



Short-Term Harm, Long-Term Prosperity? Democracy, Corruption and Foreign Direct Investments in Sino-African Economic Relations

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Abstract

This study examines the effect of FDI openness to China and the rest of the world (ROW) on democracy levels of African countries in the short and long terms. We propose and test the hypothesis that the nexus between FDI openness and democracy is moderated by the *grabbing* and *helping* hands of regime corruption of African countries. We argue that in the short run, FDI openness will negatively impact democracy (*grabbing hand*) in corrupt regimes. However, in the long run there will be a positive effect (*helping hand*) as the revenue spillovers from the investment projects will reach the society empowering the middle class to demand better institutional qualities. We test these theories with a unique panel dataset spanning 2003–2017. Our dataset includes gravity model and politico-economic variables not only between China and African countries but also between the ROW. Building on examples from the existing research, we test the short-run impacts with dynamic GMM model (Blundell and Bond, *J Econ*, 87(1):115–143, 1998), whereas we test the long-run relationships with two stage least squares fixed effects models. To account for transaction costs and endogeneity problems, in the first stage we apply instruments on openness to both China and ROW FDI. We find statistically strong yet mixed results for our expectations. While in the short-run corrupt African countries that liberalize to Chinese FDI have lower democracy levels, in the long run, the FDI openness has a positive influence. Our results are robust to alternative measurements of democracy, 3- and 5-year non-overlapping smoothed averages and exclusion of top five countries with FDI openness to China and ROW.

Keywords Democracy · FDI · Corruption · China–Africa · Gravity model · GMM

JEL Classification C22 · C26 · D73 · F21 · N47

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Introduction

How does openness to foreign direct investments (FDI) from China and ROW influence democratization in domestic markets of African countries overtime? Why some African countries that obtained high levels of Chinese FDI experienced more democratization than others? The impact of Chinese enterprises on institutions in African continent has been under severe scrutiny from academics and policy experts alike in recent years (Mourao 2018; Chen et al. 2018; Sanfilippo 2010). The scholarly community is divided into two camps on the role of China's economic presence in Africa. Some scholars suggest that China deliberately selects states with weak governance in order to make a swift entrance into the local economic sectors of resource rich countries (Alden and Alves 2008; Bodomo 2009; Adolph et al. 2017). As a counterargument, other scholars propose that Chinese FDI investments have advanced the infrastructural development, manufacturing in different industries, and economic growth in Africa (Whalley and Weisbrod 2012; Amighini and Sanfilippo 2014; NguyenHuu and Schwiebert 2019). Some even suggest that healthy business environments and stable institutions are major motivators for Chinese FDI in African countries (Borojo and Yushi 2020).

Local institutions in the destination country are decisive for attracting or discouraging foreign capital as some investors enter offshore markets having higher demands for stable and efficient socio-political foundations than others (Bailey 2018; Alence 2004). The previous research examining the relationship between institutions and FDI demonstrates that developing countries which have a better democratic political process (Busse et al. 2016), low inflation (Farazmand and Moradi 2014), economic growth (Acquah and Ibrahim 2020), low corruption (Gossel 2018), ongoing institutional reforms (Malikane and Chitambara 2017), availability of local resources for productive markets (Pinto and Zhu 2016), rich natural resources (Shan et al. 2018) and significant human development (Reiter and Steensma 2010) attract larger inflows of foreign capital from China and other economic partners.

The research investigating how Chinese investments shape democratization in African countries in the long and short terms remains limited. The economic activities by Chinese investors in African countries have drawn a widescale attention from the global community. Chinese investments in the capital and production markets of African countries have grown substantially in the recent decades as China continues to stretch its powerful economic wings (Eisenman 2012; Broich 2017). The existing empirical studies exploring China's foreign direct investments in Africa offer conflicting theoretical expectations for the effects of FDI on democratic development. Some show that resources and market potentials are important determinants of Chinese investments in African states (Shan et al. 2018; Pinto and Zhu 2016; Sanfilippo 2010; Pinto and Zhu 2016). The abundance of natural resources like oil and copper and large markets for agricultural goods and services production can further deepen the resource curse in Africa delaying democratization. This problem could worsen if Chinese state sponsored and independent investors approach African markets by proposing weak regulatory policies that can produce additional adverse effects on the society (Humphrey and Michaelowa 2019). Other scholars suggest that Chinese economic cooperation projects can lower the costs for improving the internal and external

infrastructure in Africa (NguyenHuu and Schwiebert 2019; Busse et al. 2016). The persistent corruption in many African countries serves as an impediment for much needed economic growth from foreign investments (Quazi et al. 2014) as those investments increase in states with strong institutional capacity (Gossel 2018).

