Location Choices of Chinese Multinationals in Europe:
The Role of Overseas Communities

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Location Choices of Chinese Multinationals in Europe: The Role of Overseas Communities

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Abstract

Overseas Chinese communities are an important determinant in the location choice of greenfield investments made by mainland Chinese multinational enterprises across European regions. Conceptually embedded in a relational approach, this effect is shown through an empirical analysis of an exhaustive set of investment projects across NUTS-1 regions in 26 European countries for the period 2003-2010. When controlling for endogeneity bias and the embeddedness of existing Chinese economic activity, we find that the importance of overseas communities in the location choices of Chinese firms is based on increased access to strategic information. Our results confirm that the relationship between the size of an overseas Chinese community and the probability of Chinese investment is stronger for communities hosting newer generations of Chinese migrants; in addition, they partially corroborate that this relationship is stronger when the education level of the community's Chinese migrants is higher. Our findings are particularly robust in the context of knowledge-intensive sectors and high value-added functions.

JEL Classification: F20, L20, R30.

Keywords: Overseas Chinese communities, China, Europe, greenfield FDI, relational view

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1.   Introduction

The emergence of Chinese multinational enterprises (MNEs) in the global economy has generally been considered the next step in the development of China toward a world economic powerhouse (Young *et al.*, 1996; Morck *et al.*, 2008). Over the last decade, Chinese MNEs' emergence has become particularly apparent because of the implementation of the "Go Global" strategy in which the Chinese government has encouraged Chinese firms to invest abroad, augmenting their international competitive positions (Deng, 2004; Luo *et al.*, 2010). Consequently, Chinese outward foreign direct investment (FDI) is currently expanding at an accelerating pace. Notwithstanding these achievements, most Chinese MNEs have limited foreign market knowledge and international investment experience, which complicates their international investment strategies. Of these strategic challenges, the choice of where to invest is among the most prominent (Dunning, 1998).

Recurring themes in the literature on the location choice of Chinese outward FDI include the importance of ethnic networks and overseas communities. It is well known that Chinese firms rely heavily on the exploitation of ethnicity-based social and business networks to facilitate their international business activities (Redding, 1995; Weidenbaum and Hughes, 1996; Child and Rodrigues, 2005). These ethnic networks, which refer to the ability to share information and knowledge through ethnic or familial ties across geographical space, are increasingly recognized as important mechanisms that alleviate the impediments to international trade and FDI (Gao, 2003; Tong, 2005; Rauch and Trindade, 2005; Javorcik *et al.*, 2011; Hernandez, 2014). Moreover, because the quality of the information about mitigating operational complexities abroad through co-ethnic relationships depends on the embeddedness of network actors in foreign places, special attention has been directed to overseas migrant communities as predominant nodes of information and knowledge exchange (Yeung and Olds, 2000; King, 2012; Zhou and Lee, 2013). Although the informational benefits obtained from overseas communities through ethnicity-based networks are likely to be higher in markets that are institutionally and culturally different from the home country, Chinese MNEs predominantly invest in foreign countries with political systems and institutions that are similar to those in their home country (Buckley *et al.*, 2007; Cheung and Qian, 2009; Cheng and Ma, 2010). Consequently, evidence on the effect of overseas Chinese communities on the location choices of Chinese MNEs is scarce. Given the rapid expansion of Chinese firms in global markets, unraveling this issue seems imperative.

To explore the detailed space- and place-specific mechanisms that underlie the relationship among ethnic networks, overseas Chinese communities, and Chinese firms' location choices, we move beyond the firms' resource superiority focus of conventional FDI theory (Yeung, 2005b; Glückler, 2006) and develop a relational framework that combines insights from the international investment, social network, and migrant community literature. In particular, we examine whether overseas Chinese communities and their location-specific characteristics alleviate the impediments associated with greenfield FDI in unfamiliar markets by focusing on the location choices of mainland Chinese MNEs across European regions. Because greenfield investments are not constrained by previous capital installments (unlike mergers and acquisitions), firms are assumed to target these investments to locations that maximize firm benefits. Consequently, greenfield FDI is particularly useful for examining regional characteristics that affect the location choices of MNEs (Schiller *et al.*, 2015). In this context, Europe is a very useful case for examining how overseas communities facilitate FDI for three reasons. First, Europe and China are culturally and institutionally distant, which increases the probability that Chinese MNEs will rely on the use of ethnicity-based social and business networks to facilitate investment processes and to overcome their impediments to FDI. Second, Europe has a long tradition of intercontinental Chinese migration, which enables the identification of migrant communities and explore their inherent heterogeneity. Third, substantial differences exist between European countries and regions with respect to economic conditions and the presence of overseas Chinese communities.

To test our hypotheses, we analyze 577 greenfield investment projects across 87 NUTS-1 regions in 26 European countries from 2003-2010. Using discrete choice models with different variable specifications and controlling for endogeneity bias, we find that both the presence and certain characteristics of overseas Chinese communities play a significant role in the location choices of Chinese MNEs. Furthermore, our results suggest that information access is the predominant mechanism driving these effects, particularly in the context of knowledge-intensive sectors and high value-added functions.

The main contributions of this study are threefold. First, the economics literature is relatively rich in quantitative studies examining the relationship between migrant networks and economic outcomes, but these studies use only aggregate ethnic network characteristics and do not measure the average characteristics of the individuals who constitute migrant communities (c.f. Patacchini and Zenou, 2012). Thus, the literature does not include an examination of the heterogeneity of overseas communities. In contrast, the work of (economic) geographers provides a useful theoretical and empirical basis for understanding how the characteristics of

migrants who comprise overseas communities affect economic outcomes.[1] However, most of this research is either descriptive or based on nongeneralizable detailed case studies (e.g., Zhou, 1998; Hsu and Saxenian, 2000; Yeung and Liu, 2008; Si and Liefner, 2014). Consequently, there is only limited structural understanding of how the characteristics of overseas migrant communities affect firms' investment motives and location strategies. Second, extant research has primarily exploited country-level data to underline the importance of migrant networks and overseas Chinese communities in facilitating Chinese firms' investment decisions (e.g., Tong, 2005; Buckley *et al.*, 2007). However, because overseas Chinese communities are highly concentrated in particular places, unraveling how Chinese MNEs best exploit place-specific opportunities requires a regional approach. Third, whereas the trade-promoting effects of ethnic networks have received considerable scholarly attention, the role of migrant networks in promoting outward FDI has not been adequately addressed. This role is particularly relevant because previous research argues both that ethnic networks are more likely to be important in facilitating FDI than encouraging trade and that FDI may engender considerable benefits for economic growth in the host country (Javorcik, *et al.*, 2011).

The remainder of this paper is organized as follows. In the next two sections, we provide a theoretical framework and present hypotheses regarding the characteristics of overseas Chinese communities that may affect the location choice of Chinese MNEs. Based on insights from relational economic geography, we argue that understanding the heterogeneity in MNEs' motives for overseas investments, in regional economic endowments, and in Chinese communities' characteristics is essential for explaining the placed-based probabilities of Chinese investments in Europe. In section 4, the methodology used for testing the hypotheses is presented, and the data and variables employed in the empirical analysis are discussed. A discussion of the results, including a range of robustness analyses for endogeneity bias and heterogeneous definitions of Chinese communities, then follows. Finally, we conclude and discuss the policy implications of our findings and future research endeavors.

2.   Background

2.1   Internationalization of Chinese MNEs

Conventional FDI theory is based on the premise that firms internationalize when the expected returns derived from their competitive advantage in foreign markets are sufficient to overcome

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[1] Particularly worth mentioning in the context of this paper is the work of Huggins and Thompson (2015) on the symbiotic relationship between the economic culture and community culture of places, and the influence of both forms of place-based culture for (economic) development.

the additional costs and risks associated with operating abroad (Hymer, 1976). According to Dunning's (1993) Ownership-Localization-Internalization (OLI) paradigm, the determinants of MNE activity are based on the interaction between the competitive advantage of firms and countries and their particular methods for organizing and acquiring value-added activities. Firms invest abroad if they can leverage their ownership advantages both by exploiting proprietary assets and capabilities and by making use of the location-specific advantages that host countries provide by internalizing cross-border activities in foreign affiliates. Although international business scholars have shown that the relative resource superiority focus of the OLI framework provides a useful explanation of the extent and pattern of FDI by MNEs from industrialized countries, the issue of whether conventional FDI theory is also directly able to explain the emergence and FDI location choices of Chinese MNEs remains subject to ongoing debate (Child and Rodrigues, 2005; Erdener and Shapiro, 2005; Mathews, 2006). The prevailing view is that conventional theory works but that it must be complemented with alternative explanations to capture the idiosyncrasies of Chinese MNEs (Yiu, 2011; Lu *et al.*, 2011; Child and Marinova, 2014).

