They enable greater diversity of knowledge and ideas (Bathelt et al., 2004), facilitate the recombination of new with existing knowledge (Rosenkopf & Almeida, 2003; Maggioni et al., 2007), which in turn improves technological capabilities (Asheim et al., 2011) and innovation performance (Breschi & Lenzi, 2015; De Noni et al., 2018).

The exchange of knowledge is facilitated by channels of ingoing and outgoing resource flows through both formal and informal relationships (Hussler, 2005) between individuals and between or within organizations (Saxenian & Hsu, 2001; Lorenzen & Mudambi, 2013). Individuals can create personal relationships across organizational boundaries through mutual social proximity (e.g., by sharing a common background or work experience). Organizational linkages or pipelines are created by firms in an attempt to maximize the effectiveness of moving resources and fostering knowledge flows between cities (Lorenzen & Mudambi, 2013).

Indeed, external linkages have been found to be important for cities to thrive in dynamic environments that require competitiveness (Cooke et al., 1997; Ni & Kresl, 2010), regional resilience (Balland et al., 2015) and/or rapid adaptation to changing market conditions (Hussler, 2005). The exploitation of innovations and knowledge allows for entrepreneurial growth (Roberts & Setterfield, 2010) and economic returns (Huggings & Thompson, 2014).

The diverse knowledge and innovation activity obtained through international connections with other innovation clusters complement local knowledge, in a process akin to 'borrowed agglomeration economies' (Polèse & Shearmur, 2006) or 'agglomeration spillovers' (Patridge et al., 2009). It can alleviate potential negative congestion effects of a concentration of knowledge actors and infrastructure necessary for the generation of innovation in the city (Meijers et al., 2015), and the duplication of R&D expenditure. Access to external knowledge for innovation can strengthen productivity through the introduction of new products, production processes and organizational practices boosting the competitive advantages and economic growth (Bathelt et al., 2004) of the city. Hence, we may expect that:

The strength of the World City Innovation Network (WCIN) network of a world city is positively associated with the city's economic growth.

What are the likely consequences of a city's strong involvement in both GNC and WCIN networks? On the one hand, the GNC and WCN network could reduce each other's association with city economic growth. Given that advanced producer services networks imply a heavy focus on banking, insurance, accountancy, law, advertising and consulting, they contribute relatively little to R&D and innovation and vice versa. Advanced producer services networks arise to serve multinational clients (Belderbos et al., 2017), while co-inventor networks arise to leverage expertise in different locations to enhance knowledge development and innovation outcomes. With increasing inter-city competition for excellence in these domains, a specialization of the city in one of these networks may allow for stronger agglomeration effects and a greater value of network involvement for the economic growth of the city. Such a specialization has advantages because both networks compete for scarce city resources such as office space, government funding, investments in specialized infrastructure and skilled labor (e.g. Bagchi-Sen & Sen, 1997; Goerzen et al., 2013). Specialized labor in particular has become a scarce resource due to the pace of global innovation and the increasing need to tap into specialized knowledge expertise required in both types of networks (Barnard & Chaminade, 2011). Hence, when cities are strongly involved in the GNC network, this may render it more difficult to excel in innovation driven growth through innovation network involvement and vice versa. An extensive involvement in both networks could therefore lead to the underdevelopment of economic benefits as neither network may obtain the optimal resources to leverage network flows.

On the other hand, the GNC and WCIN network could also increase each other's association with city economic growth. Advanced producer services firms are found to be attracted to places characterized by cutting edge innovation (Faulconbridge, 2008; Faulconbridge et al., 2011) as innovation boosts the development of new or diversified advanced producer services or new ways to deliver these services to clients. In its turn, advanced producer services firms may contribute to innovation in several ways (Miles et al., 1995; Muller & Doloreux, 2009). Advanced producer services support client firms in their innovation processes by helping them through the different stages of the innovation development. Advanced producer services can also transfer existing innovation, market knowledge and best practices across firms, industries and even global markets. In fact, they have even been found to be the most common vehicle for the diffusion of innovation from large firms to SMEs in multiple countries (OECD, 1999). Hence, they can support the development of the innovation network. Furthermore, advanced producer services firms can themselves be innovation actors, and hence a source of innovation, when initiating the development of innovation to tend to particular client needs (Wong & He, 2002).

4.4 Data, Measures and Methods

We develop world city innovation network (WCIN) indicators for 129 cities in 76 countries and compare these with results for the GNC indicator based on APS firms networks for the years 2000 and 2012 (Derudder & Taylor, 2016). We draw on the classification developed by the Globalization and World Cities research network (GaWC) (Beaverstock et al. (1999)) to identify world city-formation. Cities are assigned to three categories based on their level of global network connectivity: alpha, beta, and gamma. We included all cities that have been identified as alpha or beta cities in the GaWC rankings from 2000 to 2016, with the exception of Chengdu, Columbus, Dhaka and San Juan to facilitate a comparison with the results reported in Derudder and Taylor (2016).

We define the boundaries of each world city based on the functional urban area (FUA) methodology developed by the OECD in collaboration with the European Union (OECD, 2012). National definitions of metropolitan areas are rarely consistent as they are based on country-dependent administrative boundaries that do not necessarily coincide with the actual economic boundaries of the agglomeration. By using population density and travel-to-work flows as key information, a FUA is defined as a densely inhabited urban core with a surrounding hinterland of which the labor market is highly integrated with the core (OECD, 2012). This leads to a harmonized definition of cities that enables a uniform comparison of cities across countries and the identification of knowledge clusters (cf. Alcacer & Zhao, 2016). For 59 cities no OECD FUA delineation was available, in which case we defined the city delineation using a similar methodology based on average travel-to-work time between urban areas and surrounding hinterlands, using GIS techniques and the Open Street Map application.

4.4.1 World City Innovation Network Indicators

We used the Patent Statistical (PATSTAT) database 2018 autumn edition of the European Patent Office (EPO) to collect patent and inventor information. This database covers patent applications made at over 90 worldwide patent offices including major patenting countries such as the US, Japan, China, Brazil and India. We avoid double counting of patent information by grouping patents by patent family ('docdb') if they are filed in multiple jurisdictions or in multiple variants. Patents contain information on the name and location of inventors. We geocode addresses of inventors listed on each patent to assign patents to cities and to establish cross-city inventor collaboration (Deyle & Grupp, 2005; Crescenzi et al, 2016). We geocoded 16 million patents and their inventors, 2000-2014, of which 7.2 million (45 percent) had at least one inventor in one of the 129 world cities. Data on non-patent indicators was retrieved from Oxford Economics or fDi Markets.

The patent data used to develop WCIN indicators have the advantage that they are 'objective' in the sense that they have been processed and validated by a patent examiner. However, they also suffer from a number of limitations (Pavitt, 1985; Basberg, 1987; Griliches, 1990; Hall et al., 2014), such as: not all technological activities are patented; patent propensities vary across firms and industries; and patented technological activities differ in their technical, economic and societal value (OECD, 2009). Inadequate patent systems in countries may limit patent applications and measured co-inventor collaboration, while changes in patent laws over the years may contribute to the changes in patenting and collaboration patterns (Pavitt, 1988).

Despite these shortcomings, the indicators also have a range of key advantages in comparison to other indicators used to measure city networks. First, the long-time series coverage generates a stable base for comparisons over time. Longitudinal comparisons of APS-based indicators are hampered by mergers, liquidations and new foundations of producer services firms and niches, potentially reducing the comparability with earlier studies. As these problems are not occurring for co-inventions, their usage enables a more systematic analysis and accurate measurement of changing urban geographies rather than a change in data collection (Aranya & Taylor, 2008). Patent data are widely available, well-documented and standardized (Grilliches, 1990), offering a more objective measure compared to Taylor's (2001) scoring system. Second, instead of assuming that knowledge and information flows are transmitted between offices located in different locations (Taylor et al., 2010), co-invented patents offer a more direct representation of knowledge exchanges, as it is not possible to co-develop a patent without sharing knowledge (e.g. Singh, 2005; Ejermo & Karlsson, 2006). Finally, the WCIN indicators avoid the partial distortion of actual spatial linkages of metropolitan regions that can be caused by the focus on large APS firms, of which the activities are in part reflective of larger home markets, since patent data covers co-inventions of individuals and smaller firms as well as large multinational firms. Co-invention data provides a good measurement of the scale of linkages, as the same connection between cities can deliver multiple patents, and cities' patent activities have no theoretical growth limitations.

The geocoded co-invention information on global patent applications allows establishing an inter-city network of co-invention linkages[21]. In the inter-city innovation network, the inventors are the nodes of the network while the collaborations are the edges that link them together.[22] We draw on network analysis to establish indicators of the strength of world cities' innovation network connectivity. We use the most commonly used indicator of node strength, weighted degree centrality (Granovetter, 1985; Barrat et al., 2004) to establish the world city innovation network (WCIN) indicator. This has *inter alia* the advantage that results can be directly compared with Taylor's (2001) GNC indicator because it is similarly constructed.

We define the centrality of a city in the network based on the number of unique cities with which a connection was formed by means of a co-invention. By weighting these connections based on the number of co-inventions, we obtain a city's weighted degree centrality. More formally, we define an adjacency matrix A_{c-i} , with the value of cells r_{c-i} equal to the number of times a collaboration occurs between inventors in city a and city i. The weighted degree, or

[21] In contrast to the previous chapter, this chapter focuses on the inter-city network instead of analyzing all possible co-invention linkages to ensure accurate comparison with the APS-based GNC indicator.
[22] Hence, similar to the APS-based GNC indicator, the inter-city network consists of two disjoint sets of nodes or a two-mode network (linkages between inventors and cities), whereby a bipartite projection function creates a one-mode network (linkages between cities) (Neal, 2008).

WCIN, of city c is the number of co-inventor linkages across all (potential) partner cities (n = 129):

$$WCIN_c = \sum_i^n r_{c-i} \quad c \neq i$$

4.4.2 Empirical Model and Variables

In the multivariate panel analysis, we relate GDP growth of the city to its GNC and WCIN scores and a set of control variables for the 2000-2012 period. The models include city fixed effects θ_i for each city i to control for unobserved city heterogeneities and correct inferences on the roles of the two network variables (Hsiao, 2014). We model growth by including the past observation of GDP as an explanatory variable. We estimate the following equation:

$$\mathrm{GDP}_{it} = \theta GDP_{it-1} + \eta GNC_{it-1} + \rho WCIN_{it-1} + \delta GCN_{it-1} * WCIN_{it-1} + \sum_r \mu_r \mathrm{C}_{rit-1} + \theta_i + \tau_t + \varepsilon_{it}$$

where *GDP* in year *t* in of city *i* is related to its past level and lagged observations on GNC, WCIN and the interaction between these two network variables. Because in particular GNC indicators are only observed in particular years (2000, 2008, 2010, 2012), and because changes in network positions can have longer time lags in their effects on the city economy, we measure *GCN* and *WCIN* as three-year moving averages, interpolating the values of intermittent years. The model is augmented with a set of city level control variables C_{rit-1} with coefficients μ_r, and a set of year dummies (τ_t), while ε_{it} are serially uncorrelated error terms.[23]

We measure GDP in millions of US dollars in constant prices and exchange rates. The *GNC* is obtained from Derudder and Taylor (2016). The fixed effect panel model includes a range of control variables. To control for urban concentration, market size and possible agglomeration economies (Duranton & Puga, 2013), we include the *population density* of the city. Its squared term is included to capture potential negative effects of the highest density levels such as increasing rent costs and congestion. The share of consumer *spending on education* as a percentage of total consumer spending is included as a proxy for the presence of skilled human capital. We control for the presence of an important third cluster besides advanced producer services and innovation, i.e. the presence of a financial sector in the city. For example, London and Hong Kong are characterized by a strong financial sector. An overemphasis on this sector

[23] Fixed effects models importantly correct for unobserved city heterogeneity. They are appropriate in the presence of lagged dependent variable when the time dimension of the panel is relatively long and the autoregressive parameter is not too high (Hsiao, 2014). Both are characteristics of our data analysis.

in the generation of city economic growth is not captured by either advanced producer services or innovation. Hence, we include the *share of city employment in financial services*.

The intensity of innovation activities and knowledge accumulation in the city is measured by *the number of patents in the city per capita*. There is no similar measure available for the intensity of APS activity in the city, but we can utilize an indicator for the relative importance of these activities, i.e. *the number of foreign direct investments in APS activities in the city over GDP*.[24] *Average household income* is added to control for income levels and personal wealth (Boschma & Schutjens, 2007).

All independent variables, with the exception of population density and its square term, are logarithmically transformed so that we can interpret the estimated coefficients as elasticities. Since for a few cities (among which Abu Dhabi, Antwerp, Calcutta, Denver, Lahore, Riga and Zagreb) no accurate data on control variables were available, the sample for analysis includes 111 cities. The WCIN and GNC indicators are first mean centered before they are included in the analysis, implying that the independent effect of WCIN (GNC) in the model with the interaction term included represent their influence evaluated in the mean of GNC (WCIN).

4.5 Empirical Results

We first present city indicators of the WCIN and compare these with GNC in the years 2000 and 2012. Subsequently, we present results of the analysis relating economic growth to the strength of the two network positions of the cities.

4.5.1 World City Innovation Network Indicators in 2000 and 2012 compared

We first present comparative data on the GNC and WCIN indicators for the 129 cities. Table 4.1 shows the world city innovation network indicator (WCIN) based on co-inventor data, and the global network connectivity (GNC) based on the office networks of APS firms (Derudder and Taylor, 2016) for the 129 cities in 2000 and 2012.[25] We observe a clear lead of North American, European and Pacific Asian cities for the WCIN. The four most connected cities are located in the US (New York, San Francisco, Philadelphia and Boston) and their ranks remain stable over time. San Francisco (including Silicon Valley) surpassed New York as the leading connected city in 2012. We observe an increase in the ranking of Pacific Asian cities, with the exception of Japanese cities, with Shanghai, Taipei, Shenzhen, and Beijing now outperforming

[24] Data are retrieved from the fDi Markets database of the Financial Times (e.g. Belderbos et al., 2017).
[25] We expand on the reporting on GNC indicators in Derudder and Taylor (2016) by including the indicator values for all 129 cities.

the majority of European and American cities. We also observe that previously unconnected cities became connected over time (e.g. Abu Dhabi, Bogota, Doha, Manama and Quito) while others remain disconnected (e.g. Port Louis, Lahore, Guatemala City and Casablanca).

The GNC indicators show a stable lead of North American, European and Pacific Asian cities, with London, New York, Hong Kong, Paris and Tokyo as most connected cities. Again, Pacific Asian cities such as Hong Kong, Singapore, Shanghai and Beijing are outperforming most of the European and North American cities. We observe a relatively strong connectivity of capital cities and global service-oriented cities (London, Paris, Hong Kong, Singapore, Dubai), especially in comparison with the WCIN rankings, which relates to the service firm orientation of the GNC indicator. San Francisco for instance, an innovation hub with less of a status as international service center, is only ranked 31st in terms of its GNC score. North American cities in general often score higher on the WCIN indicators compared with their GNC scores. In general, there is substantial heterogeneity in GNC and WCIN rank positions. The least connected cities are generally found in Africa, the Middle East and South America.

Table 4. 1 WCIN and GNC ranking, 2000 and 2012

	2000			2012		
	WCIN	*Rank WCIN*	*Rank GNC*	*WCIN*	*Rank WCIN*	*Rank GNC*
San Francisco (SF)	7917	(2)	(17)	10052	(1)	(31)
New York (NY)	9644	(1)	(2)	8775	(2)	(2)
Philadelphia (PH)	6228	(3)	(75)	5626	(3)	(60)
Boston (BS)	5357	(4)	(60)	5216	(4)	(38)
Shanghai (SH)	222	(50)	(31)	4206	(5)	(7)
Los Angeles (LA)	4641	(5)	(9)	3992	(6)	(18)
San Diego (SD)	3360	(6)	(95)	3986	(7)	(110)
Düsseldorf (DS)	2326	(9)	(50)	3096	(8)	(49)
Cologne (CO)	2279	(10)	(90)	2936	(9)	(128)
Taipei (TP)	358	(38)	(20)	2784	(10)	(42)
Chicago (CH)	3252	(7)	(7)	2502	(11)	(11)
Houston (HS)	2034	(11)	(62)	2445	(12)	(64)
Washington (WC)	3057	(8)	(37)	2426	(13)	(28)
Shenzhen (SZ)	56	(73)	(127)	2124	(14)	(119)
Seattle (SE)	1587	(17)	(68)	2102	(15)	(97)
Paris (PA)	1830	(15)	(4)	2034	(16)	(4)
Beijing (BJ)	201	(52)	(36)	2024	(17)	(10)
Bangalore (BN)	162	(57)	(81)	1837	(18)	(51)
Frankfurt Am Main (FR)	1376	(20)	(14)	1646	(19)	(15)
Dallas (DA)	1977	(12)	(61)	1597	(20)	(55)
Tokyo (TK)	1907	(13)	(5)	1570	(21)	(6)
Munich (MU)	1439	(19)	(49)	1498	(22)	(44)
Berlin (BL)	834	(27)	(51)	1490	(23)	(65)
Tel Aviv (TA)	600	(30)	(89)	1441	(24)	(57)
London (LN)	1563	(18)	(1)	1400	(25)	(1)
Seoul (SU)	200	(53)	(41)	1299	(26)	(21)
Montreal (MT)	801	(28)	(47)	1265	(27)	(54)
Minneapolis (MP)	1851	(14)	(77)	1209	(28)	(92)
Lyon (LY)	665	(29)	(91)	1178	(29)	(89)

Table 4. 1 (Continued)

	2000			2012		
	WCIN	*Rank WCIN*	*Rank GNC*	*WCIN*	*Rank WCIN*	*Rank GNC*
Stuttgart (SG)	858	(25)	(74)	1116	(30)	(86)
Atlanta (AT)	1369	(21)	(33)	1055	(31)	(45)
Toronto (TR)	1013	(22)	(10)	1017	(32)	(14)
Singapore (SI)	348	(39)	(6)	840	(33)	(5)
Brussels (BR)	878	(24)	(15)	813	(34)	(24)
Zurich (ZU)	521	(32)	(19)	780	(35)	(26)
Stockholm (SK)	522	(31)	(27)	778	(36)	(40)
Hamburg (HB)	508	(33)	(48)	757	(37)	(50)
Detroit (DT)	1648	(16)	(84)	688	(38)	(101)
Denver (DV)	901	(23)	(73)	659	(39)	(107)
Helsinki (HL)	323	(41)	(70)	624	(40)	(81)
Vancouver (VN)	370	(36)	(65)	590	(41)	(75)
Miami (MI)	857	(26)	(25)	524	(42)	(34)
Milan (ML)	459	(34)	(8)	489	(43)	(12)
Sydney (SY)	431	(35)	(13)	457	(44)	(8)
Melbourne (ME)	319	(42)	(24)	420	(45)	(36)
Copenhagen (CP)	369	(37)	(44)	375	(46)	(56)
Manchester (MC)	293	(45)	(98)	369	(47)	(78)
Vienna (VI)	293	(46)	(40)	364	(48)	(30)
Amsterdam (AM)	308	(44)	(12)	359	(49)	(23)
Hyderabad (HY)	37	(80)	(128)	347	(50)	(121)
Calgary (CG)	98	(63)	(100)	319	(51)	(99)
Guangzhou (GZ)	279	(47)	(102)	289	(52)	(53)
Madrid (MD)	179	(54)	(11)	279	(53)	(19)
Chennai (CN)	26	(85)	(99)	256	(54)	(76)
Antwerp (AN)	311	(43)	(94)	248	(55)	(106)
Auckland (AK)	86	(65)	(38)	244	(56)	(72)
Barcelona (BC)	154	(59)	(32)	243	(57)	(37)
Rome (RM)	205	(51)	(53)	226	(58)	(47)
Oslo (OS)	128	(61)	(66)	224	(59)	(80)
Dublin (DB)	331	(40)	(30)	215	(60)	(41)
New Delhi (ND)	155	(58)	(52)	209	(61)	(35)
Budapest (BD)	80	(70)	(45)	202	(62)	(61)
Edinburgh (ED)	136	(60)	(118)	195	(63)	(120)
Bangkok (BK)	82	(67)	(28)	185	(64)	(39)
Geneva (GN)	225	(49)	(67)	182	(65)	(87)
Calcutta (CC)	13	(96)	(85)	175	(66)	(105)
Sao Paulo (SP)	38	(79)	(16)	172	(67)	(16)
Rotterdam (RT)	238	(48)	(76)	160	(68)	(116)
Birmingham (BI)	172	(56)	(101)	159	(69)	(111)
Perth (PE)	81	(69)	(79)	133	(70)	(103)
Luxembourg (LX)	57	(72)	(63)	130	(71)	(66)
Brisbane (BB)	86	(66)	(72)	113	(72)	(79)
Kuala Lumpur (KL)	41	(78)	(26)	110	(73)	(22)
Mumbai (MB)	14	(95)	(21)	104	(74)	(13)
Moscow (MS)	172	(55)	(34)	99	(75)	(17)
Hong Kong (HK)	82	(68)	(3)	97	(76)	(3)
Rio De Janeiro (RJ)	25	(87)	(69)	88	(77)	(85)
Johannesburg (JB)	55	(74)	(43)	79	(78)	(25)
Kiev (KV)	35	(82)	(106)	78	(79)	(67)
Bucharest (BU)	23	(89)	(82)	77	(80)	(68)
Kuwait City (KU)	5	(104)	(108)	72	(81)	(118)
Istanbul (IS)	17	(93)	(35)	71	(82)	(27)
Dubai (DU)	25	(86)	(54)	70	(83)	(9)
Quito (QU)	0	(128)	(97)	66	(84)	(113)
Beirut (BT)	69	(71)	(64)	55	(85)	(69)
Prague (PR)	54	(77)	(29)	53	(86)	(46)

Table 4. 1 (Continued)

	2000			2012		
	WCIN	*Rank WCIN*	*Rank GNC*	*WCIN*	*Rank WCIN*	*Rank GNC*
Sofia (SO)	29	(84)	(110)	53	(87)	(100)
Bratislava (BV)	24	(88)	(105)	52	(88)	(91)
Cape Town (CT)	23	(90)	(92)	51	(89)	(63)
Cairo (CA)	15	(94)	(59)	44	(90)	(58)
Mexico City (MX)	29	(83)	(18)	43	(91)	(20)
Manila (MN)	37	(81)	(46)	42	(92)	(52)
Buenos Aires (BA)	87	(64)	(23)	41	(93)	(29)
Santiago (SA)	10	(100)	(57)	39	(94)	(43)
Warsaw (WS)	55	(76)	(39)	38	(95)	(32)
Riyadh (RY)	9	(101)	(93)	37	(96)	(77)
Lisbon (LB)	55	(75)	(42)	36	(97)	(48)
Bogota D.C. (BG)	0	(115)	(55)	36	(98)	(71)
Tallinn (TL)	13	(97)	(125)	33	(99)	(129)
Athens (AS)	109	(62)	(56)	29	(100)	(59)
Monterrey (MO)	19	(92)	(114)	26	(101)	(117)
Montevideo (MV)	6	(103)	(71)	23	(102)	(74)
Manama (MM)	0	(125)	(87)	23	(103)	(109)
Abu Dhabi (AD)	0	(113)	(107)	21	(104)	(93)
Doha (DH)	0	(117)	(126)	18	(105)	(84)
Nairobi (NR)	0	(126)	(96)	17	(106)	(95)
Zagreb (ZG)	3	(109)	(113)	15	(107)	(108)
Amman (AA)	1	(111)	(111)	15	(108)	(123)
Belgrade (BE)	3	(108)	(129)	13	(109)	(114)
Lima (LM)	4	(105)	(80)	12	(110)	(62)
San Salvador (SS)	1	(112)	(121)	12	(111)	(127)
Riga (RI)	10	(99)	(83)	9	(112)	(82)
Karachi (KR)	0	(122)	(122)	9	(113)	(102)
Tunis (TU)	11	(98)	(22)	8	(114)	(33)
Jakarta (JK)	7	(102)	(86)	8	(115)	(70)
Ho Chi Minh City (HC)	2	(110)	(116)	8	(116)	(94)
Jeddah (JD)	0	(121)	(88)	7	(117)	(124)
Caracas (CR)	20	(91)	(58)	6	(118)	(73)
Hanoi (HA)	0	(119)	(119)	6	(119)	(98)
Panama City (PN)	4	(107)	(78)	4	(120)	(90)
Almaty (AL)	0	(114)	(117)	4	(121)	(115)
Islamabad (IB)	0	(120)	(112)	3	(122)	(96)
Lagos (LG)	0	(123)	(124)	3	(123)	(125)
Nicosia (NC)	4	(106)	(109)	2	(124)	(112)
Santo Domingo (ST)	0	(129)	(120)	2	(125)	(126)
Casablanca (CS)	0	(116)	(103)	0	(126)	(83)
Guatemala City (GT)	0	(118)	(115)	0	(127)	(88)
Lahore (LH)	0	(124)	(123)	0	(128)	(122)
Port Louis (PL)	0	(127)	(104)	0	(129)	(104)

Notes: WCIN rank is the ranking according to the weighted network centrality i.e. the strength of cities' global inter-city co-inventor network. GNC is the ranking according to the strength of cities' global inter-city advanced producers services firm network from Derudder and Taylor (2016).

