Why investing in Africa? The differential role of Chinese government support

Why investing in Africa?
The differential role of Chinese government support

Luigi Benfratello *[1], Anna D'Ambrosio†[1], and Alida Sangrigoli‡[1]

[1]Politecnico di Torino, Italy

Abstract

We study whether the determinants of greenfield FDI in Africa differ between Chinese and non-Chinese investors. By using investment-level data we focus on the differential effect of risk- and information-related factors, i.e., investment protection provided by International Investment Agreements (IIAs) and agglomeration economies (*country-of-origin agglomeration*, *industry agglomeration*, and *internal agglomeration*) both at an aggregate level and for different functions. Chinese investors appear to be less reliant on internal and country-of-origin agglomeration and on investment protection agreements than non-Chinese ones. This result appears to be mostly driven by investments in Services and Manufacturing activities. We argue that Chinese investors are backed by the direct engagement of their State when locating in Africa so that firm co-location and IIA protection are less salient in affecting their location choices.

Keywords: Foreign Direct Investments, China, Africa, Co-location, International Investment Agreements.

*Corresponding author. E-mail: luigi.benfratello@polito.it

†E-mail: anna.dambrosio@polito.it

‡E-mail: alida.sangrigoli@polito.it

1 Introduction and Background

Chinese outward investments have dramatically increased in the last decades. Since the introduction of Deng Xiaoping's "Go Global Policy" in 1999, Chinese outward foreign direct investments (FDI, henceforth) stock grew by almost 70 times, moving from less than 27 to almost 2,000 billion USD, recording an average annual increase of 26% (UNCTAD, 2018). The announcement of the creation of a new Silk Road in 2013, referred to as the Belt and Road Initiative (BRI, henceforth), showed clearly the will of the new Xi Jinping administration to make Chinese foreign investment policy more audacious.

Chinese outward FDI also turn to the African continent. Although South-East Asia attracts the majority of Chinese investments, both Chinese outward flows and stocks in Africa have radically increased since the early 2000s, and at a faster rate compared to other destinations. China's increasing presence in Africa has been largely discussed by political and economic scientists in recent years. Chinese investment may represent a development opportunity for Africa, which, despite substantial improvements, still attracts less than 3% of global flows (UNCTAD, 2018). Foreign capital may bring new jobs and growth and raise productivity through technology spillovers in a region suffering from low levels of domestic entrepreneurship and capital accumulation. Notwithstanding these potential benefits, part of the international public opinion, especially in Western countries, fears that China could put into place a new form of colonialism in Africa, perpetuating the "resource curse" that has been afflicting several African economies. In this sense, although Chinese interests in Africa go beyond the mere exploitation of natural resources, China's preference for resource rich countries has raised concerns on the underlying motivations (Taylor, 2006; Tull, 2006). Therefore, understanding the determinants of Chinese investment in Africa is critical to analyse the development prospects of the continent.

Studying the determinants of Chinese OFDI into Africa is also instructive from a theoretical point of view. In the last decades, indeed, scholars have been confronted with the application of the general theory of FDI—elaborated for advanced countries—to the analysis of the internationalisation patterns of Emerging countries Multinationals (EMNEs,

henceforth) and Chinese MNEs in particular (Buckley et al., 2007). Institutional factors and notably the high levels of government support (see Gaur et al., 2018, for a list of the different forms of support) might lead Chinese firms to invest in countries or industries that are not predicted by standard theories. Government support has been argued to moderate the effects of information uncertainty and risk that firms can face (Luo et al., 2010), reducing the role of prior international experience of Chinese firms investing abroad, especially in developing countries (Lu et al., 2014). The Chinese State capitalism is also characterized by widespread State ownership of firms (Cui and Jiang, 2012; Buckley et al., 2018, among others). Previous studies highlighted that State Owned Enterprises (SOEs, henceforth) pursue different objectives than private ones when investing abroad, being less risk averse and targeting more natural resource abundant countries (Ramasamy et al., 2012; Amighini et al., 2013).

Furthermore, Chinese presence in Africa takes place in multiple forms. China is among the main trade partners for several African countries and a major source of aid and project financing. China's export to Africa is predominantly made of low-cost manufacturing products, while Africa mainly exports natural resources and primary commodities to China. Aid is often used to foster economic and political relationships with destination countries in which China has invested or planned to invest, as also shown by the similar distribution patterns of Chinese aid and FDI (Biggeri and Sanfilippo, 2009).

Keeping the multiple and interacting forms of Chinese engagement in Africa in mind, we focus on Chinese OFDI into Africa to understand what are the main drivers behind Sino-African investments and how location factors identified in the relevant literature differently attract Chinese and non-Chinese FDI to Africa. The scarce evidence on the determinants of FDI in Africa suggests that some of the standard location factors do not apply to African countries, whereas some others assume central importance. While it seems now quite clear that "Africa is different" as an FDI destination (Asiedu, 2002), this paper aims at understanding if "China is different" compared to other investors locating in Africa.

Alongside the standard FDI determinants identified in the literature, we focus on a set of less widely studied location factors which are likely to play a differential role in the location decision of Chinese MNEs compared to investors from other countries. We argue for a differential effect of International Investment Agreements, mostly aimed to protect

investors from risks of expropriation by the host country, and of agglomeration economies originating from different forms of co-location between the new investment and those previously located in the same host country. Specifically, we study the role of the co-location of the new investment with prior investments originating from the same country, (*country-of-origin agglomeration*) or operating in the same industry (*industry agglomeration*). We also consider *internal agglomeration*, i.e. the co-location of the new investment with previously established ventures of the same firm. These four variables proxy for the reduction of the addional risk and of the information asymmetries implied by investing in a foreign environment and have been found to exert an important role in location decisions. We argue that the various forms of government support to Chinese investors reduce the importance of these variables in affecting the location decision of Chinese MNEs compared to those originating from other countries. Furthermore, the availability of detailed investment-level data allows us to study the differential effect of these location determinants for specific functions (e.g., Manufacturing, Marketing, R&D) performed by the new investment.

To our knowledge, this is the first study to comprehensively address the differential impact of these risk- and information-related location determinants between Chinese and other origin country investments. We study the location choices of $9,152$ greenfield FDI locating into 43 African countries from 93 origin countries worldwide over the 2004-2017 period. Of these, 361 are Chinese and 8,791 are non-Chinese investments. Among Chinese investments, 231 out of 361 are from state-controlled firms. In a context marked by serious issues of data quality and completeness, we build a remarkably rich dataset that covers a wide number of investments, has specific information about the functions and includes a comprehensive range of possible determinants. We believe that all these features make this paper a valuable contribution to the existing literature. Previous studies, indeed, analysed the role of Chinese government's support in reducing Chinese investors' specific risk aversion and information asymmetries by only using subsets of these variables, and employed aggregate data that did not stratify for the different functions performed abroad.

Our results highlight indeed some differences in the location determinants of Chinese and non-Chinese investments, which are highly sensitive to the kind of investment activity that is considered. When studying all investments jointly, Chinese investors appear to be more market-oriented than other investors. More importantly for the purpose of this paper,

Chinese investors are found to rely significantly less on agglomeration economies deriving from co-location and on the investors' protection provided by Investment Agreements. Quite interestingly, these results emerge whether we use the full set of Chinese firms or the restricted set of state-controlled firms. This suggests that the influence of Chinese government on firm location decisions is multifaceted and goes beyond the mere ownership of the firms. When disaggregating by the function of the foreign venture, results appear to be driven by the Services and Manufacturing activities, whereas no significant differences with respect to other origin countries emerges for Chinese investments in Resource-related activities.

The paper is structured as follows. The next section provides an overview of the main theories behind the phenomenon of FDI, reports the main findings of the literature on FDI determinants focusing on Africa as a destination and on China as an investor, and describes the ensuing hypotheses. Section 3 illustrates the empirical model, the dataset used for the analysis as well as some descriptive statistics including the different composition of Chinese and non-Chinese FDI in terms of function. Section 4 shows the main results of the analysis and section 5 presents some concluding remarks. A Data Appendix concludes the paper by providing detailed information on variables definition and reports the results of some robustness checks.

2 Theoretical framework

2.1 Theories of FDI

A number of theories have flourished across disciplines to explain the phenomenon of FDI.[1] Economists of the New Trade Theory (Krugman, 1979) have identified FDI as a strategy to reduce the costs related to trade activities, such as transportation costs and tariffs. More recent contributions have highlighted the role of agglomeration economies and quality of host country institutions as additional factors reducing the cost of investing abroad (Head et al., 1995).

In a parallel strand of the literature, International Business (IB, henceforth) scholars have traditionally focused on the factors that may constrain MNEs internationalization,

[1] For a detailed review of theories and findings on the drivers behind FDI see Nielsen et al. (2017).

coining the expression “liability of foreignness” (LOF, henceforth) to refer to the greater costs of doing business in a foreign country compared to domestic competitors (Hymer, 1976; Zaheer, 1995; Nachum, 2003), and on firms characteristics and processes needed to overcome it. In that framework, FDI will occur if the MNE’s competitive advantage over domestic competitors is deemed to be compensating for the LOF. Furthermore, according to the Transaction cost and Internalization theories (Buckley and Casson, 1976; Rugman, 1981; Hennart, 1982), FDI will take place if the market imperfections deriving from bounded rationality and opportunistic behaviour involve information, enforcement and bargaining costs that are high enough to make it advantageous to set up a foreign subsidiary, instead of resorting to market transactions to internationalize.

Dunning’s eclectic OLI paradigm (Dunning, 1979) encompasses both economics and IB perspectives by identifying three sets of advantages of FDI at the firm-, industry- and country-level. Ownership advantages refer to a firm’s tangible and intangible assets to be exploited internationally; Location advantages relate to host country characteristics allowing the firm to exploit its Ownership advantages; and Internalization advantages make it more profitable to conduct FDI rather than to outsource internationalization activities to external firms in foreign markets.

While this theoretical framework was originally devised to explain FDI from advanced countries MNEs, scholars in the last two decades have dedicated to develop new theories (Mathews, 2002) or to adapt the general one to take into account the specificities of MNEs from emerging countries. As for China, the focus of our paper, Buckley et al. (2007) seminal contribution identified three special factors to be integrated in the general theory to explain OFDI from China.

The first integration refers to the distortions that some Chinese specificities such as state-control and inefficient banking systems may bring to capital markets. Capital at below market rates, indeed, may be available to state-owned or state-controlled firms, increasing their ownership advantages to invest abroad. Similarly, government control over the banking system grants softer budget constraints to Chinese MNEs, making the exit of inefficient firms less likely as well as increasing the advantages and opportunities to invest abroad, in the framework of the abovementioned “Go Global policy".

The second peculiarity of Chinese OFDI refers to specific ownership advantages of

Chinese MNEs. These derive from factors such as their greater flexibility, also connected to the issues highlighted in the previous point, their familiarity with emerging market contexts and their greater ability to engage in relationships and create networks within host countries. According to Cuervo-Cazurra (2012), managers of EMNEs, including Chinese ones, may be less risk averse than those from advanced countries, since they are more used to higher levels of uncertainty, and this can also lead them to enter foreign markets directly with high commitment modes, as it seems to be the case for Chinese investors in Africa. Furthermore, EMNEs are more tolerant towards higher transaction costs since they are generally more used to deal with higher levels of transaction costs in their home countries and because they have lower trust towards market mechanisms.

Finally, the third integration points at the central role of home institutions and state affiliation in shaping MNEs internationalization strategies. As Buckley et al. (2007) illustrate, Chinese OFDI policy has gone through different stages over the years, from the cautious internationalization of the "open door" strategy in the 1980s to the active involvement of Chinese government in supporting and incentivizing OFDI in specific industries with the 2000s "Go Global policy". Different institutional attitudes towards OFDI are likely to deeply affect Chinese internationalization choices. Government support to Chinese OFDI, taking place by means of several measures, including capital market and banking, effectively helps overcome the LOF and incentivizes Chinese firms to expand abroad. In particular, the Chinese government actively promotes the internationalization of MNEs in strategic industries for Chinese development, such as those related to natural resources, communications and technology (for a detailed analysis of the pillars and strategic industries in China, see Davies, 2013 and Barbieri et al., 2019). On the other hand, Gaur et al. (2018) highlight how firms from emerging countries operating in industries without a favorable environment at home may escape their home markets by pursuing international opportunities. While home-country push factors concern the activities of MNEs from all investing countries and have long been analyzed in relation to FDI from advanced economies, the prevalence of government affiliation among EMNEs and particularly Chinese ones makes institutions from these countries especially able to influence both the willingness and the ability of their firms to internationalize (Wang et al., 2012).

While offering precious tools to understand and contextualize the idiosyncrasies of Chi-

nese FDI, this theoretical framework does not shed light on the distinctive behavior that MNEs from China may have when conducting their business in African countries, which, in turn, present some peculiarities that make them considerably different from other FDI destinations. Furthermore, Chinese and EMNEs FDI are most often considered as being the same thing, while there is evidence that Chinese firms' behavior differs from that of other EMNEs as well as of advanced countries' firms (Makino et al., 2002).

In this paper, we endeavour to shed light on the distinctive motivations behind Chinese FDI in Africa, comparing them to FDI from both advanced and other emerging countries. After analyzing in this section the main theories behind the decision of whether or not to undertake FDI, in the following section we report the main empirical findings of the literature with respect to the location choices of MNEs, and especially Chinese MNEs, in Africa. Based on this evidence, we formulate the hypotheses that will guide our analysis.

2.2 Hypotheses development

Firms tend to choose FDI locations that maximise the expected profits related to their operations (Buckley and Casson, 1976). Large market size, positive economic performance, natural resource endowments, on the one side, low cost and high quality of labour, efficient infrastructure and good regulatory business framework, on the other, are identified in literature as the main host country characteristics attracting FDI to developing countries, often referred to as "pull-factors", the first ones maximizing the revenues while the second ones minimizing the costs associated with the investment. As for evidence for developing countries, Asiedu (2002) finds that the degree of openness to international trade, infrastructure development and return to investment significantly increase FDI, while Kok and Acikgoz Ersoy (2009) identify business environment and communication infrastructure as the most affecting factors. Kinda (2010) shows that poor physical infrastructure and institutions as well as financing constraints hinder FDI, and Nunnenkamp and Spatz (2002), among others, highlight the central role of market-size and other market-related variables. There is also solid evidence that higher levels of human capital are positively associated with FDI flows in developing countries (Miyamoto, 2003; Noorbakhsh et al., 2001).

When it comes to Africa, the literature on FDI determinants is more scant and brings to light some specificities. Given the overall large natural resource endowments of African

countries, especially rich in oil, copper, gas and other mineral deposits as well as agricultural land, empirical evidence shows that the availability of these resources strongly affects the choice of locating in Africa (Asiedu, 2006; Ndikumana and Verick, 2008; Rodriguez-Pose and Cols, 2017, among many others). Several studies, though, point out that natural resources alone are not enough to attract foreign investments in a highly competitive global market, and that other factors explain the relative success in attracting FDI of some among both resource-rich and non-resource rich African economies. In particular, sizeable and growing local markets with expanding middle and upper classes are commonly identified as the greatest strength of large countries such as South Africa, Nigeria, Ethiopia, Kenya and Tanzania (Morisset, 2000; Asiedu, 2006; Lederman et al., 2010). Other studies point at regional economic integration as an effective way to enlarge the market size of minor economies (Jaumotte, 2004; Te Velde and Bezemer, 2006). Furthermore, several studies show the important role of skilled labour supply and human capital in attracting FDI to Africa (Cleeve et al., 2015; Suliman and Mollick, 2009).