Notable characteristics of Chinese MNEs that are difficult to explain with conventional theory include their rapid internationalization and ambitious FDI strategies (Mathews, 2006; Li, 2007). In contrast to MNEs from industrialized countries, Chinese firms often possess relatively weak ownership advantages (Tong, 2005), particularly with respect to a lack of innovative technologies, managerial and marketing skills, and foreign market knowledge (Child and Rodrigues, 2005; Yeung and Liu, 2008). Moreover, to augment the ownership advantages that can offset their current and future competitive disadvantages in international markets, Chinese firms predominantly expand abroad either to acquire new strategic resources and capabilities (Tong, 2005; Deng, 2007; Li, 2007) or to learn and explore their opportunities to compete with global rivals in their home country markets (Luo and Tung, 2007). For instance, recent empirical studies show that Chinese outward FDI to developing countries is directed to natural resource-rich countries, primarily in Africa and Latin America (e.g., Ramasamy *et al.*, 2012; Kolstad and Wiig, 2012), and to developed countries across Europe and the United States, for both market-seeking (Buckley *et al.*, 2007; Cheung and Qian, 2009) and strategic asset-seeking motivations (De Beule and Duanmu, 2012). Given that Chinese MNEs generally lack ownership advantages, these empirical results imply that other, external firm-specific factors might also be crucial drivers of the internationalization of Chinese MNEs.

For Chinese firms, it is important to acknowledge that particular external actors play a predominant role in the decision to invest abroad. Because international expansion without

explicit ownership advantages is not without costs and risk, it is well known that the Chinese government offers support to alleviate the potential financial burden of these investments (Yeung and Liu, 2008; Child and Marinova, 2014). In their "Go Global" strategy, governmental authorities at both the national and the local levels have developed a wide range of promotional measures to facilitate and encourage the internationalization of Chinese firms, including financial support in terms of discounted bank loans, subsidies, guarantee programs, fiscal incentives, and insurance schemes (Deng, 2007; Luo *et al.*, 2010). Although the support of the Chinese government may motivate firms to expand abroad, it only partially mitigates the intensity and magnitude of the inherent impediments that Chinese firms face when establishing new business activities in foreign markets. To unravel how Chinese firms overcome these impediments, it is important to understand the unique ethnic relationships these firms leverage across geographical space to obtain place-specific information and knowledge from local actors and institutions. To do so, we move beyond the implicit atomistic view of conventional FDI theory (Yeung, 2005b; Glückler, 2006) and develop a conceptual framework in which we argue that Chinese MNEs' choices of where to invest are not only based on firms' resource superiority but also depend on both space and place dimensions. In conceptualizing 'space' and 'place' we follow McCann's (2011: p.2) decomposition of both interrelated concepts, "space emphasizes geographical distance and networks characteristics" while "place emphasizes location-specific characteristics". Hence, space and place are represented by the social networks that span across geographic boundaries and the characteristics of the specific foreign locations in which Chinese firms are embedded, respectively.

2.2   Chinese investment, ethnic networks, and overseas communities

In recent years, economic geographers have directed considerable attention to understanding the firm as a social construct, embedded in direct and indirect social networks in particular places (Boggs and Rantisi, 2003; Bathelt and Glückler, 2003) and across geographical space (Dicken *et al.*, 2001; Yeung, 2005a). Although not uncontested (e.g., Sunley, 2008), this relational approach in economic geography offers useful insights that help to explain both *where* Chinese MNEs invest and *how* they manifest themselves in unexplored foreign locations. As a conceptual point of embarkation, the relational view posits that firms' strategic action is motivated by their embeddedness in specific social networks and local institutional contexts (Storper, 1997; Glückler, 2006). According to this view, social networks represent long-term, reciprocal relations characterized by high levels of mutual trust and understanding (Dyer and Singh, 1998; Borgatti and Cross, 2003) that, as sources of social capital, are generally

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established to facilitate cooperative behavior across network actors through knowledge transfer and learning benefits (Uzzi and Lancaster, 2003). Given that social networks facilitate cooperation, these cross-border networks "can be strategically deployed to facilitate the extension of a firm's economic activities across geographical space" (Yeung, 2005b: p.314).

Strategic deployment of social networks is a key determinant of Chinese MNEs' foreign investment decisions. With limited international investment experience, Chinese MNEs regularly lack the foreign market knowledge that is essential to conducting business abroad. Although overcoming these impediments is generally costly and time-consuming, Chinese firms are well-known to rely on *guanxi* or ethnicity-based social and business networks to overcome complex institutional and informational barriers in international markets (e.g., Redding, 1995; Weidenbaum and Hughes, 1996; Qiu, 2005). This so-called *guanxi* capitalism develops around the role of Chinese ethnic ties as bridges between geographically distant markets that spur international economic transactions (Hsu and Saxenian, 2000; Peck and Zhang, 2013). These extra-firm ties are built upon personal relationships and emerge on the basis of shared language, norms, and values that facilitate easy communication, foster mutual trust and altruistic support, and therefore enhance collaborative potential (Yeung, 2005b). For instance, through co-ethnic networks Chinese MNEs can effectively learn and enhance their knowledge and information about, *inter alia*, the idiosyncrasies of the host country business practices, local regulations, potential business partners, and the management and matching of local labor (Child and Rodrigues, 2005; Tong, 2005). As such, ethnic relational complexes represent informal modes of coordination across geographical space that Chinese MNEs deploy to reduce information asymmetries, thereby lowering the transaction costs of undertaking foreign investment.

Leveraging co-ethnic social and business networks to mitigate complex operational barriers abroad is only possible when there are network actors that are spatially well embedded in foreign places. Particular attention has been directed to overseas migrant communities as territorialized sources of host country knowledge and information. Previous work on the geography of migration refers to overseas migrant communities as unique local systems of shared functional and social space where immigrants with a common ethnic origin congregate (Ma, 2003; Zhou and Lee, 2013). Bound together by social capital, these migrant communities adapt to and integrate into the host country's society and business environment while preserving links with their ancestral home country (Esman, 2009; King, 2012). Within overseas Chinese communities, the extent to which local information and knowledge is available and accessible to Chinese MNEs depends largely on the degree of what Amin and Thrift (1994: p.15) call local

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"institutional thickness" (see Yeung and Olds, 2000). Institutions, predominantly in the form of formal and informal ethnic business associations and networks, facilitate information exchange and collaboration among local embedded actors, including not only customers, suppliers, producers, and distributors but also transnational actors that link business partners in the country of origin (King, 2012; Zhou and Lee, 2013).

The extent to which Chinese MNEs can access and strategically leverage the knowledge and information that resides within overseas communities varies and is inherently dependent upon the characteristics of the migrant community, the availability of preserved ethnic ties, and the characteristics and density of the local institutional context. Because impediments to investment have explicit future performance implications for distant affiliates, the presence and heterogeneity of overseas Chinese communities in host countries likely affect the *ex-ante* foreign location choices of Chinese MNEs. In the next section, we therefore focus on the predominant characteristics of overseas Chinese communities that facilitate Chinese MNEs in their process of accessing, relaying, and interpreting host country information and knowledge to mitigate operational complexities: the community's size, longevity, and average education level. Furthermore, we argue how Chinese firms' need for locally embedded information and knowledge within overseas Chinese communities varies with the sectoral and functional heterogeneity of the investment projects.

3.   Hypotheses

3.1   Chinese FDI location choice and overseas Chinese communities

Early empirical studies examining the effect of overseas Chinese communities on the FDI location choices of Chinese MNEs are based primarily on aggregate country-level data. For instance, Tong (2005), Buckley *et al.* (2007), and Cheng and Ma (2010) argue that locations that host larger overseas communities can be expected to accommodate more Chinese migrants who possess valuable information and local market knowledge. As the size of the overseas community increases, Chinese investors' ability to tap into ethnic social and business networks and exploit the locational information and knowledge potential increases. Accordingly, these studies find that countries with larger resident populations of ethnic Chinese attract significantly more Chinese FDI. As an additional explanation, Cheung and Qian (2009) argue that Chinese MNEs might mimic the location choices of previous Chinese investors. Thus, the sheer presence of Chinese firms and large overseas Chinese communities can signal investment opportunities in particular foreign locations. Notwithstanding the importance of these findings,

aggregate country-level data prohibit an examination of firm heterogeneity. Research that is more recent therefore primarily aims to explore firm-level data and the potentially varying need of Chinese MNEs to exploit ethnicity-based social and business networks to facilitate their foreign location choices.

Based on worldwide investment count data by Chinese publicly listed firms, Ramasamy *et al.* (2012) show that countries with a sizable Chinese population attract significantly more FDI from state-owned enterprises than other countries; however, such an effect is not found for privately owned firms. Similar findings are obtained by Amighini *et al.* (2013), who use greenfield investment counts and find that countries with relatively larger shares of Chinese migrants in the total population attract more Chinese FDI. When subdividing the recipient countries by income level, these authors reveal that the Chinese migrant effect is particularly apparent for Chinese MNEs in OECD host countries but that the effect diminishes for lower-income countries. On a regional level, Brienen *et al.* (2010) exploit Chinese greenfield investment data and find that European regions that host large migrant communities attract more investments. In addition, Kelley *et al.* (2013) obtain similar results for the United States and conclude that on the state-level, the relative size of the Chinese diaspora is among the strongest predictors of the location of Chinese FDI. Overall, the existing empirical literature is generally consistent in finding that locations that host larger Chinese communities attract more Chinese FDI. Hence, we propose the following hypothesis:

Hypothesis 1: There is a positive relationship between the size of an overseas Chinese community in a region and the probability of Chinese investment.