Figure 4.1 compares the rankings of the selected cities by depicting cities' positions in four quadrants depending on their rank below or above the mean in the GNC and WCIN rankings in 2012. The majority of the cities are located in the top right or the bottom left quadrant, confirming the imperfect, but significant positive correlation between both rankings. Cities scoring high on both indicators (top right quadrant) are predominantly located in Europe (e.g. Hamburg, Stockholm, Vienna, Amsterdam, Dublin and Rome), North America (e.g. Dallas, Atlanta, Boston, and Miami), and Pacific Asia (Guangzhou, Bangkok, New Delhi, and Singapore), with Tel Aviv, Melbourne and Sydney as exceptions. A number of North American cities in particular score high on WCIN but low on GNC (e.g. San Diego, Seattle, and Vancouver) and are positioned in the top left quadrant. Cities that score high on GNC, but low on WCIN (in the bottom right quadrant) include capital cities in various regions (Cape Town, Cairo, Jakarta, Lima, and Mexico City). In the bottom left quadrant, cities in the Middle East, Africa, and South America are overrepresented.

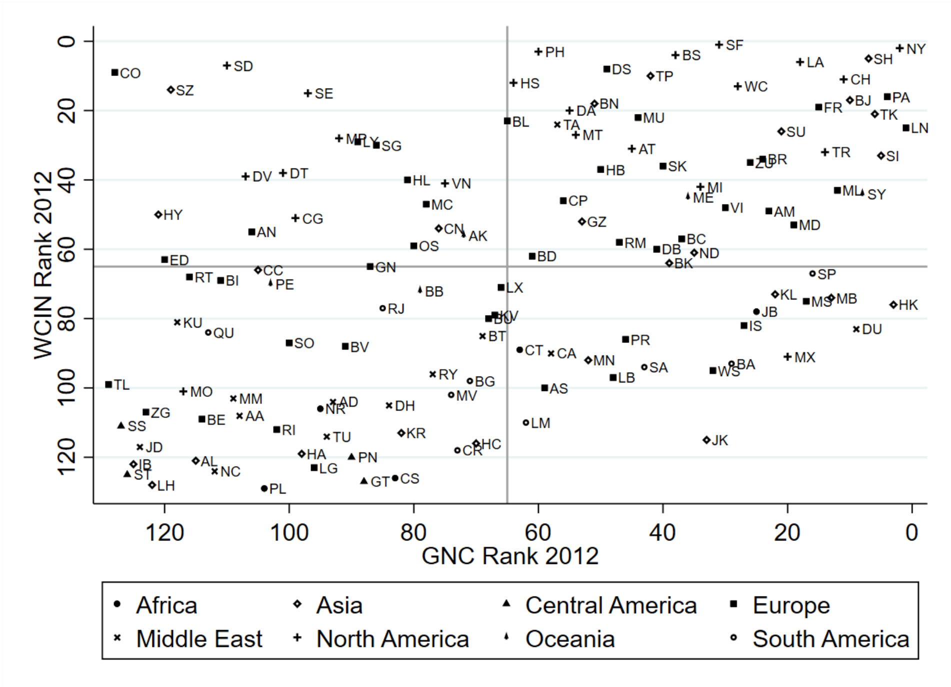


Figure 4. 1 City GNC and WCIN Rankings in 2012 compared

Although there are marked differences, spearman rank order correlations gauging the strength of the association between the WCIN indicator and the GNC show that these are positive and significant, at 0.5677 ($p < 0.001$) and 0.4515 ($p < 0.001$) for 2000 and 2012, respectively. We examined whether the differences between the rankings are systematic by taking the difference in rank of cities between the WCIN indicator and the GNC in 2000 and 2012 respectively, and correlated this with the service specialization of the city (share of the number of employees in financial and public services over the total number of employees). We indeed observe a positive significant correlation between service specialization and the differences in the two rankings for both years (0.4431, $p< 0.001$ and 0.3921, $p< 0.001$).

Table 4.2 shows the top 20 cities with the fastest growth or greatest decline in the WCIN, and compares this growth with the change in GNC (Derudder and Taylor, 2016). Table 4.2 also shows the average growth in WCIN and GNC across all cities. The number of co-inventor ties with other global cities has increased by 22 percent between 2000 and 2012 on average, while the measured growth in the GNC indicators is 118 percent. The fastest growth in the WCIN indicator is found for Pacific Asian cities, with Shanghai increasing its weighted network centrality with a factor of 18. Large increases are also found for some North American cities such as San Francisco and Seattle and some European cities such as Dusseldorf, Cologne, Berlin and Lyon. Most of the Asian cities with strong increases in the WCIN indicator also exhibit strong increases for the GNC indicator (Shanghai, Beijing, Hyderabad, Seoul, Bangalore and Tel Aviv). In contrast, some of the fastest growing American and European cities in terms of their WCIN exhibit a much smaller or even negative growth in the GNC indicator (San Diego, Seattle, Montreal and Cologne).

The declines in innovation network positions are less pronounced, and almost all cities with declining WCIN indicators are located in North America (e.g. Detroit, New York, Chicago, Los Angeles, Minneapolis, Philadelphia and Dallas) or Europe (e.g. London, Dublin, Athens, Rotterdam, Moscow, Brussels and Antwerp). The majority of these cities also exhibit negative growth in their GNC indicator. Yet several cities with declining WCIN experience (strong) growth in GNC involvement (Washington, Philadelphia, Dallas, Boston and Moscow).

Table 4. 2 Top 20 cities with the fastest growing and declining innovation network strength, 2000-2012

Growing cities	*WCIN Rank Change*	*WCIN Absolute Change*	*WCIN Relative Growth %*	*GNC Rank Change*	*GNC Absolute Change*	*GNC Relative Growth %*
Shanghai	45	3984	1448	24	52069	34
Taipei	28	2426	535	-3	23596	-18
San Francisco	1	2135	4	-14	27463	-15
Shenzhen	59	2068	2998	8	22001	74
Beijing	35	1823	723	16	49961	32
Bangalore	39	1675	826	30	33826	42
Seoul	27	1099	431	20	39411	15
Tel Aviv	6	841	96	-4	32042	40
Dusseldorf	1	770	9	45	25726	-6
Cologne	1	657	5	23	11991	-18
Berlin	4	656	46	-14	19866	-15
San Diego	-1	626	-3	-15	16469	-2
Seattle	2	515	8	-29	13179	-23
Lyon	0	513	45	-22	19019	3
Singapore	6	492	97	1	42173	-7
Montreal	1	464	29	17	22711	-13
Houston	-1	411	-2	-1	21570	-8
Hyderabad	30	310	666	8	23713	123
Helsinki	1	301	58	0	19165	-6
Frankfurt Am Main	1	270	-2	1	35253	-9

Declining cities	*WCIN Rank Change*	*WCIN Absolute Change*	*WCIN Relative Growth %*	*GNC Rank Change*	*GNC Absolute Change*	*GNC Relative Growth %*
Detroit	-22	-960	-66	6	16183	-7
New York	-1	-869	-26	-3	54477	-14
Chicago	-4	-750	-37	20	34233	-14
Los Angeles	-1	-649	-30	2	31180	-17
Minneapolis	-14	-642	-47	-3	16250	-10
Washington	-5	-631	-35	-7	34302	5
Philadelphia	0	-602	-26	15	29786	26
Dallas	-8	-380	-34	-38	26044	1
Tokyo	-8	-337	-33	32	36356	-16
Miami	-16	-333	-50	-4	29390	-8
Atlanta	-10	-314	-37	-12	25083	-12
Denver	-16	-242	-40	-12	14043	-17
London	-7	-163	-27	-3	60110	-11
Boston	0	-141	-20	-16	33444	15
Dublin	-20	-116	-47	42	26872	-9
Athens	-38	-80	-78	-3	23943	-6
Rotterdam	-20	-78	-45	-40	13367	-18
Moscow	-20	-73	-53	8	44021	21
Brussels	-10	-65	-24	14	29791	-15
Antwerp	-12	-63	-35	-12	16405	-4
			Growth (%)			*Growth (%)*
All city average		147	22		25937	118

Notes: Cities ranked by absolute growth or declining in the WCIN indicator. Relative growth it the percentage growth relative to global growth (all cities).

4.5.2 GNC, WCIN and Economic Growth

We now turn to the results of the panel data analysis of the economic growth of the world cities. The definition and summary statistics of the explanatory variables are provided in Table 4.3 and their correlation coefficients are presented in Table 4.4. The correlations do not indicate multicollinearity concerns.

Table 4.5 presents the estimation results. Model 1 only contains the control variables, revealing statistically significant results with the expected signs for all variables. The elasticity with respect to lagged GDP is about 0.7, implying substantial variability in GDP growth paths. Population density shows the expected inverted U-shaped relationship confirming both the benefits of urban agglomeration and the negative effects of excessive agglomeration through congestion and pollution. The top of the curve is reached at a level of 0.702, which suggests that cities such as Buenos Aires and Jeddah face a congestion charge in this respect. The share of financial service employment, APS intensity, patents per capita and average household income all show positive and significant effects thereby indicating the importance of the presence of a financial sector, intensity of APS activities and innovation activities and personal wealth in the generation of city economic growth. Model 2 adds the GNC indicator and shows a positive significant effect ($b=0.088$; $p<0.001$). The coefficient indicates the magnitude of the effect and can be interpreted as an elasticity. For GNC, this implies that a 10 percent increase in GNC is associated with an increase in GDP of 0.88%. This is in line with the first research question. Model 3 adds the WCIN indicator and shows a significant positive effect (b=0.063; p<0.001) thereby being in line with the second research question. A 10 percent increase in WCIN is associated with an increase in GDP of 0.63%.

When including both indicators simultaneously within Model 4, we find positive significant effects for both (respectively b=0.064; p<0.001 and b=0.047; p<0.001). Within Model 5, the interaction term is added. The interaction effect between the indicators is negative and significant (β= -0.0069; p<0.05). The effect of GNC and WCIN in model 5 show elasticities of 0.065 (p<0.001) and 0.042 (p<0.001), implying that a 10 percent increase in GNC or WCIN is associated with an GDP increase of 0.65% and 0.42% if evaluated at the mean of WCIN and GNC, respectively. Hence, the advanced producer services network appears to be more closely associated with GDP growth than the innovation network.

In order to test the goodness-of-fit of the models, a likelihood ratio test is included. Compared to Model 1, the addition of GNC and WCIN are found to be a significant improvement of the model (respectively, 82.22; p<0.001 and 85.78; p<0.001). Adding both WCIN and GNC (Model 4) is found to be a significant improvement over the model with WCIN only (39.75; p<0.001) while adding the interaction term is a smaller yet still significant improvement of the model compared to Model 4 (5.29; p<0.01).

Table 4. 3 Descriptive statistics

Variable	*Description*	*Mean*	*Std. dev*	*Min*	*Max*
GDP	The Gross Domestic Product of the world city (in millions of US dollars)	164496,80	225723,40	989,84	1585934
GNC	The APS based- global network connectivity score of the world city	333797,74	16031,84	4135,33	118455
WCIN	The world city innovation network score of the world city	11091,76	5544,11	1159	41626,33
Lagged GDP t-1	The Gross Domestic Product of the world city lagged by one year (in millions of US dollars)	161016,80	223957,50	960	1585934
Population Density	The population divided by the surface area (square kilometers) of the world city	0,031	0,092	0,000	0,822
Educational Spending	The share of consumer spending on education in total consumer spending within the world city	0,302	0,196	0,030	1,195
Financial Service Employment	The share of employment in financial services over total employment within the world city	16,7	6,64	1,54	30,55
APS Intensity	The number of foreign investments in advanced producer services investments in a world city divided by the GDP of the city	0,005	0.013	0,000	0.267
Patents per capita	The number of patents per capita of the world city	0,520	1,003	0,000	9,173
Average Household Income	The average household income of the world city (in millions of US dollars)	53486,44	36484,84	3050,57	187035,70

Note: Descriptive statistics are for untransformed continuous variables. In the empirical models, the variables are taken in natural logarithm and GNC and WCIN are mean-centered.

Table 4. 4 Correlations

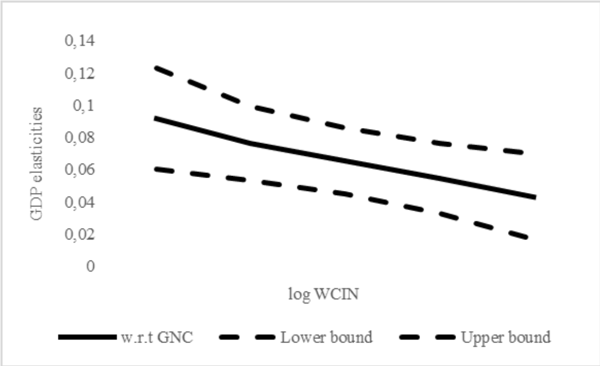
	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	GDP	1								
2	GNC	0,6205	1							
3	WCIN	0,8089	0,5490	1						
4	Lagged GDP t-1	0,9984	0,6202	0,8105	1					
5	Population Density	-0,0058	0,0144	-0,1729	-0,0079	1				
6	Educational Spending	-0,2424	-0,1040	-0,2962	-0,2517	0,1669	1			
7	Financial Service Employment	0,5215	0,4185	0,6972	0,5299	-0,2193	-0,4758	1		
8	APS Intensity	0,2933	0,6371	0,2595	0,2878	0,0002	0,0004	0,1322	1	
9	Patents per capita	0,4909	0,1527	0,6556	0,4936	-0,1679	-0,2337	0,4285	-0,0302	1
10	Average Household Income	0,5546	0,2701	0,5547	0,5632	-0,1117	-0,3399	0,6206	0,0497	0,4472

Table 4. 5 Fixed effects Analysis of the GDP growth of World Cities, 2000-2012

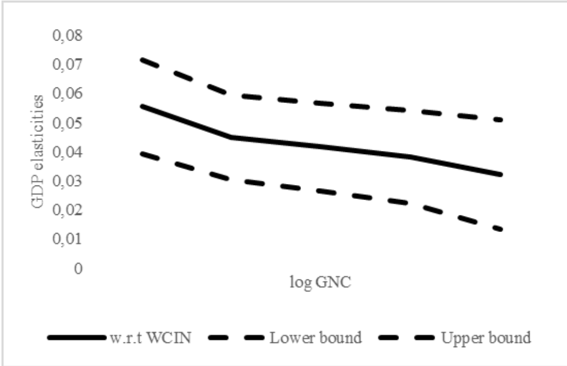
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*
GNC		0.0875***		0.0638***	0.0653***
		(8.83)		(6.09)	(6.24)
WCIN			0.0626***	0.0467***	0.0417***
			(9.02)	(6.36)	(5.46)
GNC * WCIN					-0.00691*
					(-2.34)
Lagged GDP t-1	0.724***	0.677***	0.680***	0.657***	0.655***
	(58.18)	(51.22)	(52.07)	(48.94)	(48.66)
Population Density	4.184***	3.717***	3.744***	3.516***	3.543***
	(6.16)	(5.60)	(5.65)	(5.36)	(5.41)
Population Density Squared	-3.037***	-2.604***	-2.710***	-2.477***	-2.523***
	(-5.86)	(-5.13)	(-5.36)	(-4.94)	(-5.04)
Educational Spending	0.0908	0.119**	0.119**	0.132**	0.108*
	(1.96)	(2.62)	(2.62)	(2.94)	(2.36)
Financial Service Employment	0.123***	0.0650***	0.0827***	0.0509**	0.0455*
	(6.66)	(3.41)	(4.48)	(2.68)	(2.39)
APS Intensity	0.193***	0.0773*	0.142***	0.0705*	0.0863**
	(6.39)	(2.40)	(4.74)	(2.21)	(2.66)
Patents per capita	0.0487**	0.0795***	0.0290	0.0565***	0.0541***
	(3.03)	(4.96)	(1.84)	(3.48)	(3.33)
Average Household Income	0.196***	0.181***	0.182***	0.175***	0.175***
	(11.72)	(11.05)	(11.14)	(10.79)	(10.80)
Observations	1554	1554	1554	1554	1554
No. Cities	111	111	111	111	111
F-Statistic	2299.08***	2161.94***	2164.90***	2002.29***	1826.36***
Test of incremental model fit		82.22***	85.78***	39.75***	5.29**
F-Statistic of test		7.97 ***	7.97 ***	8.46***	8.53***
		(vs. Model 1)	(vs. Model 1)	(vs. Model 3)	(vs. Model 4)

Note: t-ratios within parentheses.* p<0.05, ** p<0.01, *** p<0.001 .The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities.

We test the potential complementary or substitutionary relationship between GNC and WCIN by means of estimating the elasticities of GNG (WCIN) for different levels of WCIN (GNC). Hence, we deem complementarity to exist when the engagement GNC (WCIN) networks increases the marginal return to WCIN (GNC) (see e.g. Milgrom & Robert, 1990). Similarly, substitution occurs when the engagement of GNC (WCIN) networks decreases the marginal return to WCIN (GNC). The estimated coefficients imply a reduction (increase) in the elasticity of GNC (WCIN) if the level of WCIN (GNC) is at a higher level than the mean as can be observed in Figure 4.2. With WCIN at its minimum, the elasticity of GNC increases to 0.092, and with WCIN at its maximum the elasticity decreases to 0.043. Similarly, the elasticity of WCIN increases to 0.055 if GNC is at its minimum and decreases to 0.032 if GNC is at its maximum. These estimates illustrate meaningful substitution effects of the two networks in terms of the association with economic growth.



(A)



(B)

Figure 4. 1 The elasticity of GDP with respect to GNC at different levels of WCIN (A). The elasticity of GDP with respect to WCIN at different levels of GNC (B).

4.6 Discussion and Conclusions

World cities are key nodes in international business networks and are characterized by their cosmopolitan environment and their disproportional share of skilled labor, innovation-active firms and organizations, advanced producer services firms, and command and control centers of multinational enterprises. Their most salient characteristic, however, is their connectivity with other cities. Extant research has considered the advanced producer service firms as key creators of such connectivity (Taylor et al., 2002), linking cities through their day-to-day operations. However, world cities are also hotspots for knowledge creation and flows creating inter-city linkages through exchange of knowledge and collaboration on innovation.

In this paper we juxtapose and compare world cities' positions in producer services and co-invention network (2000-2012) by analyzing their simultaneous and interrelated association with economic growth. We provide evidence on the (changing) role and characteristics of world cities by examining inter-city collaborative innovation networks across 129 world cities located in 76 countries based on a novel and extensive database of geocoded patent inventor addresses. The use of co-inventor linkages to measure inter-city relations offers several benefits, such as a uniform comparison over time, a more direct measurement of knowledge exchanges, the avoidance of distortion of actual spatial linkages due to a focus on large firms, and an accurate representation of scale.

We find that the WCIN, the number of co-inventor ties with other world cities, has increased by 22 percent between 2000 and 2012 on average, indicating the growing importance of (cross-border) collaboration and knowledge exchange. The increases and decreases in the WCIN scores point to a general shift from West to East with large increases for Chinese (e.g. Shanghai, Taipei, Shenzhen and Beijing) and Indian (e.g. Bangalore and Hyderabad) cities alongside decreases for several North American and European cities. This pattern is multifaceted, however, as some North American (e.g. San Francisco and Seattle) and European (e.g. Dusseldorf, Cologne, Berlin and Lyon) cities also show increases, while Tokyo shows a large decrease in connectivity. Although the trends found in the world city innovation network are broadly similar to those reported for GNC (Derudder & Taylor, 2016), there also are important differences. Hong Kong and Dubai score high in the GNC rankings but low on the WCIN indicator, San Francisco is a key hub for knowledge exchange and innovation in the world and the top ranked city in the innovation network, but scores rather low on the GNC indicator. Hence, there also appear specialization advantages of a strong position of one of the two networks.

We argue that while both aspects of world cities' international connectivity may allow their economies to grow, they may either reduce or enhance each other's association with city economic growth. We examine the potential benefits of specialization in detail by estimating panel fixed effects models of the association of cities' GDP growth with the two network indicators GNC and WCIN. Empirical results indicate that while both networks contribute to economic growth, the two networks are partial substitutes. Hence, strong involvement in the GNC network may render it more difficult to excel in innovation networks and vice versa potentially due to underdevelopment of economic benefits as neither network obtains the optimal resources to leverage network flows. Specialization in one of the two networks may thus improve the economic performance of cities.

We contribute to the literature by shedding light on the heterogeneity between both networks across world cities (Burger & Meijers, 2016). By examining the role of both types of connections in the generation of growth within world cities, we also contribute empirically to the literature on regional growth mechanisms (Capello & Nijkamp, 2009) as we clarify the specific relationship between city economic growth and its connectivity as a key driver of productivity and regional success (Knoben & Oerlemans, 2006). While prior work has generally focused on the consequence of either innovation (connectivity) or advanced producer service for city economic growth (e.g. Beyers, 2005; Lundquist et al., 2006; Bryson & Daniels, 2007; Lorenzen et al., 2020) we show that there is a simultaneous and partially substitutive relationship by empirically investigating the influence of connectivity in global networks on economic development instead of assuming this relationship. Investments in network connectivity and the associated relational assets (Huggins & Thompson, 2014) facilitate economic growth, yet a specialization in one type of such network assets is advantageous.

These are new insights that are also highly relevant for policy makers. Our findings may also be of use for existing EU agenda's focusing on smart specialization (Balland et al., 2018) and the Lisbon economic growth agenda, which has prioritized the need to boost the connectivity of cities in Europe to increase economic growth and competitiveness and the need for cities and regions to choose their growth paths based on existing strengths. In this regard, our findings suggest that there is a need for caution in assuming that simultaneous investment in all network types will automatically translate into economic growth.

There are a number of limitations to our research. First, while we used the best geocoding effort to date, inventor address information can be absent, as not all patent offices systematically collect this data. Second, network indicators such as degree centrality can be difficult to interpret when there are important size differences across nodes (cities). The observed value of the network-level measure can be a direct result of structural network characteristics or an indirect effect of a city's scale of inventive activities. Future research should therefore examine alternative measures of cities' roles in the world city innovation network. Third, although we include both fixed effects and past GDP, networks may be endogenous and hence our results may be biased. Fourth, although patent data is a unique source of information on innovation, location and collaboration, not all collaboration efforts and knowledge exchange is captured by patent applications and the network indicators will constitute lower bounds on knowledge exchange. Finally, changes in patent laws may contribute to changes in patenting and collaboration patterns which may both lead to a small over- or underestimation of patenting and collaboration patterns depending on the nature of the change.

Our findings signal ample opportunities for future research. Comparing differences in trends between WCIN and GNC could focus on the regional spatial and structural organization of the networks, the formation of clusters, or changes in sectoral connectivity. Trends can also be compared between international and domestic networks. The innovation network indicators can be related to the growth and innovation performance of cities, to examine, for instance, whether network characteristics are associated with novel, high impact, innovations, or with technological specialization or diversification of cities. Future research could also analyze the role structural network characteristics (e.g., the betweenness, closeness or eigenvector centrality) on the generation of city economic growth and to get additional insights in the innovation network. The potential different roles of network linkages established through organizational pipelines (intra-firm collaborations) versus more distributed forms of collaboration by universities, small firms, and individual inventors also merits further investigation. Regarding the economic performance, research can look into the balance between the importance of both networks may vary across regions (i.e. developed versus developing regions) or across sectors (e.g. Glaeser, 2016). We hope that future research endeavors can build on the insights in this chapter to address these important issues.

4.8 Appendix: World City Innovation and Service Networks and Economic Growth

Appendix

This appendix provides a description on the construction of the Global Network Connectivity measure by the GaWC (A4.8.1).

A4.8.1 Construction of the GNC

The Global Network Connectivity measure is a methodology used to analyze inter-city relations based on readily available data on the location of advanced producer services. The construction of the measure can be split up into three steps as explained within the original paper of Taylor (2001).

First, data is collected regarding firm presence within cities based on the availability of data on company websites. Firms are included within the analysis if they have a presence in at least 15 different cities. Earlier reports indicate an additional criteria of a presence in at least one or more offices within prime globalization areas such as Western Europe, Pacific Asia or Northern America. However, from 2008 onwards, this criteria was no longer used.

Second, one needs to determine the importance of a city in the global service provision of the firm. A scoring system is used to accommodate the inconsistency in the gathered information regarding the presence of the firm in a city and the presence of extra-locational functions (e.g. headquarter functions or regional offices). It relies on a critical assumption that more important offices will generate more working flows. The scoring system indicates 0 when there is no presence of a firm within the city and 5 when the city hosts a headquarter of the firm. Minor offices get a score 1, standard offices get a score 2, major offices get a score 3 and regional headquarters get a score 4. The score reflects the service value of the city.