Poor governance and ineffective institutions are generally included among the causes that hinder FDI flows to Africa. In particular, rule of law, which is related to the security and enforcement of property rights, and political stability are among the institutional aspects that foreign investors value the most, outweighing factors such as market size and openness to trade (Asiedu and Lien, 2011; Fiodendji and Evlo, 2015; Farole and Winkler, 2014). Fewer authors find a significant positive effect of control of corruption on FDI flows. Teka (2014), for example, identifies corruption among the main impediments to foreign investment in Ethiopia. Using benchmark analysis, Asiedu (2006) shows that a decline in corruption from the level of Nigeria (the most corrupted) to that of South Africa has the same positive effect on FDI as increasing the share of fuels and minerals in total exports by about 35 per cent. The author therefore suggests that small and resource-poor countries can attract FDI by improving their institutions and policy environment. Rodriguez-Pose and Cols (2017) find that stable, reliable and less corrupt governments and effective legal systems greatly facilitate FDI in Africa and that these factors have long-term effects. On the contrary, while showing strong effects of rule of law and political stability, Fiodendji and Evlo (2015) do not find any impact of corruption on FDI flows to Africa.

While only a few contributions focus on the specific Sino-African relationship, sev-

eral studies analyze the characteristics and motivations of Chinese investments worldwide (Buckley et al., 2007; Cheung and Qian, 2009; Ramasamy et al., 2012; Ross et al., 2015). Part of the literature argues that the drivers of Chinese MNEs are somewhat different and that governance quality concerns affect them relatively less than other investors. Tull (2006) fears that China's scarce concern for democracy and human rights as well as its strict adherence to the non-interference dogma may be especially detrimental for mineral-rich and post-conflict countries, undermining existing efforts of Western countries for political liberalization. Taylor (2006) expresses similar worries although he underlies that China is not different from other investors in its strategic pursuit of self-serving foreign policy and economic interest. Supporting this argument, Kolstad and Wiig (2011) find that Chinese investors mainly target countries with large natural resources endowments and poorer governance, but do not identify a different pattern for Western investors, similarly exploiting resources and fragile institutions.

Many other empirical studies that focus on the Sino-African relationship fail to identify a Chinese specificity when engaging in FDI in Africa (Kolstad and Wiig, 2011; Drogendijk and Blomkvist, 2013; Sindzingre, 2016; Fiodendji and Evlo, 2015). Furthermore, natural resources appear to emerge as one among a number of determinants, along, e.g., with a substantial role of market size and growth (Cheung et al., 2012; Claassen et al., 2012; Shen, 2015; Brautigam et al., 2014; Mourao, 2018). The role of political stability, seems, instead, more controversial. In light of the above, we formulate the following hypotheses:

H1: *Chinese FDI in Africa are positively related to the availability of natural resources in host countries, not differently from non-Chinese FDI.*

H2: *Chinese FDI in Africa are positively related to the presence of large and/or growing markets in host countries, not differently from non-Chinese FDI.*

H3a: *Chinese FDI in Africa are positively related to political stability in host countries, not differently from non-Chinese FDI.*

or

H3b: *Chinese FDI in Africa are less strongly related to political stability in host countries than non-Chinese FDI.*

The aggregate analysis of standard location factors, however, may fail in catching the specificities of Sino-African investment relations. Indeed, there is substantial agreement that Chinese investments are distinctively intertwined with multiple and interrelated forms of China's presence in Africa, which include the provision of loans, aid, and forms of soft power (Kragelund, 2009; Biggeri and Sanfilippo, 2009; Kaplinsky and Morris, 2009), and that they are marked by a key role of government support and SOEs in shaping FDI strategies. Drawing on Buckley et al. (2007), we expect firm-specific factors and primarily intra-firm co-location to exert a different role, and government support to allow Chinese firms to realize riskier and anti-cyclical investments compared to more risk-averse investors (Luo et al., 2010; Lu et al., 2014).

Indeed, a recent literature has addressed the propensity of firms, from both advanced and emerging economies, to locate new investments where they had previously invested (Defever, 2012; Alcácer and Delgado, 2016; Castellani and Lavoratori, 2020). This behaviour is due to agglomeration economies and information advantages deriving from intra-firm co-location, which we call *internal agglomeration*, which decrease the LOF and reduce the fixed costs of investing abroad. Alcácer and Delgado (2016) analyze both intra-firm and extra-firm linkages in the United States and find a strong effect of intra-firm agglomerations both within and across activities on firms' location choices.

On the contrary, the role of some forms of external agglomeration economies in firms' location choice has been widely theorized and investigated. In particular, economics literature has long been focused on *industry agglomeration* (Marshall, 1920; Krugman, 1991), with knowledge spillovers and specialization externalities found to arise from the "Marshallian agglomerations" of firms operating in the same industries. Another form of external agglomeration, which has been less investigated in this context, is the one deriving from the co-location of firms from the same country of origin (Head et al., 1999). Looking at FDI inflows in Vietnam, Tan and Meyer (2011) show that *country-of-origin agglomeration* highly affects the choice of the province or city of investment, especially when local institutions are considered poor. As the authors clarify, while co-location within the same industry provides access to industry-specific information and resources, such as specialized labour and suppliers, country-of-origin agglomeration helps build trust relationships between newcomers and local businesses, provides better understanding of the local context

and reduces the "liability of outsidership" of new investors (Johanson and Vahlne, 2009).

The existence of previous investments, be them from the same firm, industry or country of origin, reduces the cost of information about the destination area and improves the access to international business networks, thereby mitigating actual and perceived risk factors and leading to more rapid internationalization (Hertenstein et al., 2017).

Previous studies showed that Chinese firms prefer to locate where Chinese migrants, firms, and/or official aid agencies are already present (Buckley et al., 2007; Quer et al., 2012; Hertenstein et al., 2017). Furthermore, Sichei and Kinyondo (2012) find that agglomeration economies, proxied by the stock of FDI, are the most significant factor attracting FDI in Africa. Similarly, strong positive effects are found by Jaumotte (2004), Ndikumana and Verick (2008) and Anyanwu (2011). The literature has also highlighted a strong role of co-ethnic networks for Chinese trade, migration and investments worldwide (Weidenbaum and Hughes, 1996; Redding, 1995; Rauch and Casella, 2003; Özden et al., 2011), which may allow expecting a distinctively strong role of country-of-origin agglomeration for Chinese investors (Head et al., 1999).

However, the strong role of the Chinese government in influencing the internationalization strategies of Chinese MNEs as well as the greater variety of manifestations of China's presence in Africa may decrease the salience of co-location compared to other countries. The role of agglomeration economies as a driver for Sino-African FDI may be different since Chinese firms are widely backed in their foreign operations by their State and may be able to enact a more efficient system of information and protection for their investments than MNEs from other countries (Kragelund, 2009; Biggeri and Sanfilippo, 2009; Kaplinsky and Morris, 2009), which would decrease *ceteris paribus* the importance of co-location ((Lu et al., 2014)). Therefore, we formulate the following hypothesis:

H4: *The presence of agglomeration economies deriving from co-location influences Chinese FDI less than non-Chinese FDI.*

Another contribution of this study is to include consideration for the role of IIAs for the location choice of Chinese FDI in Africa. Indeed, IIAs may play a key role in determining the decision to invest in Africa. Most IIAs are BITs (Bilateral Investment Treaties), legally

binding agreements between two sovereign states regarding the promotion and protection of FDI. Other typologies of IIAs, often referred to as TIPs (Treaties with Investment Provisions), include economic partnerships, free trade agreements, as well as preferential trade and investment agreements. In Africa, where scarcely effective institutions cause credibility problems, BITs can signal a country's trustworthiness and protect investors against expropriation and unfair treatment (Kerner, 2009). However, evidence on the actual impact of these agreements on FDI flows is ambiguous and even more when inflows to Africa are considered. Sichei and Kinyondo (2012) and Lejour and Salfi (2015) find no robust effect of BITs on FDI stocks from OECD countries to Africa while Bankole and Adewuyi (2013) show that BITs have a strongly positive impact on both FDI flows and stocks in the ECOWAS region. Looking at transition economies from the former Soviet Union and Central and Eastern Europe, Colen et al. (2016) adopt a sectoral perspective to show that BITs are most effective in attracting FDI in industries with a greater risk of expropriation, i.e. with high sunk costs and/or more politically sensitive to foreign ownership. Such a disaggregated analysis is, at present, missing for Africa. Given its dual role as both FDI source and destination country, China is expected to be subject to partially different motivations when signing an IIA, having to protect both host and foreign country's interest. Moreover, the number of signed Sino-African BITs has been substantially decreasing from 1990, thus not reflecting actual investment activity but rather Chinese foreign policy orientation and the will to maintain friendly relationships with African countries (Congyan, 2006; Huiping, 2013). Finally, the same reasons that led us to hypothesize a lower reliance of Chinese investors on agglomeration economies lead us to expect a smaller role for IIAs. The supportive role of Chinese government, and the diversified forms of Chinese engagement in the destination country may effectively decrease the risk of expropriation faced by Chinese investors. For these reasons, we formulate the following hypothesis:

H5: *The presence of a IIA in force with the host country influences Chinese FDI less than non-Chinese FDI.*

We argue that these arguments are valid for Chinese firms as a whole, and not only for State-Owned Enterprises. As warned by several authors (Buckley et al., 2018), direct

state ownership is not the only way through which Chinese government, at different levels, can exert its influence on Chinese firms. According to Wang et al. (2012), government can influence both the ability and willingness of EMNEs to internationalize by exerting direct control on them, through full or partial ownership. Besides, EMNEs can be indirectly influenced by governments at different levels through several forms of government affiliation, including joint business-government committees and other institutional arrangements connecting managers and government agents. Those relationships, which can be expressed with the Chinese world *lishu*, are likely to shape the behavior and practices of firms investing abroad and makes it very difficult to separate private and state-controlled firms. As Cuervo-Cazurra (2018) points out, the lack of a precise definition of what is state-controlled or influenced leads to cases in which, even when direct ownership or other forms of state control are not proven to exist, concerns about the absence of state control over the firm persist, especially when the firm is a major market player, as in the case that led the US to ban the electronics giant Huawei. In a robustness check, we confirm that the results obtained including the full set of Chinese firms are remarkably similar to those obtained from the subsample of firms that can be considered to be SOE based on the cited literature. These are firms which are totally or majority owned by the Chinese government as well as those for which we were able to collect information attesting a relevant government affiliation, including minority but consistent ownership shares, government funding or other forms of *lishu* relationships (see the Data Appendix for more details).

3 Empirical Application

3.1 Empirical model

We study the location choice of FDI in African countries via conditional logit models (Train, 2009). The intuition behind these models is that the investor will choose the location that yields the highest possible utility. Utility is modelled as a linear function of alternative-specific regressors, varying either by destination country or by investment-destination country. The utility for investment n from country o yielded by locating in African country i at time t is:

$$U_{niot} = \alpha' x_{it} + \beta' y_{oit} + \gamma' z_{nit} + \epsilon_{niot} \tag{1}$$

where x_{it} is a vector of destination country characteristics controlling for standard factors affecting the utility of potential locations (natural resources, market size and growth, previous FDI stocks, institutional quality); y_{oit} is a vector of bilateral origin-destination regressors accounting for geographic, institutional and cultural distance and previous bilateral FDI flows (country-of-origin agglomeration), as well as a dummy for International Investment Agreements (*IIA*); z_{nit} is a vector of investment-destination regressors such as intra-firm co-location (internal agglomeration) and industry agglomeration . α, β and γ are parameter vectors to be estimated. The error term ϵ_{niot} is iid extreme value. Denoting with V_{niot} the deterministic component of the utility $V_{niot} = \alpha' x_{it} + \beta' y_{oit} + \gamma' z_{nit}$, the probability that investment n from country o locates in African country i at time t is the probability that the utility yielded by locating in i exceeds that of locating in all other African countries $j \neq i$, i.e., $P_{niot} = Prob(\epsilon_{njot} - \epsilon_{niot} < V_{niot} - V_{njot} \forall j \neq i)$. This probability takes the following form:

$$P_{niot} = P(\text{Choice}_{niot} = 1|x, y) = \frac{e^{V_{niot}}}{\sum_j e^{V_{njot}}} \tag{2}$$

In our application, the alternatives are constituted by the set of J African countries where the FDI could locate (i.e. the set of countries chosen at least once as an FDI destination) and the decision-makers are the N investment projects. The resulting number of choices under consideration is $J \times N$. The dependent variable *"Choice"* is equal to one if a specific alternative was actually selected, and zero for the other alternatives in the choice set. The probability to choose a specific country depends only on the difference in utility that the specific country i yields to the decision maker n compared with the other alternatives. The absolute value of utility does not matter. Hence, attributes of the alternative that do not induce a difference in utility, or attributes of the decision maker that do not vary over alternatives, will not affect the choice and will not be estimated. This implies that variables that are invariant by investment (e.g. the country of origin of the FDI, its GDP, the amount of capital invested, etc.) will be included in the specification only if interacted with alternative-varying variables (see Train, 2009). On the other hand, bilateral variables such as co-location, distance, country-of-origin agglomeration or IIAs between two countries will induce a difference in utility across alternatives and will therefore be included.

In terms of interpretation, marginal effects for a generic regressor w_{niot} are given by

$\frac{\partial V_{niot}}{\partial w_{niot}} P_{niot}(1 - P_{niot})$. Hence, the marginal effects of a given regressor are maximum by $P_{niot} = 1 - P_{niot} = 0.5$, i.e., when the choice probability is neither very likely nor very unlikely (Train, 2009). The corresponding elasticities are $\frac{\partial V_{niot}}{\partial w_{niot}}(1 - P_{niot})w_{niot}$.

To study the differential role of Chinese investors, we interact our regressors with a dummy c_o equal to 1 if the origin country of investment n is China, and zero otherwise. The main effect of this variable is not varying by investment, so it is not estimated. However, the sign and significance of its interaction effects give a measure of the differential behaviour of Chinese investors. The interpretation of the interaction effects is similar to linear regression, with both the main effects and the interaction effects being multiplied by $P_{niot}(1 - P_{niot})$.

Our variables of interest are all interaction effects between c_o and all regressors, indicating the specificity of Chinese investors with respect to other investors. Among these, we are especially interested in the interaction effects between c_o and risk- and information-related factors.

3.2 Sample and variables

We combined information retrieved from several data sources. As for information about FDI, the source is the Financial Times Ltd fDi Markets database, covering data on greenfield FDI, which are the great majority of FDI in Africa.[2] We consider 9,152 greenfield FDI locating into 43 African countries from 93 origin countries worldwide over the 2004-2017 period (see Table A.1 for the list of destination countries). Our initial choice set included almost 10,000 FDI from 123 origin countries to all 54 African countries, amounting to more than 500,000 investment-country combinations. Due to scarce availability of some of our main variables of interest, in spite of recurring to missing values imputation where possible, our estimation sample shrank to 376,521 investment-country combinations, corresponding to 9,152 FDI, including 43 destinations, 93 origin countries (including African countries) and 18 different functions. Of these 9,152 FDI, 361 are Chinese and 8,791 are non-Chinese investments. 231 out of 361 Chinese investments are from State-owned or State-controlled firms.

Our binary dependent variable *Choice* equals 1 if investment n located in country i and zero otherwise. The fDi Markets dataset is also the source of our measure of intra-

[2] `https://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx`

firm agglomeration economies arising from co-location (*Internal agglomeration*). For each investment in year t, we compute the cumulated number of investments from the same firm in destination country i between 2004 (the first year in our dataset) and year $t-1$.