3.2   Characteristics of overseas Chinese communities

Although the results of firm-level studies provide additional insights into the importance of firm characteristics, they take into account neither the explicit heterogeneity of overseas migrant communities nor the effect of such place-specific heterogeneity on the location choices of Chinese MNEs. Such knowledge remains limited primarily because existing empirical studies largely ignore both how changing international investment conditions are manifested at the local level and how international firms exploit the place-specific opportunities provided by migrant communities. Consequently, it is important to understand whether local overseas Chinese communities differ in their provision of information and how Chinese MNEs' need for local information and market knowledge varies with respect to the specific industry and business activity in which the investment is made. Of particular importance are not only the

availability of information in overseas migrant communities but also the extent to which this information is accessible across geographical space. Correspondingly, the availability and accessibility of information depend on the overseas community's degree of institutional thickness and local embeddedness (Yeung and Olds, 2000), along with its ability to relay local information for business purposes through ethnic social and business networks (Rauch and Trindade, 2005).

3.2.1 Associations and longevity

Overseas migrant communities evolve and integrate in host-country business environments over the course of subsequent generations. Although each new generation of immigrants becomes more integrated and assimilated through education, labor market participation, and increasing social and cultural incorporation, collective identities and ethnicity-based economic opportunities are often preserved (Castles, 2002; Ma, 2003). Within overseas Chinese communities, voluntary business associations are predominant institutions that bind local businesses and entrepreneurs with similar ethnic backgrounds through facilitated communication, cultural familiarity, and mutual trust. Accordingly, these associations are well integrated into the local economy and serve as place-based centers of information exchange and cooperative behavior (Tong, 2005; Zhou and Lee, 2013). While maintaining their local embeddedness, Chinese business associations have recently become increasingly transnational. Through international conferences and conventions, associations' members are offered the possibility of establishing *guanxi* and business relationships with prominent Chinese transnational entrepreneurs, governmental officials, and fellow kinship business people in mainland China and overseas communities abroad (Liu, 1998). In this way, overseas Chinese business associations provide an important intermediary function to establish and leverage ethnicity-based social and business networks to exchange information and knowledge for trade and investment opportunities, thus expanding overseas Chinese communities across geographic space (Zhou and Lee, 2013).

As comprehensively discussed by Barabantseva (2005: p.15), modern co-ethnic business associations of "new Chinese migrants" are particularly important institutions through which Chinese business delegations and governmental organizations reach out to overseas Chinese to explore trade and investment opportunities. Because these new migrants left China only after the start of the reforms in the late 1970s, their ethnic identity and attachment to the ancestral home country is considerably stronger relative to older generations of migrants. Moreover, they are generally better-educated professionals and entrepreneurs (Zweig *et al.*, 2008) and have

been known to join modern co-ethnic business associations with the explicit objective of searching for transnational business opportunities (Liu, 1998) and economic cross-fertilization (Hsu and Saxenian, 2000). With younger and better-educated Chinese migrants becoming active participants in host-country ethnic business and social networks, overseas Chinese communities that host new Chinese migrants are likely to engender relatively larger information benefits for Chinese MNEs. Because the modern co-ethnic business associations of new Chinese migrants are more transnationally oriented and better connected to the mainland Chinese business environment, including central and local governmental authorities (Zhou and Lee, 2013), the local business information available in these new Chinese communities is also likely to be more easily accessible to Chinese firms.

Thus, the probability that Chinese MNEs can mitigate host-country impediments to investment by obtaining information and market knowledge from overseas Chinese communities is likely to decrease with the relative longevity of that overseas community. Locations with Chinese communities that host more ethnic Chinese from newer generations of immigrants are consequently more likely to attract Chinese firms.

Hypothesis 2: The relationship between the size of an overseas Chinese community in a region and the probability of Chinese investment is stronger when the size of newer generations of Chinese migrants in the community is larger.

3.2.2   *Operational complexities and education*

MNEs that enter unfamiliar host countries generally rely on local personnel to interpret and explain the idiosyncrasies of the host market's business environment. Although hiring local staff can mitigate these operational complexities (Goodall and Roberts, 2003), Chinese MNEs must overcome managerial difficulties related to the alignment of local employees with the company's business practices and culture. Klossek *et al.* (2012) and Si and Liefner (2014) show that to facilitate the management of local labor and address local officials, Chinese MNEs frequently rely on local ethnic Chinese, who act as cultural and social bridges between Chinese managers and local personnel. Chinese communities are apparent sources for this specific group of staff given the preference of Chinese firms for bilingual employees who are experienced with both the local and Chinese culture and work ethic (Benton and Gomez, 2001). Furthermore, because efficiently addressing internal information asymmetries and learning how to interpret and relay local business practices are highly complex tasks for Chinese firms in unfamiliar markets with different social and cultural contexts, well-educated Chinese migrants with

Western education are "highly sought after" in foreign locations (Gao *et al*., 2013). Of particular value are highly skilled younger generations of Chinese migrants, including overseas students and knowledge workers, because they are relatively better educated and have a strong presence in knowledge-intensive business sectors and research-related activities (Zweig *et al.*, 2008). For Chinese firms well-educated migrants can act as effective channels of knowledge diffusion across different social and cultural contexts, enhancing the acquisition of complex host country knowledge (Liu *et al*., 2015). Consequently, foreign places with an abundant pool of well-educated Chinese-speaking labor are attractive investment locations for Chinese firms because such places facilitate the recruitment of locally embedded overseas Chinese managers, business professionals, and workers.

Based on these arguments, we expect that overseas communities that host relatively well-educated Chinese migrants provide better opportunities for Chinese MNEs to learn how to overcome operational complexities in host country markets and hence to alleviate their impediments to investment. Overseas communities that host better-educated Chinese migrants are thus more likely to attract investment from Chinese firms.

Hypothesis 3: The relationship between the size of an overseas Chinese community in a region and the probability of Chinese investment is stronger when the education level of Chinese migrants in the community is higher.

3.3   Characteristics of FDI

3.3.1   *Industry sectors: services versus manufacturing*

The intangible nature and the corresponding inseparability of production and consumption for services render service industries fundamentally different from manufacturing industries. Consequently, it can be expected that Chinese firms' need to exploit ethnic social and business networks or locally embedded knowledge to facilitate investment also varies across industry sectors (Zhou, 1998). Services often require intensive contact with customers and extensive customization and adaptation to the local preferences and regulations. Particularly for complex services in information and knowledge-intensive sectors, such as legal services and consultancy, locally integrated and well-educated labor is essential (Glückler, 2006; Hernandez, 2014). For Chinese firms, the costs and risks associated with these investments are exacerbated because of their weak ownership advantages and general lack of proprietary resources and capabilities. Moreover, because of the varying degrees of service sector deregulation in China, Chinese firms are likely relatively less experienced with the more competitive nature of service

industries in developed markets. In turn, these competitive pressures may make it even more difficult for Chinese service firms to overcome the complexities of operating in unfamiliar markets (Gaur *et al.*, 2011). The need for place-based, well-embedded sources of host-country knowledge and information therefore is particularly high for Chinese firms that are active in services industries.

Chinese FDI in manufacturing industries can be considered a tool to support and develop Chinese export markets and to overcome impediments to trade, such as trade tariffs or import quotas (Luo and Tung, 2007). When products exported from Chinese manufacturing industries are highly standardized, obtaining information and location-specific knowledge about host-country market preferences to customize products becomes less important (Yeung and Liu, 2008; Gaur *et al.*, 2011). Furthermore, Chinese manufacturing firms do have an ownership advantage in access to cheap labor and cost-effective production capabilities in the home country (Deng, 2004). Although this ownership advantage does not eliminate unfamiliarity costs in new host countries, it does partly offset Chinese firms' competitive disadvantage because cheap labor and cost-effective production are likely to be more important for the competitive success of standardized products than is the need for leveraging co-ethnic social and business networks to obtain localized knowledge and information.

We therefore expect that Chinese firms in commercial service industries need to be more locally responsive than manufacturing industries and consequently, that they are more likely to rely on the information, knowledge, and educated ethnic Chinese individuals of overseas communities to overcome local operational complexities. Therefore, we expect that Chinese service firms are more likely to invest in locations with larger overseas communities than are Chinese manufacturing firms.

> **Hypothesis 4:** The relationship between the size of an overseas Chinese community in a region and the probability of Chinese investment is stronger for investments in commercial services relative to those in other sectors.