Finally, with n service firms and m cities, an $n\, x\, m$ service value matrix Vij is constructed where vij is the service value of city i to city j. The global network connectivity of city a can be defined as follows:

$$GNC_a = \sum_{i,j} V_{aj} * V_{Vij} \ (a \neq i)$$

Chapter 5. International Connection, Local Disconnection: The (heterogeneous) Role of Global Cities in Local and Global Innovation Networks

ABSTRACT

Global cities function as important international innovation hubs and are key nodes in international business networks. Yet, this focus on international knowledge networks may render it less likely that global cities establish and maintain intensive local innovation linkages with their surrounding areas. We argue that while the relationship between the global network orientation of global cities and their local linkages with their surrounding areas is negative, it also depends on the characteristics of the global city and surrounding regions' knowledge bases and the ease of local linkage formation. Global linkages are more detrimental to the establishment of local linkages if the global city is a global technology leader, but less so if the surrounding region has a greater innovation strength and is geographically more proximate to the global city. We find partial support for these conjectures in an analysis of the innovation linkages of 21 U.S. global cities with 614 surrounding counties across in 13 industries, 2001-2015.

5.1 Introduction

Global cities house a disproportionate share of innovative active firms, specialized labor and advanced producer services residing in close geographical proximity creating local buzz and enhancing knowledge spillovers within their boundaries (Marshall, 1920; Stroper & Venables, 2004). However, a local knowledge base is not self-sufficient in terms of the creation of knowledge capabilities. Prior research has stressed the importance of external networks to further stimulate and sustain local knowledge creation (Owen-Smith & Powell, 2004; Boschma, 2005). External networks are necessary to increase the inflow of knowledge and to avoid the entropic death of the cluster that remains locked-in to increasingly obsolete innovation patterns (Cantwell & Iammarino, 2003). Hence, the emerging consensus on knowledge exchange is that both local and external networks operate together in fostering innovation and are thus complementary major sources of innovation (e.g., Camagni, 1995; Crevoisier, 2004; Fitjar & Huber, 2015). The unique characteristics of a global city enables the access to local and external networks which explains their crucial role within the creation of innovation and knowledge exchange over the past decades (Jacobs, 1894; Bairoch, 1988). With the globalization of innovation and global competition shifting towards knowledge, the role of global cities and their international knowledge network has become increasingly important (Cano-Kollmann et al., 2016).

Global cities are generally found to connect to other global cities within their home country (e.g. Hudson, 2015). However, there is still an open question on whether they also function as bridges between the domestic surrounding area and the international knowledge arena (Alcacer et al., 2016; Cano-Kollman et al., 2016; Lorenzen et al., 2020). Although international connectivity has been found to boost local innovation systems by providing access to previously unavailable foreign know-how (Maskell et al., 2006; Awate & Mudambi, 2018), scholars have expressed concerns that the effects of international connectivity are often spatially constrained within global cities (Moreno et al., 2005). This can potentially erode the knowledge and R&D infrastructure of the surrounding areas (Pisano & Shih, 2009) increasing pressure on the local economy, and exacerbating divergence among regions (Benito & Narula, 2007; Fitjar & Rodriguez-Pose, 2011) leading to an inequality of economic opportunities and wealth between global cities and their surrounding areas (Virkkala & Mariussen, 2005) and in some cases even to unequal access to affordable housing, transportation and services.

The increasing importance and extent of the international connectivity of global cities have been discussed in prior research (e.g. Matthiessen et al., 2010; Castellani et al., 2021), but systematic research on the influence of this connectivity on the relationships between the global city and their surrounding areas remains absent (Lorenzen et al., 2020). We argue that a focus of global cities on developing strong international knowledge connections may be inherently incompatible with the development of intensive local knowledge connections. We propose that different global city and surrounding area characteristics will moderate the extent of this incompatibility. We argue that geographical proximity will weaken the incompatibility by generating increased face-to-face interactions and opportunities for collaboration and knowledge exchange. A similar effect on local knowledge connections is expected for the innovation strength of the surrounding area, as we argue that the presence of a strong local knowledge base leads to greater potential in knowledge exchange with global cities. Technological leadership of the global city's knowledge base, on the other hand, will strengthen the incompatibility, as it increases the need for strong international connectivity of global cities to have access to state-of-the-art technology which often cannot easily be obtained from the surrounding area.

We find partial support for our hypotheses in an analysis of the influence of the international knowledge connectivity of 21 global cities[26] in the United States on their local knowledge connections with 614 surrounding local counties across 13 industries during the period 2001-2015. Our analysis controls for a range of other global city and county characteristics to ensure accuracy of inference.

While earlier studies have either focused on the development of knowledge networks in core regions, clusters, and metropolitan areas (e.g. Shearmur, 2012) or ways to overcome innovation barriers within the surrounding areas of the global city and compensate for local disadvantages (e.g. Dubois, 2013; Grillitsch & Nilsson, 2015), systematic research on the role of heterogeneity in characteristics of the global city and their surrounding areas influencing knowledge exchange between them is still lacking. Our study contributes to the literature on urban economic geography and global city research by theorizing and empirically examining how global city-surrounding area knowledge networks may vary systematically with the international connectivity of the global city and global city-surrounding area characteristics. Empirically, we

[26] The included global cities are: Atlanta, Austin, Boston, Chicago, Columbus, Dallas, Detroit, Houston, Indianapolis, Los Angeles, Miami, Milwaukee, Minneapolis, New York, Philadelphia, Phoenix, Pittsburgh, San Diego, San Francisco, Seattle and Washington.

contribute to the literature on global city research by showing the presence of negative influence of international connectivity on local knowledge connections (Lorenzen et al., 2020) and to the literature on regional economics by providing a quantitative study of the knowledge networks between highly agglomerated urban/global city areas and their surrounding areas in the United States while the majority of analyses in this domain is qualitative or built on case study design with a spatial focus on the Northern and Southern peripheries of Europe or Canada (Eder, 2019).

The remainder of this chapter is organized as follows. Section 2 presents an overview of the relevant literature and develops the main hypotheses. Section 3 explains the data collection procedures and variable construction. Section 4 contains the empirical analysis and discusses the results. Section 5 outlines the implications of our findings and provides the concluding remarks.

5.2 Theory and Hypotheses

Global cities have been the interest of scholars for decades, leading to many attempts to provide a comprehensive conceptualization of a global city in prior research. Early global city research defined global cities as global centers of command and control in a hierarchical world urban system due to advances in transport and communication which enabled the decentralization of management and production: the ‘command and control’ perspective of e.g., Geddes (1915). After further conceptualization by Friedman (1986), this perspective focused on the form and extent of integration of these cities into the world economy. More recently, researchers started to conceptualize a global city as part of a system in which interactions with other spaces play a vital role instead of being an isolated place: the ‘network of flows perspective’. Sassen (1991) emphasized the interconnectedness between global cities and local and global markets, with global cities playing a key role in the global integration of spatially distributed economic activities. With advances in virtual networks of information and knowledge flows (Devriendt et al., 2011), physical infrastructure (Smith & Timberlake, 2001) and the interconnectedness established within dispersed units of MNEs, it is now generally acknowledged that global cities are defined by what flows through them and not necessarily what is contained within them (Derudder et al., 2003).

Global cities have played a crucial role in the development of innovation (Jacobs, 1984; Bairoch, 1988). With the presence of top universities, research centers, advanced producer services and state-of-the-art infrastructure, these cities attract disproportionate shares of inventors, highly skilled labor and innovation active firms within close geographical proximity

(Bettencourt et al., 2004). By co-locating, firms and individuals can generate a web of social, face to-face interactions and professional networks while also overcoming coordination and incentive problems in uncertain environments. This creates a “local buzz” (Stroper & Venables, 2004) which enables the rapid and effective diffusion of ideas and (tacit) knowledge spillovers (Marshall, 1920), cross-fertilization between sectorally-specialized networks (Scott, 2004) and boosts the overall inventive productivity of local actors (Fleming et al., 2007).

However, while these within-city networks help identify important knowledge needed to solve local problems and to find opportunities to move into new domains of application (Bathelt & Glücker, 2011), they are not self-sufficient in terms of the knowledge capabilities they draw upon and the development of new capabilities (Wolfe & Gertler, 2004). External knowledge networks are needed to avoid a lock-in in established lines of thinking or over-embeddedness (Grabher, 1993; Uzzi, 1997) and further stimulate and sustain local knowledge creation and innovation (Owen-Smith & Powell, 2004; Boschma, 2005, Frenken et al., 2007; Cano-Kollmann et al., 2016). Most global cities and their underlying actors are simultaneously embedded in the within-city local dense network and global international networks of knowledge and information (Mudambi et al., 2014; Scott-Kennel & Giroud, 2015).

The international connectivity to outside knowledge networks, which form the backbone of the global economy, is perhaps the most notable characteristic of a global city (Goerzen et al., 2013). With global competition shifting towards a race for knowledge, international knowledge networks have become increasingly important (Cano-Kollmann et al., 2016) as they provide considerable technological resource and information advantages that are unavailable or more expensive locally (Bell & Zaheer, 2007; Berry, 2014). This increases the diversity of knowledge and ideas and is the source of opportunities for forging new knowledge (re)combinations (Cantwell & Salmon, 2018) or new market opportunities (Ernst & Kim, 2002) and eventually lead to increased innovation performance (Adler et al., 2019), economic growth, productivity and global competitiveness (Anselin et al., 1997; Rosenthal & Strange, 2004; Rodriguez-Pose & Crescenzi, 2008).

While the international business literature has paid substantial attention to the organization and importance of international networks of global cities (e.g., Awate & Mudambi, 2018), the new economic geography (NEG) and urban economy literature has focused, mostly qualitatively, on the domestic or intra-regional connections of large and highly agglomerated areas with their surrounding regions. Within this literature, the concepts of spread effects and backwash effects

(Myrdal, 1957; Hirschman, 1959), also termed 'borrowed size' effects (e.g., Alonso, 1973; Burger et al., 2015) versus 'agglomeration shadow' effects (e.g., Lösch, 1940; Patridge et al., 2009), have been used as two opposing potential influences on the distribution of economic growth and opportunities between a highly agglomerated core and its surrounding areas. They highlight the interplay between centripetal (convergence) and centrifugal (divergence) forces (Krugman, 1991; Venables, 2010).

Spread or borrowed size effects refer to the positive effects or agglomeration benefits that the surrounding region may "borrow" from the highly agglomerated core area while retaining advantages of smaller size such as lower congestion or pollution levels. A few examples are easy access to a wide range of business services, a wide labor market and innovation and knowledge diffusion via linkages and networks (e.g. Crescenzi et al., 2007) leading to a convergence towards a similar knowledge-base. In contrast, backwash effects or agglomeration shadows refer to the negative effects of a highly agglomerated core area on the surrounding region such as strong knowledge divergence due to the brain/resource drain of the latter geographical unit (Moreno et al., 2005; Crescenzi et al., 2007) and overall weak diffusion of technological innovation capabilities. This is often caused by fierce spatial competition resulting in global cities attracting the majority of the firms, skilled workers and knowledge from surrounding areas (Tervo, 2010). Recent research has indicated that backwash effects driving knowledge towards cities are generally greater than spread effects stimulating the diffusion of knowledge through linkages and networks (Meijers, 2008; Soja, 2014; Burger et al., 2015; Iammarino et al., 2017; Pike et al., 2017). This causes economic opportunities to be confined to particular global cities with limited to no benefits or even significant disadvantages for the surrounding areas.

Although the concept of linkages between agglomerated core areas and their surrounding regions is not new (e.g., Berry, 1970; Gaile, 1980), little attention has been paid to the role of international connectivity of global cities in potentially influencing these local knowledge linkages (e.g., Lorenzen et al., 2020). Prior research has found that internationalization and openness tend to put pressure on the local economy, exacerbating divergence among cities within countries (Benito & Narula, 2007; Fitjar & Rodriguez-Pose, 2011). The emergence of the knowledge economy might add to this pressure, leading to growing local disconnectedness in two ways. First, knowledge competitiveness increases knowledge intensity and will encourage the global search for available knowledge by actors in global cities via the establishment of international networks. These international networks are mainly created by multinational enterprises (MNEs) through networks of subsidiaries in various regions and cities, which enable the access and exchange of internationally dispersed knowledge and technologies to develop leading positions. However, the surrounding regions of highly agglomerated areas are predominantly characterized as innovation followers and not leaders (Shearmur, 2011; Davies et al., 2012) and have a larger presence of slow, less knowledge intensive, innovators (Shearmur, 2015) that mainly focus on problem-solving and the combination of existing knowledge (Asheim et al., 2011). This difference in the pace and type of innovation may make them a less attractive collaborator to the MNEs in global cities.

Second, MNE-driven international networks may not only decrease the global city‘s local connections but may also hamper the dissemination of wealth and economic opportunities to the surrounding area in the form of backwash effects (Virkkala & Mariussen, 2005). High skilled labor and experts, service firms and knowledge intensive activities may become increasingly attracted to the international connected global cities (Hirschman, 1959) where they benefit from a wide range of urban pull factors (Florida, 2017) such as higher wages and employment opportunities, the presence of top universities, urban amenities and services. In this process, these actors further contribute to the knowledge-intensity within global cities while simultaneously increasing the divergence of local opportunities by draining resources from the surrounding area (Giannone, 2017; Autor, 2019). This will further decrease the innovation ability of the global cities' surroundings (e.g., North & Smallbone, 2000) due to the lack of necessary resources, support and market conditions, and hence make it a less attractive partner for knowledge network relationships with global city actors. Our baseline hypothesis therefore is:

Hypothesis 1: *The knowledge connections between a global city and its surrounding areas are negatively associated with the international knowledge connectivity of the global city.*

5.2.1 The moderating role of Geographical Proximity

Geographical proximity between the highly agglomerated core area and its surrounding area has been considered to be the main determinant of the prevalence of spread effects over backwash effects (Phelps et al., 2001; Patridge et al., 2007; Patridge, 2009). When there is geographical proximity, spread effects become more likely as global cities may cause an inflow of knowledge inputs and resources generating more economic opportunities by easy access to global city functionalities such as services, facilities and amenities (Burger et al., 2015), entrepreneurial ecosystems or participation in a wider and more flexible labor market by travel-to-work commuting (Christäller, 1933; Alonso, 1973; Phelps, 1998; Polèse & Shearmur, 2006).

For example, Phelps et al., (2001) observed that surrounding areas near London could source qualified labor and technological expertise from the capital while Hesse (2014) found that these areas are gaining higher shares of occupation in financial and corporate service sectors. Similarly, Van Oort et al., (2004) noted that nearby areas can host a disproportionate share of new ICT firms while Polèse & Shearmur (2006) found that mid-tech, space-intensive industries are increasingly locating to surrounding areas. Generally, Parr (2002) concluded that the presence in or in close proximity to agglomeration economies suffices for many firms.

With more knowledge resources and increased possibility to face-to-face interactions between the global city and their surrounding areas, there are more opportunities to create connections and to collaborate in knowledge exchange (Broekel & Boschma, 2012) as geographical proximity lowers the barriers and costs of such knowledge exchange (Iammarino & McCann, 2006) and induces knowledge spillovers and interactive learning between actors (Malmberg & Maskell, 2003). The increasing investments in international knowledge exchange attracts more knowledge resources to the global city, benefitting surrounding areas and their knowledge collaboration with the global city, if the surrounding area is in proximity of the global city. Therefore, we hypothesize:

Hypothesis 2: *Geographical proximity weakens the negative association between the international knowledge connectivity of a global city and the knowledge connections between the global city and its surrounding areas.*

5.2.2 The moderating role of technology leadership of the global city

Global cities are more likely to host technologically leading knowledge actors (Dunning, 1991; Cantwell, 1995). The status of technological leader is often determined based on high simultaneous access to both local and foreign sources of knowledge and their effective implementation (Cantwell & Janne, 1999; Chung & Alcacer, 2002). Existing literature has indicated that technological leaders strongly invest in foreign knowledge connections to augment technological capabilities and to frame their competitive edge in various fields of knowledge (Roijakkers & Hagedoorn, 2006). To stay at the frontier, knowledge actors should be up-to-date about the latest state-of-the-art technology and knowledge, which is much more likely to be found when being connected to a wide variety of high technological knowledge clusters. Furthermore, international connections are also a way to cope with the high initial development costs within each next generation of technology (Pisano et al., 1988). Therefore, one could expect that global cities are more likely to rely on external knowledge and to simultaneously have weaker ties with surrounding regions when at the technology frontier.

The surrounding regions of global cities are often home to technological followers (Shearmur, 2011) and tend to be characterized by slow innovators (Shearmur, 2015) causing innovation in these regions to be predominantly incremental, non-time sensitive, a learning-by-doing process (Shearmur & Doloreux, 2016) and sometimes even outdated (Singh, 2007). Innovators generally interact with less frequency and do not depend on the latest information (McCann, 2007; Shearmur, 2015). Technological followers often search locally to adapt knowledge and have difficulty acting on advanced knowledge (Andrews et al., 2016; McCann, 2007). This implies that the need for state-of-the-art technology will increase international collaboration and discourage collaboration with the surrounding regions of the global city. Therefore, we hypothesize:

Hypothesis 3: *The technological leadership of the global city strengthens the negative association between the international knowledge connectivity of a global city and the knowledge connections between the global city and its surrounding areas.*

5.2.3 The moderation role innovation strength of the surrounding region

Surrounding areas of the global city are said to suffer from an unfavorable innovation environment due to the absence of clusters and externalities, weak organizational support structures and overall thinness of regional innovation systems (Tödtling & Trippl, 2005; Isaksen & Trippl, 2017). Agglomeration economies are deemed crucial for innovation (Shearmur, 2012), but are often missing in the surrounding locations of cities (Baptista & Swann, 1998). Extant research has emphasized the importance of strong knowledge actors that have built up a high-level internal competences (Doloreux & Shearmur, 2012; Grillitsch & Nilsson, 2015; Isaksen & Karlsen, 2016). Investment in such competences might halt a brain drain by increasing economic opportunities within the surrounding area of cities and thereby attracting talent from outside its borders (Meili & Shearmur, 2019). The investment in local knowledge creation and innovation strength by knowledge actors contributes to the absorptive capacity of a cluster, i.e. capacity to absorb, diffuse and exploit knowledge (Cohen & Levinthal, 1990; Giuliani, 2002).

Within knowledge collaborations, the presence of innovation strength and absorptive capacity is a crucial advantage. Greater investments in absorptive capacity and internal competences will increase the attractiveness as a collaboration partner (Ahuja, 2000; Wal & Boschma, 2011) as it reflects the presence of a larger knowledge base and therefore also greater potential to effective knowledge spillovers and exchange (Nooteboom, 2000), which may complement the knowledge needs of the partner. In contrast, firms with an inferior absorptive capacity are found to become isolated from local knowledge networks (Giuliani & Bell, 2005) as they are less likely to have useful knowledge and are thus perceived as deficient collaboration partners (Schrader, 1991).

Hence, a greater innovative strength of knowledge actors in the surrounding area representing a greater absorptive capacity will lead to greater potential for knowledge exchange and collaboration with actors in the global city. This is expected to reduce the negative effects of the international connectivity of global cities (Bathelt et al., 2004) on the knowledge connectivity with the focal surrounding area. We hypothesize:

Hypothesis 4: *The innovation strength of the peripheral area weakens the negative association between the international knowledge connectivity of a global city and the knowledge connections between the global city and its surrounding areas.*

5.3 Data, Variables and Method

We test our hypothesis on a dataset of counties within the United States located in proximity of global cities, 2001-2015. We consider the U.S. as an appropriate setting for several reasons. First, the fastening pace of innovation is found to be predominantly present within the traditional "scientific superpowers" among which the U.S. (LaFleur et al., 2018). Second, extant research has indicated large heterogeneity in the knowledge network of global cities and MSAs within the U.S. (Fleming & Frenken, 2007; Boschma et al., 2015; Cantwell & Zaman, 2017). Third, due to extensive data availability on the regional level, this focus allows us to control for alternative explanations which may confound tests for our hypotheses if not taken into account.

To define global cities, we rely on a set of frequently cited global city rankings. First, the classification developed by the Globalization and World Cities research (GaWC) (Beaverstock et al., 1999) was consulted. This classification includes 350 worldwide cities primarily based on their role in the networks of advanced producer services firms (accountancy, advertising, banking and law firms). Cities are classified based on levels of integration within the world economy, with alpha cities considered the most integrated, followed by beta cities, gamma cities and "sufficiency" cities linking smaller regions into the world economy. We identify a total of

26 global cities located within the U.S. leading to the inclusion of six alpha cities, seven beta cities and thirteen gamma cities that have been listed most frequently in the GaWC rankings. The classifications to which the global cities belong changes over time for almost all included cities[27]. As five of the global cities are only ranked as global city in very few years they were left out of the analysis[28]. The inclusion of these cities was validated by their appearance in other global city rankings relying on different selection criteria such as MasterCard (2008), A.T. Kearney's (2012) and the Economist Intelligence Unit (2014)[29]. The included cities are listed in Table 5.1.

To define the boundaries of each global city, we rely on the Functional Urban Area (FUA) methodology developed by the OECD in collaboration with the European Union (OECD, 2012). National definitions of global cities are rarely consistent as they do not necessarily coincide with the actual economic boundaries of the agglomeration. With the use of population density and travel-to-work flows as key information, a global city is defined as a densely inhabited urban core with a surrounding hinterland whose labor market is highly integrated with the core (OECD, 2012). This leads to a harmonized definition of global cities, enabling an accurate comparison of cities and the identification of knowledge clusters (cf. Alcácer & Zhao, 2016). Furthermore, the definition of global cities avoids defining hinterland/catchment areas as surrounding areas where one would by definition observe borrowing effects due to the high integration of these areas within the global city. To define the surrounding areas, we use the surrounding counties of the global city. Hence, we define the surrounding regions in a mainly geographical sense following the approach of e.g., North & Smallbone (2000), Rodriguez-Pose & Cresenzi (2008) and Shearmur (2011) while also taking into account the economic factors in the form of the likely centripetal (spread) and centrifugal (backwash) effects of the global city on the surrounding economy (Belderbos & Braito, 2019).

Starting from the identified global cities, a set of counties was selected. While there exists extensive literature on knowledge spillovers and their spatial range (e.g., Audretsch & Feldman, 1996; Henderson, 1997), most studies do not reach a consensus on the actual range of knowledge spillovers nor do they quantify it (Doring & Schnellenbach, 2006). We include all

[27] A few exceptions are Chicago, Los Angeles and New York which remain Alpha cities and Houston which remains a Beta city.
[28] Only removing them in the years that they were not classified as global cities led to convergence issues in the analysis.
[29] For the selection criteria used in the aforementioned global city rankings, we refer to the respective global city ranking reports or the appendix of Chapter 3.

counties within a 500 mile great circle distance from counties located within the U.S. global city. We deem this range to be appropriate as this allows for the inclusion of the spatial range of knowledge, labor and commodity movements (Belderbos & Braito, 2019) between global cities and their surrounding area. We exclude the identified counties that are part of other global cities. Given the wide radius, it is possible that a county belongs to multiple global cities, especially when global cities reside in relative close proximity to one another[30]. A set of relevant characteristics is retrieved from sources such as U.S. Census Bureau, U.S. Bureau of Labor Statistics and the U.S. Bureau of Transportation Statistics.

We used the Patent Statistical (PATSTAT) database of the European Patent Office (EPO) to collect patent and inventor information. This database covers patent activities from over ninety worldwide patent offices such as those of the United States, Japan, China, Brazil and India. Patents contain information on the address of inventors and assignees, citations and information on the technical content (IPC classes of inventions). We avoid double counting of patent information by grouping patents by patent family ('docdb') if patents are filed in multiple jurisdictions or in multiple variants. We geocoded addresses of inventors listed on each patent to assign patents to global cities and counties and to establish global city-county inventor collaboration and the corresponding knowledge network. Different matching algorithms were employed to reduce missing address information across patent offices for the same patent family (Belderbos et al., 2022).

The obtained knowledge network enables us to explain the number of times a collaboration occurs between a global cities and the surrounding area. We identify these knowledge linkages at the industry level. Patents were allocated to different industries and their corresponding NACE codes at the two-digit level using the patent technology class to industry concordance table developed by Dorner & Harhoff (2018). We opted for the use of this concordance table as it enables the assignment of patent technology class (IPC) codes to both service and manufacturing industries. We then assigned the obtained NACE 3 digit codes from the DH concordance table to NAICS 3 digit codes. Patents that were initially assigned to the category of "Professional, scientific and technical activities" were reassigned to alternative categories using the patent technology class to industry concordance table developed by Lybbert & Zolas

[30] Counties can be in proximity of multiple global cities and hence one county can be included multiple times within the dataset and within the regression. This feature is analyzed by explaining the individual linkages between each county-global city combination.

(2014). The reason for this reassignment is the aggregate nature of this category in the Dorner & Harhoff (2018) concordance which included all types of services and manufacturing R&D activities. To allow for sufficient patent activity within each of the industries, we reassigned the obtained 41 industries to 16 initial broader industries and removed those that had less than 50 patents within a year. This led to the final identification of 13 industries: including 2 services industries and 11 manufacturing industries. If a patent lists multiple IPC classes and NAICS codes, a fractional count was used to allocate patents to industries to avoid artificial increase of the patent count.