To proxy for the investors' access to information about the destination country (Head et al., 1995; Head and Mayer, 2004), we similarly compute the cumulated number of investments observed from the same origin country o in destination country i up to year $t-1$ (*Country-of-origin agglomeration*). We use the same method to create a variable to approximate the effects of industry agglomeration economies, computing the cumulated number of investments in the same activity as investment n observed in i up to year $t-1$ (*Industry agglomeration*). We rely on UNCTAD data on FDI stocks in 2002 for a more general measure of FDI agglomeration in a specific destination, given by the amount of FDI in destination i prior to our observation period (*FDI stock 2002*). This variable, which is also interpretable as a proxy for the cost of doing business in the country, is expressed in billion US dollars.

Information on IIAs is taken from UNCTAD Investment Policy Hub. They are included as a dummy, *IIA*, equal to 1 if, in year t, a bilateral trade agreement or another treaty with investment provisions is not only signed but also in force (UNCTAD, 2009) between country j and the source country of investment n, and zero otherwise.

We match these data with the World Bank World Development Indicators dataset (WDI) to control for standard location regressors. Specifically, we proxy for market size in the destination country by the *Log Population* and its growth potential by *GDP growth* (e.g. Morisset, 2000; Jaumotte, 2004; Lederman et al., 2010; Fiodendji and Evlo, 2015; Sane, 2016). On the side of costs, we include the share of fuel and of mineral and metal exports on all merchandise exports at the beginning of the period (*Fuel exports 2002* and *Ores exports 2002*) to proxy for the availability of natural resources (e.g. Asiedu, 2006; Ndikumana and Verick, 2008; Rodriguez-Pose and Cols, 2017) and the human capital index in year t (*Human capital*) drawn from the Penn World Tables to approximate the quality of the human capital (Rodriguez-Pose and Cols, 2017; Suliman and Mollick, 2009). We included among cost-efficiency variables a measure of transport infrastructure endowment (*Infrastructure*) using the Africa Infrastructure Development Index (AIDI) developed by the African Development Bank. To proxy for institutional quality, we add the country political stability index

(*Political stability*) for year t drawn from the Worldwide Governance Indicators (WGI) of the World Bank.

We relied on the World Integrated Trade Solution (WITS) database to collect information on the value of exports (*Log exports*) and imports (*Log imports*), measured in 2011 US$, and on the World Bilateral Migration data for information on stock of emigrants and immigrant (*Log emigrants* and *Log immigrants*). We also retrieved data on monthly wages from the ILOSTAT database (*Log wage*), data on bilateral weighted tariffs on imports and exports UNCTAD TRAINS database (*Export tariffs* and *Import tariffs*), and data on bilateral aid from AidData's project level database (*Aid projects* and *Aid amount*). Unfortunately, information on wage, tariffs, and aid only covers a limited part of our sample in terms of years and origin countries so that we only include these variables in robustness checks of our main results.

Furthermore, to account for preferential ties between country dyads, we include bilateral variables routinely included in the gravity literature (Anderson and van Wincoop, 2003; Head and Mayer, 2014), retrieved from the CEPII CHELEM dataset: the *Log distance*, calculated as the great circle distance between the two countries' capitals, a *Common Language* dummy equal to 1 if the two countries share a common language that is spoken by at least 9% of the population, and a *Colony* dummy equal to 1 if the two countries ever shared a colonial tie.

Finally, we add a dummy for South Africa to account for its central role among investment destinations (alone, it accounts for almost 20% of the investments in our sample and it is the first destination for MNEs from both advanced countries and China). Similarly, we created a dummy for Egypt (*Egypt*) to account for its role as first destination for investors from emerging countries other than China.

All time-variant regressors are lagged one year to mitigate simultaneity problems. The wide set of location factors and dyadic regressors included is intended to provide a comprehensive picture of location determinants and, while endogeneity issues cannot be ruled out, should also reduce the risk of omitted variable bias.

3.3 Descriptives

Table 1 reports the summary statistics, and Table 2 the correlation matrix.

With regards to the number of investments targeting African countries in the 2004-2017 period, about one third originate from US, UK and France, though emerging economies such as South Africa, India and UAE play an important role as well. Chinese investors ranked 9th (see fig. 1). However, an outlook of the trends in the number of ventures from China to Africa as a share of the total number of ventures targeting the continent suggests that this figure is driven by a substantial increase in the share of Chinese investors over the considered period, especially sharp since 2015. In 2016, Chinese FDI amounted to a 10% of total FDI in Africa (see fig. 2).

When considering the composition of the investment portfolio (still in terms of number of investments), the prominent role of investments in manufacturing and services emerges for the majority of the investors in Africa (fig. 3). Non-Chinese investors are comparatively more involved in business services and sales, marketing and support activities, while Chinese MNEs invest less frequently in these kinds of activities in comparison to both advanced and emerging countries. Instead, Chinese investments are significantly more concentrated in manufacturing. With respect to the shares of investments in activities driven by the availability of natural resources, firms from advanced countries are those undertaking more extraction FDI projects, while EMNEs (excluding those from China) invest comparatively more in construction projects. Although natural resources are commonly deemed to be the first interest of Chinese MNEs investing in Africa, Chinese greenfield FDI appear to be less directed to natural resource related activities compared to both advanced and other emerging countries. Instead, Chinese firms in Africa are more involved in education and training projects than other investors. Finally, as regards to the location choices of Chinese and non-Chinese FDI, the picture is similarly concentrated for Chinese and advanced countries investors on a few destination countries (see fig. 4). South Africa is the first destination for FDI from both Chinese and advanced countries, while Morocco, which is the second destination overall, is mainly interested by advanced countries investments. The second main destination for Chinese FDI is Egypt, which is followed by Nigeria, Kenya and Ethiopia, the latter attracting only few investments from advanced countries MNEs. Looking at emerging origin countries other than China, the first FDI destination is no longer South Africa, which is now in second position, but rather Egypt followed by Nigeria and Kenya, probably because of the role of South Africa as a major emerging investor.

As for the correlation matrix, our main variable of interest, the dummy for Chinese investments, is positively correlated mainly with the imports of Chinese products in the African destination country and with the geographical distance between the two countries. The latter factor is easily understandable knowing that South Africa attracts a great part of FDI inflows. The China dummy is instead negatively correlated with *Common Language*, not surprisingly since China does not have a colonial past in Africa. Chinese investments are also negatively correlated with *IIA*, which is in line with our hypothesis that Chinese investments are less affected by the presence of IIAs when choosing their destinations. In the next section we will assess whether this hypothesis and the others we have previously formulated survive the scrutiny of multivariate analysis.

4 Results

In Table 3 we report the results of our baseline estimates. First, we include in Model 1 only standard location factors for the whole sample, without interactions. These factors are destination-specific and bilateral (recall that the model incorporates investor fixed effects), and include our dummy for the presence of preferential ties sealed through IIAs.

Coefficients have the expected sign and are highly significant. IIAs are confirmed to significantly promote the location of FDI. Agglomeration economies in the form of FDI stocks from any countries promote the location of FDI, though with diminishing returns. Positive but diminishing effects are also observed for natural resources endowment, measured as the pre-determined shares of mineral ores and fuel exports over total merchandise exports. In line with expectations, FDI appear to be attracted by political stability, economic growth, market size, human capital, infrastructure endowment. As for the bilateral variables, they indicate that FDI tend to locate in countries that share a common language and colonial ties with the source country of the investments; instead, geography appears to play a minor role. Our results also highlight a robust complementarity of FDI inflows with the imports from the same origin country and confirm the established findings in the literature that immigrant and emigrant networks promote FDI. Finally, to take into account the outlier roles of South Africa and Egypt, which attract most FDI in the region and are characterized by remarkably different values of their covariates compared to other countries, we include two

dummies to capture their peculiar role. The negative sign of these dummies indicates that, based on the included covariates, the probability to locate in South Africa and Egypt would be predicted to be even greater than it is observed.[3]

In Model 2, we augment our specification with our measures of external agglomeration, i.e. the cumulated number of FDI that targeted country i until time $t-1$ from the same origin country o as the new investment (*Country-of-origin agglomeration*), and the cumulated number of previous FDI that targeted country i until time $t-1$ in the same industry as the new investment (*Industry agglomeration*). As mentioned, the former is a proxy for the access to information about the destination country that firms in the source country can access. The latter proxies for information spillovers arising from the agglomeration of foreign firms operating in the same industry. Hence, the two capture different aspects of the potential information externalities that investors may benefit from when choosing a specific destination country. Both turn out to positively and significantly promote the location of FDI, in line with the findings in the literature. The bilateral nature of the *Country-of-origin agglomeration* variable drives a reduction in the coefficients of colonial tie and common language, while other coefficients are only marginally affected.

In Model 3, we further augment the specification with our measure for intra-firm agglomeration economies, i.e. *Internal agglomeration*. As expected, firms strongly tend to locate where they have already invested: our estimated coefficients imply that a firm is 1.6 times more likely to locate in countries where it has already invested. The remaining coefficients remain remarkably stable with the exception of distance, which becomes more negative and turns out to be statistically significant.[4]

In Model 4, we address our core issue and include the full set of interactions with the dummy for Chinese investments. We report the main effects on the left column and the interaction effects of each coefficient in the right column. Chinese investments represent a relatively small share of total investments targeting African countries, hence our previous

[3]Specifically, including or excluding the South Africa dummy from the model leaves the results qualitatively unaffected. Instead, when we exclude the dummy for Egypt, the coefficient of fuel exports becomes negative due to the relatively small share of fuel exports in the country whereas the coefficient of distance becomes more negative and statistically significant.

[4]The results are qualitatively similar if we measure of intra-firm agglomeration economies based on the number of previous investments of the same parent company, rather than the same investing company, in the country. The resulting coefficient of *Internal Agglomeration* becomes smaller and implies that a firm is 1.2 times more likely to locate in countries where its parent has already invested. These additional results are available upon request.

results are only slightly affected when the interaction terms are included, so that the main effects remain remarkably similar to those estimated in Model 3. As to Chinese investors, some distinctive features emerge with regards to their reliance on internal and country-of-origin agglomerations and on investment protection as well as, somewhat unexpectedly, to the role of human capital and migration. Indeed, the interaction effects of c_o with *Internal agglomeration* and *IIA*, as well with *Country-of-origin agglomeration*, *Log immigrants*, and, to a less significant extent, with *Log imports*, are negative and significant, indicating that, compared to other origin countries, these location factors play a less important role. Instead, we find a positive interaction effect of *Log population*, which is significant at the 8% level, and a highly significant and positive interaction effect with the *South Africa* dummy. Finally, the coefficient of *Human capital* is significantly more positive, and the one of *Log distance* is significantly more negative in affecting investment location than for other origin countries. A Wald test of the joint significance of the interaction terms strongly rejects the null hypothesis that these are jointly equal to zero.

The negative coefficient of the interaction terms of *Internal agglomeration* and *IIA* might be interpreted as a sign that government support provides information and investor protection against the risk of expropriation that substitutes for prior firm experience and investment agreements (Lu et al., 2014; Colen et al., 2016). The positive interaction effects with *Log population* and the South African dummy indicate that Chinese investors are more attracted by large and growing markets. Furthermore, the novel results emerging as to the negative coefficients of *Country-of-origin Agglomeration*, *Log Immigrants* and *Log imports* may indicate that government-backed Chinese investments tend to diversify destination countries. Finally, the fact that political stability turns out to affect Chinese investments not differently than other investments, and the comparatively stronger role of human capital suggest that common perceptions about Chinese investments may be misplaced.

To ease computation of coefficients for the sample of Chinese firms and to appreciate their statistical significance, we replicate Model 3 for the subsample of Chinese firms only (Model 5). As for our regressors of interest, the coefficient for *Internal agglomeration* is positive and the one for IIA is negative but both are insignificant. Turning to significant coefficients, *Country-of-origin agglomeration* is negative whereas *Industry agglomeration* positive. As for control variables, significant location factors for Chinese investors are po-

litical stability, market size and its growth, human capital, distance, and the presence of African emigrants in China. This latter finding might lend support to the idea that Chinese FDI policy in Africa is coupled with some form of tie with the African country which entails emigration into China. The coefficients associated with natural resources do not turn out to be significant and the coefficient for the South African dummy is positive but insignificant, whereas the one for Egypt is negative and significant.[5]

Our results confirm Hypotheses 1 and 3a, indicating that Chinese firms in Africa are in search of natural resources and politically stable countries just as non-Chinese investors. Hypothesis 2 appears to be contradicted, as the elasticity of Chinese investments to market size, as proxied by population, is about 30% larger than for other investors, and Chinese investors target the large and growing economy of South Africa much more frequently than other investors. Instead, both Hypotheses 4 and 5 are strongly supported in our data.

As anticipated, the insights from Table 3 are confirmed when we interact all regressors with a dummy variable that is only set equal to one if the Chinese investor is state owned (A.2). While less precise given the smaller number of observations available to estimate the interaction effects, the coefficients convey the same message and confirm the comparatively smaller effects of internal agglomeration, country-of-origin agglomeration, and immigrants for Chinese investments. They also confirm the positive role of market size, human capital, and of South Africa, while highlighting a somewhat stronger role of natural resources than in the previous specification. This result lends support to the idea that, at least for Africa as a destination region, the influence exerted by the Government on Chinese firms goes beyond the ownership of the firms. For instance, the guidelines regularly published by the Government indicating the country and industry where to invest might represent a strong suasion also for private firms (Lu et al., 2014). Given the similarity between these results and those in Table 3, we continue focusing on the interaction with China rather than with *SOE* to take advantage from the larger numerosity.

In Table 4, we report results of the separate analysis by function of FDI determinants

[5]The statistical significance of the interactions coefficients in Model 4 and the coefficients estimated in Model 5 suffers from a much restricted sample than the one used in Model 3 and for the main effects in Model 4. The ratio of the two sample size is around 25 which entails that, everything else equal, standard errors of the restricted sample coefficients are expected to be 5 times larger than those of the full sample coefficients. Therefore, it is not surprising that only some some coefficients are significant when focusing on the restricted sample of Chinese firms.

for Chinese and non-Chinese investments. To ensure sufficient numerosity in the estimates, we aggregate investments in three functional categories: Manufacturing, Services, and Resource-related activities. The Services category includes FDI in Sales, Marketing and Support activities, Customer Contact Centres, Business services activities, Retail, ICT, Education, Headquarters, R&D, Design, Development and Testing. Resource-related activities include investments in Construction and Extraction activities, Electricity, and Logistics. This separate analysis not only provides important insights about the function-specific determinants. As shown in fig. 3 and as already discussed, Chinese investments do not proportionally cover the functions as other investments. In turn, if determinants differ across functions the previous results could be affected by compositional issues.

First of all, results indicate that location determinants are, as a whole, heterogeneous across functions. Looking at main effects, Services activities appear to react more on industry agglomeration and IIAs than Manufacturing investments. This is in line with previous findings from Brouthers and Brouthers (2003) on Western European firms investing in Central and Eastern Europe: given their people-intensive nature, FDI in Services are more sensitive to transaction costs deriving from behavioural uncertainties than Manufacturing FDI. The negative coefficient of industry agglomeration for Manufacturing FDI seems to suggest that, in the African context and possibly differently from what highlighted by Zschoche (2016) for the more advanced context of Germany, investors in manufacturing tend to diversify their locations and avoid the competition of other investors in the same activity, rather than pursuing agglomeration economies. Instead, and in line with Service investments, they appear to strongly rely on both internal and country-of-origin agglomeration economies. Services investments appear to rely more than Manufacturing ones on human capital, an expected result given the generally higher skill content of Services activities. As for Resource-related FDI, unsurprisingly, they react significantly more to natural resources availability and IIAs, and significantly less to our proxies for market size and growth. As to IIAs, the coefficient turns out to be larger, although less precisely estimated due to the lower number of observations available for this kind of investments, in line with the interpretation by Colen et al. (2016) that extraction FDI are at high risk of expropriation and tend to make investors' protection by IIA more important. Country-of-origin agglomeration appears to play a negligible role for these investments.