3.3.2 *Business functions: Upstream and downstream versus production*

Similar to the distinction between services and manufacturing industries, business functions differ in their degree of information and knowledge intensity and in their corresponding need for skilled labor (Burger *et al.*, 2013). In contrast to production-related functions, upstream functions such as headquarters and R&D require well-educated, highly skilled labor, whereas downstream functions such as sales, marketing, and support primarily rely on locally embedded

personnel with explicit knowledge of the local language, business environment, and consumer preferences. Furthermore, upstream functions in particular thrive on the level of embeddedness in local knowledge infrastructures and information networks (Poon and Thompson, 2003) that are generally associated with the clustering or agglomeration of complementary activities (Narula and Bellak, 2009). Because the costs and liabilities associated with the explicit locational requirements for upstream and downstream service functions can be facilitated by a locally integrated Chinese migrant population and because production-related functions have a less restrictive need for location-specific resources, we expect that Chinese firms are more likely to invest in locations with larger overseas communities for upstream and downstream service functions than for production-related functions.

Hypothesis 5: The relationship between the size of an overseas Chinese community in a region and the probability of Chinese investment is stronger for investments in upstream and downstream activities relative to those in production plants.

4. Data and methodology

4.1 Mainland Chinese greenfield FDI in European regions

To examine the effect of Chinese overseas communities on the attraction of mainland Chinese FDI, we focus on the investment project level as the unit of analysis. As primary FDI data sources, we use fDi Markets (2003-2010) from the Financial Times and the European Investment Monitor (2003-2009, first quarter) from the professional services firm EY. Both databases contain information on greenfield investment projects recorded on the basis of formal media announcements by financial information providers, industry organizations, and market and publication companies (see Brienen *et al.*, 2010; Burger *et al.*, 2013). The covered projects include new investments, expansions, and joint ventures but exclude mergers and acquisitions. There is no official minimum investment size, but investment projects that create fewer than 10 full-time jobs or that involve a total investment of less than US$1 million are uncommon. For the period covered by both databases, 47% of the projects in the EY European Investment Monitor are also reported in the fDi Markets database. To augment the fDi Markets database with information from the EY European Investment Monitor, we remove duplicate investment projects and synchronize sector and function definitions to improve the comparability of the datasets. Although UNCTAD uses fDi Markets to measure worldwide greenfield investments

in its World Investment Reports, our unique database is even more comprehensive and extensive than the investment-level datasets that are used in the literature.

Overall, our database consists of 577 investment projects from mainland China into 87 NUTS-1 regions across 26 European countries (EU-25, Switzerland, and Norway, excluding Cyprus) made by 414 mainland Chinese firms for the period 2003-2010. Figure 1 provides an overview of the spatial distribution of Chinese greenfield investments across European regions. Note that the investments are not equally distributed: over half of the investments are made in a limited number of NUTS-1 regions. In particular, Chinese firms predominantly invest in the regions around Düsseldorf (14.2%), London (9.5%), Frankfurt (6.1%), and Newcastle (5.5%).

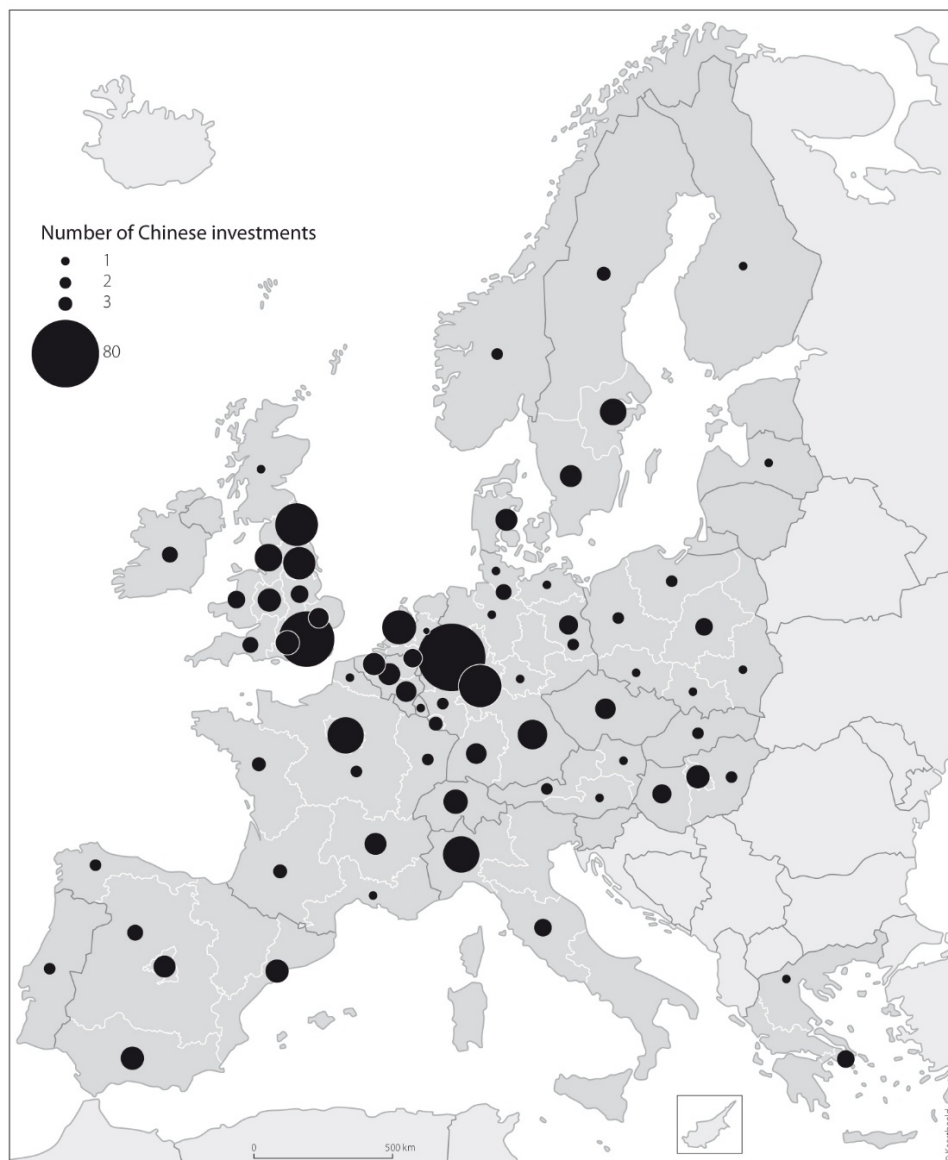**Figure 1:** Number of Chinese greenfield FDI in European regions.

Table 1 presents the number and distribution of greenfield investments by Chinese MNEs across sectors and functions (see Appendices A and B for taxonomies used). Most Chinese investments are in High-Tech Manufacturing (25.5%), Software & ICT (17.5%), and Medium-Tech Manufacturing (17.1%). Across economic functions, most investments are in Sales & Marketing (56.5%), followed by Production Plants (14.0%) and Headquarters (12.8%). In line with the results of Brienen *et al.* (2010), these findings indicate that Chinese greenfield investments are predominantly market seeking in nature.

Table 1: Sectoral and functional distribution of mainland Chinese greenfield investments.

Sector	Number of investments	% Share
Commercial & Other Services	37	6.4
Financial Services	36	6.2
High-Tech Manufacturing	147	25.5
Low-Tech Manufacturing	92	15.9
Medium-Tech Manufacturing	99	17.2
Natural Resources & Energy	35	6.1
Software & ICT	101	17.5
Transport & Distribution	30	5.2
Function	**Number of investments**	**% Share**
Headquarters	74	12.8
Logistics	26	4.5
Production Plants	81	14.0
Research & Development	56	9.7
Sales & Marketing	326	56.5
Servicing & Support	14	2.4

4.2   Overseas Chinese communities in European regions

Based on migrant information from national statistical offices, different definitions have been explored to measure the size of overseas Chinese communities. The focus can be the migrant stock from mainland China, the migrant stock from Greater China (including mainland China, Hong Kong, Macao, and Taiwan)[2], or the size of the ethnic Chinese community in a country. In some European countries, the size of the ethnic Chinese community is considerable because of the historical connections between China and these countries. For instance, the Netherlands and France are characterized by a large ethnic Chinese population originating from the former

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[2] We use the term Greater China to signify the strong cultural and economic ties between mainland China, Hong Kong, Macao, and Taiwan and we do not intend to imply sovereignty of the People's Republic of China over these territories. For a discussion of the controversies surrounding the term 'Greater China', see Harding (1993) and Zhang (2013).

Dutch East Indies and French Indochina, respectively (Pieke, 1988; Guerassimoff, 2003). However, the extent to which ethnic Chinese contribute to attracting MNEs is questionable, because their relationships with the mainland Chinese corporate world are likely to be limited. In contrast, we expect these strong corporate relationships to exist for Chinese migrants from Taiwan, Hong Kong, and Macau (see Hsu, 2006; Schiller *et al.*, 2015). Therefore, we use the Greater Chinese migrant stock at the country level as our primary measure of Chinese migrants. We then use the size of the migrant stock from mainland China and the ethnic Chinese community in a country for robustness analyses.