Our final dataset consists of 614 unique counties located in proximity of 21 global cities in the United States during the observation period of 2001 to 2015. Three counties were excluded due to unavailability of data on the control variables (Shannon County in South Dakota, Clifton Forge County in Virginia and Bedford County in Virginia).

5.3.1 Variables and Method

The *dependent variable* in our dataset is a count variable indicating the amount of inter-regional connections between the global city and county. A connection or knowledge link is created when two co-inventors are named on the same patent document while one inventor is located within the global city and one is located in the focal county. We argue that collaborations are a good way to measure knowledge exchange as it facilitates the exchange of codified and tacit knowledge (Takeishi, 2002) and as collaborations are designed with the purpose of increasing knowledge for both partners. Generally, knowledge networks are measured as actual relations dealing with knowledge as an aggregated sum of personal networks and organizational networks.

To test for Hypothesis 1 on the influence of international connectivity of the global city on linkages with the surrounding areas, we include the variable *international connectivity* (e.g. Kafouros et al., 2012; Mudambi & Santangelo, 2016; Awate & Mudambi, 2018; Castellani et al., 2021). International connectivity is measured as the intensity of international knowledge connectivity of the global city. It is measured as the share of patents of the global city with at least one foreign co-inventor.

Table 5.1 shows the industries with the highest average international connectivity and the respective global city-county connections for each of the included global cities. The U.S. global cities have, on average, the highest international connectivity for Chemicals (11), Food & Tobacco (4), Electronics (2), Paper, Printing & Wood (2) and Transportation (2).

Table 5. 1 Highest average global city International Depth and average Global City-County Linkages per sector

Global City	*Industry with highest average International Depth*	*Average International Depth*	*Average Global City - County Linkages*
Atlanta	Electronics	0,08	3,60
Austin	Chemicals	0,07	3,26
Boston	Minerals	0,11	3,02
Chicago	Electronics	0,08	5,88
Columbus	Food & Tobacco	0,08	6,99
Dallas	Food & Tobacco	0,1	1,11
Detroit	Chemicals	0,08	10,10
Houston	Textiles	0,13	0,18
Indianapolis	Chemicals	0,08	7,23
Los Angeles	Chemicals	0,09	19,52
Miami	Food & Tobacco	0,07	1,26
Milwaukee	Food & Tobacco	0,06	4,98
Minneapolis	Paper, Printing & Wood	0,07	0,80
New York	Machinery	0,14	6,93
Philadelphia	Transportation	0,1	3,62
Phoenix	Metals	0,1	3,02
Pittsburgh	Chemicals	0,08	15,80
San Diego	Chemicals	0,09	3,58
San Francisco	Transportation	0,09	1,63
Seattle	Chemicals	0,09	1,52
Washington	Chemicals	0,1	18,04

Table 5.2 shows the average global city-county connections and international connectivity for all sectors. The Chemicals, Electronics and Food & Tobacco industry have on average the highest number of global city-county linkages while the Chemicals, Food & Tobacco and Electronics industry show the largest average international connectivity. Additional tables describing the yearly average growth of the interregional connections between the global city and the county, the international connectivity and other innovation characteristics of the global city can be found in the appendix.

Table 5. 2 Average number of sectoral Global City- County Linkages and International Depth

Sector	*Average Global City - County Linkages*	*Average International Depth*
Chemicals	50,53	0,08
Food & Tobacco	46,62	0,08
Minerals	10,71	0,08
Electronics	49,84	0,07
Machinery	27,54	0,07
Metals	14,27	0,07
Utilities and Construction	10,80	0,07
Transportation	20,87	0,07
Paper, Printing & Wood	9,16	0,06
Technical Services	32,71	0,06
Textiles	8,41	0,05
Other Manufacturing	24,10	0,05
Average	*25,46*	*0,07*

Hypothesis 2 distinguishes between counties in close proximity to the global city and counties that are located further away. We operationalize closeness or 'metropolitan' proximity between global cities and counties by their *geographical proximity*. Higher proximity is hypothesized to weaken the negative association between the international knowledge connectivity of a global city and the knowledge connections between the global city and its surrounding areas. Geographical proximity is measured by the average great circle distance (Haversine formula) from all counties within the global city to the focal county. Data was obtained from the County Distance Database of the National Bureau of Economic Research. Hypothesis 2 is tested by including interaction terms between geographic distance and international connectivity and predicts positive signs.

To test Hypothesis 3, an interaction term between the international knowledge connectivity and a measure of the global city's *technology leadership* is included in the models. As a measure of leadership of the city in an industry, we take the average forward citation rates of patents invented in the global city in the industry. We calculate the average forward citations, counted up to five years after application. Forward citations are commonly used to measure the technological impact of innovation (e.g., Hall et al., 2001; Hall et al., 2005). The higher the number of citations, the more influential a patent is considered to be. Hypothesis 3 predicts that the technology leadership status of the global city will strengthen the negative association between the international knowledge connectivity of a global city and the knowledge connections between the global city and its surrounding areas.

Hypothesis 4 is tested by introducing an interaction term between international knowledge connectivity of the global city and the county's patents in the industry as a measure of *innovation strength*. The innovation strength of the county proxies the innovative capabilities, absorptive capacity and the knowledge base of the county (Patel & Pavitt, 1997; Ahuja & Katila, 2001). The number of patents is measured based on the unique patent family ID occurrence of which at least one inventor is located within the county. Hypothesis 4 predicts that the innovation strength of the county weakens the negative association between the international knowledge connectivity of a global city and the knowledge connections between the global city and their surrounding areas.

We include a number of control variables measuring local and global city features that may predict collaboration behavior. We control for the *technological leadership of the county* to measure the technological impact of their innovations. Technological leadership was measured by including the average number of forward citations per industry within the county, counted up to five years after publication (OECD, 2011). We control for *innovation strength of the* *global city* by including the industry specific patent count of the global city. Similarly to the county innovation strength, this variable proxies the innovative capabilities, absorptive capacity and knowledge base of the global city (Patel & Pavitt, 1997). The number of patents is measured based on the unique patent family ID occurrence with at least one inventor in the global city. To control for *the local buzz of the county and global city*, the number of within county and global city knowledge linkages was included. To reduce the possibility of measuring intra-firm collaboration instead of an actual collaboration, a knowledge link is created when (i) two co-inventors are named on the same patent document and are located in the same city and (ii) when at least two different assignees are assigned to the patent document. The local buzz is divided by the innovation strength of the respective geographical entity.

The share of foreign assignees in the global city is introduced as a control variable to take into account the nature of international linkages of the global city and whether they are predominantly due to foreign owned or domestically owned MNEs. The share of foreign assignees in the global city is measured by dividing the number of foreign linkages due to foreign owned MNEs by the total number of foreign linkages. Foreign owned MNEs are generally less localized as they have weak links to local knowledge networks (Zaheer & Mosakowski, 1997) which also hampers the engagement in collaborations by increasing the search and negotiation costs of finding a suitable collaboration partner. Even when a suitable collaboration partner is found, learning may be constraint due to the presence of barriers resulting from social, cultural, cognitive, administrative, institutional and organizational differences (Ghemawat, 2001; Boschma, 2005). We also include the share of foreign assignees in the county which is measured in a similar way. Generally, surrounding areas of the global city tend to compensate for the lack of agglomeration characteristics by collaborating with international knowledge sources (Giuliani, 2002) which may reduce the need for local connectivity.

Population density (linear and squared) at the county and global city level is included to control for the presence of urbanization economies such as roads and buildings associated with densely populated areas. Its squared term was included to control for the possible congestion costs such as pollution, congestions or increasing rent costs associated with greater population density. *The number of establishments* in the county and the global city is included to control for the size of the industry. The variable allows us to control for overall geographical concentration of industry activity (Gleaser & Kerr, 2009; Alcacer & Chung, 2014) affecting the potential to collaborate with other locations. Data for the number of establishments on the county and global city level by NAICS 3 digit code was retrieved from the County Business Pattern database of the U.S. Census Bureau. For the global city, the number of establishments was aggregated over all counties within the global city.

The *wage costs difference* between the global city and the focal county is included to account for the possible outsourcing of technological development of global cities through collaboration to counties where wage is cheaper. Wage cost has been used in previous literature as a good proxy for the presence of congestion costs (Basile, 2004). Wage Cost is measured as average annual wage by industry (3 digit NAICS code) of the county. On the global city level, the average annual wage by industry of all counties within the global city was taken. Data on the annual wages was obtained from the U.S. Bureau of Labor Statistics. *County airports* is included to control for the presence of airports in the county[31]. It reflects the transportation infrastructure within the county which may facilitate face-to-face interactions with the global city. The data for number of airports within the county was obtained from the U.S. Bureau of Transportation Statistics.

To account for broader regional incentives that may promote or support collaboration between the global city and certain counties, we include *R&D tax incentives* on the state level of the global city. Data on state R&D expenditure is mainly retrieved from Wilson (2009) and Falato & Sim (2014). Similarly, *R&D expenditure* on the state level of the global city is included to account the possibility that local linkages may be a function of broader regional features e.g. state features. R&D expenditure is obtained from the OECD regional dataset. As global cities can span multiple states, the R&D tax incentive and R&D expenditure are measured as a weighted average based on the number of counties belonging to each state.

Finally, we include industry, global city and county dummies to control for non-time varying differences across industries and locations. To control for time varying differences that are common across locations and industries, year dummies were included. All explanatory variables, except the binary variables, were logarithmically transformed and are one year lagged with respect to the year when connections between the global city and county were formed to allow for a response time. The logarithmic transformation in the context of a Poisson model allows the estimated coefficients to be interpreted as elasticities.

[31] The number of county airports varies over time with 23% of the counties experiencing one change over time, 3% experiencing two changes and 0.9% experiencing three changes.

5.3.2 Empirical Model

As discussed in the previous section, the dependent variable is a non-negative count variable. Therefore, count models such as Poisson or Negative Binomial regression models are preferred over traditional models such as Ordinary Least Square (Wooldridge, 2002). We use the most generic count model i.e. a Poisson regression model. An important property of the Poisson regression model is the requirement for equidispersion, i.e. the variance is equal to the mean. However, this assumption is violated in many practical implications leading to deflated standard errors. A solution is to apply cluster-robust standard errors (Cameron & Trivedi, 2009) which allow for accurate estimates. In addition, our sample size by far fulfills the minimum requirements which allow for an accurate estimation of the Maximum Likelihood Estimation (MLE) (Long, 1997).

The model relates the number of times a collaboration occurs between global cities $gc\ (gc = 1, \dots, 21)$ and their surrounding counties $c\ (c = 1, \dots, XX)$ active in various industries $i\ (i = 1, \dots, 13)$ at time $t\ (t = 2001 - 2015)$ to the set of independent variables. Our base model, without interaction terms for simplicity, is expressed as follows:

$$\begin{aligned}\mathrm{Log}\big(GCCountyConnections_{gc,c,i,t}\big) \\ &= \alpha_1 InternationalConnectivity_{gc,i,t-1} + \alpha_2 InternationalConnectivity_{gc,i,t-1} \\ &* InteractionVariable_{gc,c,i,t-1} + \beta H_{gc,c,i,t-1} + \gamma D_{gc,c,i,t}\end{aligned}$$

where the focal independent variable is the international knowledge connectivity of the global city. Control variables can vary over global city ($H_{gc,t-1}$: Population Density Global City, Population Density Squared Global City, R&D tax incentives and R&D expenditure), over global city and industry ($H_{gc,\mathrm{i},t-1}$: Technological Leadership Global City, Innovation Strength Global City, Local Buzz Global City Share Foreign MNEs Global City and Establishments Global City), over county ($H_{c,t-1}$: Population Density County, Population Density Squared County, Number of Airports County), over county and industry ($H_{c,\mathrm{i},t-1}$: Technological Leadership County, Innovation Strength County, Local Buzz County, Share Foreign MNEs County and Establishments County), over county-global city combination ($H_{gc,c,t-1}$: Average Geographical Proximity) and over county-global city combination and industry ($H_{gc,c,\mathrm{i},t-1}$:

Wage Cost Difference). We include fixed effects for the global city (D_{gc}), the county[32] (D_c), the industry (D_i) and the years (D_t) to accurately deal with the multilevel analysis nature of our study. Clustered robust standard errors are included for global city-county-industry combinations to account for heteroscedasticity across these clusters.

5.4 Empirical Results

The definition and summary statistics of the explanatory variables are provided in Table 5.3 and their correlation coefficients are presented in Table 5.4. The correlations do not indicate multicollinearity concerns.

Table 5.5 presents the results of the Poisson analyses. Model 1 only contains the control variables. Most of the control variables are significant and have expected signs corresponding to findings in prior research. For technological leadership, positive significant effects are found on the county level and a negative significant effect on the global city level. This indicates the two-fold role of technologically advanced patents in the facilitation of local connections. A large presence of technologically advanced patents within the county will increase its attractiveness as a collaboration partner for the global city due to a higher possibility of exchanging state-of-the-art knowledge. A larger presence of technologically advanced patents within the global city may drive it towards collaboration with other international cities to stay at the technological frontier. The innovation strength of the county and global city are significantly positive, indicating the importance of innovative capabilities and a developed knowledge base as an antecedent of the formation of collaboration linkages between the global city and the county.

The local buzz within the global city is positive significant indicating the importance of intra-city collaboration, enabling rapid diffusion of knowledge spillovers, the cross-fertilization between sectoral-specialized networks and boost of overall inventive productivity of local actors, in establishing local connectivity with their surrounding areas. The share of international linkages due to foreign MNEs on the county level is negative significant in line with the unlikeliness of MNEs to forge domestic connections. While county population variables remain insignificant, negative significant effects are found for the squared term of population density

[32] The usage of county fixed effects significantly reduces our observation count given that all counties with no connectivity over time are excluded from the sample.

of the global city confirming the existence of agglomeration diseconomies due to congestion, pollution and high rent costs.

For the establishments within the county and global city, we find a similar effect as observed for technological leadership. A higher number of establishments within the county can lead to the facilitation of more collaboration with the global city. The negative significant effect of establishments within the global city can indicate the heavy reliance on the agglomeration economies within the city itself. The number of county airports is significantly positive indicating the importance of having transportation infrastructure within the county which may facilitate face-to-face interactions with the global city. The R&D tax incentives and R&D expenditure are significantly positive indicating the importance of tax incentives in driving collaboration and broader state features driving collaboration between the county and the global city.

The focal international connectivity variable is entered in model 2 and shows a negative significant effect. The coefficient indicates the magnitude of the effect, as it can be interpreted as an elasticity. For international connectivity, this is -0.48 ($p<0.05$), implying that a 10 percent increase in international connectivity decreases the local connections between the global city and the county by 4.8%. This result provides support for Hypothesis 1.

The interaction effect of the international connectivity variable with geographical proximity between global city and county is added in Model 3. Geographical proximity positively and significantly moderates the effect of the international connectivity of global city linkages ($b= 0.53$, $p<0.10$). This finding provides support for Hypothesis 2. Geographical proximity reduces the negative influence of the degree of international connectivity of the global city on the local connections. Model 4 presents the results when adding the interaction effect of the international depth variable with the technological leadership of the global city. Technological leadership positively and significantly moderates the effect of the international connectivity ($b=0.42$, $p=0.227$) on the global city-county connections. These findings provide no support for Hypothesis 3.

Table 5. 3 Descriptive statistics

Variable	*Description*	*Mean*	*Std. Dev.*	*Min*	*Max*
Linkages Global City-County	Count variable indicating the amount of inter-regional connectivity between global city and county on the industry level	4,38	25,55	0	1132
International Depth	The degree of connectedness of the global cities to other countries on the industry level	0,07	0,03	0	0,35
Geographical Proximity	The average geographical proximity between the global city and the county	-302,07	124,85	-499,97	-27,18
Technological Leadership County	The average number of forward citations per industry within the county	0,63	2,66	0	300
Technological Leadership Global City	The average number of forward citations per industry within the global city	1,12	1,98	0,01	20,81
Innovation Strength County	The number of patents per industry with at least one inventor located within the county	17,94	69,03	0	2720,54
Innovation Strength Global City	The number of patents per industry with at least one inventor located within the global city	920,61	1729,02	5,55	45828,41
Local Buzz County	The number of within-county connectivity with min. two different assignees assigned to the patent divided by the innovation strength of the county	0,08	0,06	0	100,56
Local Buzz Global City	The number of within-global city connectivity with min. two different assignees assigned to the patent divided by the innovation strength of the global city	4,42	12,52	0	438,75
Share Foreign MNEs County	The share of international linkages of the county due to foreign MNEs	0,12	0,24	0	1
Share Foreign MNEs Global City	The share of international linkages of the global city due to foreign MNEs	0,34	0,17	0	1
Population Density County	The population density of the county measured by population/surface	292,35	377,53	1,33	3345,24
Population Density Global City	The population density of the global city measured by population/surface	545,51	267,63	139,75	1343,8
Establishments County	The number of industry establishments located in the county	91,56	270,48	0	5916
Establishments Global City	The number of industry establishments located in the global city	3095,98	7518,56	32	73084
Wage Difference	The difference in average industry wages between the county and the global city	-10023,45	14790,3	-126160	168175
Number of Airports County	The number of airports located within the county	0,35	0,6	0	7
R&D Tax Incentive Global City	The weighted average R&D tax incentive on the state level of the global city	6,75	4,24	0	20
R&D Expenditure Global City	The weighted average R&D expenditure on the state level of the global city	14820,17	14035,39	3611,67	116041

Note: Descriptives are untransformed continuous variables. In the empirical models, the variables are taken in natural logarithm.

Table 5. 4 Correlations

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Linkages Global City-County	1																	
2	International Depth	**0,0472**	1																
3	Geographical Proximity	**-0,0479**	**-0,0236**	1															
4	Technological Leadership County	**0,0760**	**-0,0695**	-0,0023	1														
5	Technological Leadership Global City	**0,0135**	**-0,1758**	-0,002	**0,3141**	1													
6	Innovation Strength County	**0,6346**	**0,0485**	**-0,0333**	**0,1091**	**0,0091**	1												
7	Innovation Strength Global City	**0,1461**	**0,2392**	**-0,0465**	**0,0283**	**0,0594**	**0,1371**	1											
8	Local Buzz County	**0,3040**	**0,0385**	**-0,0072**	**0,0458**	**-0,0052**	**0,4618**	**0,0896**	1										
9	Local Buzz Global City	**0,0985**	**0,2275**	**-0,0323**	**0,0147**	**0,0309**	**0,0947**	**0,7771**	**0,1153**	1									
10	Share Foreign MNEs County	**0,1104**	**0,0067**	**0,0049**	**0,0962**	**-0,0352**	**0,1625**	**0,0501**	**0,146**	**0,0415**	1								
11	Share Foreign MNEs Global City	**0,0049**	**0,2094**	**-0,0148**	**-0,0106**	**-0,0651**	0,0026	**0,0338**	**0,0067**	**0,0576**	**0,0178**	1							
12	Population Density County	**0,2221**	**0,0364**	**-0,0175**	**0,1250**	**-0,0055**	**0,4041**	**0,0095**	**0,1862**	**0,0113**	**0,2322**	**0,0086**	1						
13	Population Density Global City	**0,0561**	**0,2820**	**-0,0592**	**-0,0051**	**0,0046**	**0,0462**	**0,3312**	**0,0106**	**0,2491**	**0,0029**	**-0,0045**	**0,0914**	1					
14	Establishments County	**0,1285**	**-0,0187**	**-0,0123**	**0,2344**	**0,2358**	**0,1785**	**-0,0271**	**0,0553**	**-0,0190**	**0,0587**	**-0,0178**	**0,3555**	**0,0256**	1				
15	Establishments Global City	**0,0067**	**0,0505**	**-0,0201**	**0,1327**	**0,4275**	**-0,0123**	**0,0582**	**-0,0153**	**0,0502**	**-0,0540**	**-0,0501**	**0,0162**	**0,2508**	**0,3703**	1			
16	Wage Difference	**0,1224**	**-0,0463**	**-0,0126**	**0,0524**	**-0,1358**	**0,1957**	**-0,1359**	**0,0977**	**-0,1058**	**0,1487**	**0,0402**	**0,3355**	**-0,1880**	**0,1367**	**-0,1292**	1		
17	Number of Airports County	**0,1396**	**0,0582**	**-0,0475**	**0,0917**	**-0,0177**	**0,2323**	**0,0554**	**0,1085**	**0,0381**	**0,1714**	0,0009	**0,4463**	**0,0288**	**0,2892**	**0,0266**	**0,2324**	1	
18	R&D Tax Incentive Global City	**0,0407**	**-0,0243**	**-0,0332**	**-0,0069**	**-0,0585**	**0,0371**	**0,0886**	**0,0138**	**0,0542**	**0,0089**	**-0,0616**	**0,0193**	**0,0155**	**0,0429**	**-0,0055**	**0,0171**	**0,0753**	1
19	R&D Expenditure Global City	**0,0545**	**0,1496**	**-0,0308**	**0,0035**	-0,0002	**0,0170**	**0,2704**	**0,0073**	**0,1934**	**0,0145**	**0,0614**	**-0,0573**	**0,0947**	**0,0553**	**0,0852**	**-0,1112**	**0,1676**	**0,1819**

Note: correlations in bold are significant (P<0.05).

Table 5. 5 Poisson regression model of U.S. global city-county knowledge linkages, 2001-2015

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth		-0.482**	-0.435**	-0.442**	-1.559***	-1.499***
		(0.203)	(0.202)	(0.208)	(0.330)	(0.337)
International Depth * Geographical			0.528*			0.558**
Proximity			(0.275)			(0.270)
International Depth * Technological				0.416		0.359
Leadership Global City				(0.344)		(0.343)
International Depth * Innovation					0.323***	0.330***
Strength County					(0.117)	(0.117)
Geographical Proximity	0.00332	0.00330	-0.0356*	0.00335	0.00353	-0.0376*
	(0.0118)	(0.0118)	(0.0197)	(0.0118)	(0.0117)	(0.0195)
Technological Leadership County	0.124***	0.124***	0.123***	0.124***	0.127***	0.127***
	(0.0117)	(0.0117)	(0.0117)	(0.0117)	(0.0118)	(0.0118)
Technological Leadership Global	-0.239***	-0.241***	-0.243***	-0.264***	-0.242***	-0.263***
City	(0.0205)	(0.0206)	(0.0205)	(0.0253)	(0.0206)	(0.0253)
Innovation Strength County	0.739***	0.739***	0.739***	0.738***	0.717***	0.716***
	(0.0107)	(0.0107)	(0.0106)	(0.0107)	(0.0135)	(0.0135)
Innovation Strength Global City	0.117***	0.116***	0.116***	0.116***	0.114***	0.114***
	(0.0145)	(0.0144)	(0.0144)	(0.0144)	(0.0146)	(0.0145)
Local Buzz County	-0.0444	-0.0453	-0.0437	-0.0488	-0.0468	-0.0480
	(0.305)	(0.304)	(0.304)	(0.304)	(0.305)	(0.304)
Local Buzz Global City	2.488**	2.952***	2.888***	2.755**	2.945***	2.705**
	(1.069)	(1.098)	(1.098)	(1.098)	(1.101)	(1.101)
Share Foreign MNEs County	-0.181***	-0.181***	-0.181***	-0.180***	-0.182***	-0.181***
	(0.0265)	(0.0265)	(0.0264)	(0.0264)	(0.0266)	(0.0264)
Share Foreign MNEs Global City	0.0183	0.0315	0.0335	0.0368	0.0298	0.0364
	(0.0412)	(0.0407)	(0.0407)	(0.0402)	(0.0404)	(0.0399)
Population Density County	-0.135	-0.132	-0.152	-0.133	-0.173	-0.195
	(0.200)	(0.200)	(0.200)	(0.200)	(0.199)	(0.199)
Population Density^2 County	0.00991*	0.00976*	0.0103*	0.00976*	0.0107**	0.0114**
	(0.00539)	(0.00540)	(0.00541)	(0.00539)	(0.00537)	(0.00537)
Population Density Global City	-0.535	-0.474	-0.620	-0.540	-0.389	-0.598
	(0.505)	(0.502)	(0.508)	(0.508)	(0.504)	(0.516)
Population Density^2 Global City	-0.0496*	-0.0465*	-0.0349	-0.0405	-0.0544*	-0.0372
	(0.0279)	(0.0278)	(0.0287)	(0.0290)	(0.0280)	(0.0300)
Establishments County	0.587***	0.589***	0.590***	0.588***	0.611***	0.611***
	(0.138)	(0.138)	(0.137)	(0.137)	(0.137)	(0.137)
Establishments Global City	-1.115***	-1.120***	-1.122***	-1.115***	-1.169***	-1.166***
	(0.271)	(0.270)	(0.270)	(0.270)	(0.270)	(0.269)
Wage Difference	0.00456	0.00451	0.00448	0.00440	0.00515	0.00504
	(0.00414)	(0.00413)	(0.00413)	(0.00412)	(0.00413)	(0.00412)
Number of Airports County	0.0365**	0.0352**	0.0360**	0.0357**	0.0333**	0.0346**
	(0.0143)	(0.0144)	(0.0144)	(0.0145)	(0.0145)	(0.0146)
Global City R&D Tax Incentive	0.00526**	0.0243***	0.0246***	0.0241***	0.0237**	0.0239**
	(0.00215)	(0.00929)	(0.00928)	(0.00929)	(0.00928)	(0.00928)
Global City R&D Expenditure	0.0816**	0.0907**	0.0907**	0.0870**	0.0906**	0.0874**
	(0.0362)	(0.0364)	(0.0364)	(0.0369)	(0.0363)	(0.0367)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	561,600	561,600	561,600	561,600	561,600	561,600

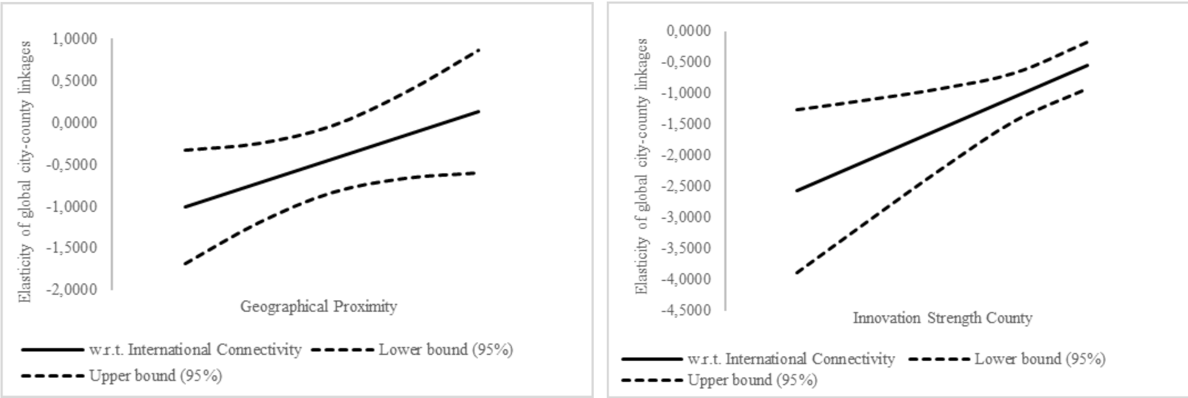
Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

The interaction effect with the innovation strength of the county is added in Model 5. The innovation strength positively and significantly moderates the effect of the international connectivity of global city (b= 0.32, p<0.001). These findings provide support for Hypothesis 4. When counties have a higher innovation strength, the negative impact of the degree of international connectivity of the global city on the local connectedness will be reduced. Model 6 combines all interaction terms into a single model. Similarly to the previous findings, we find significant positive effects of geographical proximity and county innovation strength on international connectivity, respectively b= 0.56 (p<0.05) and b= 0.33 (p<0.001).