Coming to the specificities of Chinese investors, they indeed appear to react to co-location differently depending on the function. The negative interaction effect identified in Table 3 for the internal agglomeration variable seems to be mainly driven by Services FDI. Chinese firms tend to locate less, rather than more, frequently where they have already located. Also, their Services investments disproportionately target South Africa. The lower reliance of Chinese FDI on country-of-origin agglomeration and immigration identified above appears mostly driven by Manufacturing FDI, suggesting that the effects of the LOF may be less salient for Chinese investors and supporting the hypothesis that government support may dictate a diversification of destinations in Manufacturing ventures. Chinese investors are also found to react differently to industry agglomeration: while other investors tend to avoid competitors in the same industry, Chinese investors pursue agglomeration with them, probably to take advantage from function-specific knowledge spillovers.

The argument about the less important role of the investors' protection offered by IIA is qualitatively confirmed throughout functions but more strongly for Services investments. No Chinese specificity emerges for Resource-related investments, supporting our arguments for a similar behaviour of resource-seeking Chinese and non-Chinese investors.

Finally, the positive and very large interaction effects for human capital, though imprecisely estimated when the sample is disaggregated across functions, also confirm the previous, somewhat unexpected finding that Chinese investors rely heavily on this factor, which may deserve attention in future research.

Overall, our results suggest that, when investing in Africa, the location determinants that may be considered to be more important for atomistic investors—in particular, internal and county-of-origin agglomeration, FDI stocks, IIA—become less salient for Chinese firms.

4.1 Robustness checks

In this section, we check the validity of our results from Table 3 using two robustness checks. First, we study how the results change when comparing Chinese investors to control groups different from the set of all countries, namely advanced countries and emerging countries (see Table A.3). We report the location determinants estimated on the sample of all countries (Model 1, identical to Model 3 of Table 3), advanced countries and emerging countries (Models 2-3) where China is included in all three samples. We then report Models with

interactions with the China dummy for the sample of all countries (Model 4, identical to Model 4 of Table 3), advanced countries and emerging countries (Models 5-6). On the whole, results indicate that firms from advanced countries tend to pursue natural resources like ores, while both advanced and emerging economies target destination countries endowed with fuel. Internal agglomeration plays a similar but slightly more important role for advanced economies. In light of this, the lower reliance of Chinese investors on intra-firm co-location is particularly remarkable as it does not correspond to the observed behaviour of any country groupings.

The two groups behave remarkably differently for what concerns human capital, which turns out to positively affect FDI from advanced countries and negatively those from emerging countries. In this sense, China behaves more like an advanced economy, but places even more weight on human capital. Factors that mitigate information and enforcement costs (industry agglomeration, country-of-origin agglomeration and IIA) appear more important for emerging economies. The coefficient for IIA, in particular, is positive and significant for emerging countries while it is negative and insignificant for advanced countries. Once again, China's limited reliance on this factor and on country-of-origin agglomeration appears to be more aligned with the behaviour of advanced economies, but even more marked.

As for industry agglomeration and market size and growth, instead, China behaves more like investors from emerging economies; similarly to this group of countries, Chinese investors place high weight on the learning economies emerging from intra-industry agglomeration and react strongly to population size.

Overall, Chinese investors display a peculiar behaviour mixing features of advanced economies' investors with characteristics of emerging countries and with a distinctive lack of concern to prior firm experience.

The second robustness check is reported in Table A.4, where we show that our results are remarkably stable when adding to the set of covariates additional variables which may be deemed to affect the location choice of investors but for which the data availability is constrained to a limited number of years or countries.

Specifically, in Model 1, we include *Log wage*. Missing data issues affecting this variable have the effect of excluding 18 destinations from the sample, among which countries which are large recipients of FDI and with substantial natural resources endowments (e.g.,

Algeria, Kenya, Morocco, Nigeria, Tunisia), shrinking the sample size to one-third. Hence, the resulting estimates about the role of natural resources and, consequently, of the investment protection provided by IIA are much less reliable. Nonetheless, previous results about the smaller role of internal and country-of-origin agglomeration are strongly supported. A similar conclusion holds for human capital, whereas log population interaction is positive but insignificant due to the smaller sample size. As for the additional regressor, investors in Africa tend to prefer low-wage countries, and Chinese investors are not significantly different in this respect.

In Models 2 and 3, we add the number and amount of bilateral aid projects, respectively. The sample size reduction, although less dramatic than in the previous case, is still sizeable and shrinks the sample to two-thirds. Both aid measures turn out positive and significant. The interaction term of the number of aid projects confirms that this factor complements Chinese FDI strategies (similarly to Biggeri and Sanfilippo, 2009), while we do not highlight a specificity with respect to aid amounts. The lower reliance of Chinese investors on internal agglomeration is strongly confirmed, as is their greater market-orientation. The results are less robust for what concerns IIA, whose effect even for non-Chinese investors appears to be sensitive to the sample of countries available for estimation.

Finally, in Model 4, we add the average amount of import and export tariffs. The sample size halves with respect to the baseline model. Chinese investors appear to engage significantly less frequently in FDI with countries with higher import tariffs. The lower reliance of Chinese investors on internal agglomeration and IIA are confirmed. Again, population size is positive but imprecisely estimated.

These additional results show that our findings, and in particular those about the smaller role of internal agglomeration, are remarkably robust across specifications. The results about IIA appear more sensitive to changing the sample of countries available for estimation. In general, these results show that data availability issues affecting the African continent may bear particularly strong implications for inference and may hinder result comparability across studies using different samples of data.

5 Concluding remarks

By using investment-level data, we study whether the location determinants into African countries differ between Chinese and non-Chinese investments, with a specific focus on agglomeration economies deriving from previous investments from the same country of origin, industry-specific agglomeration economies, intra-firm co-colocation and investment protection provided by International Investment Agreements.

To our knowledge, this is the first research looking at the differential effect of such factors on Chinese and non-Chinese investors in different industry activities in Africa. In so doing, we focus on factors driving the decision of whether to invest in a specific African country, rather than of how much to invest.

Our results show that, when looking at all investments jointly, largely similar location factors attract Chinese as well as other investors, even if China appears to be more market-oriented than other investors. A distinctive feature that emerges is that Chinese investors do not seem to require the same protection guarantees as other investors when choosing their locations. In particular, they rely significantly less on the agglomeration economies arising from intra-firm co-location and from country-of-origin agglomeration, as well as significantly less on the investors' protection provided by investment agreements. When looking more specifically at the different functions, this result appears to be driven by FDI in Service activities, which is where the role of behavioural uncertainties tends to be the strongest for other investors.

We also find that Chinese Manufacturing FDI rely significantly less on country-of-origin agglomeration, previous FDI stocks and immigration, but significantly more on functional agglomeration, suggesting that they may be part of a centralised diversification strategy oriented to exploit the agglomeration and information economies where they are relevant. No particular difference, instead, emerges when focusing on Resource-related investments.

Our results prove to be robust to several alternative specifications and in particular to restricting the sample of Chinese firms to SOEs only. A comparison of Chinese investors to different control groups (advanced and emerging countries) suggests that, while China is commonly considered the quintessential emerging country, when investing in Africa it has a distinctive behaviour that mixes features of advanced and emerging countries' investors: it gives high importance to human capital, but it is also significantly more market-oriented

and sensitive to functional agglomeration.

While the lower sensitivity to investment agreements and country-of-origin agglomeration is a feature of advanced economies, this comes to an extreme extent in the case of China. Moreover, compared to both groups, it relies significantly less on intra-firm agglomeration. These results suggest that Chinese investments in Africa are not simply the result of uncoordinated, atomistic choices of individual firms. Rather, a whole country-level system appears to be at play to support investors, who are part of a broader strategy aimed to expand Chinese presence in Africa via multiple channels. This involves an important role of State-owned enterprises and the direct engagement of the Chinese government, supplying capital under different forms, chiefly aid, loans and investments. Parallel to this, the establishment of Chinese cultural and educational institutes as well as the development of personal ties and diplomatic relationships with African business and political actors, referred to with the Chinese word *guanxi*, increases Chinese "soft power" in the continent. Overall, this may effectively reduce the LOF for Chinese investors, facilitating their access to business-relevant information and creating networks that may help protect them against risks related to political instability and expropriation. This systemic support arguably makes destination countries' institutions and co-location less relevant in affecting Chinese investors' location choices.

It would be interesting to enlarge the results of this paper along at least two dimensions. The first one is to incorporate the specific interaction between the location decisions of Chinese MNEs and other forms of Chinese presence in Africa, in particular the aid provided to African countries. The second one is to enlarge the time dimension of the data and, by exploiting an increased sample size, to provide more precise results especially when focusing on specific functions. Unfortunately, the first extension seems to be at odds with the limited availability of data on aid whereas the second one appears to be hindered by the structural break occurred due to the Covid-19 pandemic. In turn, the most promising extension is to assess if Chinese investments after the crisis will have followed the same differential pattern with respect to non-Chinese FDI as we unravelled in this paper.

References

Alcácer, J. and Delgado, M. (2016). Spatial Organization of Firms and Location Choices Through the Value Chain. *Management Science*, 62(11):3213–3234.

Amighini, A. A., Rabellotti, R., and Sanfilippo, M. (2013). Do Chinese State-Owned and Private Enterprises Differ in Their Internationalization Strategies? *China Economic Review*, 27(C):312–325.

Anderson, J. E. and van Wincoop, E. (2003). Gravity with Gravitas: A Solution to the Border Puzzle. *American Economic Review*, 93(1):170–192.

Anyanwu, J. (2011). Determinants of Foreign Direct Investment Inflows to Africa, 1980-2007. Working Paper Series 327, African Development Bank.

Asiedu, E. (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different? *World Development*, 30(1):107–119.

Asiedu, E. (2006). Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Instability. *The World Economy*, 29(1):63–77.

Asiedu, E. and Lien, D. (2011). Democracy, Foreign Direct Investment and Natural Resources. *Journal of International Economics*, 84(1):99–111.

Bankole, A. S. and Adewuyi, A. O. (2013). Have BITs Driven FDI Between ECOWAS Countries and EU? *Journal of International Trade Law and Policy*, 12(2):130–153.

Barbieri, E., Di Tommaso, M. R., Tassinari, M., and Marozzi, M. (2019). Selective Industrial Policies in China: Investigating the Choice of Pillar Industries. *International Journal of Emerging Markets*, 16(2):264–282.

Biggeri, M. and Sanfilippo, M. (2009). Understanding China's Move into Africa: An Empirical Analysis. *Journal of Chinese Economic and Business Studies*, 7(1):31–54.

Brautigam, D., Diao, X., McMillan, M., and Silver, J. (2014). Chinese Investment in Africa: How Much Do We Know? IFPRI Working Paper 17, International Food Policy Research Institute.

Brouthers, K. D. and Brouthers, L. E. (2003). Why Service and Manufacturing Entry Mode Choices Differ: The Influence of Transaction Cost Factors, Risk and Trust. *Journal of Management Studies*, 40(5):1179–1204.

Buckley, P. and Casson, M. (1976). The Future of the Multinational Enterprise. *Homes & Meier: London*.

Buckley, P. J., Clegg, L. J., Cross, A. R., Liu, X., Voss, H., and Zheng, P. (2007). The Determinants of Chinese Outward Foreign Direct Investment. *Journal of International Business Studies*, 38(4):499–518.

Buckley, P. J., Clegg, L. J., Voss, H., Cross, A. R., Liu, X., and Zheng, P. (2018). A Retrospective and Agenda for Future Research on Chinese Outward Foreign Direct Investment. *Journal of International Business Studies*, 49(1):4–23.

Castellani, D. and Lavoratori, K. (2020). The Lab and the Plant: Offshore R&D and Co-location with Production Activities. *Journal of International Business Studies*, 51(1):121–137.

Cheung, Y.-W., De Haan, J., Qian, X., and Yu, S. (2012). China's Outward Direct Investment in Africa. *Review of International Economics*, 20(2):201–220.

Cheung, Y.-W. and Qian, X. (2009). Empirics of China's Outward Direct Investment. *Pacific Economic Review*, 14(3):312–341.

Claassen, C., Loots, E., and Bezuidenhout, H. (2012). Chinese Foreign Direct Investment in Africa. *African Journal of Business Management*, 6(47):11583–11597.

Cleeve, E. A., Debrah, Y., and Yiheyis, Z. (2015). Human Capital and FDI Inflow: An Assessment of the African Case. *World Development*, 74:1–14.

Colen, L., Persyn, D., and Guariso, A. (2016). Bilateral Investment Treaties and FDI: Does the Sector Matter? *World Development*, 83(C):193–206.

Congyan, C. (2006). Outward Foreign Direct Investment Protection and the Effectiveness of Chinese BIT practice. *The Journal of World Investment & Trade*, 7(5):621–652.

Cuervo-Cazurra, A. (2012). Extending Theory by Analyzing Developing Country Multina-

tional Companies: Solving the Goldilocks Debate. *Global Strategy Journal*, 2(3):153–167.

Cuervo-Cazurra, A. (2018). Thanks But No Thanks: State-owned Multinationals from Emerging Markets and Host-country Policies. *Journal of International Business Policy*, 1(3-4):128–156.

Cui, L. and Jiang, F. (2012). State Ownership Effect on Firms' FDI Ownership Decisions Under Institutional Pressure: A Study of Chinese Outward-investing Firms. *Journal of International Business Studies*, 43(3):264–284.

Davies, K. (2013). China Investment Policy: An Update. OECD Working Papers on International Investment, 2013/01, OECD Publishing, Paris.

Defever, F. (2012). The Spatial Organization of Multinational Firms. *The Canadian Journal of Economics / Revue canadienne d'Economique*, 45(2):672–697.

Drogendijk, R. and Blomkvist, K. (2013). Drivers and Motives for Chinese Outward Foreign Direct Investments in Africa. *Journal of African Business*, 14(2):75–84.

Dunning, J. H. (1979). Explaining Changing Patterns of International Production: In Defence of the Eclectic Theory. *Oxford Bulletin of Economics and Statistics*, 41(4):269–295.

Farole, T. and Winkler, D. (2014). Making Foreign Direct Investment Work for Sub-Saharan Africa: Local Spillovers and Competitiveness in Global Value Chains. Washington, DC: The World Bank.

Fiodendji, K. and Evlo, K. (2015). Do Institutions Quality Affect FDI Inflows in Sub-Saharan African Countries? *Journal of Applied Finance & Banking*, 5(1):1–8.

Gaur, A. S., Ma, X., and Ding, Z. (2018). Home Country Supportiveness/Unfavorableness and Outward Foreign Direct Investment from China. *Journal of International Business Studies*, 49(3):324–345.

Head, C. K., Ries, J. C., and Swenson, D. L. (1999). Attracting Foreign Manufacturing: Investment Promotion and Agglomeration. *Regional Science and Urban Economics*, 29(2):197–218.

Head, K. and Mayer, T. (2004). Market Potential and the Location of Japanese Investment in the European Union. *Review of Economics and Statistics*, 86(4):959–972.

Head, K. and Mayer, T. (2014). Gravity Equations: Workhorse, Toolkit, and Cookbook. In Gopinath, G., Helpman, E., and Rogoff, K., editors, *Handbook of International Economics*, volume 4, chapter Chapter 3, pages 131–195. Elsevier.

Head, K., Ries, J., and Swenson, D. (1995). Agglomeration Benefits and Location Choice: Evidence from Japanese Manufacturing Investments in the United States. *Journal of International Economics*, 38(3-4):223–247.

Hennart, J. (1982). *A Theory of Multinational Enterprise*. University of Michigan Press, Ann Arbor.

Hertenstein, P., Sutherland, D., and Anderson, J. (2017). Internationalization Within Networks: Exploring the Relationship Between Inward and Outward FDI in ChinaâĂŹs Auto Components Industry. *Asia Pacific Journal of Management*, 34(1):69–96.