Given our interest in regional FDI choices, we alternatively measure the regional presence of an overseas Greater Chinese migrant community by using a dummy variable that takes the value 1 if the community in a European NUTS-1 region is expected to be larger than 10,000 people. To determine the regional Chinese community dummy, we follow a two-step procedure. First, we check whether the *Greater Chinese migrant stock* in a country is larger than 10,000 by using data on bilateral migrant stocks for the year 2000 obtained from the Bilateral Migration Matrix (see Özden *et al.*, 2011). Second, we examine the distribution of Chinese migrants within countries with more than 10,000 Chinese migrants by using data from national statistical offices and ethnographies of Chinatowns (Skeldon, 1996; Christiansen, 2005; Pieke and Speelman, 2013).[3] This procedure yields a list of 20 European NUTS-1 regions with a significant Chinese community, as presented in Table 2. The largest overseas Chinese communities are found in the United Kingdom, France, Germany, the Netherlands, Italy, and Spain.

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[3] Germany: Statistische Ämter des Bundes und der Länder; United Kingdom: Office for National Statistics; France: Insee; Italy: Istat; Spain: Instituto Nacional de Estadística. Please note that national statistics comprise a mix of both Chinese migrant and ethnic Chinese statistics. Hence, we primarily examine the distribution of Chinese across regions based on the available statistics.

Table 2: Chinese population in Europe around the 2000s.

Country	Greater Chinese migrant stock	Mainland Chinese migrant stock	Non-mainland Chinese migrant stock	Size ethnic Chinese community	Potential local Chinese communities (NUTS-1)
Austria	7,331	7,331	0	41,000	
Belgium	4,036	3,996	40	23,000	
Cyprus	728	728	0	10	
Czech Republic	1,255	1,241	14	12,000	
Denmark	3,948	3,807	141	7,257	
Estonia	125	125	0	20	
Finland	2,021	1,993	28	1,500	
France	46,191	21,460	24,731	225,000	Ile de France
Germany	89,974	86,998	2,976	100,000	Baden-Württemberg, Bayern, Berlin, Nordrhein-Westfalen, Hessen
Greece	574	534	40	600	
Hungary	11,408	11,379	29	10,000	Central Hungary (Budapest)
Ireland	6,880	5,330	1,550	10,000	
Italy	75,109	75,109	0	70,000	Northeast Italy, Northwest Italy
Latvia	319	319	0	100	
Lithuania	138	138	0	40	
Luxembourg	1,192	1,034	158	1,300	
Malta	40	160	0	10	
Netherlands	36,007	26,108	9,899	127,500	West Netherlands
Norway	4,784	3,695	1,089	5,000	
Poland	704	701	3	15,000	
Portugal	5,020	1,973	3,047	2,700	
Slovakia	141	138	3	10	
Slovenia	14	14	0	10	
Spain	23,279	23,279	0	35,000	Madrid, Cataluña
Sweden	9,265	8,060	1,205	12,800	
Switzerland	7,008	6,600	408	13,000	
United Kingdom	239,682	94,896	144,786	250,000	Northeast England, Greater London, North West England, South England, South West England, West Midlands, Scotland, East of England

4.3   Control variables

Finally, we control for factors that may confound the relationship between overseas Chinese communities and Chinese greenfield FDI. Following the conventional international and regional economic literature on location choices (e.g., Guimarães *et al.*, 2000; Head and Mayer, 2004), in which firms attempt to maximize benefits and minimize costs in choosing a location, we consider three types of variables related to the attractiveness of European regions: (1) demand factors (market size), which are predominantly related to market-seeking motives; (2) supply factors (production costs), which are primarily related to efficiency-, resource-, and strategic asset-seeking motives; and (3) external economies. All of these variables are measured at the NUTS-1 regional level, except for corporate tax rate, which is measured at the country level. The descriptive statistics of the main variables in the analysis are presented in Table 3,

and to examine potential multicollinearity problems, we also included a correlation matrix in Table 4.

Table 3: Descriptive statistics of the most important variables in the models.

Name	Description	Mean	SD
Greater Chinese migrants	Size of the Greater Chinese migrant stock in the country.	60636	62584
Regional Chinese community	Takes value 1 if in a NUTS-1 region a large migrant community from Greater China is present.	0.21	0.41
GDP	Regional Gross Domestic Product.	122352	104878
Accessibility by air	Number of people that can potentially be accessed by air (in millions).	100	31
Distance to seaport	Distance to closest seaport.	158	155
Wage costs	Average annual wage per worker in euros.	42631	34284
Long-term unemployment rate	Long-term unemployment rate.	0.03	0.03
University degree rate	Percentage of the workforce between 25 and 64 with tertiary (ISCED 5-6) education.	0.30	0.08
Share mining	Share of mining in the regional economy as % of total employment.	0.01	0.01
Corporate tax rate	Statutory corporate tax rate.	0.29	0.06
Own sector employment	Number of employees working in the own sector (in thousands).	136	208
Previous Chinese investments	Number of greenfield investments from mainland China in the period 1997-2002.	0.64	1.58
Previous foreign investments	Number of greenfield investments from the rest of the world in the period 1997-2002.	100	114
Trade with China in 1980	Volume of trade with China in 1980 (in thousands of dollars)	250892	253098

Total number of observations=50,199.

Table 4: Pairwise correlations of the main variables in the analyses (N=50,199).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Ln Greater Chinese migrants	1.00													
(2) Regional Chinese community	0.41	1.00												
(3) Ln GDP	0.60	0.53	1.00											
(4) Ln accessibility by air	0.44	0.32	0.47	1.00										
(5) Ln distance to seaport	-0.10	-0.18	-0.07	-0.06	1.00									
(6) Ln wage costs	0.22	-0.16	0.02	0.05	-0.36	1.00								
(7) Long-term unemployment rate	-0.05	-0.29	-0.31	-0.11	0.18	-0.27	1.00							
(8) University degree rate	0.24	0.23	0.24	0.35	-0.20	0.16	-0.11	1.00						
(9) Share mining	-0.51	-0.24	-0.47	-0.42	0.21	-0.19	-0.13	-0.29	1.00					
(10) Corporate tax rate	0.62	0.13	0.35	0.34	-0.23	0.32	0.16	0.12	-0.38	1.00				
(11) Ln own sector employment	0.19	0.23	0.47	0.19	0.19	-0.23	-0.10	-0.04	-0.10	0.04	1.00			
(12) Ln previous Chinese investments	0.41	0.23	0.19	0.30	-0.27	0.08	-0.20	0.22	-0.24	0.09	0.04	1.00		
(13) Ln previous foreign investments	0.24	0.42	0.52	0.44	0.25	-0.26	-0.20	0.41	-0.20	-0.16	0.36	0.34	1.00	
(14) Ln trade China 1980	0.68	0.27	0.56	0.36	-0.15	0.27	-0.17	0.03	-0.31	0.49	0.18	0.29	0.12	1.00

4.3.1 Demand factors

Because Chinese firms predominantly invest in Europe for market-seeking reasons, we include demand factors related to the regional size of the economy and market accessibility. The regional size of the economy is measured by regional GDP and is obtained from the Cambridge Econometrics database. Regarding accessibility, we include potential accessibility to the population by air from the ESPON research reported in Spiekermann and Wegener (2006). Potential accessibility is based on the assumption that the attraction of a region increases with the size of the area and decreases with the distance to other attractive regions. In addition, we include the distance to the nearest seaport as an indicator of regional market accessibility.

4.3.2 Supply factors

Regarding supply factors, we include measures related to the costs and quality of production factors, including labor, intermediate inputs, and capital. Unit wage costs at the regional level represent the average wage per worker divided by the output per worker, and we obtain information on unit wage costs from the Cambridge Econometrics database. As noted by Head and Mayer (2004), wages do not represent the only labor costs. Hence, we measure the functioning of the labor market by the education level and long-term unemployment in the region based on data from Eurostat and the Labor Force Survey. Education level is measured as the percentage of the workforce with a tertiary degree (ISCED 5-6). Regarding the presence of natural resources, we include the share of mining in the regional economy in the number of employees based on data from the Cambridge Econometrics database. The costs of capital are measured by the corporate tax rate at the national level derived from the EY International Tax database (see Brienen *et al.*, 2010).

4.3.3 External economies

Because Chinese MNEs may be attracted to similar types of agglomerations and industrial clusters as Chinese migrants, we must control for economic concentrations. Such concentrations can be related to the presence of urbanization and localization economies (Head and Mayer, 2004), the functional co-location behavior of MNEs (Jacobs *et al.*, 2014) or the investment behavior of Chinese firms to imitate the location decisions of previous Chinese investors (Cheung and Qian, 2009). Not accounting for these external economies might result in an imprecise correlation between our migrant stock variable and the probability of attracting Chinese greenfield FDI and may thus lead to a biased judgment regarding our main hypotheses. Accordingly, we control for Chinese investors' attraction to regions where many firms in their

own sector are already located, to regions that have previously attracted Chinese and other foreign investors, and to countries that have a long-lasting trade relationship with China. Whereas data on own (broad) sector employment are obtained from the Cambridge Econometrics database, data on previous foreign greenfield investments (1997-2002) in European regions by Chinese and other foreign investors stem from the EY European Investment Monitor.[4] We use national trade in 1980 with China from the World Trade Database (Feenstra *et al.*, 2005) to capture historical trade linkages between China and the European countries in our dataset.