The magnitude of the moderated influences cannot be directly inferred from the coefficients and depend on both the main effect of international connectivity and the interaction term. Therefore, the elasticities of the global city-local linkages count with respect to the international connectivity for different levels of geographical proximity and county innovation strength are shown in Figure 5.1 for the significant moderation effects[33]. The graphs show elasticities with respect to international connectivity for different levels of geographical proximity and county innovation strength. In Figure A, the elasticity of the local connectedness with respect to international connectivity decreases from -0.43 at the mean value for geographical proximity to –0.72 when geographical proximity is a standard deviation lower, decreasing to -1.0 for counties that are located even further away from the global city. At the same time, we observe that when geographical proximity increases with two standard errors, the elasticity increases to 0.14 and becomes insignificant. In Figure B, the elasticity of the local connectedness with respect to international knowledge connectivity of the global city decreases from -1.56 at the mean value for county innovation strength to -2.06 when county innovation strength is a standard deviation lower, decreasing to -2.57 when counties have an even lower innovation strength. At the same time, we observe that when county innovation strength increases with two standard errors, the elasticity increases to -0.55, but remains significant.[34]

[33] This elasticities are calculated using the margins command.

[34] An alternative way to assess magnitudes effects by estimating the average predicted counts of local collaborations was also examined. When international depth is minimal, average predicted collaboration is 4.53, a percentage change of 3.19%% with respect to the mean. At the maximum of international depth, average predicted collaboration is 3.92 corresponding to a percentage change of -10.71%.



(A) (B)

Figure 5. 1 The elasticity of global city-county knowledge linkages with respect to international connectivity at different levels of geographical proximity (A). The elasticity of global city-county knowledge linkages with respect to international connectivity at different levels of county innovation strength (B).

5.4.1 Supplementary Analysis

A number of supplementary analysis is conducted to examine the robustness of the reported findings. First, we test an alternative specification of international connectedness, namely international breadth (e.g. Kafouros et al., 2012; Mudambi & Santangelo, 2016; Awate & Mudambi, 2018; Castellani et al., 2021). The international breadth of the global city measures the geographical diversity of the linkages of the global city. We measure international breadth by using the Blau index of geographical dispersion of international knowledge linkages across countries. This is calculated as one minus the sum of the squares of the share of all inventors in each country. Accordingly, this variable is bounded by a minimum value of 1 when foreign inventors are increasingly geographically dispersed across countries. We find support for Hypothesis 1 and contrasting significant positive effects for technological leadership indicating opposite than expected results for Hypothesis 3. Hypothesis 2 and 4 are no longer supported. Apparently, when global cities have a higher technological leadership status, it reduces the negative influence of the geographical international dispersion (*international breadth*) of the global city linkages on the local connectedness.

Second, we test an alternative specification of the geographical range used to identify surrounding counties. As it is possible that changing the threshold has large consequences on the significance of the moderating effects, we test the influence of different spatial ranges on our findings. As we have no theoretical prior on which alternative spatial range could be used, we use a spatial range of 100, 200, 300 and 400. We find similar support for Hypothesis 1 when reducing the sample to 400 or 300 miles, but no support (insignificant negative effects) when reducing the sample to 200 or 100 miles. Hypothesis 2 is no longer supported in either one of the alternative spatial ranges and Hypothesis 3 remains unsupported. Hypothesis 4 remains supported throughout all samples, showing positive and significant effects in all spatial ranges.

Third, the included variable on proximity, average geographical distance, remains constant over time and may not be entirely representative of the actual proximity due to the existence of natural barriers or varying quality in road infrastructure which may significantly increase the actual distance between the global city and the county. We test an alternative specification of geographical proximity based on travel time and find similar support for our hypotheses, except for Hypothesis 2 which now shows a negative insignificant effect of travel time ($b = -0.4$; $p=0.170$). However, the data on travel time is based on real time travel time (retrieved in January 2021) from Google Maps and may thus not be entirely representative of the actual road infrastructure within the timeframe of the dataset. We are currently not aware of any other alternative database on travel times between 2000-2015 on the detailed regional level.

Fourth, the classification of global city based on the GaWC rankings may change over time i.e., one city may be classified as an Alpha city in 2008, but as a Beta city in 2010 and vice versa. As previously mentioned, most cities experiences changes within their GaWC ranking with exceptions for Chicago, Los Angeles, New York and Houston. While the role of changing global city GaWC rankings over time is currently captured by the inclusion of global city fixed effects, this can be brought forward by explicitly including it as a control variable thereby shedding light on the influence of the GaWC rank on the formation of inter-regional linkages. When separately including dummies for Alpha, Beta and Gamma cities, we find significant positive effects for the beta dummy and similar support for our hypotheses. Apparently, moving from a gamma status to a beta status is more detrimental to the formation of inter-regional linkages compared to moving from a beta to an alpha status.

Fifth, we test the inclusion of alternative moderators that could provide additional insight on the role of international connectivity on inter-regional linkages between the global city and its surrounding area. We opt for the inclusion of the share of foreign MNEs Global City and the share of foreign MNEs County, previously only included as control variables in the main model. Their use as moderator can be justified by existing literature on collaboration. As previously mentioned, foreign owned MNEs are found to be less localized as they have weak links to local knowledge networks which may hamper the engagement in collaboration and the possibility to learn from the collaboration due to various types of barriers (Boschma, 2005). Hence, we would expect the share of foreign MNEs in the global city to strengthen the negative association between the international knowledge connectedness of the global city and the knowledge connectedness between the global city and its surrounding area. We find similar support for Hypothesis 1 and no significant effect for the share of foreign MNEs in the global city. Additionally, we include the share of foreign MNEs in the international linkages, rather than in local patenting as an additional influence. We do not find any significant effect for the share of foreign MNEs in international depth.

On the county level, the lack of agglomeration characteristics and thin regional innovation systems may cause counties to focus on collaborations with international knowledge sources (Giuliani, 2002) and reduce the need for local connectivity. Hence, we would expect the share of foreign MNEs in the county to weaken the negative association between the international knowledge connectedness of the global city and the knowledge connectedness between the global city and its surrounding area. We find similar support for Hypothesis 1 and insignificant positive effects of the share of foreign MNEs in the county in Model 2 while insignificant negative effects of the share of foreign MNEs in the county are found in Model 3.

Sixth, we check the importance of including global city fixed effects. A test of joint significance indicates that the global city fixed effects are jointly significant (chi-squared= 55.88; $p=0.000$) and thus have to be included in the model. However, when removing them from the analysis, results for Hypothesis 1 and 2 become more robust (respectively $b=-0.92$ ($p<0.001$) and $b=0.59$ ($p<0.05$)) while we find significant positive effects for technological leadership ($b=0.61$, $p<0.10$) thereby showing contrasting results in regard to Hypothesis 3.

Seventh, global cities may have high connections to other global cities or counties within the United States. This may render a global city less inclined to form linkages with surrounding counties to fulfill their knowledge needs. Hence, we include a control variable to control for the presence of national distant linkages with counties that are located more than 500 miles away. We find significant positive effects of distant domestic linkages of the global city ($p<0.05$) and similar support for our hypotheses. Hence, distant domestic connections seem to be contribute to the formation of the interregional connections between the global city and the county. Furthermore, there seem to be opposite effects for international linkages and distant domestic linkages in the formation of this interregional connections.

Lastly, although the Poisson regression model with clustered standard errors is the most generic model, we test a negative binomial regression as it is a popular alternative for dealing with over-dispersion and is known to provide more efficient (but not necessarily unbiased) estimates. When estimating a negative binomial regression, we obtain slightly more robust results for Hypothesis 1 and 2 (respectively, $b=-0.49$, $p<0.001$ and $b=0.449$, $p<0.05$) and similar results for Hypothesis 3 and 4.

5.5 Discussion and Conclusions

This paper examined the incompatibility of global cities to develop strong international connectivity with the development of intensive local knowledge connections with surrounding areas. More precisely, this paper investigated the influence of geographical proximity and the innovation strength of the surrounding area on the compatibility between global city international connectivity and local disconnectedness. Empirically, we examined the association between international connectivity of 21 global cities in the United States and their local connectedness to 614 surrounding areas, for 13 industries during the period 2001-2015. Our analysis controlled for a range of other global city and local area characteristics to ensure accuracy of inference.

The findings provide clear indications that international connectivity is associated with local disconnectedness: global city international connectivity negatively influences the local connectedness between the global city and their surrounding areas. The negative effects of international connectivity are weakened by the geographical proximity between the global city and their surrounding areas and the innovation strength of the peripheral area. The geographic proximity effect is consistent with the existence of backwash effects (Soja, 2014; Pike et al., 2017), i.e. the negative effects of a highly agglomerated core area on the surrounding region such as strong knowledge divergence. We cannot confirm the existence of spread effects, i.e. the positive effects of a highly agglomerated core area on the surrounding region such as strong knowledge convergence, since being closer to the global city is not associated with significantly positive effects for international connectivity. For counties with higher levels (2 standard deviations above the mean) of innovation strength, there remains a negative significant effect of international connectivity on the local connections. This indicates that even with higher levels of innovation strength, there will still be a negative impact of global city international connectivity on connections with the surrounding area.

The findings of the supplementary analyses provides indications of distinct influences of global city and county characteristics on the role of different aspects of international connectivity. Against expectations, we find that the negative effects of international breadth, an alternative measure of international connectivity, are weakened by the technological leadership of the global city. This could indicate that technological leaders simultaneously invest in access to a wide variety of domestic and foreign sources of knowledge and connections (e.g. Chung & Alcacer, 2002) and that surrounding areas may have more to offer in terms of knowledge than initially expected. Additionally, we find that distant domestic connections are displaying contrasting effects to international connectivity in the formation of interregional connections. This indicates that while international connectivity is associated with local disconnectedness, connectivity with distant domestic areas, i.e. other counties or global cities within the same home country, is associated with greater local connectedness. It may be that domestic (distant) collaborations are more easily augmented or combined with local collaboration partners then international collaborations.

This paper contributes to the literature on the geography of innovation by focusing on the interplay between the international knowledge exchange of global cities and local knowledge exchange between global cities and their surrounding areas. We thereby contribute to bridging the gap between two streams of research: (i) the ample work on innovation and knowledge exchange within (successful) core regions, clusters, cities and MSAs (e.g. Schearmur, 2012; Boschma et al., 2015), which largely ignored knowledge exchange with the surrounding areas and (ii) the work on innovation within the county which has mainly focused on overcoming innovation barriers and on compensating for local disadvantages such as the lack of a critical mass by means of connections to areas outside of the home country (e.g. Dubois, 2013; Grillitsch & Nilsson, 2015).

Theoretically and empirically, we contribute to the literature on global city research by showing the presence of a negative influence of international connectivity on local connections (Lorenzen et al., 2020) and by explaining how global city-surrounding area innovation networks may vary systematically according to the presence of certain global city and surrounding area characteristics such as the technological leadership status of the global city and the innovation strength of the surrounding area. In addition, this paper contributes empirically to the field of economic geography by providing a quantitative study of the innovation networks of the surrounding areas in the United States, while the majority of research in this area has predominantly qualitative or built on case study design with a spatial focus on the Northern and Southern peripheries of Europe or Canada (Eder, 2019).

This study has implication for regional policy makers. The potential of international connectivity of global cities to negatively influence local connectedness with their surrounding areas illustrates that knowledge exchange does not always cause an equal spread of opportunities across the country. This reflects the need for innovation policies, public subsidies or support institutions that may enhance knowledge convergence across the country. A few examples are policies aimed at boosting local knowledge inputs like skilled employees and infrastructure, which will contribute to the local entrepreneurial ecosystem, or creating incentive schemes for MNEs to either locate within these surrounding areas or to collaborate with actors in the surrounding area. However, regional policies should not be a one-size-fits-all solutions (Tödtling & Trippl, 2005) but rather take into account the specific characteristics of global cities and their surrounding areas to avoid introducing inefficient policies. For example, it may make less sense to further stimulate innovation within surrounding regions that already have an extensive level of innovation strength within an industry or are located in close proximity to the global city.

We acknowledge the presence of limitations of our analysis. First, the usage of patents, while generally accepted as proxy for innovation, can be considered a model limitation as not all inventions are patented (Desrochers, 1998). Certain industries will have greater patent activity while others are more likely to opt for alternative protection mechanisms. The traditional, non-patenting nature of some sectors within the surrounding area of global cities may lead to an underestimation of actual innovation efforts. Second, we acknowledge the shortcoming of our dependent variable and focal independent variable as our measures ignore the heterogeneity in linkage types and actors (Lorenzen & Mudambi, 2013) and assumes that all linkages types and collaboration types are equivalent in terms of their ability to access knowledge. Furthermore, as the paper focusses on the level of industries within cities and counties, we are not able take into account characteristics of underlying individuals, firms or collaboration partners or their individual innovation strategies which could influence the degree of knowledge transfer between them. Third, we only focus on knowledge networks within the United States. We acknowledge that this focus reduces the scope for generalizations. Lastly, although we include fixed effects on the county, global city and industry level which would make endogeneity issues due to omitted variable bias less likely to occur, we cannot fully rule out that an omitted variable bias is influencing our estimates.

This research offers several opportunities for further research. First, future research should investigate the influence of other county/global city moderators on the relationship between international connectedness and local connectedness as this may lead to more insight on the actual incompatibility between the two types of connectivity and hence more detailed policy recommendations. Second, the influence of the global connectedness of global cities on local connectedness and the addressed moderators should be researched in other countries, regions or less global cities as this may help build broader insights to whether the observed patterns also hold in other spatial contexts. Especially in developing or emerging countries, where the difference between global cities and the surrounding area may be more pronounced, research may reveal to what extent the reasoning and results of this study are generalizable. Third, as we are unable to make any claims on the social or economic impact of this phenomenon on the country, future research examining these heterogeneous benefits to the country and individual knowledge actors. This would further increase our understanding about the extent of the negative influence on the local economy and presumably lead to more precise policy directions.

5.7 Appendix: International Connection, Local Disconnection: The (heterogeneous) Role of Global Cities in Local and Global Innovation Networks

Appendix

This appendix reports on a set of additional descriptive statistics highlighting the time variance of the innovation indicators (A5.7.1) and a set of robustness tests and alternative specifications (A5.7.2).

A5.7.1. Additional description tables

Table 5.6 reports the yearly average growth of the interregional connectivity between the global city and the surrounding area. In table 5.7, we report on the yearly average growth of international connectivity per global city. Table 5.8 reports the yearly innovation intensity, measured by patents divided by GDP, across cities. Table 5.9 shows the revealed technological advantage of each city for the sector with the highest specialization. Table 5.10 reports the correlations for the deviation from the Global City mean for global city-county linkages and international connectivity.

A5.7.2. Robustness tests and alternative specifications

Table 5.11 shows the results of the regression with international breadth instead of international depth as a measure of international connectivity of the global city. Table 5.12 to 5.15 shows the results when limiting the spatial range to, respectively a range of 100, 200, 300 and 400 miles great circle radius. In Table 5.16, average geographical proximity is replaced by average travel distance. Table 5.17 shows the results when including alpha, beta and gamma dummies as indication of the global city classification assigned by the GaWC. Table 5.18 shows the results when including the Share Foreign MNEs Global City as an extra moderator. Table 5.19 reports the result when including the share of international depth due to foreign assignees over the overall depth while 5.20 reports on the inclusion of the Share Foreign MNE County as an additional moderator. Within table 5.21, we report the results when excluding the global city fixed effects. Table 5.22 shows the results when including the distant domestic linkages intensity of the global city. Table 5.23 reports on the results using a negative binomial regression model.

Table 5. 6 Yearly average growth of global city-county interregional connectivity

Global City	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*
Atlanta	-0,11	0,05	-0,11	0,09	0,16	-0,03	-0,23	-0,12	0,23	-0,18	-0,01	0,19	-0,05	0,05
Austin	-0,14	-0,01	-0,19	0,13	-0,29	0,16	0,05	-0,28	0,86	-0,16	-0,37	0,17	-0,02	-0,06
Boston	0,10	0,16	0,03	0,10	0,18	-0,12	-0,07	-0,08	0,00	-0,07	-0,04	0,07	-0,09	-0,04
Chicago	-0,04	0,09	-0,10	0,23	0,03	0,00	0,15	-0,23	0,07	-0,02	-0,10	0,08	0,17	-0,07
Columbus	-0,05	0,12	0,02	0,17	0,20	-0,11	0,09	-0,16	0,03	-0,07	-0,01	0,00	0,15	-0,10
Dallas	-0,19	0,09	-0,35	0,31	-0,12	0,04	0,02	-0,39	0,81	-0,16	-0,33	0,20	-0,07	-0,06
Detroit	-0,03	0,12	0,01	0,15	0,17	-0,13	0,18	-0,19	-0,01	0,01	-0,09	-0,02	0,17	-0,13
Houston	-0,23	0,04	-0,28	0,18	-0,13	0,06	-0,01	-0,37	0,86	-0,13	-0,38	0,22	-0,06	0,01
Indianapolis	-0,03	0,12	-0,04	0,19	0,09	-0,02	0,05	-0,17	0,13	-0,13	-0,02	0,08	0,15	-0,04
Los Angeles	-0,04	0,14	-0,14	0,17	0,10	0,16	-0,11	-0,17	-0,03	-0,04	0,02	0,09	0,17	-0,08
Miami	-0,40	0,25	0,60	-0,02	0,08	-0,21	0,28	-0,28	-0,24	0,75	0,27	-0,22	0,08	-0,19
Milwaukee	-0,02	0,04	-0,06	0,22	0,01	0,03	0,14	-0,23	0,07	-0,02	-0,10	0,08	0,17	-0,07
Minneapolis	0,01	0,11	-0,20	0,19	-0,09	0,10	0,01	-0,23	0,02	0,15	-0,15	-0,05	0,19	-0,05
New York	0,08	0,19	0,03	0,13	0,16	-0,10	-0,10	-0,09	0,04	-0,12	-0,01	0,07	-0,04	-0,06
Philadelphia	0,09	0,15	0,03	0,10	0,19	-0,07	-0,05	-0,14	0,06	-0,09	-0,03	0,06	0,03	-0,09
Phoenix	-0,13	0,32	-0,08	0,27	-0,02	0,32	-0,25	-0,16	0,07	0,03	-0,01	0,04	0,21	-0,10
Pittsburgh	0,09	0,15	0,01	0,10	0,20	-0,08	-0,02	-0,15	0,05	-0,07	-0,03	0,05	0,04	-0,09
San Diego	-0,04	0,14	-0,14	0,17	0,10	0,16	-0,11	-0,18	-0,02	-0,04	0,02	0,09	0,17	-0,08
San Francisco	-0,03	0,20	-0,18	0,17	0,08	0,16	-0,10	-0,18	-0,01	-0,06	0,01	0,11	0,17	-0,08
Seattle	0,27	0,61	-0,04	-0,07	-0,11	0,12	-0,32	0,03	0,20	0,90	-0,12	0,39	-0,23	0,10
Washington	0,09	0,16	0,02	0,09	0,19	-0,07	-0,05	-0,14	0,07	-0,10	-0,02	0,06	0,03	-0,08

Table 5. 7 Yearly average growth of International Connectivity per global city

Global City	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*
Atlanta	0,24	-0,17	-0,15	0,47	0,08	-0,05	0,25	0,21	0,28	0,16	-0,26	-0,25	0,10	-0,15
Austin	0,23	-0,03	-0,15	0,11	0,14	-0,11	-0,16	0,41	-0,05	0,07	-0,04	0,25	-0,14	-0,08
Boston	-0,08	-0,01	0,20	0,00	-0,01	-0,05	-0,06	0,06	0,06	-0,04	0,18	0,10	-0,02	-0,04
Chicago	0,05	0,11	-0,07	0,22	0,00	-0,01	0,08	0,15	0,13	0,06	0,28	-0,21	-0,09	0,00
Columbus	0,07	-0,02	-0,27	0,05	-0,01	-0,05	0,22	0,05	0,19	0,26	-0,02	0,12	-0,15	-0,12
Dallas	-0,13	0,27	-0,22	0,20	0,10	-0,19	0,18	0,13	0,13	0,13	0,10	-0,05	-0,20	0,10
Detroit	0,06	-0,08	0,00	-0,06	-0,02	0,25	0,19	0,08	-0,19	0,33	-0,14	-0,06	-0,09	-0,14
Houston	-0,22	0,10	0,12	-0,08	0,04	0,03	-0,01	0,11	0,28	-0,12	0,03	0,10	-0,12	0,06
Indianapolis	0,30	0,07	-0,05	0,08	-0,23	0,03	-0,08	0,39	0,06	-0,07	-0,10	0,10	-0,07	0,02
Los Angeles	-0,11	-0,01	0,04	0,19	0,06	-0,19	0,09	0,27	0,21	-0,04	-0,17	0,17	0,08	0,17
Miami	0,31	-0,15	0,14	0,04	-0,22	-0,02	0,20	0,51	0,02	0,44	0,02	-0,04	-0,34	0,24
Milwaukee	-0,08	0,16	-0,16	-0,20	0,33	-0,07	0,09	-0,12	-0,08	0,15	0,38	0,36	-0,26	0,12
Minneapolis	0,00	0,14	-0,20	0,13	0,21	-0,07	0,00	0,16	-0,14	0,10	0,22	-0,02	-0,03	0,15
New York	0,00	-0,01	0,01	0,10	0,03	-0,12	-0,03	0,10	0,00	0,16	0,00	0,19	0,06	-0,02
Philadelphia	-0,08	0,04	-0,05	0,29	0,03	-0,09	-0,03	0,25	-0,03	0,06	0,05	0,14	0,01	0,03
Phoenix	0,19	0,21	-0,29	0,38	0,05	0,46	0,42	0,04	1,04	-0,20	-0,20	0,08	-0,47	-0,17
Pittsburgh	-0,06	0,23	-0,04	0,00	0,26	-0,38	-0,11	0,30	0,24	-0,09	0,22	0,02	-0,25	-0,10
San Diego	0,04	0,04	-0,07	0,22	-0,07	0,03	-0,13	0,14	0,49	-0,19	0,20	0,05	-0,20	-0,04
San Francisco	0,04	-0,08	0,14	0,11	0,02	0,13	-0,03	0,15	0,19	0,15	-0,13	-0,08	-0,06	-0,04
Seattle	-0,04	-0,07	0,04	0,11	0,04	-0,08	-0,14	0,26	0,10	-0,15	0,33	-0,01	-0,20	0,03
Washington	-0,06	0,11	0,03	0,15	-0,04	-0,11	0,19	0,01	-0,05	-0,13	0,17	0,14	0,18	-0,07