Huiping, C. (2013). Recent Approaches in China's BITs and Impact on African Countries. *Proceedings of the Annual Meeting (American Society of International Law)*, 107:228–230.

Hymer, S. (1976). *The International Operations of National Firms: A Study of Direct Foreign Investment*. MIT Press, Cambridge, MA.

Jaumotte, F. (2004). Foreign Direct Investment and Regional Trade Agreements: The Market Size Effect Revisited. IMF Working Papers 04, Washington: International Monetary Fund.

Johanson, J. and Vahlne, J.-E. (2009). The Uppsala Internationalization Process Model Revisited: From Liability of Foreignness to Liability of Outsidership. *Journal of International Business Studies*, 40(9):1411–1431.

Kaplinsky, R. and Morris, M. (2009). Chinese FDI in Sub-Saharan Africa: Engaging with Large Dragons. *The European Journal of Development Research*, 21(4):551–569.

Kerner, A. (2009). Why Should I Believe You? The Costs and Consequences of Bilateral Investment Treaties. *International Studies Quarterly*, 53(1):73–102.

Kinda, T. (2010). Investment Climate and FDI in Developing Countries: Firm-Level Evidence. *World Development*, 38(4):498–513.

Kok, R. and Acikgoz Ersoy, B. (2009). Analyses of FDI Determinants in Developing Countries. *International Journal of Social Economics*, 36(1/2):105–123.

Kolstad, I. and Wiig, A. (2011). Better the Devil You Know? Chinese Foreign Direct Investment in Africa. *Journal of African Business*, 12(1):31–50.

Kragelund, P. (2009). Knocking on a Wide-open Door: Chinese Investments in Africa. *Review of African Political Economy*, 36(122):479–497.

Krugman, P. (1991). Increasing Returns and Economic Geography. *Journal of Political Economy*, 99(3):483–499.

Krugman, P. R. (1979). Increasing Returns, Monopolistic Competition, and International Trade. *Journal of International Economics*, 9(4):469 – 479.

Lederman, D., Mengistae, T., and Xu, L. C. (2010). Microeconomic Consequences and Macroeconomic Causes of Foreign Direct Investment in Southern African Economies. Policy Research Working Paper Series 5416, Washington, DC: The World Bank.

Lejour, A. and Salfi, M. (2015). The Regional Impact of Bilateral Investment Treaties on Foreign Direct Investment. CPB Discussion Paper 298, CPB Netherlands Bureau for Economic Policy Analysis.

Lu, J., Liu, X., Wright, M., and Filatotchev, I. (2014). International Experience and FDI Location Choices of Chinese Firms: The Moderating Effects of Home Country Government Support and Host Country Institutions. *Journal of International Business Studies*, 45(4):428–449.

Luo, Y., Xue, Q., and Han, B. (2010). How Emerging Market Governments Promote Outward FDI: Experience from China. *Journal of World Business*, 45(1):68–79.

Makino, S., Lau, C.-M., and Yeh, R.-S. (2002). Asset-Exploitation versus Asset-Seeking: Implications for Location Choice of Foreign Direct Investment from Newly Industrialized Economies. *Journal of International Business Studies*, 33(3):403–421.

Marshall, A. (1920). *Principles of Economics*. London: Macmillan.

Mathews, J. A. (2002). *Dragon Multinational: A New Model for Global Growth*. Oxford University Press.

Miyamoto, K. (2003). Human Capital Formation and Foreign Direct Investment in Developing Countries. Organisation for Economic Co-operation and Development (OECD) Paper 211, OECD Publishing, Paris.

Morisset, J. (2000). Foreign Direct Investment in Africa: Policies Also Matter. Policy Research Working Paper 2481, Washington, DC: World Bank, Washington, DC.

Mourao, P. R. (2018). What Is China Seeking From Africa? An Analysis of the Economic and Political Determinants of Chinese Outward Foreign Direct Investment Based on Stochastic Frontier Models. *China Economic Review*, 48:258–268.

Nachum, L. (2003). Liability of Foreignness in Global Competition? Financial Service Affiliates in the City of London. *Strategic Management Journal*, 24(12):1187–1208.

Ndikumana, L. and Verick, S. (2008). The Linkages Between FDI and Domestic Investment: Unravelling the Developmental Impact of Foreign Investment in Sub-Saharan Africa. *Development Policy Review*, 26(6):713–726.

Nielsen, B. B., Asmussen, C. G., and Weatherall, C. D. (2017). The Location Choice of Foreign Direct Investments: Empirical Evidence and Methodological Challenges. *Journal of World Business*, 52(1):62–82.

Noorbakhsh, F., Paloni, A., and Youssef, A. (2001). Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence. *World Development*, 29(9):1593–1610.

Nunnenkamp, P. and Spatz, J. (2002). Determinants of FDI in Developing Countries: Has Globalization Changed the Rules of the Game? *Transnational Corporations*, 11(2):1–34.

Özden, Ç., Parsons, C. R., Schiff, M., and Walmsley, T. L. (2011). Where On Earth Is Everybody? The Evolution of Global Bilateral Migration 1960–2000. *The World Bank Economic Review*, 25(1):12–56.

Quer, D., Claver, E., and Rienda, L. (2012). Political Risk, Cultural Distance, and Outward

Foreign Direct Investment: Empirical Evidence from Large Chinese Firms. *Asia Pacific Journal of Management*, 29(4):1089–1104.

Ramasamy, B., Yeung, M., and Laforet, S. (2012). China's Outward Foreign Direct Investment: Location Choice and Firm Ownership. *Journal of World Business*, 47(1):17–25.

Rauch, J. E. and Casella, A. (2003). Overcoming Informational Barriers to International Resource Allocation: Prices and Ties. *The Economic Journal*, 113(484):21–42.

Redding, G. (1995). Overseas Chinese Networks: Understanding the Enigma. *Long Range Planning*, 28(1):61–69.

Rodriguez-Pose, A. and Cols, G. (2017). The Determinants of Foreign Direct Investment in Sub-Saharan Africa: What Role for Governance? *Regional Science Policy & Practice*, 9(2):63–81.

Ross, A. G. et al. (2015). An Empirical Analysis of Chinese Outward Foreign Direct Investment in Africa. *Journal of Chinese Economic and Foreign Trade Studies*, 8(1):4–19.

Rugman, A. M. (1981). *Inside the Multinationals: The Economics of the Multinational Enterprise*. Columbia University Press, New York.

Sane, M. (2016). Determinants of Foreign Direct Investment Inflows to ECOWAS Member Countries: Panel Data Modelling and Estimation. *Modern Economy*, (7):1517–1542.

Shen, X. (2015). Private Chinese Investment in Africa: Myths and Realities. *Development Policy Review*, 33(1):83–106.

Sichei, M. M. and Kinyondo, G. (2012). Determinants of Foreign Direct Investment in Africa : A Panel Data Analysis. *Global Journal of Management and Business Research*, 12(18):85–97.

Sindzingre, A. N. (2016). Fostering Structural Change? China'ï£¡ï£¡s Divergence and Convergence with Africa's Other Trade and Investment Partners. *African Review of Economics and Finance*, 8(1):12–44.

Suliman, A. H. and Mollick, A. V. (2009). Human Capital Development, War and Foreign Direct Investment in Sub-Saharan Africa. *Oxford Development Studies*, 37(1):47–61.

Tan, D. and Meyer, K. E. (2011). Country-of-origin and Industry FDI Agglomeration of Foreign Investors in An Emerging Economy. *Journal of International Business Studies*, 42(4):504–520.

Taylor, I. (2006). China's Oil Diplomacy in Africa. *International Affairs*, 82(5):937–959.

Te Velde, D. and Bezemer, D. (2006). Regional Integration and Foreign Direct Investment in Developing Countries. *Transnational Corporations*, 15(2):41–70.

Teka, H. G. (2014). Determinants and Impediments of FDI inflows in Ethiopia-A Firm Level Investigation. MPRA Paper 55955, University Library of Munich, Germany.

Train, K. E. (2009). *Discrete Choice Methods with Simulation (2nd Edition)*. Cambridge University Press.

Tull, D. M. (2006). China's Engagement in Africa: Scope, Significance and Consequences. *The Journal of Modern African Studies*, 44(3):459–479.

UNCTAD (2009). The Role of International Investment Agreements in Attracting Foreign Direct Investment to Developing Countries. UNCTAD Series on International Investment Policies for Development, Geneva: United Nations Conference on Trade and Development.

UNCTAD (2018). World Investment Report. Investment and New Industrial Policies. Technical report, Geneva: United Nations Conference on Trade and Development.

Wang, C., Hong, J., Kafouros, M., and Wright, M. (2012). Exploring the Role of Government Involvement in Outward FDI from Emerging Economies. *Journal of International Business Studies*, 43(7):655–676.

Weidenbaum, M. L. and Hughes, S. (1996). *The Bamboo Network: How Expatriate Chinese Entrepreneurs are Creating a New Economic Superpower in Asia*. Simon and Schuster.

Zaheer, S. (1995). Overcoming the Liability of Foreignness. *The Academy of Management Journal*, 38(2):341–363.

Zschoche, M. (2016). The Effects of Foreign Direct Investment Colocation: Differences Between Manufacturing and Service Firms. *Managerial and Decision Economics*, 37(7):447–460.

Figures

Figure 1: Main investor origin countries in Africa (2004-2017)

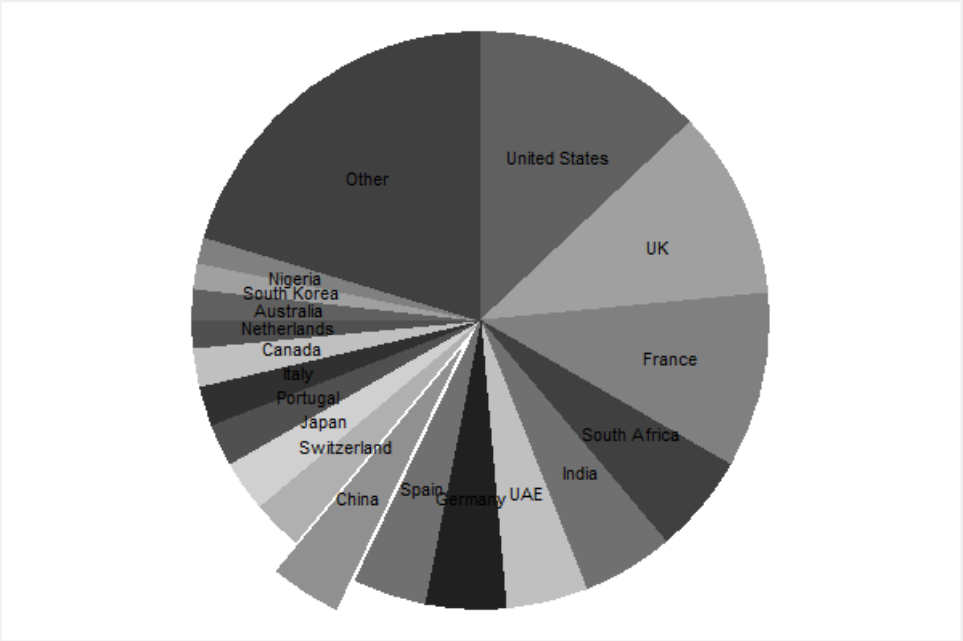


Figure 2: Chinese share of total FDI in Africa (2004-2017)

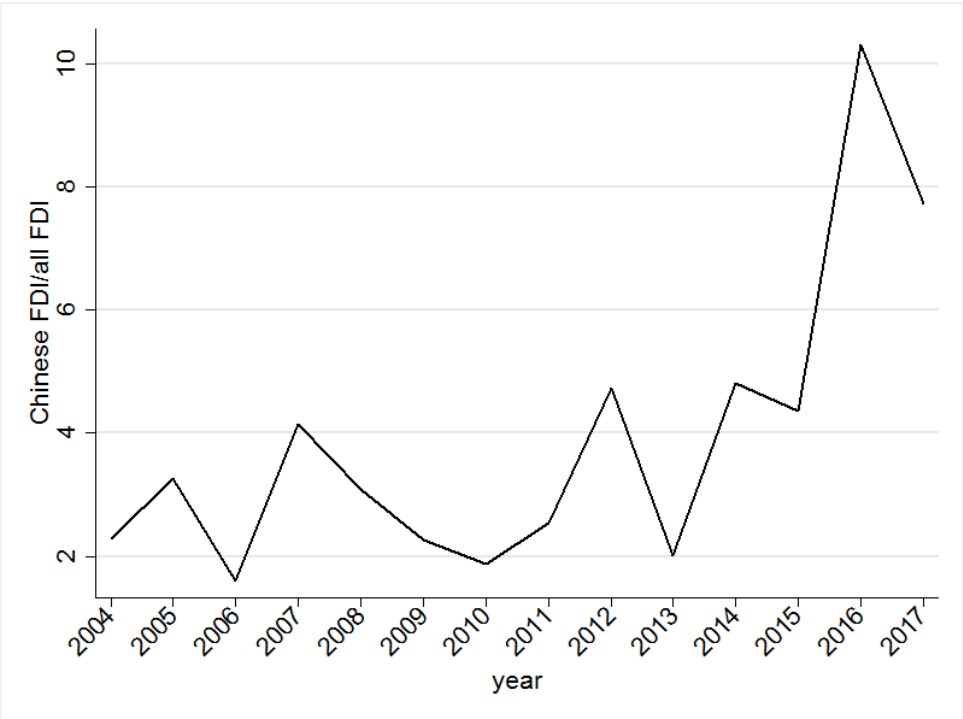


Figure 3: FDI activities by origin country group (activity shares, 2004-2017)