4.4   Estimation strategy

The location choices of firms are generally estimated by using discrete choice models (see Schmidheiny and Brülhart, 2011). In these models, each project's location decision is considered to be the outcome of a discrete choice among available alternatives, in which a utility-maximizing firm is assumed to choose to invest in the location that maximizes the expected returns on investment. In deciding where to invest in Europe, Chinese MNEs are faced with a set of 87 alternative investment locations (i.e., NUTS-1 regions) with specific locational attributes, namely, supply factors, demand factors, and agglomeration externalities. To estimate these location choices, we apply a mixed logit model (Train, 2003). This type of model is particularly appropriate for our analysis because the technique allows regression coefficients to vary over firms, accounting for firms' differential value attributed to particular characteristics in their location choices. Consequently, a mixed logit estimation relaxes the restrictive assumptions regarding the substitution patterns across alternative investment locations that are generally present in other discrete choice models. This problem is better known as the violation of the independence of irrelevant alternatives (IIA), and it is particularly common to location choice datasets with a large number of alternatives. Not accounting for a violation of the IIA assumption can result in inconsistent and biased estimates. A more elaborate discussion of this estimation strategy in the context of location choice models can be found in Basile *et al*. (2008).

5.   Empirical results

5.1   Overseas Chinese migrants

The baseline estimates of the mixed logit regressions are presented in Table 5. To test Hypothesis 1, we find that both the size of the Greater Chinese migrant stock in a country

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[4] Broad sector employment is based on a taxonomy of 12 sectors defined in the Cambridge Econometrics database.

(Columns 1 and 3) and the presence of a local Chinese community in a region (Columns 2 and 3) have a positive and significant effect on the probability of attracting Chinese greenfield investments.[5] Note that the random parts coefficients for the Greater Chinese migrant stock indicate that Chinese MNEs do not uniformly value this aspect when choosing a location for investment (see section 5.3 for a further exploration of this variability). Moreover, the size of the coefficients for the Greater Chinese migrant stock and the regional Greater Chinese community variables is moderate. Specifically, increasing the size of the Greater Chinese migrant stock from the first quartile to the third quartile increases the probability of attracting Chinese greenfield FDI by 0.4 percentage points. Likewise, regions with a large Greater Chinese community have a 0.8 percentage point higher probability of attracting Chinese greenfield FDI than regions without a Greater Chinese community.[6]

5.1.1 Control variables

Two important results concerning the performance of the control variables in Table 5 are highlighted. First, demand factors seem to matter more than supply factors in the location choices of Chinese MNEs in European NUTS-1 regions. In particular, market accessibility and proximity to a seaport have a significant effect on Chinese MNEs' location choices.[7] Second, Chinese MNEs tend to invest in regions where firms in their own sector are already located, regions that have previously attracted other foreign investors, and regions in countries that have a long-lasting trading relationship with China. Accordingly, the presence of external economies can be argued to play a pivotal role in the location choices of Chinese MNEs.

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[5] Our results hold when controlling for formal (quality of governance) and informal (interpersonal trust) institutions. Because of the high correlation and resulting collinearity of these variables with our education level variable, these variables are not included in our main specification. In general, we find that the effects of formal and informal institutions on the probability of receiving Chinese FDI are insignificant and do not affect the associations between the Chinese migrant variables and the probability of receiving Chinese FDI.

[6] These figures are based on estimated marginal effects derived from Model 3.

[7] Furthermore, the positive and significant effect of average wage costs in Columns 1 to 3 and the nonsignificant coefficients for the long-term unemployment rate and the share of the population with a university degree indicate that most Chinese greenfield FDI is market seeking, not efficiency seeking.

Table 5: Mixed logit estimates for the location choices of Chinese firms in Europe.

	(1)	(2)	(3)
Ln Greater Chinese migrants	0.31**		0.20*
	(0.09)		(0.08)
Regional Chinese community		0.78**	0.58**
		(0.16)	(0.17)
Demand Factors			
Ln GDP	0.03	0.05	0.14
	(0.13)	(0.13)	(0.13)
Ln accessibility by air	2.67**	1.88 **	1.88**
	(0.34)	(0.29)	(0.32)
Ln distance to seaport	-0.10*	-0.12**	-0.11*
	(0.05)	(0.05)	(0.05)
Supply Factors			
Ln wage costs	0.26*	0.33**	0.34**
	(0.11)	(0.11)	(0.10)
Long-term unemployment rate	1.71	4.40	2.89
	(3.38)	(4.08)	(3.59)
University degree rate	-0.90	-0.51	-0.67
	(0.80)	(0.78)	(0.77)
Share mining	14.51	13.50	16.40*
	(11.40)	(8.42)	(7.81)
Corporate tax rate	-5.23**	-5.90 **	-5.60**
	(1.81)	(1.98)	(1.63)
External Economies			
Ln own sector employment	0.67**	0.57**	0.61**
	(0.09)	(0.08)	(0.09)
Ln previous Chinese investments	-0.07	0.08	0.03
	(0.08)	(0.13)	(0.10)
Ln previous foreign investments	0.35**	0.24*	0.27**
	(0.08)	(0.09)	(0.09)
Ln trade China 1980	0.27**	0.38**	0.28**
	(0.08)	(0.12)	(0.07)
Random Parts Coefficients			
Ln Greater Chinese migrants	0.36**		0.27**
	(0.05)		(0.05)
Ln GDP			0.50**
			(0.17)
Ln accessibility by air	2.10**	1.88**	1.93**
	(0.51)	(0.32)	(0.45)
Ln wage costs	0.25*		
	(0.11)		
University degree rate		1.79**	
		(0.55)	
Ln previous foreign investments		0.10*	
		(0.05)	
Ln trade China 1980	0.07**	0.19*	
	(0.02)	(0.08)	
Number of observations	50,199	50,199	50,199
Number of investment decisions	577	577	577

Robust standard errors in parentheses. Error terms are clustered by parent firm. Only significant random components of the coefficients are reported. **p<0.01; *p<0.05.

5.1.2   Alternative definitions of Chinese migrants and cosmopolitanism

Table 6 presents the results of reestimating our preferred specification shown in Column 3 of Table 5 by using alternative specifications for the size of the Chinese migrant stock—namely, mainland Chinese (Column 1), nonmainland Chinese (migrants from Taiwan, Hong Kong, and Macao in Column 2), and ethnic Chinese (Column 3). Whereas the size of the mainland and nonmainland China migrant stock is positively associated with the probability of attracting Chinese greenfield FDI, there is no effect for the size of ethnic Chinese migrants. This result seems to support our choice to use the Greater Chinese migrant stock as the main variable of interest and underlines the likely limited contact between ethnic Chinese and the mainland Chinese corporate world.

Table 6: Location choices of Chinese firms in Europe – alternative Chinese migrant definitions.

	(1) Mainland Chinese	(2) Non-mainland Chinese	(3) Ethnic Chinese	(4) Greater Chinese and cosmopolitanism
Ln Greater Chinese migrants	0.22*	0.08**	0.08	0.28**
	(0.10)	(0.03)	(0.08)	(0.07)
Regional Chinese community	0.59**	0.64**	0.80**	0.65**
	(0.17)	(0.15)	(0.17)	(0.08
% Population with foreign-born father				1.35#
				(0.71)
Control variables	YES	YES	YES	YES
Random parts coefficients	YES	YES	YES	YES
Number of observations	50,199	50,199	50,199	49,622
Number of investment decisions	577	577	577	577

Robust standard errors in parentheses. Error terms are clustered by parent firm; **p<0.01; *p<0.05, #p<0.1. In specification (4), no information on Malta was available.

In addition, it can be argued that our results might be driven by cosmopolitanism in the sense that Chinese greenfield investments are not attracted by the mere presence of Chinese migrants but by a cosmopolitan and multicultural environment (see Goerzen *et al*., 2013). When we include the percentage of the population with a foreign-born father to capture the degree of cosmopolitanism in our baseline regression, we find a positive, but weakly significant effect of the degree of cosmopolitanism on the probability of receiving Chinese greenfield FDI in a region (Table 6, Column, 4).[8] At the same time, the effects of both the size of the Greater Chinese migrant stock in a country and the regional presence of a Chinese community on the probability of receiving Chinese greenfield FDI hardly change (c.f. Table 5, Column 3).

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[8] We did not include this variable in our baseline specification, because inclusion of this variable in the baseline regression results in both multicollinearity problems and a considerable loss of observations.

5.1.3   Endogeneity

Although we control for alternative economic concentrations, the presence of a Chinese MNE might also increase the Chinese migrant stock. To address this potential simultaneity bias, we isolate the effect that runs from the Greater Chinese migrant stock to Chinese greenfield investments by using an instrumental variable two-stage least squares (IV 2SLS) estimation in which the dependent variable is the natural logarithm of the number of greenfield investments in a region in a particular year.[9] This estimation strategy requires the inclusion of variables that only affect the number of Chinese greenfield investments through their effect on the Greater Chinese migrant stock and the presence of a large Chinese community in a region.