Table 5. 8 The yearly innovation intensity (patents/GDP) per global city

Global City	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*
Atlanta	0,02	0,03	0,02	0,03	0,02	0,02	0,03	0,02	0,02	0,02	0,01	0,02	0,02	0,03	0,03
Austin	0,06	0,09	0,09	0,10	0,08	0,10	0,08	0,07	0,05	0,04	0,03	0,03	0,04	0,08	0,08
Boston	0,05	0,07	0,07	0,07	0,06	0,08	0,09	0,08	0,07	0,06	0,06	0,06	0,07	0,11	0,11
Chicago	0,02	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,02	0,02	0,02	0,02	0,04	0,04
Columbus	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,01	0,02	0,02	0,02	0,03	0,03
Dallas	0,02	0,03	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03
Detroit	0,03	0,04	0,03	0,04	0,03	0,04	0,04	0,04	0,03	0,03	0,03	0,02	0,03	0,06	0,07
Houston	0,02	0,04	0,03	0,04	0,03	0,04	0,04	0,03	0,03	0,03	0,03	0,03	0,04	0,05	0,05
Indianapolis	0,03	0,04	0,04	0,04	0,03	0,04	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06
Los Angeles	0,02	0,03	0,03	0,03	0,02	0,03	0,03	0,03	0,02	0,02	0,02	0,02	0,02	0,03	0,03
Miami	0,01	0,01	0,01	0,02	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02
Milwaukee	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,02	0,02	0,02	0,02	0,02	0,04	0,04
Minneapolis	0,05	0,06	0,06	0,07	0,06	0,06	0,07	0,06	0,05	0,05	0,04	0,04	0,05	0,07	0,08
New York	0,02	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,02	0,02	0,02	0,02	0,03	0,03
Philadelphia	0,05	0,06	0,05	0,06	0,05	0,07	0,08	0,07	0,06	0,05	0,05	0,05	0,05	0,07	0,07
Phoenix	0,02	0,03	0,03	0,03	0,03	0,02	0,02	0,02	0,02	0,01	0,01	0,02	0,02	0,03	0,03
Pittsburgh	0,02	0,02	0,02	0,03	0,02	0,03	0,04	0,04	0,03	0,02	0,02	0,02	0,02	0,04	0,03
San Diego	0,07	0,09	0,10	0,10	0,09	0,10	0,13	0,13	0,14	0,15	0,13	0,10	0,12	0,17	0,19
San Francisco	0,13	0,14	0,14	0,15	0,14	0,16	0,16	0,14	0,12	0,10	0,12	0,11	0,16	0,27	0,26
Seattle	0,03	0,04	0,04	0,05	0,06	0,08	0,07	0,05	0,05	0,04	0,03	0,04	0,05	0,08	0,08
Washington	0,03	0,04	0,03	0,03	0,02	0,03	0,03	0,03	0,02	0,01	0,02	0,01	0,02	0,03	0,03

Table 5. 9 Industries with the highest revealed technological advantage per global city

Global City	*Industry with highest specialization (RTA)*	*RTA*
Atlanta	Textiles	2,04
Austin	Technical Services	2,46
Boston	Food & Tobacco	1,81
Chicago	Paper, Printing & Wood	1,53
Columbus	Minerals	2,40
Dallas	Electronics	1,42
Detroit	Transportation	7,12
Houston	Minerals	2,80
Indianapolis	Transportation	1,88
Los Angeles	Other Manufacturing	1,45
Miami	Textiles	1,40
Milwaukee	Metals	1,75
Minneapolis	Textiles	2,12
New York	Food & Tobacco	1,36
Philadelphia	Chemicals	2,32
Phoenix	Electronics	1,49
Pittsburgh	Minerals	2,18
San Diego	Electronics	1,72
San Francisco	Technical Services	1,83
Seattle	Technical Services	2,77
Washington	Food & Tobacco	1,76

Table 5. 10 Correlations with International Depth– Year-sector combinations in deviation of global city means

Chemica -ls	Electron- ics	Food & Tobacco	Machine -ry	Metals	Mineral	Other Manufa- cturing	Paper, Printing & Wood	Techn. Services	Textiles	Transpo- rtation	Utilities & Constr.
					2001						
					Global City-County Linkages						
0,0251	-0,0096	-0,0051	0,0045	-0,0068	-0,0001	0,0085	-0,0031	-0,0114	-0,0128	-0,0001	0,0048
					2002						
					Global City-County Linkages						
0,0036	-0,0092	-0,0055	0,0042	0,0114	0,0188	0,0249	0,002	-0,0072	0,0033	0,0019	0,0197
					2003						
					Global City-County Linkages						
-0,0012	-0,0043	-0,0032	-0,0031	0,0197	0,0025	0,0068	-0,0026	0,0071	0,0009	-0,0037	0,0087
					2004						
					Global City-County Linkages						
-0,0007	-0,0003	0,0014	-0,0008	0,0035	-0,0144	-0,0173	-0,0032	-0,0092	0,002	-0,0077	0,0039
					2005						
					Global City-County Linkages						
0,0108	0,0011	0,0007	0,0015	-0,0078	0,0061	-0,0023	0,0048	0,001	0,0001	0,0017	-0,0005
					2006						
					Global City-County Linkages						
0,0066	0,0169	-0,0005	0,0073	0,000	-0,0051	0,0017	0,0141	0,0093	-0,1200	0,0007	0,0086
					2007						
					Global City-County Linkages						
-0,0044	0,0056	0,0023	0,0032	-0,0015	-0,0052	0,0004	0,0027	0,006	-0,0008	-0,0015	0,0013
					2008						
					Global City-County Linkages						
0,0057	0,0103	-0,0013	0,0007	-0,008	0,0007	-0,0056	-0,0056	-0,002	-0,0028	0,0007	-0,0001
					2009						
					Global City-County Linkages						
0,0010	-0,0008	0,0004	-0,0016	0,0068	-0,0083	0,0032	0,0028	-0,0036	-0,0078	0,0021	0,0021
					2010						
					Global City-County Linkages						
-0,0066	0,0004	0,005	-0,0071	-0,0059	-0,001	0,0047	-0,0083	-0,0015	-0,0005	0,0035	-0,0002
					2011						
					Global City-County Linkages						
0,0048	-0,0029	-0,0015	0,0008	0,002	-0,0029	0,0012	0,0038	0,0029	-0,0045	-0,0001	0,0009
					2012						
					Global City-County Linkages						
0,0026	0,001	-0,0021	0,0008	-0,0015	0,0004	0,0053	0,0039	0,0001	-0,0065	-0,0009	0,0001
					2013						
					Global City-County Linkages						
0,0009	0,0004	-0,009	-0,001	-0,0018	-0,0001	-0,0075	-0,0259	0,0059	-0,0023	0,0002	0,0024
					2014						
					Global City-County Linkages						
-0,0085	0,0043	-0,0003	-0,0016	-0,0184	0,0055	-0,0057	-0,0118	-0,0023	0,0096	0,0022	-0,0028
					2015						
					Global City-County Linkages						
-0,0144	0,0012	0,0039	-0,0115	-0,0102	-0,0009	0,0073	-0,0177	-0,0041	-0,0046	-0,0054	0,0001

Table 5. 11 Poisson estimates – International Breadth

	Model 2	Model 3	Model 4	Model 5	Model 6
International Breadth	-0.279***	-0.266***	-0.271***	-0.553***	-0.534***
	(0.0991)	(0.0986)	(0.0987)	(0.156)	(0.157)
International Breadth * Geographical		0.141			0.141
Proximity		(0.133)			(0.131)
International Breadth * Technological			0.299*		0.281*
Leadership Global City			(0.170)		(0.170)
International Breadth * Innovation Strength				0.0840	0.0842
County				(0.0594)	(0.0596)
Geographical Proximity	0.00327	-0.0230	0.00336	0.00366	-0.0225
	(0.0118)	(0.0237)	(0.0118)	(0.0118)	(0.0233)
Technological Leadership County	0.123***	0.123***	0.125***	0.125***	0.127***
	(0.0117)	(0.0117)	(0.0117)	(0.0118)	(0.0119)
Technological Leadership Global City	-0.242***	-0.242***	-0.282***	-0.242***	-0.280***
	(0.0205)	(0.0205)	(0.0296)	(0.0205)	(0.0298)
Innovation Strength County	0.738***	0.738***	0.738***	0.724***	0.723***
	(0.0106)	(0.0106)	(0.0107)	(0.0160)	(0.0160)
Innovation Strength Global City	0.117***	0.117***	0.118***	0.117***	0.117***
	(0.0145)	(0.0145)	(0.0145)	(0.0146)	(0.0145)
Local Buzz County	-0.0325	-0.0285	-0.0361	-0.0331	-0.0326
	(0.304)	(0.303)	(0.304)	(0.304)	(0.303)
Local Buzz Global City	2.762***	2.752***	2.481**	2.782***	2.508**
	(1.068)	(1.068)	(1.039)	(1.070)	(1.040)
Share Foreign MNEs County	-0.181***	-0.182***	-0.181***	-0.182***	-0.182***
	(0.0265)	(0.0265)	(0.0265)	(0.0265)	(0.0265)
Share Foreign MNEs Global City	0.0256	0.0270	0.0315	0.0254	0.0325
	(0.0405)	(0.0405)	(0.0398)	(0.0404)	(0.0397)
Population Density County	-0.132	-0.143	-0.137	-0.154	-0.170
	(0.201)	(0.201)	(0.200)	(0.200)	(0.200)
Population Density² County	0.00970*	0.0101*	0.00978*	0.0103*	0.0107**
	(0.00543)	(0.00544)	(0.00540)	(0.00541)	(0.00540)
Population Density Global City	-0.452	-0.523	-0.542	-0.414	-0.568
	(0.503)	(0.512)	(0.508)	(0.504)	(0.518)
Population Density² Global City	-0.0445	-0.0391	-0.0356	-0.0482*	-0.0345
	(0.0280)	(0.0289)	(0.0292)	(0.0282)	(0.0303)
Establishments County	0.595***	0.595***	0.595***	0.610***	0.610***
	(0.137)	(0.137)	(0.137)	(0.137)	(0.137)
Establishments Global City	-1.128***	-1.129***	-1.124***	-1.158***	-1.155***
	(0.270)	(0.270)	(0.270)	(0.270)	(0.269)
Wage Difference	0.00438	0.00434	0.00432	0.00482	0.00471
	(0.00413)	(0.00413)	(0.00413)	(0.00413)	(0.00412)
Number of Airports County	0.0353**	0.0361**	0.0354**	0.0338**	0.0348**
	(0.0144)	(0.0145)	(0.0143)	(0.0145)	(0.0146)
Global City R&D Tax Incentive	0.0242***	0.0243***	0.0235**	0.0243***	0.0236**
	(0.00929)	(0.00929)	(0.00931)	(0.00927)	(0.00929)
Global City R&D Expenditure	0.0893**	0.0893**	0.0843**	0.0889**	0.0842**
	(0.0364)	(0.0364)	(0.0367)	(0.0363)	(0.0367)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	561,600	561,600	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 12 Poisson estimates – Sample limited to 100 miles geographical distance

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.506	1.607	-0.361	-3.570***	0.0931
	(0.503)	(1.965)	(0.512)	(0.909)	(2.088)
International Depth * Geographical Proximity		1.491			2.669**
		(1.345)			(1.357)
International Depth * Technological Leadership Global City			1.586		1.618
			(1.174)		(1.189)
International Depth * Innovation Strength County				0.900***	0.980***
				(0.294)	(0.296)
Geographical Proximity	-0.0117	-0.123	-0.0135	-0.0126	-0.213
	(0.167)	(0.174)	(0.171)	(0.166)	(0.177)
Technological Leadership County	0.136***	0.135***	0.137***	0.142***	0.143***
	(0.0300)	(0.0300)	(0.0297)	(0.0297)	(0.0293)
Technological Leadership Global City	-0.275***	-0.277***	-0.361***	-0.267***	-0.357***
	(0.0460)	(0.0459)	(0.0652)	(0.0459)	(0.0662)
Innovation Strength County	0.651***	0.650***	0.649***	0.585***	0.577***
	(0.0246)	(0.0246)	(0.0243)	(0.0365)	(0.0363)
Innovation Strength Global City	0.361***	0.361***	0.365***	0.355***	0.358***
	(0.0242)	(0.0241)	(0.0237)	(0.0246)	(0.0238)
Local Buzz County	-1.065	-0.988	-1.060	-1.154	-1.016
	(1.119)	(1.112)	(1.114)	(1.132)	(1.115)
Local Buzz Global City	4.591	4.486	2.949	4.950	3.097
	(3.168)	(3.174)	(2.910)	(3.140)	(2.906)
Share Foreign MNEs County	-0.150*	-0.152*	-0.143*	-0.155*	-0.152*
	(0.0846)	(0.0844)	(0.0806)	(0.0853)	(0.0809)
Share Foreign MNEs Global City	0.0712	0.0801	0.102	0.0604	0.106
	(0.101)	(0.101)	(0.0884)	(0.0984)	(0.0863)
Population Density County	0.594	0.562	0.799	0.785	0.954
	(1.420)	(1.422)	(1.378)	(1.407)	(1.367)
Population Density^2 County	0.0377	0.0382	0.0373	0.0221	0.0213
	(0.0747)	(0.0748)	(0.0733)	(0.0741)	(0.0728)
Population Density Global City	-0.568	-0.600	-1.040	-0.295	-0.816
	(1.388)	(1.391)	(1.364)	(1.359)	(1.344)
Population Density^2 Global City	-0.165**	-0.159**	-0.139**	-0.182***	-0.148**
	(0.0663)	(0.0667)	(0.0655)	(0.0658)	(0.0655)
Establishments County	0.705	0.696	0.612	0.784	0.679
	(0.506)	(0.507)	(0.454)	(0.500)	(0.448)
Establishments Global City	-1.522	-1.500	-1.317	-1.705	-1.470
	(1.105)	(1.107)	(0.983)	(1.093)	(0.967)
Wage Difference	0.00778	0.00758	0.00623	0.00871	0.00679
	(0.0158)	(0.0157)	(0.0149)	(0.0158)	(0.0147)
Number of Airports County	0.0113	0.00865	0.0156	0.0109	0.0104
	(0.0304)	(0.0304)	(0.0318)	(0.0306)	(0.0323)
Global City R&D Tax Incentive	-0.00753	-0.00757	-0.00759	-0.00739	-0.00749
	(0.00491)	(0.00490)	(0.00492)	(0.00489)	(0.00488)
Global City R&D Expenditure	-0.315***	-0.322***	-0.326***	-0.326***	-0.350***
	(0.111)	(0.111)	(0.112)	(0.110)	(0.111)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	37 620	37 620	37 620	37 620	37 620

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 5. 13 Poisson estimates – Sample limited to 200 miles geographical distance

	Model 3	Model 4	Model 5	Model 6
International Depth	-0.951	-0.793**	-2.915***	-2.961***
	(0.770)	(0.404)	(0.593)	(0.846)
International Depth * Geographical Proximity	-0.181			-0.0408
	(0.673)			(0.671)
International Depth * Technological Leadership		-0.102		-0.116
Global City		(0.643)		(0.641)
International Depth * Innovation Strength			0.628***	0.627***
County			(0.206)	(0.208)
Geographical Proximity	0.0204	0.00539	0.00904	0.0124
	(0.0624)	(0.0386)	(0.0385)	(0.0631)
Technological Leadership County	0.131***	0.131***	0.138***	0.137***
	(0.0204)	(0.0204)	(0.0206)	(0.0206)
Technological Leadership Global City	-0.311***	-0.306***	-0.312***	-0.305***
	(0.0345)	(0.0418)	(0.0350)	(0.0421)
Innovation Strength County	0.700***	0.700***	0.654***	0.655***
	(0.0206)	(0.0206)	(0.0273)	(0.0275)
Innovation Strength Global City	0.273***	0.273***	0.270***	0.270***
	(0.0234)	(0.0234)	(0.0237)	(0.0236)
Local Buzz County	0.642	0.647	0.637	0.638
	(0.622)	(0.622)	(0.624)	(0.625)
Local Buzz Global City	4.654**	4.719**	4.915**	5.007**
	(2.170)	(2.157)	(2.128)	(2.135)
Share Foreign MNEs County	-0.253***	-0.253***	-0.255***	-0.255***
	(0.0545)	(0.0540)	(0.0550)	(0.0544)
Share Foreign MNEs Global City	0.150**	0.149**	0.144**	0.141**
	(0.0674)	(0.0645)	(0.0657)	(0.0631)
Population Density County	1.162**	1.160**	1.087**	1.079**
	(0.476)	(0.477)	(0.475)	(0.476)
Population Density^2 County	-0.0124	-0.0124	-0.0113	-0.0112
	(0.0104)	(0.0104)	(0.0104)	(0.0104)
Population Density Global City	-0.0814	-0.0702	0.184	0.215
	(0.845)	(0.858)	(0.849)	(0.860)
Population Density^2 Global City	-0.123***	-0.124***	-0.140***	-0.142***
	(0.0418)	(0.0436)	(0.0420)	(0.0438)
Establishments County	0.843***	0.845***	0.888***	0.890***
	(0.290)	(0.289)	(0.288)	(0.287)
Establishments Global City	-1.815***	-1.820***	-1.917***	-1.922***
	(0.581)	(0.578)	(0.577)	(0.574)
Wage Difference	0.00811	0.00823	0.00884	0.00893
	(0.00873)	(0.00867)	(0.00871)	(0.00864)
Number of Airports County	0.0252	0.0246	0.0205	0.0204
	(0.0234)	(0.0235)	(0.0237)	(0.0240)
Global City R&D Tax Incentive	0.00932**	0.00933**	0.00922**	0.00923**
	(0.00374)	(0.00373)	(0.00372)	(0.00372)
Global City R&D Expenditure	-0.133**	-0.131*	-0.131**	-0.131*
	(0.0672)	(0.0688)	(0.0668)	(0.0683)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes
Observations	133 020	133 020	133 020	133 020

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 1 Poisson estimates – Sample limited to 300 miles geographical distance

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-1.288***	-1.388***	-1.292***	-2.231***	-2.305***
	(0.290)	(0.381)	(0.298)	(0.433)	(0.482)
International Depth * Geographical		-0.191			-0.151
Proximity		(0.420)			(0.421)
International Depth * Technological			-0.0393		-0.0586
Leadership Global City			(0.509)		(0.508)
International Depth * Innovation Strength				0.281*	0.278*
County				(0.157)	(0.158)
Geographical Proximity	0.00602	0.0203	0.00601	0.00659	0.0178
	(0.0157)	(0.0317)	(0.0157)	(0.0156)	(0.0320)
Technological Leadership County	0.147***	0.147***	0.147***	0.150***	0.150***
	(0.0163)	(0.0163)	(0.0163)	(0.0164)	(0.0163)
Technological Leadership Global City	-0.333***	-0.332***	-0.330***	-0.333***	-0.329***
	(0.0283)	(0.0283)	(0.0354)	(0.0285)	(0.0356)
Innovation Strength County	0.725***	0.725***	0.725***	0.705***	0.706***
	(0.0139)	(0.0139)	(0.0139)	(0.0194)	(0.0194)
Innovation Strength Global City	0.211***	0.212***	0.211***	0.210***	0.210***
	(0.0165)	(0.0165)	(0.0165)	(0.0165)	(0.0165)
Local Buzz County	0.180	0.179	0.181	0.179	0.179
	(0.454)	(0.454)	(0.454)	(0.454)	(0.455)
Local Buzz Global City	3.366**	3.393**	3.387**	3.385**	3.439**
	(1.610)	(1.611)	(1.622)	(1.616)	(1.631)
Share Foreign MNEs County	-0.200***	-0.200***	-0.200***	-0.201***	-0.201***
	(0.0381)	(0.0381)	(0.0378)	(0.0382)	(0.0379)
Share Foreign MNEs Global City	0.117**	0.116**	0.116**	0.116**	0.115**
	(0.0551)	(0.0550)	(0.0537)	(0.0550)	(0.0536)
Population Density County	-0.247	-0.251	-0.248	-0.271	-0.275
	(0.318)	(0.318)	(0.318)	(0.317)	(0.317)
Population Density² County	0.0173**	0.0174**	0.0173**	0.0177**	0.0178**
	(0.00780)	(0.00780)	(0.00779)	(0.00774)	(0.00775)
Population Density Global City	0.0662	0.102	0.0730	0.161	0.199
	(0.657)	(0.657)	(0.670)	(0.658)	(0.672)
Population Density² Global City	-0.121***	-0.123***	-0.121***	-0.128***	-0.131***
	(0.0353)	(0.0357)	(0.0371)	(0.0355)	(0.0377)
Establishments County	0.690***	0.691***	0.690***	0.713***	0.713***
	(0.204)	(0.203)	(0.204)	(0.204)	(0.204)
Establishments Global City	-1.354***	-1.354***	-1.354***	-1.404***	-1.404***
	(0.409)	(0.408)	(0.408)	(0.409)	(0.408)
Wage Difference	0.0107*	0.0107*	0.0107*	0.0111*	0.0111*
	(0.00648)	(0.00647)	(0.00647)	(0.00648)	(0.00646)
Number of Airports County	0.0341**	0.0343**	0.0340*	0.0315*	0.0316*
	(0.0174)	(0.0174)	(0.0175)	(0.0176)	(0.0178)
Global City R&D Tax Incentive	0.00368	0.00366	0.00369	0.00367	0.00367
	(0.00293)	(0.00292)	(0.00293)	(0.00293)	(0.00293)
Global City R&D Expenditure	0.0107	0.0105	0.0111	0.0113	0.0117
	(0.0452)	(0.0451)	(0.0462)	(0.0450)	(0.0460)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	266 040	266 040	266 040	266 040	266 040

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 2 Poisson estimates – Sample limited to 400 miles geographical distance

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.883***	-0.814***	-0.866***	-1.652***	-1.572***
	(0.231)	(0.242)	(0.236)	(0.355)	(0.376)
International Depth * Geographical		0.242			0.258
Proximity		(0.313)			(0.308)
International Depth * Technological			0.179		0.141
Leadership Global City			(0.399)		(0.396)
International Depth * Innovation Strength				0.229*	0.231*
County				(0.120)	(0.120)
Geographical Proximity	0.00401	-0.0137	0.00405	0.00452	-0.0143
	(0.0116)	(0.0230)	(0.0116)	(0.0115)	(0.0228)
Technological Leadership County	0.131***	0.131***	0.131***	0.133***	0.133***
	(0.0131)	(0.0131)	(0.0131)	(0.0131)	(0.0132)
Technological Leadership Global City	-0.285***	-0.286***	-0.295***	-0.285***	-0.294***
	(0.0236)	(0.0236)	(0.0293)	(0.0237)	(0.0293)
Innovation Strength County	0.726***	0.727***	0.726***	0.711***	0.711***
	(0.0116)	(0.0116)	(0.0116)	(0.0156)	(0.0156)
Innovation Strength Global City	0.170***	0.170***	0.170***	0.169***	0.169***
	(0.0144)	(0.0144)	(0.0144)	(0.0145)	(0.0144)
Local Buzz County	-0.00178	-0.000784	-0.00320	-0.00497	-0.00507
	(0.352)	(0.352)	(0.352)	(0.352)	(0.352)
Local Buzz Global City	3.790***	3.757***	3.696**	3.807***	3.698**
	(1.434)	(1.433)	(1.435)	(1.439)	(1.441)
Share Foreign MNEs County	-0.187***	-0.187***	-0.187***	-0.188***	-0.188***
	(0.0308)	(0.0308)	(0.0307)	(0.0309)	(0.0307)
Share Foreign MNEs Global City	0.0615	0.0620	0.0639	0.0598	0.0623
	(0.0454)	(0.0454)	(0.0446)	(0.0453)	(0.0446)
Population Density County	0.139	0.131	0.140	0.110	0.101
	(0.207)	(0.207)	(0.206)	(0.206)	(0.206)
Population Density² County	0.00507	0.00535	0.00506	0.00579	0.00609
	(0.00550)	(0.00551)	(0.00549)	(0.00546)	(0.00547)
Population Density Global City	-0.224	-0.288	-0.252	-0.166	-0.256
	(0.513)	(0.520)	(0.522)	(0.513)	(0.530)
Population Density² Global City	-0.0885***	-0.0837***	-0.0860***	-0.0939***	-0.0869***
	(0.0296)	(0.0304)	(0.0310)	(0.0296)	(0.0319)
Establishments County	0.600***	0.600***	0.600***	0.618***	0.618***
	(0.162)	(0.162)	(0.162)	(0.163)	(0.163)
Establishments Global City	-1.224***	-1.224***	-1.223***	-1.262***	-1.262***
	(0.322)	(0.322)	(0.322)	(0.323)	(0.322)
Wage Difference	0.00680	0.00680	0.00675	0.00722	0.00718
	(0.00514)	(0.00514)	(0.00514)	(0.00514)	(0.00514)
Number of Airports County	0.0335**	0.0337**	0.0338**	0.0322**	0.0326**
	(0.0154)	(0.0154)	(0.0156)	(0.0155)	(0.0157)
Global City R&D Tax Incentive	0.00721***	0.00726***	0.00718***	0.00720***	0.00722***
	(0.00243)	(0.00242)	(0.00243)	(0.00243)	(0.00243)
Global City R&D Expenditure	0.0219	0.0218	0.0202	0.0223	0.0208
	(0.0392)	(0.0391)	(0.0398)	(0.0390)	(0.0396)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	405 540	405 540	405 540	405 540	405 540