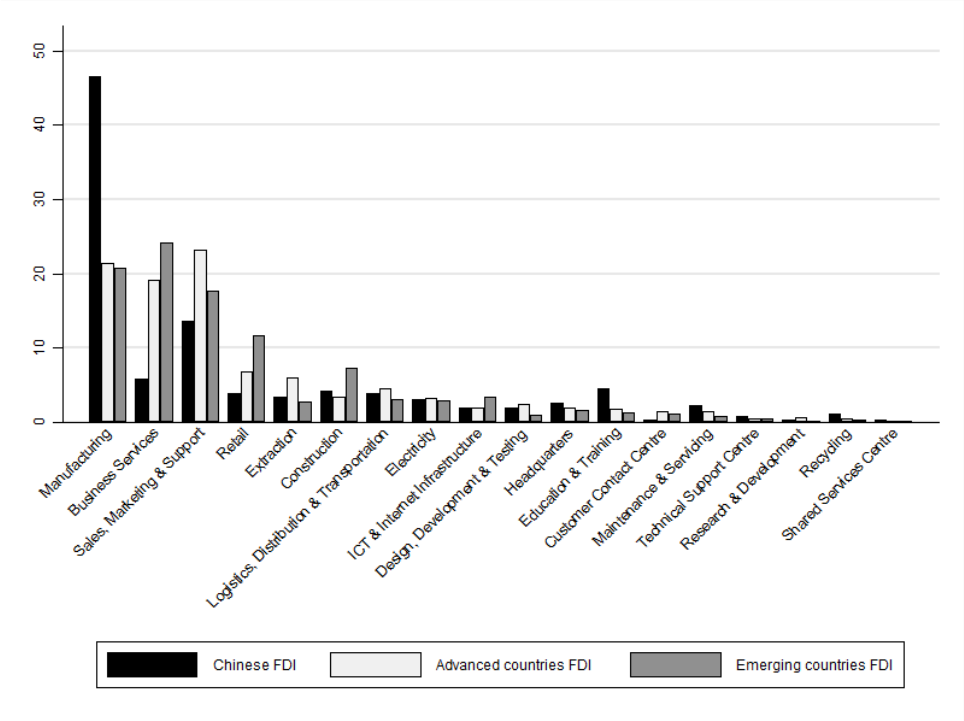
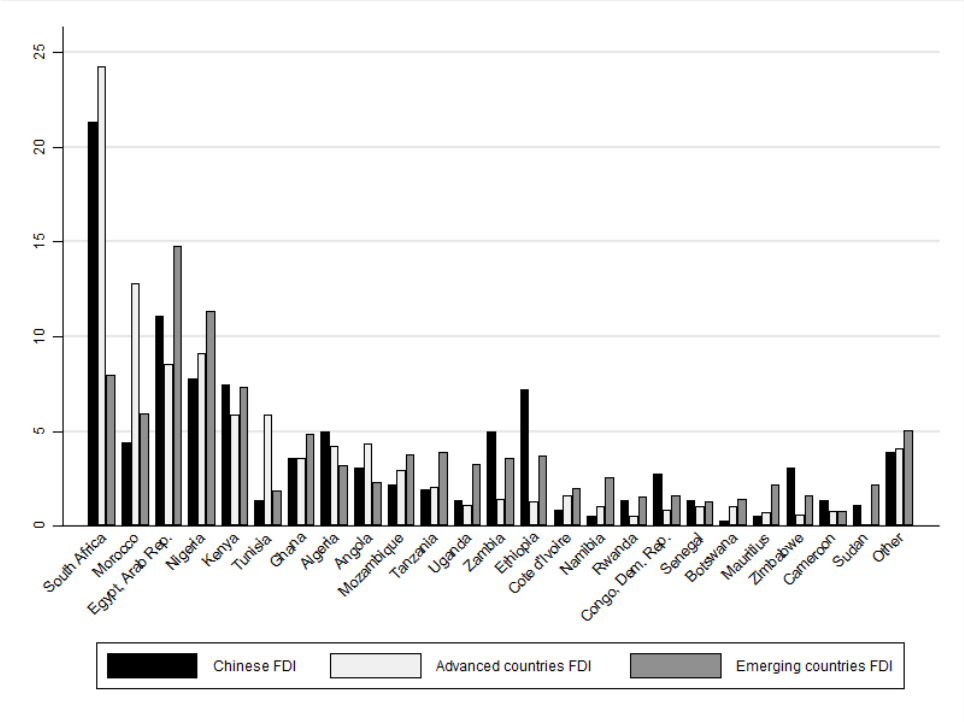


Figure 4: FDI destinations by origin country group (destination shares, 2004-2017)



Tables

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
Internal agglo$_{i,n,t-1}$	0.04	0.59	0.00	69.00
Industry agglo$_{i,n,t-1}$	17.07	39.35	0.00	521.00
Country-of-origin agglo$_{i,o,t-1}$	6.24	21.30	0.00	351.00
IIA$_{o,I,t-1}$	0.72	0.45	0.00	1.00
FDI stock$_{i,2002}$	3.88	7.54	−0.28	35.88
Ores exports$_{i,2002}$	14.49	21.61	0.11	73.87
Fuel exports$_{i,2002}$	14.97	26.41	−2.16	95.70
Political stability$_{i,t-1}$	−0.55	0.86	−2.70	1.20
GDP growth$_{i,t-1}$	4.80	4.23	−36.70	20.72
Log population$_{i,t-1}$	16.29	1.30	13.04	19.04
Human capital $_{i,t-1}$	1.81	0.41	1.10	2.86
Infrastructure$_{i,t-1}$	9.50	10.18	0.55	56.51
Log Distance$_{o,i}$	8.71	0.59	2.35	9.85
Common Language$_{o,i}$	0.29	0.45	0.00	1.00
Colony$_{o,i}$	0.09	0.29	0.00	1.00
Log exports$_{I,o,t-1}$	9.73	3.27	0.00	17.48
Log imports$_{i,o,t-1}$	10.70	2.51	0.00	16.64
Log immigrants$_{i,o,t-1}$	3.13	3.44	0.00	14.19
Log emigrants$_{i,o,t-1}$	5.60	4.00	0.00	14.19
South Africa$_i$	0.02	0.15	0.00	1.00
Egypt$_i$	0.02	0.15	0.00	1.00
China$_o$	0.04	0.20	0.00	1.00
Log wage$_{i,t-1}$	5.12	1.61	0.85	9.06
Aid projects$^{(c)}_{i,o,t-1}$	141.98	242.17	0.00	3 482.00
Aid Amount$^{(c)}_{i,o,t-1}$	191.41	550.72	0.00	10 169.00
Export tariffs$^{(a)}_{i,o,t-1}$	6.99	14.14	0.00	392.22
Import tariffs$^{(b)}_{i,o,t-1}$	16.92	8.17	0.00	105.05
Advanced countries$_i$	0.73	0.44	0.00	1.00
Emerging countries$_i$	0.25	0.43	0.00	1.00

Note: The number of observations for all variables is 376,521 with the exception of (a) 177,780, (b) 317,912, and (c) 226,231.

Table 2: Correlation matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	Internal agglo$_{i,n,t-1}$	1.00																					
2	Industry agglo$_{i,n,t-1}$	0.08	1.00																				
3	Country-of-origin agglo$_{i,o,t-1}$	0.14	0.50	1.00																			
4	IIA$_{o,i,t-1}$	0.02	0.04	0.10	1.00																		
5	FDI stock$_{i,2002}$	0.09	0.63	0.48	0.05	1.00																	
6	Ores exports$_{i,2002}$	−0.02	−0.10	−0.07	−0.03	−0.12	1.00																
7	Fuel exports$_{i,2002}$	0.05	0.22	0.14	0.02	0.38	−0.23	1.00															
8	Political stability$_{i,t-1}$	−0.01	−0.07	−0.04	−0.03	−0.12	−0.11	−0.24	1.00														
9	GDP growth$_{i,t-1}$	−0.00	−0.06	−0.05	0.01	−0.04	0.06	−0.03	0.06	1.00													
10	Log population$_{i,t-1}$	0.06	0.37	0.26	0.08	0.47	−0.02	0.26	−0.55	0.15	1.00												
11	Human capital $_{i,t-1}$	0.03	0.30	0.23	0.01	0.29	−0.04	0.15	0.32	−0.10	−0.15	1.00											
12	Infrastructure$_{i,t-1}$	0.02	0.20	0.14	0.04	0.27	−0.18	−0.01	0.30	−0.06	−0.16	0.53	1.00										
13	Log Distance$_{o,i}$	−0.02	−0.05	−0.06	−0.32	−0.06	0.03	−0.11	0.11	0.00	−0.11	0.04	−0.03	1.00									
14	Common Language$_{o,i}$	0.04	0.05	0.20	0.03	0.07	0.01	−0.01	0.09	0.02	−0.01	0.23	0.18	−0.02	1.00								
15	Colony$_{o,i}$	0.04	0.01	0.20	0.20	0.02	−0.01	−0.00	0.02	−0.01	−0.02	0.04	0.01	−0.09	0.34	1.00							
16	Log exports$_{I,o,t-1}$	0.06	0.33	0.36	0.08	0.43	−0.10	0.31	−0.06	0.02	0.35	0.29	0.12	−0.03	0.12	0.19	1.00						
17	Log imports$_{i,o,t-1}$	0.07	0.33	0.39	0.09	0.41	−0.07	0.31	−0.10	0.05	0.40	0.17	0.09	−0.13	0.09	0.21	0.71	1.00					
18	Log immigrants$_{i,o,t-1}$	0.05	0.15	0.26	0.13	0.20	0.01	0.04	0.08	−0.02	0.07	0.27	0.22	−0.12	0.31	0.33	0.35	0.38	1.00				
19	Log emigrants$_{i,o,t-1}$	0.05	0.16	0.32	0.33	0.23	−0.04	0.14	−0.11	0.05	0.27	0.06	0.06	−0.22	0.27	0.29	0.41	0.46	0.42	1.00			
20	South Africa$_i$	0.05	0.46	0.38	0.01	0.65	−0.01	−0.03	0.09	−0.08	0.17	0.26	0.06	0.09	0.05	0.02	0.22	0.21	0.25	0.07	1.00		
21	Egypt$_i$	0.03	0.21	0.14	0.07	0.36	−0.07	0.14	−0.10	−0.02	0.24	0.21	0.68	−0.09	0.09	0.01	0.15	0.18	0.18	0.11	−0.02	1.00	
22	China$_o$	0.00	0.02	−0.02	−0.16	−0.00	0.00	−0.00	−0.00	−0.02	0.00	0.01	−0.00	0.20	−0.13	−0.07	0.12	0.20	0.03	−0.07	0.00	−0.00	1.00

Table 3: Baseline Results

	Model 1	Model 2	Model 3	Model 4		Model 5
				Main	Interaction	China only
Internal agglo$_{i,n,t-1}$			0.454***	0.473***	-0.366***	0.107
			(0.018)	(0.019)	(0.093)	(0.092)
Industry agglo$_{i,n,t-1}$		0.001***	0.001***	0.001***	0.002	0.003***
		(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Country-of-origin agglo$_{i,o,t-1}$		0.003***	0.002***	0.002***	-0.019***	-0.017**
		(0.000)	(0.000)	(0.000)	(0.007)	(0.007)
IIA$_{o,i,t-1}$	0.120**	0.127***	0.121**	0.147***	-0.408**	-0.261
	(0.047)	(0.047)	(0.048)	(0.052)	(0.188)	(0.181)
FDI stock$_{i,2002}$	0.097***	0.078***	0.071***	0.072***	-0.042	0.030
	(0.007)	(0.007)	(0.007)	(0.007)	(0.049)	(0.049)
FDI stock$^2_{i,2002}$	-0.002***	-0.002***	-0.002***	-0.001***	0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)
Ores exports$_{i,2002}$	0.015***	0.013***	0.014***	0.014***	0.018	0.031
	(0.003)	(0.003)	(0.003)	(0.003)	(0.021)	(0.021)
Ores exports$^2_{i,2002}$	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0001	-0.0003
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0003)	(0.0003)
Fuel exports$_{i,2002}$	0.010***	0.013***	0.012***	0.012***	0.008	0.019
	(0.003)	(0.003)	(0.003)	(0.003)	(0.017)	(0.017)
Fuel exports$^2_{i,2002}$	-0.0002***	-0.0002***	-0.0002***	-0.0002***	0.0000	-0.0002
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0002)	(0.0002)
Political stability$_{i,t-1}$	0.263***	0.269***	0.262***	0.270***	0.022	0.292**
	(0.026)	(0.025)	(0.026)	(0.026)	(0.149)	(0.147)
GDP growth$_{i,t-1}$	0.039***	0.043***	0.042***	0.041***	0.023	0.064***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.023)	(0.023)
Log population$_{i,t-1}$	0.611***	0.602***	0.615***	0.603***	0.284*	0.887***
	(0.026)	(0.026)	(0.027)	(0.027)	(0.162)	(0.159)
Human capital $_{i,t-1}$	0.267***	0.250***	0.265***	0.256***	0.665**	0.921***
	(0.051)	(0.051)	(0.052)	(0.053)	(0.298)	(0.294)
Infrastructure$_{i,t-1}$	0.033***	0.035***	0.038***	0.037***	-0.010	0.028
	(0.004)	(0.004)	(0.004)	(0.004)	(0.024)	(0.024)
Log Distance$_{o,i}$	-0.011	-0.010	-0.075**	-0.069**	-2.632**	-2.701**
	(0.029)	(0.029)	(0.030)	(0.030)	(1.078)	(1.077)
Common Language$_{o,i}$	0.343***	0.287***	0.249***	0.249***	0	0
	(0.035)	(0.035)	(0.036)	(0.036)	(.)	(.)
Colony$_{o,i}$	0.383***	0.320***	0.324***	0.311***	0	0
	(0.055)	(0.056)	(0.056)	(0.056)	(.)	(.)
Log exports$_{I,o,t-1}$	0.030***	0.033***	0.032***	0.031***	0.028	0.059
	(0.008)	(0.008)	(0.008)	(0.008)	(0.066)	(0.065)
Log imports$_{i,o,t-1}$	0.281***	0.273***	0.256***	0.257***	-0.186*	0.071
	(0.013)	(0.013)	(0.013)	(0.013)	(0.102)	(0.101)
Log immigrants$_{i,o,t-1}$	0.059***	0.053***	0.050***	0.053***	-0.094***	-0.041
	(0.005)	(0.005)	(0.005)	(0.005)	(0.026)	(0.025)
Log emigrants$_{i,o,t-1}$	0.073***	0.071***	0.062***	0.062***	0.150	0.211**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.096)	(0.096)
South Africa$_i$	-0.572***	-0.826***	-0.825***	-0.871***	2.271**	1.400
	(0.163)	(0.164)	(0.166)	(0.170)	(1.102)	(1.089)
Egypt$_i$	-2.879***	-2.920***	-3.009***	-2.986***	0.578	-2.407*
	(0.232)	(0.231)	(0.232)	(0.237)	(1.309)	(1.287)
N	376,521	376,521	376,521	376,521		15,485
F-test for interactions with China dummy				$\chi^2(19) = 85.48$		
Prob $> \chi^2$				0.0000		

Conditional logit estimates. Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Heterogeneity by activity