Three historical variables are used as instruments. First, we use the size of the Greater Chinese migrant stock in 1970 divided by the size of the Greater Chinese migrant stock in 2000 *(SHARE)*, and we obtain data from the study of Özden *et al*. (2011) for this variable. Second, we use the size of the ethnic Chinese population in a country in 1955 *(SIZE)*. The data for this variable come from a study by Poston and Yu (1990), who broadly define overseas Chinese as all Chinese living outside mainland China and Taiwan, including *huaqiao* (Chinese citizens living abroad), *huaren* (naturalized citizens of Chinese descent), and *huayi* (descendants of Chinese parents; Poston *et al*., 1994). Third, we use the historical presence of a Chinese community in a region *(COMMUNITY)*. As indicated by Pieke and Speelman (2013), Chinese communities in Europe in the early 1900s consisted of primarily sailors from Canton and communities of traders from the Southern Zhejiang area, mainly Wenzhou and Qingtian. Christiansen (2005) and Pieke and Speelman (2013) note the settlement of Cantonese seamen in the Northwestern European port cities of Cardiff, London, Liverpool, Rotterdam, Amsterdam, Antwerp, and Hamburg. Moreover, Skeldon (1996) reports that Paris, Milan, Berlin, Hamburg, Amsterdam, Rotterdam, and Marseilles were the main communities of small traders from the Southern Zhejiang area. Accordingly, we measure the presence of a historical Chinese community in a region by using a dummy variable that takes the value 1 if the NUTS-1 region contains one of the abovementioned cities.

Table 7 presents the results of the OLS and IV 2SLS regressions in which we instrument the size of the Chinese migrant stock and the Chinese community dummy separately (Columns 2 and 3, respectively) and simultaneously (Column 4).[10] On the basis of the Kleibergen-Paap

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[9] We transform the logarithm of the dependent variable by using an inverse hyperbolic sine transformation to address region-years in which no investments were made.

[10] Note that the own sector employment variable had to be omitted because our observations are region-years, not region-years by sector.

LM statistic and Kleibergen-Paap F-statistic, we conclude that our instruments are relevant. Furthermore, the Hansen-J test indicates that our instruments are valid. Finally, by comparing the 2SLS estimates with the OLS estimates, the Wu-Hausman F-test and Durbin-Wu-Hausman Chi-Square test assess the null hypothesis that the instrumented variables are exogenous. From these tests, we can conclude that both the size of the Greater Chinese migrant stock and the regional Chinese community dummy can be treated as exogenous.[11] Hence, even after we have checked for the robustness of our main variable of interest and controlled for endogeneity, our results are consistent with Hypothesis 1, corroborating the initial findings from the previous regional study by Brienen *et al.* (2010) and the more general findings of Tong (2005) and Buckley *et al.* (2007).

Table 7: OLS and IV 2SLS on the number of Chinese greenfield investments in Europe.

	(1) OLS	(2) 2SLS	(3) 2SLS	(4) 2SLS
Instruments used		*SIZE SHARE^*	*SHARE COMMUNITY*	*SIZE SHARE COMMUNITY*
Ln Greater Chinese migrants	-0.05*	0.00		-0.05
	(0.02)	(0.02)		(0.03)
Regional Chinese community	0.55**		0.77**	0.98**
	(0.14)		(0.23)	(0.29)
Kleibergen-Paap LM statistic		202.61**	52.09**	51.00**
Kleibergen-Paap F statistic		313.69	39.12	21.82
CD (10% relative bias)		19.93	19.93	13.43
Hansen-J statistic (p-value)		0.07	0.18	0.26
Wu-Hausman F-test (p-value)		0.42	0.12	0.22
Durbin-Wu-Hausman Chi-square test (p-value)		0.41	0.12	0.22
Control variables	YES	YES	YES	YES
Time dummies	YES	YES	YES	YES
Number of observations	696	696	696	696
(Centered) R-squared	0.33	0.27	0.28	0.29

Robust standard errors in parentheses; **p<0.01; *p<0.05. ^Re-estimated by the size of the Chinese migrant stock in 1960 divided by the size of the Chinese migrant stock in 2000 due to the invalidity of the instrument.

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[11] An apparently obvious instrument to use is a historical variable for China-related trade. However, historical trade can also be directly related to present day FDI, because firms may change their mode of governance to enter a foreign market. Where Chinese firms may have initially exported their goods to Europe, they can subsequently set up a subsidiary abroad to coordinate their sales activities. In this regard, trade might be a prelude to FDI. Consequently, trade affects greenfield FDI through channels other than through their effect on the Chinese migrant stock, resulting in invalidity of the instruments. In addition, historical trade is a relatively weak instrument, as evidenced by the low correlation with the Chinese community dummy and low Kleibergen-Paap F statistic. Although the Hansen J-test is not significant, weakening the conceptual argument for non-inclusion, our results do not change when we include China-related trade in 1980 as an instrument in the IV 2SLS estimations.

5.2 Longevity and education level of overseas Chinese

We test Hypothesis 2, which concerns the effect of longevity, that is, the time that a Chinese community has historically been present in a region, on the probability of attracting Chinese greenfield investments in Table 8. Longevity is defined by the age of the Chinese community measured as the size of the Greater Chinese migrant stock in 1970 divided by the size of the Greater Chinese migrant stock in 2000, and the data for this variable are obtained from Özden *et al*. (2011). The results show a nonsignificant main effect of longevity in Column 1. Notably, the interaction effect between Greater Chinese migrant stock and longevity in Column 2 and between the presence of a Chinese community and longevity in Column 3 are both negative and significant. This finding indicates that a younger Greater Chinese migrant stock increases the effects of the size of the migrant stock and the regional presence of a Chinese community on the likelihood of attracting Chinese greenfield investments. We obtain similar results when we redefine the Chinese community dummy in Column 4, distinguishing between established Chinese communities that are characterized by the historical presence of a Chinese community and new Chinese communities, as previously defined in paragraph 4.2. These findings indicate that Chinese firms that are part of the recent wave of investments primarily reach out to overseas communities that host newer generations of Chinese migrants. This result is in line with Hypothesis 2.

Table 8: Location choices of Chinese firms in Europe – longevity.

	(1)	(2)	(3)	(4)
Ln Greater Chinese migrants	0.24**	0.37**	0.45**	0.21*
	(0.08)	(0.09)	(0.10)	(0.09)
Regional Chinese community	0.71**	0.79**	0.31	
	(0.16)	(0.17)	(0.18)	
Longevity Chinese community	-0.11	-0.60	0.22	-0.01
	(0.45)	(0.38)	(0.45)	(0.52)
Ln Greater Chinese migrants* Longevity		-1.78**		
		(0.45)		
Regional Chinese community * Longevity			-6.94**	
			(1.36)	
Established Chinese community				0.17
				(0.22)
New Chinese community				0.74**
				(0.18)
Control variables	YES	YES	YES	YES
Random parts coefficients	YES	YES	YES	YES
Number of observations	50,199	50,199	50,199	50,199
Number of investment decisions	577	577	577	577

Robust standard errors in parentheses. Error terms are clustered by parent firm; **p<0.01; *p<0.05.

We assess the extent to which the associations between the size of the Chinese migrant community and Chinese greenfield investments depends on the age and education level of the Chinese migrant community in Table 9. Education level is obtained from the Database on Immigrants in OECD countries (OECD, 2008) and is measured as the share of the Chinese migrant stock that has a tertiary (ISCED 5-6) education. The significant interaction effect shown in Column 2 is in line with our expectation stated in Hypothesis 3 that the relationship between the size of the Chinese migrant stock and the probability of Chinese investments is stronger when the education level of Chinese migrants in the overseas community is higher. However, the interaction term in Column 3 is negative and significant, indicating that the relationship between the presence of a large regional Chinese community and the probability of Chinese investments is weaker when the education level of Chinese migrants in the country is higher.

Table 9: Location choices of Chinese firms in Europe – education level.

	(1)	(2)	(3)	(4)
Ln Greater Chinese migrants	0.21**	0.13	0.30**	0.38**
	(0.08)	(0.08)	(0.08)	(0.08)
Regional Chinese community	0.71**	0.64**	0.78**	-0.36*
	(0.16)	(0.18)	(0.19)	(0.16)
Education level Greater Chinese migrants	0.85	0.80**	3.29**	-0.31
	(0.73)	(0.81)	(0.96)	(0.81)
Ln Gr. Chinese migrants * Education level		0.69#		
		(0.36)		
Regional Chinese community * Education level			-4.84**	0.13
			(0.95)	(1.03)
Control variables	YES	YES	YES	YES
Random parts coefficients	YES	YES	YES	YES
Number of observations	50,199	50,199	50,199	50,199
Number of investment decisions	577	577	577	577

Robust standard errors in parentheses. Error terms are clustered by parent firm **$p<0.01$; *$p<0.05$; #$p<0.1$.