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 5. 3 Poisson estimates – Average Travel Time

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.482**	-0.451**	-0.442**	-1.558***	-1.487***
	(0.203)	(0.203)	(0.208)	(0.330)	(0.338)
International Depth * Average Travel Time		-0.401			-0.409
		(0.299)			(0.298)
International Depth * Technological Leadership Global City			0.417		0.370
			(0.344)		(0.343)
International Depth * Innovation Strength County				0.323***	0.322***
				(0.117)	(0.118)
Average Travel Time	-0.00411	0.0256	-0.00417	-0.00413	0.0261
	(0.0131)	(0.0217)	(0.0131)	(0.0131)	(0.0217)
Technological Leadership County	0.124***	0.124***	0.124***	0.127***	0.127***
	(0.0117)	(0.0117)	(0.0117)	(0.0118)	(0.0118)
Technological Leadership Global City	-0.241***	-0.242***	-0.264***	-0.242***	-0.263***
	(0.0206)	(0.0206)	(0.0253)	(0.0206)	(0.0253)
Innovation Strength County	0.739***	0.738***	0.738***	0.717***	0.716***
	(0.0107)	(0.0106)	(0.0107)	(0.0135)	(0.0135)
Innovation Strength Global City	0.116***	0.116***	0.116***	0.114***	0.114***
	(0.0144)	(0.0144)	(0.0144)	(0.0146)	(0.0145)
Local Buzz County	-0.0453	-0.0418	-0.0488	-0.0467	-0.0461
	(0.304)	(0.304)	(0.304)	(0.305)	(0.304)
Local Buzz Global City	2.952***	2.918***	2.755**	2.944***	2.733**
	(1.098)	(1.098)	(1.098)	(1.101)	(1.101)
Share Foreign MNEs County	-0.181***	-0.181***	-0.180***	-0.182***	-0.181***
	(0.0265)	(0.0264)	(0.0264)	(0.0266)	(0.0264)
Share Foreign MNEs Global City	0.0315	0.0326	0.0368	0.0297	0.0355
	(0.0407)	(0.0407)	(0.0402)	(0.0404)	(0.0399)
Population Density County	-0.133	-0.142	-0.133	-0.173	-0.183
	(0.200)	(0.200)	(0.200)	(0.199)	(0.199)
Population Density² County	0.00976*	0.0101*	0.00976*	0.0107**	0.0110**
	(0.00540)	(0.00540)	(0.00539)	(0.00537)	(0.00537)
Population Density Global City	-0.474	-0.559	-0.540	-0.389	-0.535
	(0.502)	(0.507)	(0.508)	(0.504)	(0.515)
Population Density² Global City	-0.0465*	-0.0400	-0.0405	-0.0544*	-0.0425
	(0.0278)	(0.0285)	(0.0290)	(0.0280)	(0.0298)
Establishments County	0.589***	0.589***	0.588***	0.611***	0.610***
	(0.138)	(0.137)	(0.137)	(0.137)	(0.137)
Establishments Global City	-1.120***	-1.121***	-1.114***	-1.168***	-1.164***
	(0.270)	(0.270)	(0.270)	(0.270)	(0.269)
Wage Difference	0.00450	0.00451	0.00440	0.00514	0.00504
	(0.00413)	(0.00413)	(0.00412)	(0.00413)	(0.00412)
Number of Airports County	0.0352**	0.0356**	0.0357**	0.0333**	0.0342**
	(0.0144)	(0.0144)	(0.0145)	(0.0145)	(0.0146)
Global City R&D Tax Incentive	0.0243***	0.0244***	0.0241***	0.0237**	0.0237**
	(0.00929)	(0.00929)	(0.00930)	(0.00928)	(0.00928)
Global City R&D Expenditure	0.0907**	0.0911**	0.0870**	0.0906**	0.0877**
	(0.0364)	(0.0364)	(0.0369)	(0.0363)	(0.0367)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	561,600	561,600	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 4 Poisson estimates – Alpha, Beta and Gamma dummies

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.537***	-0.490**	-0.496**	-1.589***	-1.529***
	(0.203)	(0.202)	(0.208)	(0.331)	(0.338)
International Depth * Geographical Proximity		0.525*			0.555**
		(0.274)			(0.269)
International Depth * Technological Leadership Global City			0.410		0.351
			(0.344)		(0.343)
International Depth * Innovation Strength County				0.317***	0.324***
				(0.117)	(0.117)
Geographical Proximity	0.00333	-0.0354*	0.00337	0.00354	-0.0374*
	(0.0118)	(0.0196)	(0.0118)	(0.0117)	(0.0194)
Technological Leadership County	0.124***	0.124***	0.125***	0.127***	0.127***
	(0.0117)	(0.0117)	(0.0117)	(0.0118)	(0.0118)
Technological Leadership Global City	-0.242***	-0.244***	-0.264***	-0.243***	-0.264***
	(0.0206)	(0.0206)	(0.0253)	(0.0207)	(0.0253)
Innovation Strength County	0.739***	0.738***	0.738***	0.717***	0.716***
	(0.0107)	(0.0106)	(0.0107)	(0.0135)	(0.0134)
Innovation Strength Global City	0.116***	0.116***	0.116***	0.115***	0.115***
	(0.0144)	(0.0144)	(0.0144)	(0.0146)	(0.0145)
Local Buzz County	-0.0393	-0.0377	-0.0429	-0.0411	-0.0424
	(0.304)	(0.303)	(0.304)	(0.305)	(0.304)
Local Buzz Global City	3.201***	3.135***	3.006***	3.176***	2.936***
	(1.114)	(1.114)	(1.115)	(1.119)	(1.119)
Share Foreign MNEs County	-0.181***	-0.181***	-0.180***	-0.182***	-0.181***
	(0.0265)	(0.0264)	(0.0264)	(0.0266)	(0.0264)
Share Foreign MNEs Global City	0.0305	0.0325	0.0358	0.0289	0.0355
	(0.0406)	(0.0405)	(0.0400)	(0.0403)	(0.0398)
Population Density County	-0.120	-0.140	-0.120	-0.163	-0.185
	(0.201)	(0.201)	(0.200)	(0.200)	(0.200)
Population Density^2 County	0.00956*	0.0102*	0.00955*	0.0106**	0.0112**
	(0.00541)	(0.00541)	(0.00539)	(0.00538)	(0.00538)
Population Density Global City	-0.524	-0.665	-0.587	-0.428	-0.628
	(0.527)	(0.534)	(0.533)	(0.530)	(0.543)
Population Density^2 Global City	-0.0323	-0.0208	-0.0267	-0.0408	-0.0242
	(0.0286)	(0.0295)	(0.0296)	(0.0288)	(0.0307)
Establishments County	0.588***	0.589***	0.587***	0.610***	0.610***
	(0.138)	(0.137)	(0.137)	(0.137)	(0.137)
Establishments Global City	-1.118***	-1.120***	-1.113***	-1.166***	-1.163***
	(0.270)	(0.270)	(0.270)	(0.270)	(0.269)
Wage Difference	0.00448	0.00445	0.00438	0.00510	0.00499
	(0.00413)	(0.00413)	(0.00412)	(0.00413)	(0.00412)
Number of Airports County	0.0354**	0.0363**	0.0359**	0.0337**	0.0350**
	(0.0142)	(0.0142)	(0.0143)	(0.0144)	(0.0145)
Global City R&D Tax Incentive	0.110***	0.109***	0.106***	0.108***	0.0238***
	(0.0365)	(0.0365)	(0.0369)	(0.0364)	(0.00922)
Global City R&D Expenditure	0.0242***	0.0245***	0.0241***	0.0235**	0.104***
	(0.00923)	(0.00922)	(0.00923)	(0.00923)	(0.0368)
Alpha	0.0411	0.0397	0.0415	0.0357	0.0344
	(0.0280)	(0.0278)	(0.0280)	(0.0279)	(0.0278)
Beta	0.0508**	0.0502**	0.0504**	0.0468**	0.0456**
	(0.0218)	(0.0217)	(0.0217)	(0.0217)	(0.0216)
Gamma	0.0126	0.0126	0.0118	0.0115	0.0108
	(0.0118)	(0.0118)	(0.0117)	(0.0118)	(0.0117)

Continuation Table 5.17	Model 2	Model 3	Model 4	Model 5	Model 6
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	561 600	561 600	561 600	561 600	561 600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 5 Poisson estimates – Share Foreign MNEs Global City

	Model 1	Model 2	Model 3
International Depth	-0.482** (0.203)	-0.491** (0.200)	-1.510*** (0.339)
International Depth * Geographical Proximity			0.565** (0.271)
International Depth * Technological Leadership Global City			0.387 (0.332)
International Depth * Innovation Strength County			0.330*** (0.117)
International Depth * Share Foreign MNEs Global City		0.384 (1.271)	0.746 (1.212)
Geographical Proximity	0.00330 (0.0118)	0.00329 (0.0118)	-0.0382** (0.0195)
Technological Leadership County	0.124*** (0.0117)	0.124*** (0.0117)	0.127*** (0.0117)
Technological Leadership Global City	-0.241*** (0.0206)	-0.241*** (0.0206)	-0.265*** (0.0248)
Innovation Strength County	0.739*** (0.0107)	0.739*** (0.0107)	0.716*** (0.0135)
Innovation Strength Global City	0.116*** (0.0144)	0.116*** (0.0145)	0.114*** (0.0146)
Local Buzz County	-0.0453 (0.304)	-0.0450 (0.304)	-0.0476 (0.304)
Local Buzz Global City	2.952*** (1.098)	2.929*** (1.126)	2.645** (1.133)
Share Foreign MNEs County	-0.181*** (0.0265)	-0.181*** (0.0265)	-0.181*** (0.0264)
Share Foreign MNEs Global City	0.0315 (0.0407)	0.00722 (0.0793)	-0.0105 (0.0770)
Population Density County	-0.132 (0.200)	-0.133 (0.200)	-0.196 (0.199)
Population Density² County	0.00976* (0.00540)	0.00976* (0.00540)	0.0114** (0.00538)
Population Density Global City	-0.474 (0.502)	-0.482 (0.500)	-0.620 (0.513)
Population Density² Global City	-0.0465* (0.0278)	-0.0461* (0.0277)	-0.0359 (0.0298)
Establishments County	0.589*** (0.138)	0.590*** (0.137)	0.612*** (0.137)
Establishments Global City	-1.120*** (0.270)	-1.121*** (0.270)	-1.167*** (0.269)
Wage Difference	0.00451 (0.00413)	0.00452 (0.00413)	0.00505 (0.00412)
Number of Airports County	0.0352** (0.0144)	0.0352** (0.0144)	0.0347** (0.0146)
Global City R&D Tax Incentive	0.0243*** (0.00929)	0.0243*** (0.00929)	0.0238** (0.00928)
Global City R&D Expenditure	0.0907** (0.0364)	0.0918** (0.0369)	0.0891** (0.0371)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes
Observations	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 19 Poisson estimates – Foreign Share International Depth

	Model 1	Model 2
International Depth		-0.482**
		(0.205)
Share Foreign International Depth	-0.00341	-0.000784
	(0.00954)	(0.00971)
Geographical Proximity	0.00332	0.00329
	(0.0117)	(0.0118)
Technological Leadership County	0.124***	0.124***
	(0.0117)	(0.0117)
Technological Leadership Global City	-0.238***	-0.241***
	(0.0205)	(0.0206)
Innovation Strength County	0.739***	0.739***
	(0.0107)	(0.0107)
Innovation Strength Global City	0.117***	0.116***
	(0.0145)	(0.0144)
Local Buzz County	-0.0447	-0.0452
	(0.305)	(0.304)
Local Buzz Global City	2.616**	2.958***
	(1.056)	(1.090)
Share Foreign MNEs County	-0.181***	-0.181***
	(0.0265)	(0.0265)
Share Foreign MNEs Global City	0.0224	0.0325
	(0.0432)	(0.0426)
Population Density County	-0.131	-0.133
	(0.200)	(0.200)
Population Density^2 County	0.00976*	0.00975*
	(0.00539)	(0.00540)
Population Density Global City	-0.536	-0.474
	(0.501)	(0.502)
Population Density^2 Global City	-0.0514*	-0.0465*
	(0.0277)	(0.0279)
Establishments County	0.587***	0.589***
	(0.138)	(0.138)
Establishments Global City	-1.117***	-1.121***
	(0.271)	(0.271)
Wage Difference	0.00461	0.00450
	(0.00414)	(0.00413)
Number of Airports County	0.0356**	0.0352**
	(0.0144)	(0.0144)
Global City R&D Tax Incentive	0.0258***	0.0243***
	(0.00929)	(0.00930)
Global City R&D Expenditure	0.100***	0.0908**
	(0.0365)	(0.0364)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
County Fixed Effects	Yes	Yes
Global City Fixed Effects	Yes	Yes
Observations	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 6 Poisson estimates – Share Foreign MNEs County

	Model 1	Model 2	Model 3
International Depth	-0.482**	-0.523**	-1.492***
	(0.203)	(0.213)	(0.336)
International Depth * Geographical Proximity			0.557**
			(0.269)
International Depth * Technological Leadership Global City			0.333***
			(0.120)
International Depth * Innovation Strength County			0.355
			(0.339)
International Depth * Share Foreign MNEs County		0.361	-0.148
		(0.872)	(0.864)
Geographical Proximity	0.00330	0.00333	-0.0375*
	(0.0118)	(0.0118)	(0.0194)
Technological Leadership County	0.124***	0.124***	0.127***
	(0.0117)	(0.0117)	(0.0118)
Technological Leadership Global City	-0.241***	-0.241***	-0.263***
	(0.0206)	(0.0206)	(0.0253)
Innovation Strength County	0.739***	0.739***	0.715***
	(0.0107)	(0.0107)	(0.0135)
Innovation Strength Global City	0.116***	0.116***	0.114***
	(0.0144)	(0.0144)	(0.0145)
Local Buzz County	-0.0453	-0.0527	-0.0449
	(0.304)	(0.305)	(0.305)
Local Buzz Global City	2.952***	2.957***	2.705**
	(1.098)	(1.097)	(1.100)
Share Foreign MNEs County	-0.181***	-0.205***	-0.171***
	(0.0265)	(0.0601)	(0.0608)
Share Foreign MNEs Global City	0.0315	0.0307	0.0366
	(0.0407)	(0.0405)	(0.0398)
Population Density County	-0.132	-0.135	-0.194
	(0.200)	(0.200)	(0.199)
Population Density^2 County	0.00976*	0.00980*	0.0114**
	(0.00540)	(0.00540)	(0.00537)
Population Density Global City	-0.474	-0.482	-0.593
	(0.502)	(0.502)	(0.517)
Population Density^2 Global City	-0.0465*	-0.0460*	-0.0376
	(0.0278)	(0.0277)	(0.0299)
Establishments County	0.589***	0.591***	0.611***
	(0.138)	(0.137)	(0.136)
Establishments Global City	-1.120***	-1.123***	-1.165***
	(0.270)	(0.269)	(0.268)
Wage Difference	0.00451	0.00454	0.00503
	(0.00413)	(0.00412)	(0.00412)
Number of Airports County	0.0352**	0.0351**	0.0346**
	(0.0144)	(0.0144)	(0.0146)
Global City R&D Tax Incentive	0.0243***	0.0242***	0.0239**
	(0.00929)	(0.00928)	(0.00928)
Global City R&D Expenditure	0.0907**	0.0912**	0.0872**
	(0.0364)	(0.0365)	(0.0368)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes
Observations	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 7 Poisson estimates – Without Global City Fixed Effects

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.918***	-0.869***	-0.861***	-2.029***	-1.954***
	(0.239)	(0.239)	(0.242)	(0.302)	(0.309)
International Depth * Geographical		0.599**			0.620**
Proximity		(0.273)			(0.269)
International Depth * Technological			0.607*		0.537
Leadership Global City			(0.328)		(0.327)
International Depth * Innovation Strength				0.329***	0.337***
County				(0.117)	(0.118)
Geographical Proximity	0.00379	-0.0401**	0.00383	0.00396	-0.0414**
	(0.0118)	(0.0197)	(0.0118)	(0.0118)	(0.0195)
Technological Leadership County	0.119***	0.119***	0.120***	0.122***	0.123***
	(0.0118)	(0.0118)	(0.0117)	(0.0118)	(0.0118)
Technological Leadership Global City	-0.207***	-0.210***	-0.240***	-0.208***	-0.240***
	(0.0204)	(0.0203)	(0.0248)	(0.0204)	(0.0249)
Innovation Strength County	0.745***	0.745***	0.744***	0.722***	0.721***
	(0.0107)	(0.0106)	(0.0107)	(0.0137)	(0.0137)
Innovation Strength Global City	0.0573***	0.0569***	0.0579***	0.0559***	0.0561***
	(0.0103)	(0.0103)	(0.0103)	(0.0104)	(0.0103)
Local Buzz County	-0.0516	-0.0506	-0.0574	-0.0523	-0.0563
	(0.304)	(0.303)	(0.304)	(0.304)	(0.304)
Local Buzz Global City	1.809	1.686	1.520	1.822	1.438
	(1.125)	(1.126)	(1.133)	(1.127)	(1.135)
Share Foreign MNEs County	-0.174***	-0.173***	-0.173***	-0.175***	-0.174***
	(0.0264)	(0.0263)	(0.0263)	(0.0265)	(0.0263)
Share Foreign MNEs Global City	0.0264	0.0290	0.0342	0.0254	0.0350
	(0.0392)	(0.0392)	(0.0387)	(0.0389)	(0.0384)
Population Density County	-0.151	-0.179	-0.155	-0.191	-0.225
	(0.198)	(0.198)	(0.197)	(0.197)	(0.197)
Population Density² County	0.00970*	0.0105*	0.00984*	0.0106**	0.0116**
	(0.00536)	(0.00538)	(0.00535)	(0.00533)	(0.00533)
Population Density Global City	-0.109	-0.127	-0.110	-0.0957	-0.115
	(0.0997)	(0.0992)	(0.0998)	(0.0996)	(0.0993)
Population Density² Global City	0.00123	0.00286	0.000989	0.000208	0.00167
	(0.00612)	(0.00605)	(0.00612)	(0.00609)	(0.00603)
Establishments County	0.587***	0.588***	0.584***	0.611***	0.609***
	(0.138)	(0.138)	(0.138)	(0.138)	(0.138)
Establishments Global City	-1.107***	-1.109***	-1.097***	-1.158***	-1.152***
	(0.271)	(0.271)	(0.271)	(0.271)	(0.270)
Wage Difference	0.00200	0.00202	0.00180	0.00269	0.00255
	(0.00416)	(0.00417)	(0.00415)	(0.00416)	(0.00415)
Number of Airports County	0.0280*	0.0298**	0.0295**	0.0256*	0.0287*
	(0.0148)	(0.0149)	(0.0150)	(0.0150)	(0.0152)
Global City R&D Tax Incentive	-0.00588	-0.00581	-0.00591	-0.00577	-0.00574
	(0.00938)	(0.00933)	(0.00939)	(0.00940)	(0.00934)
Global City R&D Expenditure	-0.00905	-0.0105	-0.0101	-0.00783	-0.0102
	(0.0157)	(0.0157)	(0.0158)	(0.0158)	(0.0158)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	No	No	No	No	No
Observations	561,600	561,600	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 8 Poisson estimates – Distant Domestic Linkages

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.487** (0.203)	-0.441** (0.202)	-0.442** (0.208)	-1.604*** (0.329)	-1.538*** (0.336)
International Depth * Geographical Proximity		0.513* (0.275)			0.543** (0.270)
International Depth * Technological Leadership Global City			0.465 (0.345)		0.408 (0.343)
International Depth * Innovation Strength County				0.335*** (0.117)	0.341*** (0.117)
Distant Domestic Connections	0.278** (0.114)	0.273** (0.114)	0.284** (0.114)	0.290** (0.114)	0.291** (0.114)
Geographical Proximity	0.00337 (0.0117)	-0.0345* (0.0196)	0.00342 (0.0117)	0.00360 (0.0117)	-0.0364* (0.0194)
Technological Leadership County	0.125*** (0.0116)	0.124*** (0.0116)	0.125*** (0.0116)	0.128*** (0.0117)	0.128*** (0.0117)
Technological Leadership Global City	-0.245*** (0.0202)	-0.247*** (0.0202)	-0.271*** (0.0248)	-0.246*** (0.0203)	-0.270*** (0.0249)
Innovation Strength County	0.738*** (0.0106)	0.738*** (0.0106)	0.738*** (0.0106)	0.716*** (0.0134)	0.715*** (0.0134)
Innovation Strength Global City	0.102*** (0.0150)	0.102*** (0.0150)	0.102*** (0.0150)	0.1000*** (0.0152)	0.0999*** (0.0151)
Local Buzz County	-0.0580 (0.304)	-0.0562 (0.304)	-0.0621 (0.304)	-0.0601 (0.305)	-0.0618 (0.305)
Local Buzz Global City	2.507** (1.095)	2.453** (1.096)	2.275** (1.095)	2.479** (1.098)	2.216** (1.097)
Share Foreign MNEs County	-0.179*** (0.0264)	-0.179*** (0.0263)	-0.178*** (0.0263)	-0.180*** (0.0265)	-0.179*** (0.0263)
Share Foreign MNEs Global City	0.0454 (0.0413)	0.0471 (0.0414)	0.0516 (0.0408)	0.0442 (0.0411)	0.0514 (0.0406)
Population Density County	-0.136 (0.199)	-0.154 (0.199)	-0.136 (0.198)	-0.178 (0.198)	-0.199 (0.197)
Population Density² County	0.00974* (0.00536)	0.0103* (0.00536)	0.00975* (0.00534)	0.0108** (0.00533)	0.0114** (0.00532)
Population Density Global City	-0.428 (0.504)	-0.570 (0.510)	-0.501 (0.509)	-0.338 (0.506)	-0.550 (0.518)
Population Density² Global City	-0.0486* (0.0278)	-0.0373 (0.0287)	-0.0420 (0.0289)	-0.0569** (0.0280)	-0.0393 (0.0300)
Establishments County	0.588*** (0.137)	0.588*** (0.137)	0.586*** (0.137)	0.611*** (0.137)	0.610*** (0.137)
Establishments Global City	-1.119*** (0.270)	-1.121*** (0.269)	-1.113*** (0.269)	-1.169*** (0.269)	-1.166*** (0.268)
Wage Difference	0.00451 (0.00412)	0.00449 (0.00412)	0.00440 (0.00411)	0.00517 (0.00412)	0.00505 (0.00411)
Number of Airports County	0.0343** (0.0143)	0.0351** (0.0143)	0.0349** (0.0144)	0.0323** (0.0145)	0.0337** (0.0146)
Global City R&D Tax Incentive	0.0245*** (0.00930)	0.0249*** (0.00929)	0.0243*** (0.00930)	0.0239** (0.00929)	0.0241*** (0.00929)
Global City R&D Expenditure	0.0909** (0.0361)	0.0909** (0.0362)	0.0868** (0.0366)	0.0908** (0.0360)	0.0871** (0.0364)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	561,600	561,600	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Table 5. 9 Negative binomial estimates

	Model 2	Model 3	Model 4	Model 5	Model 6
International Depth	-0.496***	-0.488***	-0.451***	-1.188***	-1.149***
	(0.123)	(0.123)	(0.130)	(0.165)	(0.173)
International Depth * Geographical Proximity		0.449**			0.495***
		(0.177)			(0.177)
International Depth * Technological Leadership Global City			0.310		0.262
			(0.250)		(0.251)
International Depth * Innovation Strength County				0.444***	0.449***
				(0.0659)	(0.0661)
Geographical Proximity	0.00372	-0.0259*	0.00371	0.00325	-0.0293**
	(0.00704)	(0.0134)	(0.00704)	(0.00703)	(0.0134)
Technological Leadership County	0.137***	0.137***	0.138***	0.142***	0.142***
	(0.00692)	(0.00692)	(0.00691)	(0.00689)	(0.00688)
Technological Leadership Global City	-0.164***	-0.164***	-0.179***	-0.166***	-0.179***
	(0.0158)	(0.0158)	(0.0189)	(0.0158)	(0.0188)
Innovation Strength County	0.592***	0.592***	0.592***	0.562***	0.562***
	(0.00544)	(0.00544)	(0.00545)	(0.00710)	(0.00710)
Innovation Strength Global City	0.108***	0.108***	0.108***	0.108***	0.108***
	(0.00778)	(0.00777)	(0.00778)	(0.00779)	(0.00778)
Local Buzz County	0.557***	0.557***	0.556***	0.556***	0.555***
	(0.186)	(0.186)	(0.186)	(0.187)	(0.187)
Local Buzz Global City	1.890***	1.880***	1.784**	1.875***	1.775**
	(0.724)	(0.723)	(0.730)	(0.726)	(0.732)
Share Foreign MNEs County	-0.101***	-0.101***	-0.101***	-0.0998***	-0.0999***
	(0.0163)	(0.0163)	(0.0163)	(0.0163)	(0.0163)
Share Foreign MNEs Global City	0.00502	0.00571	0.00595	0.00241	0.00393
	(0.0254)	(0.0254)	(0.0254)	(0.0253)	(0.0253)
Population Density County	0.122	0.108	0.122	0.0476	0.0324
	(0.193)	(0.194)	(0.193)	(0.194)	(0.194)
Population Density^2 County	-0.00780	-0.00744	-0.00781	-0.00596	-0.00557
	(0.00554)	(0.00554)	(0.00554)	(0.00554)	(0.00554)
Population Density Global City	0.546	0.483	0.505	0.661*	0.560
	(0.382)	(0.383)	(0.384)	(0.383)	(0.386)
Population Density^2 Global City	-0.0685***	-0.0635***	-0.0644***	-0.0793***	-0.0705***
	(0.0240)	(0.0241)	(0.0243)	(0.0242)	(0.0246)
Establishments County	0.853***	0.853***	0.853***	0.866***	0.867***
	(0.0750)	(0.0750)	(0.0750)	(0.0750)	(0.0750)
Establishments Global City	-1.339***	-1.340***	-1.338***	-1.364***	-1.364***
	(0.150)	(0.150)	(0.150)	(0.150)	(0.150)
Wage Difference	0.00762***	0.00758***	0.00762***	0.00815***	0.00811***
	(0.00263)	(0.00263)	(0.00263)	(0.00263)	(0.00263)
Number of Airports County	0.0206	0.0216	0.0209	0.0176	0.0190
	(0.0132)	(0.0132)	(0.0132)	(0.0132)	(0.0132)
Global City R&D Tax Incentive	-0.00396	-0.00390	-0.00439	-0.00502	-0.00532
	(0.00664)	(0.00664)	(0.00666)	(0.00664)	(0.00666)
Global City R&D Expenditure	0.0534*	0.0536*	0.0492	0.0545*	0.0512
	(0.0315)	(0.0315)	(0.0315)	(0.0315)	(0.0315)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Global City Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	561,600	561,600	561,600	561,600	561,600

Notes: The continuous explanatory variables are in natural logarithms; their coefficients can be interpreted as elasticities. P-values based on cluster-robust standard errors are shown in parentheses. * p<0.05, **p<0.01, *** p<0.001

Chapter 6. Summary and Conclusions

In this dissertation, we address two sides of the dynamic interrelationship between MNEs and cities. We contribute insights into the literature on cities as MNEs' foreign direct investment location choice and imitation processes within these FDI location choices (Chapter 2). This transnational strategy of MNEs and its imitation may contribute to the further development of international connectivity of the city and the creation of global knowledge networks (Chapter 3-5). We contribute insights into the literature on cities and their international (knowledge) connectivity by elaborating on the interrelated and simultaneous role of different types of international connectivity on city economic growth and the influence of this (FDI) induced connectivity on the surrounding areas of the city.