	Manufacturing		Services		Resource-related	
	Main	Interaction	Main	Interaction	Main	Interaction
Internal agglo$_{i,n,t-1}$	0.795***	-0.085	0.347***	-0.418***	0.672***	0.232
	(0.049)	(0.252)	(0.021)	(0.118)	(0.048)	(0.494)
Industry agglo$_{i,n,t-1}$	-0.003***	0.022***	0.001***	-0.001	0.011***	0.014
	(0.001)	(0.004)	(0.000)	(0.002)	(0.002)	(0.012)
Country-of-origin agglo$_{i,o,t-1}$	0.003***	-0.072***	0.002***	-0.010	0.000	0.011
	(0.001)	(0.016)	(0.000)	(0.012)	(0.001)	(0.022)
IIA$_{o,I,t-1}$	0.069	-0.398	0.137**	-0.602*	0.218*	-0.339
	(0.112)	(0.311)	(0.069)	(0.341)	(0.118)	(0.472)
FDI stock$_{i,2002}$	0.138***	-0.418***	0.055***	0.102	0.079***	-0.185
	(0.017)	(0.104)	(0.009)	(0.085)	(0.018)	(0.133)
FDI stock$^2_{i,2002}$	-0.003***	0.011***	-0.001***	-0.005	-0.001**	0.005
	(0.001)	(0.004)	(0.000)	(0.003)	(0.001)	(0.005)
Ores exports$_{i,2002}$	0.006	0.048	0.005	-0.000	0.049***	0.004
	(0.008)	(0.035)	(0.004)	(0.044)	(0.008)	(0.050)
Ores exports$^2_{i,2002}$	-0.0000	-0.0004	-0.0001**	-0.0000	-0.0006***	0.0002
	(0.0001)	(0.0004)	(0.0001)	(0.0006)	(0.0001)	(0.0006)
Fuel exports$_{i,2002}$	0.001	-0.013	0.014***	0.052*	0.014**	0.014
	(0.007)	(0.029)	(0.004)	(0.030)	(0.007)	(0.041)
Fuel exports$^2_{i,2002}$	-0.0001	0.0003	-0.0002***	-0.0004	-0.0002**	-0.0001
	(0.0001)	(0.0003)	(0.0000)	(0.0003)	(0.0001)	(0.0004)
Political stability$_{i,t-1}$	0.344***	0.161	0.256***	-0.154	0.271***	0.020
	(0.058)	(0.239)	(0.034)	(0.278)	(0.061)	(0.346)
GDP growth$_{i,t-1}$	0.052***	-0.007	0.039***	0.041	0.020**	0.074
	(0.010)	(0.039)	(0.005)	(0.038)	(0.010)	(0.055)
Log population$_{i,t-1}$	0.713***	0.234	0.638***	0.351	0.473***	-0.048
	(0.064)	(0.268)	(0.035)	(0.319)	(0.061)	(0.326)
Human capital $_{i,t-1}$	0.093	0.761	0.386***	0.813	0.051	1.027
	(0.123)	(0.501)	(0.068)	(0.513)	(0.130)	(0.719)
Infrastructure$_{i,t-1}$	0.034***	-0.029	0.042***	0.032	0.026***	-0.001
	(0.010)	(0.040)	(0.005)	(0.040)	(0.010)	(0.049)
Log Distance$_{o,i}$	-0.228***	-6.257***	0.026	-1.679	-0.220***	-0.455
	(0.068)	(1.908)	(0.039)	(1.882)	(0.079)	(2.544)
Common Language$_{o,i}$	0.033	0	0.286***	0	0.327***	0
	(0.077)	(.)	(0.047)	(.)	(0.087)	(.)
Colony$_{o,i}$	0.431***	0	0.365***	0	-0.046	0
	(0.124)	(.)	(0.073)	(.)	(0.136)	(.)
Log exports$_{I,o,t-1}$	0.044**	0.104	0.040***	-0.028	-0.000	0.197
	(0.018)	(0.101)	(0.011)	(0.128)	(0.018)	(0.159)
Log imports$_{i,o,t-1}$	0.296***	-0.249	0.271***	-0.209	0.175***	0.026
	(0.031)	(0.157)	(0.017)	(0.204)	(0.032)	(0.228)
Log immigrants$_{i,o,t-1}$	0.037***	-0.097***	0.049***	-0.079	0.082***	-0.096
	(0.011)	(0.037)	(0.006)	(0.050)	(0.012)	(0.067)
Log emigrants$_{i,o,t-1}$	0.049***	0.261*	0.078***	0.061	0.037***	0.141
	(0.013)	(0.156)	(0.007)	(0.165)	(0.014)	(0.218)
South Africa$_i$	-0.392	0.130	-0.807***	4.700**	-1.202***	-1.893
	(0.381)	(1.836)	(0.221)	(1.903)	(0.428)	(2.899)
Egypt$_i$	-2.792***	1.768	-3.269***	-1.986	-2.183***	0.122
	(0.574)	(2.240)	(0.303)	(2.326)	(0.548)	(2.731)
N	82,148		226,454		60,378	
F-test for interactions with China dummy		$\chi^2(22) = 65.16$		$\chi^2(22) = 44.32$		$\chi^2(22) = 25.85$
Prob $> \chi^2$		0.0000		0.0000		0.0000

Conditional logit estimates. Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Online Appendix

A Data Appendix

The data we use originate from the linkage of different data sources. FDI flows data are drawn from the fDI markets database, a comprehensive and regularly updated online database of announced cross-border greenfield investments constructed by the Financial Times Intelligence Unit[6]. It covers all countries and sectors worldwide. We extracted from this repository the data relating to inward FDI into African countries over the 2003-2017 period (2003 being the first available year). These correspond to almost 10,000 greenfield investments into 54 African countries from 123 origin countries, including both extra and intra-African investments. We consider as origin country the one in which the investing company is resident when the investment takes place. Our initial choice set included almost 550,000 investment-country combinations. Because we lagged all our regressors one year, including those derived from FDI markets, the first year available for estimation is 2004. Due to scarce availability of some of our main variables of interest, we recurred to missing values imputation where this was possible without causing distortions in the data. In spite of our efforts, our estimation sample shrank to 376,521 investment-country combinations, corresponding to 9,152 FDI, including 43 destinations, 93 origin countries and 18 different industry activities, from 2004 to 2017.

We draw from the fDI markets database some of our main variables of interest, related to agglomeration and information economies deriving from intra-firm co-location (measured by the cumulated number of investments from the same investing firm in destination country i up to year $t-1$, *Internal agglomeration*); co-location within the same industry (cumulated number of investments in the same industry activity as investment n observed in country i up to year $t-1$, *Industry agglomeration*); co-location of firms from the same country of origin (cumulated number of investments for the same origin-destination couple up to year $t-1$, *Country-of-origin agglomeration*). All the three measures of agglomeration are

[6] `https://www.fdimarkets.com/`

assigned value 0 for the first year in the FDI data, 2003.

We rely on UNCTAD data on FDI stocks in 2002[7] to capture the agglomeration of FDI in destination i prior to our observation period. This could also be interpreted as a measure of the costs of doing business in the country. The variable included, *FDI stock 2002*, is expressed in billion US dollars.

Information on IIAs is retrieved using the International Investment Agreements Navigator tool on the UNCTAD Investment Policy Hub website[8], where all signed and ratified IIAs are easily searchable according to the type of agreement and year, for both individual destinations and country groupings. For each year and couple of origin-destination countries in our dataset, our variable *IIA* is equal to 1 if at least one BIT or TIP is in force—and not only signed—between these two countries in that year.

Data on the standard location determinants are mostly retrieved from the World Bank's World Development Indicators database (WDI)[9], including information on market size and growth and availability of natural resources. As for the natural resources, we considered the share of mineral and metal exports and the share of fuel exports on all merchandise exports at the beginning of the period (*Ores exports 2002; Fuel exports 2002*), obtanained computing the mean of the shares from 1994 to 2002. Information from WDI covers theoretically all the years, origin and destinations considered. However, some countries present large numbers of missing data according to a number of reasons, including sporadic realization of surveys and underreporting of data due to conflict and lack of statistical capacity, as reported on the World Bank's website in the data help desk section. As indicated before, this led us, on the one side, to exclude from the beginning some destinations, namely Eritrea, Libya, Somalia, Chad, Djibouti, Comoros, Guinea Bissau, Equatorial Guinea, Seychelles and Sao Tome and Principe; on the other side, we resorted to missing data imputation. Specifically, basing on the inspection of the time dynamics of the variables, we deemed it appropriate to impute missing values using fixed effects regressions of the variables of interest on time. In this way, for variables for which we had at least one observation, we were able to retrieve an estimated fixed effect and an estimated average time trend. We then imputed the missing values by summing up the predicted fixed effect with the time trend.

[7] `https://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx`
[8] `investmentpolicyhub.unctad.org`
[9] `https://datacatalog.worldbank.org/dataset/world-development-indicators`

In our estimation sample, 7% and 11.5% of observations for *Ores exports 2002* and *Fuel exports 2002*, respectively, are imputed.

Data on human capital and education were severely incomplete in the WDI dataset, hence we relied on the human capital index of the Groningen Growth and Development Centre Penn World Tables (PWT, release 9.1)[10], combining average years of schooling and returns to education. The index covers the whole period under analysis and is only unavailable for Guinea and Cabo Verde. Only for these two countries, we used imputation running fixed effects regressions of *Human capital* on WDI education variables (primary, secondary and tertiary enrollment) and on time. Imputed observations represent 4.5% of the estimation sample for *Human capital*.

Information on infrastructure development was included *Infrastructure* using the Africa Infrastructure Development Index (AIDI), developed by the African Development Bank for 54 African countries from 2003 to the present year[11].

We also included a set of variables accounting for governance factors and institutional functioning, retrieved from the Worldwide Governance Indicators (WGI) database of the World Bank[12]. In particular, we run our models using both political stability and rule of law, which, according to the relevant literature, are associated with the highest impact on location decisions in the African context. The results are similar for both variables so we only report the results for the specifications including political stability. Governance variables are given in units of a standard normal distribution and it ranges from approximately -2.5, indicating the worst governance performance, to 2.5.

Bilateral variables intended to capture the bilateral costs of foreign direct investment were drawn from the CEPII CHELEM dataset[13]. This includes Log distance, calculated as the great circle distance between the two countries' capitals; a Common Language dummy equal to 1 if the two countries share a common language that is spoken by at least 9% of the population; and a Colony dummy equal to 1 if the two countries ever shared a colonial tie. Those variables cover the entire sample of countries for the whole period.

To control for potential complementarity and substitution effects between trade and FDI, we collected information on the value of exports from and imports in African countries (*Log*

[10] https://www.rug.nl/ggdc/productivity/pwt/?lang=en
[11] http://infrastructureafrica.opendataforafrica.org/rscznob/africa-infrastructure-development-index
[12] https://databank.worldbank.org/source/worldwide-governance-indicators
[13] http://www.cepii.fr/cepii/en/bdd_modele/bdd.asp

exports and *Log imports*), measured in 2011 US$, from the World Bank World Integrated Trade Solution (WITS) database[14]. We also retrieved data on stocks of immigrants in and emigrants from African countries (*Log emigrants* and *Log immigrants*) from the World Bank migration data. We integrated the Bilateral Migration Database 1960-2000, which gives the bilateral migrant stocks up to year 2000, with its two latest updates (Bilateral Migration Matrix 2013 and 2017)[15]. We decided not to use the 2010 update since it carried too many missing values with respect to origin countries. We used 2000 stocks for years up to 2007, 2013 data for years from 2008 to 2013 and 2017 stocks from 2014 to 2017.

We retrieved data on monthly wages from the ILOSTAT database[16]. Unfortunately, that information is only available for 24 destination countries and not for all years. When data were partially available for a destination, we filled the missing years with the data from the first previous year available. In spite of that, including *Log wage* in our analysis reduces our sample to one-third, shrinking it to 121,657 investment-country combinations, where 77% of observations for wage are imputed. We also aimed at including data on bilateral weighted tariffs on imports and exports and on another important source of cash flows to Africa, which is bilateral aid. Information on tariffs was retrieved from the UNCTAD TRAINS database[17], is only available until 2014 and missing for some origin-destination couples. In spite of our efforts in filling the missing data, using the same method used for the wage variable, including tariff information halves our dataset, with 24% and 21% of *Import tariffs* and *Export tariffs*, respectively, being imputed. As for aid data, not all countries decide to publicly disclose information on the aid projects they undertake, including China. For those countries who make official data publicly available, these data could be retrieved from AidData's project level database[18]; although China is not among those countries, AidData provides the same information related to aid projects from China, as well as from Qatar and Saudi Arabia, collected by using the TUFF Methodology (Tracking Underreported Financial Flows). All the data, as well as detailed information on the TUFF Methodology,

[14] https://wits.worldbank.org/

[15] https://www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data

[16] https://ilostat.ilo.org/topics/wages/

[17] https://databank.worldbank.org/source/unctad-%5e-trade-analysis-information-system-(trains)#

[18] http://dashboard.aiddata.org/

can be found at AidData's website[19]. After integrating the different aid data sources, we included the cumulated number of aid projects and the cumulated amount of aid flows in constant 2014 US$ for each origin-destination couple at a given year, considering only disboursed aid flows, not aid commitments. The resulting information, however, is only available for 32 origin countries and only until 2013, which reduces our sample to 226,231 observations. For these reasons, we decided to include data on aid, tariffs and wages only as robustness checks (*Aid projects* and *Aid amount*, *Export tariffs* and *Import tariffs*, and *Log wage* in A.4).

Given that South Africa accounts for almost 20% of all investments in our sample, being the first FDI destination overall and for MNEs from both advanced countries and China, we created a dummy named *South Africa*, taking value 1 if the destination country is South Africa and zero otherwise. We also created a dummy for Egypt (*Egypt*) to account for its role as first destination for investors from emerging countries other than China.

We explored origin country heterogeneity by introducing the dummies *advanced* and *emerging*, equal to 1 if the origin country belongs, respectively, to the advanced countries plus China or to the emerging countries, and zero otherwise, according to the IMF classification[20].

Finally, we relied on publicly available information on the internet, such as financial websites, company websites and reports, and Wikipedia, to identify which of the 361 Chinese FDI in our sample are realized by firms which are currently SOEs. The dummy *SOE* equals to 1 if the Chinese firm is a SOE and zero otherwise. Following relevant literature, the criteria we used to identify the state ownership in our sample was a broad one, including both direct ownership as well as government affiliation. Specifically, we categorized as SOEs: i) firms that are totally or majority owned by the Chinese government at different level (state, province or municipality levels); ii) those of which Chinese government at different levels owns minority but consistent ownership shares; iii) those for which we were able to collect information attesting other forms of relevant government affiliation, including government funding or affiliation with other government funded entities; iv) those firms, such as Huawei, for which substantial doubts exist with respect to the actual absence of state control.

[19] `https://www.aiddata.org/datasets`
[20] `https://www.imf.org/external/np/exr/key/advanced.htm`

To study the differential role of Chinese investors, our regressors are interacted with a dummy, c_o, equal to 1 if the origin country of investment n is China, and zero otherwise.

Table A.1: Destination Countries

Destination country	N. of FDI	Share of total FDI (%)
Algeria	376	4.11
Angola	326	3.56
Benin	12	0.13
Botswana	102	1.11
Burkina Faso	28	0.31
Burundi	24	0.26
Cabo Verde	15	0.16
Cameroon	80	0.87
Central African Republic	6	0.07
Congo, Dem. Rep.	106	1.16
Congo, Rep.	34	0.37
Cote d'Ivoire	160	1.75
Egypt, Arab Rep.	902	9.86
Eswatini	17	0.19
Ethiopia	192	2.1
Gabon	45	0.49
Gambia, The	12	0.13
Ghana	400	4.37
Guinea	32	0.35
Kenya	576	6.29
Lesotho	9	0.1
Liberia	28	0.31
Madagascar	42	0.46
Malawi	23	0.25
Mali	30	0.33
Mauritania	29	0.32
Mauritius	95	1.04
Morocco	932	10.18
Mozambique	279	3.05
Namibia	122	1.33
Niger	10	0.11
Nigeria	855	9.34
Rwanda	119	1.3
Senegal	103	1.13
Sierra Leone	29	0.32
South Africa	1,758	19.21
Sudan	61	0.67
Tanzania	256	2.8
Togo	20	0.22
Tunisia	406	4.44
Uganda	203	2.22
Zambia	203	2.22
Zimbabwe	95	1.04
Total	9,152	100.00

Table A.2: Robustness to restricting the interactions to Chinese State-owned Enterprises

	Model 1		Model 2
	Main	Interaction	China-only
Internal agglo$_{i,n,t-1}$	0.473***	-0.365***	0.107
	(0.019)	(0.100)	(0.098)
Industry agglo$_{i,n,t-1}$	0.001***	0.001	0.002
	(0.000)	(0.002)	(0.002)
Country-of-origin agglo$_{i,o,t-1}$	0.002***	-0.017*	-0.015*
	(0.000)	(0.009)	(0.009)
IIA$_{o,I,t-1}$	0.147***	-0.409*	-0.263
	(0.052)	(0.234)	(0.228)
FDI stock$_{i,2002}$	0.072***	0.013	0.086
	(0.007)	(0.060)	(0.060)
FDI stock$^2_{i,2002}$	-0.002***	-0.002	-0.004
	(0.000)	(0.002)	(0.002)
Ores exports$_{i,2002}$	0.014***	-0.017	-0.003
	(0.003)	(0.029)	(0.029)
Ores exports $^2_{i,2002}$	-0.0002***	0.0005	0.0003
	(0.0000)	(0.0004)	(0.0004)
Fuel exports$_{i,2002}$	0.012***	0.036*	0.048**
	(0.003)	(0.021)	(0.021)
Fuel exports$^2_{i,2002}$	-0.0002***	-0.0002	-0.0004**
	(0.0000)	(0.0002)	(0.0002)
Political stability$_{i,t-1}$	0.270***	0.097	0.367**
	(0.026)	(0.179)	(0.177)
GDP growth$_{i,t-1}$	0.041***	0.027	0.068**
	(0.004)	(0.029)	(0.029)
Log population$_{i,t-1}$	0.603***	0.397**	1.001***
	(0.027)	(0.201)	(0.199)
Human capital $_{i,t-1}$	0.256***	0.930**	1.186***
	(0.053)	(0.390)	(0.386)
Infrastructure$_{i,t-1}$	0.037***	-0.022	0.015
	(0.004)	(0.031)	(0.031)
Log Distance$_{o,i}$	-0.069**	-2.237*	-2.306*
	(0.030)	(1.343)	(1.342)
Common Language$_{o,i}$	0.249***	0	0
	(0.0358)	(.)	(.)
Colony$_{o,i}$	0.311***	0	0
	(0.0563)	(.)	(.)
Log exports$_{i,o,t-1}$	0.031***	-0.069	-0.037
	(0.008)	(0.076)	(0.075)
Log imports$_{i,o,t-1}$	0.257***	-0.137	0.121
	(0.013)	(0.130)	(0.130)
Log immigrants$_{i,o,t-1}$	0.053***	-0.093***	-0.040
	(0.005)	(0.032)	(0.032)
Log emigrants$_{i,o,t-1}$	0.062***	0.051	0.112
	(0.006)	(0.115)	(0.115)
South Africa$_i$	-0.871***	3.699***	2.827**
	(0.170)	(1.366)	(1.355)
Egypt$_i$	-2.986***	0.514	-2.472
	(0.237)	(1.698)	(1.682)
N	370,937		9,901
F-test for interactions with SOE dummy	$\chi^2(22) = 88.51$		
Prob $> \chi^2$	0.0000		