A detailed examination of this discrepancy reveals that the interaction effect in Column 3 is driven primarily by the Chinese community in Nordrhein-Westfalen (i.e., the Düsseldorf area). Because Nordrhein-Westfalen receives the most Chinese FDI by a wide margin and because the average education level of Chinese migrants is much lower in Germany than in other Western countries with a large Chinese migrant stock, such as France, the Netherlands, and the United Kingdom, this region behaves as an outlier. In Column 4, we present the results of an outlier analysis, in which we now consider Nordrhein-Westfalen as not having a regional Chinese community. In this specification, the moderating effect of the education level of Chinese migrants is positive but nonsignificant. Unfortunately, we cannot examine the likely

differences in the average education level between Chinese communities within the same country because we do not have regional data. Hence, our results corroborate Hypothesis 3 only partially.

5.3 Sectoral and functional heterogeneity

The effect of Chinese migrant networks for Chinese greenfield FDI inflows is expected to differ between sectors and between functions. Table 10 shows that the overseas Chinese migrant stock has a positive and significant effect on the probability of investments in services but no effect on the probability of investments in manufacturing. For the regional Chinese community dummy, the coefficient is positive and significant for both manufacturing and services, although the effect of the regional presence of a large Chinese community on the probability of attracting greenfield FDI is much stronger for services activities than for manufacturing activities. These findings largely support Hypothesis 4 and suggest that overseas Chinese function as a source of local knowledge and information that facilitates Chinese firms in becoming more locally responsive.

Table 10: Location choices of Chinese firms in Europe – sectoral and functional heterogeneity.

	(1) Manufacturing	(2) Services	(3) Production Plants	(4) Upstream and Downstream
Ln Greater Chinese migrants	0.19	0.31**	-0.04	0.27**
	(0.11)	(0.12)	(0.12)	(0.10)
Regional Chinese community	0.55*	0.88**	-0.15	0.73**
	(0.25)	(0.30)	(0.51)	(0.18)
Control variables	YES	YES	YES	YES
Random parts coefficients	YES	YES	YES	YES
Number of observations	32,277	17,922	7,047	43,152
Number of investment decisions	371	206	81	496

Robust standard errors in parentheses. Error terms are clustered by parent firm **$p<0.01$; *$p<0.05$.

Turning to the activities of Chinese multinationals, we find that the size of the overseas Chinese migrant stock and the presence of a large regional Chinese community have no effect on the probability of greenfield FDI in production plants but a positive and significant effect on the probability of greenfield FDI in both upstream and downstream activities. These results highlight the expected relative importance of overseas Chinese communities in the decision of Chinese firms to invest in information and knowledge-intensive sectors and functions, as stated in Hypothesis 5.

6.   Conclusions

Although Chinese MNEs are expanding internationally at an accelerating pace, their limited knowledge of foreign markets and lack of international investment experience severely complicate their FDI strategies. In particular, the decision of *where* to invest is among the most prominent strategic challenges that Chinese MNEs currently face. In this study, we present evidence on how ethnic relational complexes in the form of overseas Chinese communities affect the location choices of Chinese MNEs across European regions. In particular, we empirically analyze how overseas Chinese communities alleviate impediments to investment in unfamiliar host markets by focusing on three mutually dependent sources of heterogeneity. First, we examine the heterogeneity of overseas Chinese communities, because the role of overseas communities in attracting FDI has not been adequately and fully addressed in the literature. Second, we address the moderating role of sectoral and functional heterogeneity in the type of Chinese investments made. Finally, we control for and provide an additional understanding of the role of place-specific economic characteristics that create opportunities to reduce costs and risks and that thus co-determine the investment decisions of Chinese MNEs. Overall, our study adds important knowledge to the generally argued thesis that ethnic networks facilitate Chinese outward FDI.

Our main results reveal a positive and significant relationship between the size of the Chinese migrant stock in European regions and the probability of Chinese investments, even when controlling for economic embeddedness and reverse causality using a two-stage least squares (IV 2SLS) estimation. Although inferred indirectly, access to information seems to be the most important mechanism underlying this relationship (c.f. Liu *et al*., 2015), and Chinese overseas communities thus function as localized sources of social and human capital (Redding, 1995; Erdener and Shapiro, 2005). Because Chinese MNEs predominantly invest in Europe for market-seeking reasons, overseas Chinese communities help to mitigate the operational complexities with which Chinese firms are confronted in unexplored foreign markets. Moreover, because these impediments to investment have explicit future performance implications for distant affiliates, the presence of overseas Chinese communities affects the *ex-ante* foreign location choices of Chinese MNEs.

Regarding the characteristics of overseas Chinese communities, our study provides two additional findings. First, although older Chinese communities are likely to be more embedded in the host country environment, our results underline that more Chinese investments are directed to regions with relatively new Chinese migrants and next-generation communities.

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Older communities are generally focused on Chinese family businesses and are less connected to Chinese MNEs. By contrast, newer overseas communities are focused on matching state-of-the-art Chinese to Western business models while remaining strongly linked to the home country. Consequently, regions that host newer Chinese communities are more easily accessible for Chinese firms and are consequently more likely to attract investments. Second, our results partially confirm that the relationship between the size of the Chinese migrant stock and the probability of Chinese investments is stronger when the education level of the Chinese migrants in the community is higher. This result suggests that merely having a Chinese community is insufficient for attracting more Chinese FDI in European regions; rather, the community should contain the appropriate human capital and facilitate the management and matching of local labor.

Finally, in terms of sectoral and functional heterogeneity, there are demand-driven explanations for regional attractiveness: Chinese firms particularly prefer to locate their information and knowledge-intensive sectors and functions in regions with large Chinese communities. Our results show that the relationship between the size of the Chinese migrant stock in a region and the probability of Chinese investment is relatively stronger for the commercial services sector than for other sectors. Similarly, Chinese MNEs prefer regions with large Chinese migrant communities for investments involving upstream and downstream functions. Therefore, in line with our previous arguments, these explicit location preferences highlight the importance of accessing local information in the location choices of Chinese MNEs.

In light of the increasing globalization of business and immigration flows, studying overseas migrant communities and ethnically diverse diasporas becomes particularly relevant for attracting FDI and consequently fostering potential economic growth (c.f. Tubadji and Nijkamp, 2015). In this context, Milleli *et al.* (2010) convincingly suggest that Chinese outward FDI promotes medium- and high-skilled employment growth in the host country. Hence, our research has important implications for governments and policy makers, who can formulate policies to enhance international cooperation between ethnic minorities and their overseas counterparts for particular ethnic groups (see Tong, 2005). It is important to know that not all overseas migrant communities are equally able to attract FDI and foster economic growth. Although market-seeking motives and agglomeration externalities are driving FDI investments across Europe, not all foreign investors' sectors and functions seamlessly fit into every agglomerated regional economy with large market potential (Burger *et al.*, 2013). However, for

the particular case of Chinese communities, we know that creating favorable circumstances in line with the preferences of Chinese firms may promote not only even more Chinese investment but also indigenous host-country economic development: FDI is circularly facilitated by overseas communities and diasporas whereas local information- and knowledge-intensive business activities co-evolve with MNE developments (see Jacobs *et al.*, 2014). The living, working, and community conditions of foreign managers, business professionals, and knowledge workers thus potentially forms a policy instrument that enables local policymakers to promote place-based economic development, although local development and globalization, are increasingly played out in a matrix of transnational links.

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Appendix A: Taxonomy of investments by sector.

Category	Sectors
Natural Resources & Energy	Alternative/Renewable Energy
	Chemicals
	Coal, Oil & Natural Gas
	Minerals
Low-Tech Manufacturing	Beverages
	Ceramics & Glass
	Consumer Products
	Food & Tobacco
	Metals
	Paper, Printing & Packaging
	Plastics
	Rubber
	Textiles
	Wood Products
Medium-Tech Manufacturing	Automotive Components
	Automotive OEM
	Building & Construction Materials
	Engines & Turbines
	Industrial Machinery
	Non-Automotive Transport OEM
High-Tech Manufacturing	Aerospace
	Biotechnology
	Business Machines & Equipment
	Consumer Electronics
	Electronics Components
	Medical Devices
	Pharmaceuticals
	Semiconductors
Transport Services	Transportation
	Warehousing & Storage
Software & ICT	Communications
	Software & IT Services
	Space & Defense
Financial Services	Financial Services
Commercial & Other Services	Business Services
	Real Estate
	Healthcare
	Hotels & Tourism
	Leisure & Entertainment

Appendix B: Taxonomy of investments by function.

Category	Functions
Headquarters	Headquarters
Research & Development	Design, Development, & Testing
	Education & Training
	Research & Development
Sales & Marketing	Business Services
	Sales, Marketing, & Support
Production	Electricity
	Manufacturing
	Recycling
Support & Servicing	Customer Contact Centers
	Maintenance
	Shared Service Centers
	Technical Support Centers
Logistics	ICT & Internet Infrastructure
	Logistics