We first summarize the main findings of the dissertation. The implication of the findings are discussed in section two. The chapter concludes by discussing the main limitations and how these may inspire future research.

6.1 Summary of Findings

Chapter 2 - National Culture, Pressure to Conform & Imitation in FDI location Decisions

In Chapter 2, we argue that the gains of imitating the location choices of peers are likely to vary across firms based in different home countries. More specifically, we argue that mimicry processes in FDI may depend on the presence of three cultural traits of home countries, i.e. the level of collectivism, power distance and uncertainty avoidance, which can jointly act as domestic conformity forces strengthening the incentive to imitate. Furthermore, we hypothesize that the influence of these cultural traits and national conformity pressures are salient in particular for firms that lack substantial domestic legitimacy, e.g. because they are young or/and small, and those that have no or limited multinational operations. We test the hypotheses using a conditional logit model of location choices in a sample of 1050 greenfield manufacturing investments in cities (Metropolitan Statistical Areas) in the United States by 622 firms based in 35 different home countries between 2005-2012.

The chapter's findings suggest important differences in imitation patterns of FDI location decisions related to differences in the domestic cultural environment, legitimacy status, and the extent of multinational operations of the firm. We observe clear imitation patterns in foreign location decisions, in line with prior research (Henisz and Delios, 2001; Guillen, 2002; Garcia-Pont and Nohria, 2002), with the important nuance that for firms based in home countries with the least conformity pressure mimicry is no longer significant. More specifically, we find that the tendency to engage in imitation of recent investment location choices by peers is stronger for firms that are based in home countries characterized by greater collectivism and national conformity pressures. Parallel to these findings, we find discouraging effects of recent investments by peers based in other home countries active in the same industry. This suggests that the presence of rivals firms from different countries increases competition in narrowly defined regional markets and discourages entry.

The results show that the strength exerted by the presence of cultural traits and the joint domestic conformity forces are not uniformly important for all firms. In contrast to legitimate firms and firms with substantial multinational operations, less legitimate firms and firms with limited multinational operations seem to be significantly responsive to two domestic cultural traits, i.e. collectivism and power distance, which are associated with domestic conformity forces thereby being more likely to imitate the recent FDI investments of peers within the same home country.

Chapter 3 - Global Cities' Cross border Collaboration on Innovation

In Chapter 3, we highlight the need to define and examine city cross border collaborations in terms of additional dimensions of "global-ness". Given the increasing role of global cities as prominent spaces for knowledge exchange and collaboration on innovation, we propose a new operationalization of global city connectivity in terms of global cities' position in knowledge collaborations measured by co-invention linkages.

We describe the changing position of 125 global cities in global innovation collaborations with all other foreign, not necessarily global, cities between 2000-2014. The chapter's findings confirm the role of global cities as prominent places for knowledge exchange and collaboration of innovation, as we find that over 41% of the worldwide patented inventions have their origin within these global cities. Furthermore, we confirm the growing importance of international collaboration for innovation and the premier position of global cities as spaces facilitating such collaboration by the substantial increases in international connections of global cities in particular in the more recent years.

Growth in international collaboration is most pronounced in a number of Asian cities (Shanghai, Taipei and Bangalore), propelling them to a rank among the top cities in the world in the most recent period, and in US cities (San Francisco, New York and Boston) that are taking up leading positions in global innovation collaborations. In contrast, European cities show stability in cross-border connections, while we observe that international depth and reliance on international collaboration ties are most prominent in smaller and more peripheral cities.

While urban scaling literature suggest a disproportional increase in collaborations with size (e.g. Schläpfer et al., 2014), the chapter concludes that larger cities are not necessarily more intensive international collaborators. In fact, there exists large heterogeneity in global city size and the tendency to form international connections and the reliance on these international ties for innovation activities within the global city.

Chapter 4 - The World City Innovation and Service Networks and Economic Growth

In contrast to Chapter 3 where the focus lies on all international collaboration of global cities with foreign inventors, but not necessarily global, cities, Chapter 4 zooms in on the collaboration network between global cities. In Chapter 4, we compare the changing position of global cities in inter-(global) city collaborative innovation networks (World City Innovation Network or WCIN) with their ranking on established indicators based on affiliate networks of advanced producer services firms (Global Network Connectivity or GNC). We then analyze their simultaneous and interrelated association with city economic growth.

We argue that both aspects of cities' international connectivity may allow their economies to grow, but that they may either reduce or enhance each other's association with city economic growth. On the one hand, an extensive involvement in both networks could lead to resource competition, such that neither network may obtain the optimal resources to leverage network flows to stimulate economic growth. On the other hand, innovation may contribute to the formation of advanced producer services networks, and vice versa, through the introduction of new types of services and by diffusing knowledge across firms and industries. We analyze the simultaneous and interrelated association of the two types of network strength with the economic growth of 111 cities located in 69 countries between 2000-2012 using a fixed effects panel regression model.

The chapter findings suggest broadly similar trends in the world city innovation networks (WCIN) and the global network connectivity developed by the GaWC (GNC). However, we find some important differences. Hong Kong and Dubai score high in the GNC rankings but low on the WCIN indicator. In contrast, San Francisco is a key hub for knowledge exchange and innovation in the world and the top ranked city in the innovation network, but scores rather low on the GNC indicator. Hence, there also appear to be specialization advantages of a strong position of one of the two networks. The empirical results of the fixed effects panel model regarding the association of GDP growth with the two network indicators confirm the contribution of both GNC and WCIN to city GDP growth, and that the two networks are partial substitutes in their relation to economic growth.

Chapter 5 - The Role of Global Cities in Local and Global Innovation Networks

In Chapter 5, we examine whether the international knowledge networks of global cities may render them less likely to establish and maintain intensive local innovation linkages with areas surrounding the city. We argue that the relationship between the global network orientation of global cities and their local linkages with surrounding areas depend on the characteristics of the global city and peripheral regions' knowledge bases and the ease of local linkage formation. More specifically, we argue that global linkages are more detrimental to establishment of local linkages if the global city is a global technology leader, but less so if the surrounding region has a greater absorptive capacity and features a smaller travel distance to the global city. We use a fixed effects Poisson regression model to analyze the association between international knowledge networks of 21 U.S. global cities and their local knowledge connections with 614 surrounding areas across 13 industries, between 2001-2015

The chapter's findings provide clear indications of international connectedness being associated with local disconnectedness. The focus on international knowledge networks renders global cities less likely to engage in intensive local innovation linkages with surrounding areas. The relationship between global city international connectivity and their local linkages depends on the characteristics of both the global city and their surrounding area. Overall, global linkages are less detrimental to the establishment of local linkages if the surrounding region and global city are geographically proximate and if the surrounding region has a stronger innovative capacity.

The findings of the supplementary analyses provides two additional indications of distinct influences of global city and county characteristics on the role of (different aspects of) international connectivity. First, the chapter concludes that while international connectivity is associated with local disconnectedness, connectivity with distant domestic areas is associated with greater local connectedness. Hence, it may be that domestic collaborations are more easily complemented by local collaboration partners compared to international collaborations. Second, the usage of an alternative measure for international connectivity, international breadth which measures the geographical diversity of collaborations of the global city, renders global linkages less detrimental to the establishment of local connectivity if the global city is a technological leader. This could potentially be explained by need for technological leading cities to simultaneously invest in access to a wide variety of domestic and foreign sources of knowledge.

6.2 Contributions to Research

This dissertation provides several contributions to the literature on global cities, (mimicry in) FDI, knowledge networks, and regional economic growth. Generally, this dissertation contributes insights to the literature on cities as MNEs' foreign direct investment location choice (Chapter 2) by examining the importance of cultural traits, domestic conformity pressures and firm heterogeneity in fostering mimetic processes on the fine-grained location level analysis and to the literature on (global) cities and their connectivity (Chapter 3-5) by examining the (changing) position of cities within innovation networks and their influence on city economic growth and local connectedness with areas surrounding the city.

This dissertation contributes to the institutional theory (e.g. Suchman, 1995; Henisz & Delios, 2001; Garcia-Pont & Nohria, 2002) by elaborating on the importance of the cultural traits, domestic conformity pressures and firm heterogeneity regarding these pressures in fostering mimetic processes in an FDI context. Empirically, we contribute to the literature on imitation in FDI (Lu, 2002; Li & Partboteeah, 2011) in two ways. First, we contribute a fine grained location level analysis controlling for possible confounding influences of mimicry effects which enables a better identification of mimicry processes. The focus on location choices on a sub-regional level can additionally be considered a contribution to international business research which traditionally conceptualized locations at the country-level (Goerzen et al., 2013; Beugelsdijk & Mudambi, 2013) and literature on imitation which has mostly examined mimetic entry at the country-level (e.g., Henisz & Delios, 2001). Second, we contribute by showing that mimetic influences differ systematically across home countries of MNEs, by taking a comparative national culture perspective, and by analyzing heterogeneity in imitation among investors from different home countries. The conceptualization of domestic conformity pressures as a single force embedded in cultural characteristics and its implementation represented a methodological contribution to international business research on national culture (Hofstede et al., 2010; Taras et al., 2012).

To the economic geography literature (e.g. Taylor, 2001; Alderson & Beckfield, 2004), we contribute by developing a new measurement of global city connectivity based on patented co-inventions. Extant research has generally focused on using empirical approached relying on either the presence of advanced producer services, MNEs or infrastructure or a combination of these. Our new measure is conceptually and methodologically on par with Taylor's (2001) global network connectivity for gauging cities' connectivity in office networks of advanced producer service networks. Yet, this new operationalization is able to cope with some of the drawbacks of this prominent approach by providing a more direct measurement of the intensity of flows across cities (Deyle & Grupp, 2005) and a more stable base for comparisons over time (Aranya & Taylor, 2008). The measure is based on novel and detailed effort to geocode global patenting information based on the address information available for patent inventors. By proposing this new measure, we contribute to the Network of Flows conceptualization and operationalization of global cities suggesting that global cities are important enablers of resource and knowledge flows in an interconnected network (Castells, 2000).

By juxtaposing different city networks we contribute towards a more inclusive understanding of global city connectivity. We emphasize that cities throughout the world can function as location anchoring points for very different types of flows, i.e. advanced producer services and knowledge networks. This analysis of networks within world-wide global cities empirically contributes to the global city literature as it provides a more inclusive analyses on global cities by analyzing global cities across the world as the dominant global city conceptualizations have often been critiqued of being pre-occupied with Western cities while neglecting more southern parts of the world (Roy, 2009; Bassens et al., 2011; Hanssens et al., 2013).

By comparing the changing role of cities within these networks of flows and by examining the interrelated influences of these networks of flows on the economic growth of the city, we contribute empirically to the literature on regional (urban) economic growth (Krätke, 2014; Burger & Meijers, 2016; Breul, 2019), which has mainly studied the relationship between agglomeration economies and urban economic growth (e.g. Rosenthal & Strange, 2004), and global city networks (e.g. Capello, 2000; Knoben & Oerlemans, 2006). We show that both types of connectivity are drivers of economic growth, a relationship that has often been assumed in urban policy reports (e.g. European Commission Lisbon economic growth agenda, 1999; NESTA, 2008; Capello & Nijkamp, 2009; GLA, 2014) and argued by a variety of global city theorists (e.g. Castells, 1996; Sassen, 1996; Taylor, 2006) without any empirical evidence or analysis. Setting apart the two network types and arguing that they can either reduce or enhance each other's association with economic growth can be considered an insight contribution to the aforementioned literature streams. Important in this regard is that we find that the focus on both knowledge and advanced producer service connectivity leads to partial substitutive effects on economic growth, suggesting that cities may benefit from specialization.

Scholars have expressed concerns that the effects of international connectedness on economic growth may remain spatially constrained within global cities (Moreno et al., 2005) creating divergence among regions (Benito & Narula, 2007) and leading to unequal development (Lorenzen et al., 2020). While research has dominantly examined the possible benefits of being widely internationally connected, the effects on the local connectivity remain unclear. By focusing on the interplay between the international knowledge exchange of global cities and local knowledge exchange between global cities and their surrounding area, we contribute to bridging the gap between research on innovation and knowledge exchange in successful core regions (Boschma et al., 2015) and innovation within the surrounding area (Dubois, 2013), which have largely remained disconnected. Furthermore, this can also be considered a general contribution to the economic geography literature where detailed analyses on the variances across and relationships between different types of regions is relatively scarce (Lorenzen et al., 2021).

We contribute to the literature on the geography of innovation by examining how knowledge connection between the global city and their surrounding areas vary systematically with the international connectedness of global cities in the United States, while prior research has predominantly focused on a qualitative research design with a spatial focus on the Northern and Southern peripheries of Europe and Canada (Eder, 2019). We show that international connectedness is negatively associated with local knowledge connections, but that there are important contingencies to this relationship related to proximity and the innovation capabilities of the surrounding areas of global cities. Furthermore, the examination of the role of geographical proximity to a global city and its consequences for surrounding areas may also be considered a contribution to the literature on economic geography which has investigated the existence of spread versus backwash effects (e.g. Parr, 2002; Phelps et al, 2001).

6.3 Policy and Managerial Implications

From the studies composing this dissertation, a number of policy implications can be drawn.

We show MNEs may engage in imitation processes when making foreign direct investment location decisions. However, we show that there is large heterogeneity in this behavior depending on the presence of domestic conformity forces and the legitimacy status of the MNE. Hence, targeted policies in attracting FDI from countries with such domestic conformity forces may prove to be more effective, in particular if MNEs can be considered to hold less legitimacy. For example, attracting MNEs through financial incentives may attract additional MNEs who imitate the behavior of initial investors to reduce uncertainty or to gain legitimacy, hence leading to increased benefits for the location of investment. At the same time, due to larger inflows of investments based on imitation, there may be a higher need for the implementation of efficient FDI screening frameworks and investment dispute resolutions systems to maintain the balance between the protection of investors and safeguarding the right of a country to regulate to pursue public policy objectives.

Although not necessarily a policy implication, the mapping of the changing positions in international collaboration and knowledge networks may act as a tool for policy-makers and contribute to the development of new sets of actions and policy agendas aimed at improving the innovation performance and collaboration of certain regions (e.g. the recent launch of France 2030 Plan and Scale-UP initiatives). Generally such rankings can be valuable to policy-makers as some sort of evaluation system to (1) detect if changes in collaborations and network positioning are in line with expected policy implementations, (2) as a warning system to identify potential harmful developments in a country's network position that may require policy intervention or (3) to monitor the general strategic technological dependency on other countries. The latter is becoming increasingly important in the aftermath of COVID-19 showing vulnerabilities in being overly internationally dependent.

We show that there is a simultaneous and partially substitutive relationship of different types of connectivity in global networks on economic development. More specifically, we conclude that investments in network connectivity and the associated relational assets (Huggins & Thompson, 2014) facilitate growth but that a specialization in one type of such network assets is advantageous. These new insights are highly relevant for (urban) and EU policy makers with policy agendas focusing on smart specialization (Balland et al., 2018) following the Lisbon economic growth agenda (European Commission, 1999; Capello, 2000) or for the European Innovation Ecosystem work program (Horizon 2021-2022). These agendas have prioritized the need to boost the connectivity of European cities, regions and countries in order to increase economic growth and competitiveness. Our findings suggest that there is a need for caution in assuming that simultaneous investment in multiple network types will translate into economic growth. In line with the smart specialization agenda, our findings suggest that specialization in one type of network and connectivity and building on existing strengths may be more beneficial.

Another point of caution for policy makers suggested by our findings is that a strong focus on international innovation networks may reduce the knowledge linkages with the surrounding areas of global cities (e.g. Lorenzen et al., 2020). This illustrates that knowledge exchange does not always cause an equal spread of opportunities across geographies, having a two-fold implication for policy-makers. First, before implementing policies aimed at increasing regional innovation, e.g. via high-tech innovation policies, policy-makers should evaluate potential consequences on the surrounding areas of the targeted regions in order to more accurately estimate the consequences of implementation. Second, these findings suggest a need for innovation policies focusing on improving the knowledge convergence between the surrounding areas and cities via local partnering, subsidies or support institutions.

Examples regarding the provision of the necessary resources to innovate could be new initiatives that promote brain circulation and ensure access of innovators from surrounding regions to global cities (e.g. via broadband connections, physical infrastructure, knowledge exchange programs, etc.), boosting local entrepreneurial ecosystems by promoting the presence of start-ups (e.g. through the introduction of Startup Visas to young innovative companies in line with the Scale Up Europe Initiative) and government initiatives aimed to help (lagging) surrounding areas to exploit new innovation opportunities (e.g. opportunities offered by changes in the spatial organization of labor and production). Additionally, policies could aim at bridging the innovation division between global cities and the local environment through reinforcement of local innovation systems, e.g. through the creation of incentive schemes for MNEs to encourage local collaboration, implement standardized frameworks for transferring technology of universities and research centers to country-wide industries or by broadly coordinating innovation activities on a country-wide scale through the establishment of a coherent innovation agenda (e.g. EU Coherent Policy 2021-2027).At the same time, regional innovation policies cannot be one-size-fits-all (Tödtling & Trippl, 2005), as our research shows that negative consequences of international connectivity for the surrounding area is contingent on city and surrounding area characteristics. To avoid introducing inefficient and ineffective policies, policy makers should take into account the specific characteristics of global cities and their surrounding areas.

6.4 Limitations and Further Research Suggestions

Although this dissertation provides several contributions to the existing literature, it is also subject to a number of limitations. These limitations at the same time suggest interesting opportunities for further research.

Throughout the dissertation, despite not claiming causality within our hypotheses, our results may be biased due to the presence of endogeneity issues. Within the fourth and fifth chapter, networks may be endogenous. Within the fourth chapter, the inclusion of fixed effects and past GDP will limit this issue, yet cannot rule out that an omitted variable may still cause GDP growth and future growth. Similarly, within the fifth chapter, the inclusion of country, global city and industry fixed effects will render endogeneity due to omitted variable bias less likely to occur, yet cannot rule out that an omitted variable may still cause connectivity between global cities and their surrounding areas. Within the second chapter, the focus on the focus on individual decisions of MNEs renders an endogeneity bias unlikely. However, FDI is an antecedent of both establishment growth and additional FDI through mimicry and agglomeration and hence, may complicate causal inference.

The second chapter is limited regarding the variation in domestic conformity pressures caused by limited country variation and the lack of high-coverage and accurate cultural data over time. Further research could benefit from using more recent high-coverage cultural data to gain additional insights (e.g. Dow & Ferencikova, 2010). Additionally, the focus on FDI location decisions in the United States may render our results conservative as this country may be seen as a legitimate investment target for many firms. Furthermore, the focus on the United States reduces the scope for generalizations. The latter limitation also applies to the fifth chapter. Hence, there is a need to investigate other countries as investment locations and location for city-surrounding area knowledge exchange in further research. Furthermore, although the second chapter focuses on the inclusion of one target country thereby ruling out variety in dissimilarities between the home and host country as a result of domestic location choice, it is possible that these dissimilarities may still influence our estimates. Hence, future research may investigate the influence of underlying dissimilarities such as differences in ethnic fractionalization or psychological traits or generally include a host country perspective to provide a more complete picture of the actual influences of domestic conformity forces on the imitation of prior FDI investments. Future research may also benefit from analyzing the economic gains firms may obtain from imitating the location choice of peers or the effects of local disconnectedness on country economic growth to increase understanding of the economic importance of these relationships.

As the third to fifth chapter mainly rely on the same underlying geocoded dataset and includes several patent indicators, several limitation apply to all three chapters. First, we acknowledge that although the georeferenced co-inventor dataset is based on the best geocoding effort to date, not all patent information in PATSTAT allows researchers to identify the location of inventors as this information can be absent. Second, although patent data is a unique source of information on innovation, location and collaboration, not all collaboration efforts and knowledge exchange is captured by patent applications and the network indicators will constitute lower bounds on knowledge exchange. Particularly within the fifth chapter where patent indicators are measured at the industry-level, an underestimation of actual (collaborative) innovation efforts may also be present as some industries are more inclined to resort to other types of intellectual property protection and have a lower propensity to patent, especially within surrounding areas of global cities characterized by traditional industries. Finally, changes in patent laws may contribute to changes in patenting and collaboration patterns which may both lead to a changes in the measured patenting and collaboration patterns depending on the nature of the change. Further research may thus benefit from looking into different ways of measuring innovation collaboration and linkages.

In the third and fourth chapter, we define international collaboration in two different ways. Within Chapter 3, we look at all possible international collaborations of global cities in contrast to Chapter 4 where we only take into account collaborations with other global cities. Only the latter can be considered a network as it measures the collaborations and linkages between a defined set of actors (cities) instead of just counting all possible collaborations with all possible actors as in Chapter 3. Hence, this rules out the possibility of analyzing structural network properties which may provide additional insights into the international collaborations of global cities. While this could be included within Chapter 4, we chose not to in order to ensure comparability with the advanced producer services networks for which the underlying construction renders analysis of structural network properties impossible. Further research may thus benefit from exploring more complex indicators of network connectivity in innovation networks. An additional limitation is that the used collaboration and network indicators can be difficult to interpret when there are important size differences across cities. Hence, the observed value of the network measure can be a direct result of the structural network characteristics or an indirect effect of inventive activities on the city scale. Future research should take this into account and examine alternative measures of cities' roles in the global innovation network such as those related to research collaborations measured by scientific publications.

In addition, both chapters offer ample opportunities for further research since they are mainly based on an introduction of a new type of methodology in measuring innovation collaboration and network connectivity. A few examples of possible further research regarding this new methodology of measuring global city connectivity are the following: (i) trends could be compared between international and domestic networks, (ii) the potential different roles of network linkages established through organizational pipelines and more distributed forms of collaboration (e.g. by universities or smaller firms) could be analyzed and (iii) research could examine how the balance between the importance of both types of global city networks may vary across regions (i.e. developed versus developing regions) (e.g. Glaeser, 2016).

In the fifth chapter, the construction of the dependent and focal independent variables assumes that all linkage types, collaboration types and their underlying knowledge actors are equivalent in terms of their ability to exchange and diffuse knowledge. Further research may thus benefit from a more fine-grained level of analysis regarding these different types of collaboration and linkages. Finally, we acknowledge that there may be other moderators on the county and global city level that may influence the relationship between international and local knowledge connectedness. This presents another fruitful avenues for future research.

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