Conditional logit estimates. Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.3: Robustness to different subgroups of investors

	Model 1	Model 2	Model 3	Model 4: All		Model 5: Advanced		Model 6: Emerging	
	All	Advanced	Emerging	Main	Interaction	Main	Interaction	Main	Interaction
Internal agglo$_{i,n,t-1}$	0.454***	0.445***	0.357***	0.473***	-0.366***	0.471***	-0.364***	0.396***	-0.289***
	(0.018)	(0.021)	(0.032)	(0.019)	(0.093)	(0.022)	(0.094)	(0.036)	(0.099)
Industry agglo$_{i,n,t-1}$	0.001***	0.001***	0.003***	0.001***	0.002	0.001***	0.002*	0.003***	-0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Country-of-origin agglo$_{i,o,t-1}$	0.002***	0.000	0.006***	0.002***	-0.019***	0.000	-0.017**	0.007***	-0.024***
	(0.000)	(0.000)	(0.002)	(0.000)	(0.007)	(0.000)	(0.007)	(0.002)	(0.007)
IIA$_{o,i,t-1}$	0.121**	-0.098	0.244***	0.147***	-0.408**	-0.090	-0.172	0.278***	-0.539***
	(0.048)	(0.062)	(0.071)	(0.052)	(0.188)	(0.073)	(0.195)	(0.088)	(0.201)
FDI stock$_{i,2002}$	0.071***	0.089***	-0.014	0.072***	-0.042	0.091***	-0.061	-0.028*	0.058
	(0.007)	(0.010)	(0.014)	(0.007)	(0.049)	(0.010)	(0.050)	(0.016)	(0.051)
FDI stock$^2_{i,2002}$	-0.002***	-0.002***	0.001	-0.002***	0.000	-0.002***	0.001	0.001**	-0.003
	(0.000)	(0.000)	(0.001)	(0.000)	(0.002)	(0.000)	(0.002)	(0.001)	(0.002)
Ores exports$_{i,2002}$	0.014***	0.018***	0.003	0.014***	0.018	0.018***	0.013	0.001	0.031
	(0.003)	(0.004)	(0.006)	(0.003)	(0.022)	(0.005)	(0.022)	(0.006)	(0.022)
Ores exports$^2_{i,2002}$	-0.0002***	-0.0003***	0.0000	-0.0002***	-0.0001	-0.0003***	-0.0000	0.0000	-0.0003
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0001)	(0.0003)	(0.0001)	(0.0003)
Fuel exports$_{i,2002}$	0.012***	0.010**	0.022***	0.012***	0.008	0.008**	0.011	0.021***	-0.002
	(0.003)	(0.004)	(0.005)	(0.003)	(0.017)	(0.004)	(0.017)	(0.006)	(0.017)
Fuel exports$^2_{i,2002}$	-0.0002***	-0.0002***	-0.0003***	-0.0002***	0.0000	-0.0002***	-0.0000	-0.0003***	0.0001
	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0002)
Political stability$_{i,t-1}$	0.262***	0.271***	0.306***	0.270***	0.022	0.291***	0.001	0.334***	-0.042
	(0.026)	(0.034)	(0.046)	(0.026)	(0.149)	(0.035)	(0.151)	(0.050)	(0.155)
GDP growth$_{i,t-1}$	0.042***	0.041***	0.033***	0.041***	0.023	0.040***	0.024	0.031***	0.033
	(0.004)	(0.005)	(0.008)	(0.004)	(0.023)	(0.006)	(0.023)	(0.009)	(0.024)
Log population$_{i,t-1}$	0.615***	0.579***	0.818***	0.603***	0.284*	0.556***	0.331**	0.799***	0.088
	(0.027)	(0.034)	(0.053)	(0.027)	(0.162)	(0.036)	(0.163)	(0.057)	(0.169)
Human capital $_{i,t-1}$	0.265***	0.335***	-0.120	0.256***	0.665**	0.315***	0.606**	-0.233**	1.155***
	(0.052)	(0.066)	(0.100)	(0.053)	(0.298)	(0.068)	(0.302)	(0.110)	(0.314)
Infrastructure$_{i,t-1}$	0.038***	0.033***	0.059***	0.037***	-0.010	0.031***	-0.003	0.058***	-0.030
	(0.004)	(0.005)	(0.008)	(0.004)	(0.024)	(0.005)	(0.024)	(0.008)	(0.025)
Log Distance$_{o,i}$	-0.075**	0.055	-0.154**	-0.069**	-2.632**	0.065	-2.767**	-0.127*	-2.574**
	(0.030)	(0.043)	(0.066)	(0.030)	(1.078)	(0.044)	(1.078)	(0.069)	(1.079)
Common Language$_{o,i}$	0.249***	0.139***	0.730***	0.249***	0	0.145***	0	0.755***	0
	(0.036)	(0.047)	(0.073)	(0.036)	(.)	(0.047)	(.)	(0.077)	(.)
Colony$_{o,i}$	0.324***	0.314***	0.813***	0.311***	0	0.285***	0	0.776***	0
	(0.056)	(0.066)	(0.152)	(0.056)	(.)	(0.066)	(.)	(0.153)	(.)
Log exports$_{i,o,t-1}$	0.032***	0.057***	0.034**	0.031***	0.028	0.058***	0.002	0.035**	0.024
	(0.008)	(0.011)	(0.014)	(0.008)	(0.066)	(0.011)	(0.066)	(0.015)	(0.067)
Log imports$_{i,o,t-1}$	0.256***	0.360***	0.211***	0.257***	-0.186*	0.364***	-0.293***	0.216***	-0.144
	(0.013)	(0.019)	(0.026)	(0.013)	(0.102)	(0.020)	(0.103)	(0.028)	(0.105)
Log immigrants$_{i,o,t-1}$	0.050***	0.056***	0.035***	0.053***	-0.094***	0.061***	-0.102***	0.044***	-0.085***
	(0.005)	(0.006)	(0.009)	(0.005)	(0.026)	(0.006)	(0.026)	(0.010)	(0.027)
Log emigrants$_{i,o,t-1}$	0.062***	0.041***	0.036***	0.062***	0.150	0.040***	0.172*	0.032***	0.179*
	(0.006)	(0.009)	(0.010)	(0.006)	(0.096)	(0.009)	(0.096)	(0.010)	(0.097)
South Africa$_i$	-0.825***	-0.900***	-1.327***	-0.871***	2.271**	-0.982***	2.382**	-1.705***	3.105***
	(0.166)	(0.212)	(0.324)	(0.170)	(1.102)	(0.221)	(1.111)	(0.360)	(1.147)
Egypt$_i$	-3.009***	-2.933***	-3.660***	-2.986***	0.578	-2.850***	0.443	-3.664***	1.257
	(0.232)	(0.299)	(0.431)	(0.237)	(1.309)	(0.310)	(1.324)	(0.464)	(1.368)
N	376,521	275,024	95,063	376,521		275,024		95,063	
F-test for interactions with China dummy				$\chi^2(22) = 85.48$		$\chi^2(22) = 98.06$		$\chi^2(22) = 71.36$	
Prob > χ^2				0.0000		0.0000		0.0000	

Conditional logit estimates. Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.4: Robustness to additional control variables

	Model 1		Model 2		Model 3		Model 4	
	Main	Interaction	Main	Interaction	Main	Interaction	Main	Interaction
Internal agglo$_{i,n,t-1}$	0.608***	-0.306**	0.475***	-0.416**	0.477***	-0.399**	0.455***	-0.328*
	(0.034)	(0.136)	(0.025)	(0.196)	(0.025)	(0.197)	(0.028)	(0.174)
Industry agglo$_{i,n,t-1}$	0.001***	0.002	0.002***	0.004*	0.002***	0.004*	0.002***	0.002
	(0.000)	(0.002)	(0.000)	(0.002)	(0.000)	(0.002)	(0.000)	(0.002)
Country-of-origin agglo$_{i,o,t-1}$	0.003***	-0.022**	-0.001**	0.009	-0.001*	-0.008	0.005***	-0.013
	(0.000)	(0.009)	(0.001)	(0.015)	(0.001)	(0.015)	(0.001)	(0.011)
IIA$_{o,I,t-1}$	0.297***	0.002	0.075	0.062	0.082	-0.168	0.194***	-0.392*
	(0.073)	(0.431)	(0.071)	(0.255)	(0.072)	(0.252)	(0.060)	(0.224)
FDI stock$_{i,2002}$	0.228***	0.543	0.117***	-0.085	0.099***	-0.041	0.042***	0.012
	(0.051)	(0.361)	(0.011)	(0.073)	(0.011)	(0.072)	(0.011)	(0.070)
FDI stock$^2_{i,2002}$	0.003	-0.060	-0.003***	0.002	-0.002***	-0.001	-0.001***	-0.001
	(0.007)	(0.047)	(0.000)	(0.003)	(0.000)	(0.003)	(0.000)	(0.003)
Ores exports$_{i,2002}$	0.034***	0.056	0.021***	0.013	0.021***	0.022	0.008*	0.016
	(0.006)	(0.056)	(0.005)	(0.032)	(0.005)	(0.033)	(0.005)	(0.030)
Ores exports$^2_{i,2002}$	-0.0006***	-0.0004	-0.0003***	0.0000	-0.0003***	-0.0001	-0.0001*	-0.0001
	(0.0001)	(0.0008)	(0.0001)	(0.0004)	(0.0001)	(0.0004)	(0.0001)	(0.0004)
Fuel exports$_{i,2002}$	0.013	-0.071	0.002	0.024	0.002	0.017	0.011***	0.032
	(0.009)	(0.070)	(0.005)	(0.023)	(0.005)	(0.024)	(0.004)	(0.021)
Fuel exports$^2_{i,2002}$	-0.0006**	0.002	-0.0001	-0.0001	-0.0001	-0.0000	-0.0002***	-0.0002
	(0.0002)	(0.0018)	(0.0001)	(0.0003)	(0.0001)	(0.0003)	(0.0001)	(0.0002)
Political stability$_{i,t-1}$	0.138***	-0.400	0.329***	0.116	0.348***	0.104	0.258***	0.154
	(0.049)	(0.310)	(0.038)	(0.188)	(0.039)	(0.191)	(0.035)	(0.179)
GDP growth$_{i,t-1}$	0.053***	0.054	0.029***	0.007	0.023***	0.016	0.036***	0.029
	(0.007)	(0.038)	(0.006)	(0.027)	(0.006)	(0.027)	(0.006)	(0.027)
Log population$_{i,t-1}$	0.509***	0.274	0.445***	0.774***	0.446***	0.814***	0.717***	0.296
	(0.044)	(0.283)	(0.034)	(0.249)	(0.039)	(0.248)	(0.039)	(0.209)
Human capital $_{i,t-1}$	0.035	1.697**	0.447***	0.769*	0.373***	1.313***	0.268***	0.990**
	(0.112)	(0.777)	(0.078)	(0.429)	(0.078)	(0.451)	(0.078)	(0.409)
Infrastructure$_{i,t-1}$	0.057***	-0.006	0.016***	-0.006	0.017***	-0.019	0.041***	-0.021
	(0.007)	(0.047)	(0.006)	(0.035)	(0.006)	(0.035)	(0.006)	(0.030)
Log Distance$_{o,i}$	-0.215***	-3.549	-0.031	-3.352**	-0.048	-2.843*	-0.231***	-3.404**
	(0.051)	(2.518)	(0.047)	(1.548)	(0.046)	(1.499)	(0.045)	(1.532)
Common Language$_{o,i}$	0.325***	0	0.186***	0	0.127**	0	0.416***	0
	(0.055)	(.)	(0.051)	(.)	(0.051)	(.)	(0.048)	(.)
Colony$_{o,i}$	0.301***	0	0.291***	0	0.222***	0	0.710***	0
	(0.079)	(.)	(0.072)	(.)	(0.073)	(.)	(0.159)	(.)
Log exports$_{i,o,t-1}$	0.014	-0.046	0.045***	0.029	0.046***	0.035	0.026**	0.046
	(0.012)	(0.119)	(0.012)	(0.085)	(0.012)	(0.089)	(0.010)	(0.084)
Log imports$_{i,o,t-1}$	0.208***	-0.290	0.313***	-0.662***	0.351***	-0.716***	0.167***	-0.346**
	(0.018)	(0.243)	(0.022)	(0.158)	(0.022)	(0.159)	(0.016)	(0.138)
Log immigrants$_{i,o,t-1}$	0.033***	-0.134***	0.067***	-0.074**	0.071***	-0.061*	0.041***	-0.049
	(0.008)	(0.048)	(0.007)	(0.033)	(0.007)	(0.033)	(0.007)	(0.031)
Log emigrants$_{i,o,t-1}$	0.070***	0.166	0.053***	0.038	0.061***	0.054	0.048***	0.264**
	(0.008)	(0.173)	(0.009)	(0.124)	(0.009)	(0.118)	(0.008)	(0.123)
South Africa$_i$	-11.32	60.25	-0.212	2.184	-0.459*	2.987*	-0.580**	1.681
	(7.775)	(52.04)	(0.235)	(1.518)	(0.235)	(1.571)	(0.239)	(1.352)
Egypt$_i$	-8.054***	15.00	-1.894***	-0.229	-2.012***	0.642	-3.000***	-0.801
	(2.318)	(15.89)	(0.341)	(2.014)	(0.342)	(1.977)	(0.328)	(1.575)
Log wage$_{i,t-1}$	-0.091***	0.074						
	(0.022)	(0.112)						
Aid projects$_{i,o,t-1}$			0.001***	0.020***				
			(0.000)	(0.007)				
Aid Amount$_{i,o,t-1}$					0.0002***	-0.0000		
					(0.0000)	(0.0001)		
Export tariffs$_{i,o,t-1}$							-0.003*	-0.021
							(0.002)	(0.020)
Import tariffs$_{i,o,t-1}$							-0.002	-0.039**
							(0.002)	(0.018)
N	121,657		226,231		226,231		173,960	
F-test for interactions with China dummy	$\chi^2(22) = 63.56$		$\chi^2(22) = 89.30$		$\chi^2(22) = 91.10$		$\chi^2(22) = 55.16$	
Prob $> \chi^2$	0.0000		0.0000		0.0000		0.0000	

Conditional logit estimates. Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$