Since the lack of accountability and institutions for checks and balances as well as the presence of pervasive corruption all hamper economic prosperity from foreign investments (Bougharriou et al. 2019), there are variations in long- and short-term temporal effects on democracy that are critical for more systematic investigation (Dinh et al. 2019). This paper aims to fill the gap in the growing research focusing on the impact of Chinese FDI openness in Africa while controlling for openness to other investment partners. We present a theory which hypothesizes that liberalization to Chinese FDI will yield different long- and short-term effects on democracy in African countries with various levels of corruption. Our main argument is that the effect that openness to FDI makes on democratic institutions is moderated by regime corruption. As such, following some related theoretical frameworks designed by Gossel (2018), Mourao (2018), Quazi et al. (2014), Bak and Moon (2016) and Borojo and Yushi (2020) who explore various relationships between FDI openness/flows/stocks and institutional qualities, we argue that openness to foreign investments will allow for more inclusionary politics and property rights protection hence more democratization over the years. As such, we theorize that in the short run, the democratic institutions will suffer from the potential exploitation of foreign capital from China and elsewhere to Africa by local elites who receive and manage those investments. However, in the long run, we expect African countries to experience more democratization as the society will benefit from spillovers of investment projects.

To closely model the anticipated mitigating impact of regime corruption within the FDI openness and democracy nexus we refer to two prominent and competing hypotheses, the *grabbing hand* and *helping hand*. The *grabbing hand* hypotheses suggests that the uncertainty surrounding corruption increases the costs of investments for foreign firms (Quazi et al. 2014). While the *helping hand* hypothesis proposes that fraudulent tactics such as bribery, relaxed labor taxes, and low market entry barriers serve as a helping hand to make a swift route for foreign investors into local markets of recipient countries (Gossel 2018). The empirically supported conclusions regarding these hypotheses are largely inconclusive with scholars providing some evidence in both directions at different levels of corruption (Egger and Winner 2005).

Unlike the previous studies that view these theories as conflicting, we argue that there is an inter-related association between the two. We argue that strategic yet corrupt entrepreneurs in domestic markets will utilize the advantages of the *helping hand* of corruption to allure investments (Fredriksson et al. 2003). Nevertheless, the properties of the *grabbing hand* of corruption will become more prevalent when they extract more rents by exploiting foreign capital for personal use (Marquette and Peiffer 2018). The latter tactic, as our framework and results reveal, is more harmful for the democratization in African countries.

The novelty of our theoretical approach is twofold. First, unlike some existing works in this field of research we argue that operating through FDI's impact, the short-term effects of market openness will produce negative effects on democracy. This outcome itself will validate the presence of the *grabbing hand* influences of corruption in

Table 1 Hypothesized direction of effects by FDI openness on democracy levels

Type of FDI effect on democracy	Hypotheses	
	Panel 1	Panel 2
Short run	Lower democracy* (GH)	Higher democracy (HH)
Long run	Higher democracy* (HH)	Lower democracy (GH)

The asterisks in the Panel 1 indicate our primary expectation highlighted in the Hypotheses 1 and 2 defined above. GH = grabbing hand, and HH = helping hand

domestic investment markets in the short term. Yet, in the long run, the effects of FDI openness on democracy will become positive because once the foreign investors get used to corrupt methods in foreign destinations and realize that those practices do not harm their potential to accumulate wealth, they will become complacent and invest more. The research shows that high levels of investments are positively associated with democratization (Moon 2019; Bak and Moon 2016). Second, we suggest that the effects of the *grabbing* and *helping hands* of corruption work in cycles. As illustrated in Table 1, we theorize that when the grabbing hand aspects are present then FDI openness has short- and long-term negative effects on democracy. However, we notice that when the helping hand features are at work the short- and long-run effects are positive. By contrast, the grabbing hand theory will be prevalent.

With the theoretical framework developed in this paper, we also aim to examine whether the arguments criticizing China's "no strings attached" economic cooperation in African countries with weak institutions have any empirical basis for validation. To probe the key assumptions of our theory, we build on existing studies from Quazi et al. (2014), Bak and Moon (2016), Malikané and Chitambara (2017), Gossel (2018) (Mourao, 2018), Henri et al. (2019), Dinh et al. (2019) and Kucera and Principi (2014) and design static and dynamic models which examine the long- and short-run effects of Chinese FDI on democracy levels in Africa, respectively. The static models testing the long-term trends of democratic transition employ two-stage least-squares (2SLS) regression approach. In the first stage, we account for transaction costs and endogeneity problems by instrumenting the Chinese FDI openness and openness to the rest of the world (ROW) with traditional gravity model variables such as distance, landlock and common language (Borojo and Yushi 2020; Subasat and Bellos 2013; Bellos and Subasat 2012a, b). Following (López-Córdova and Meissner 2008), in the second stage we use the predicted values of instrumented economic variables to investigate their impact on our unique measure of democracy. To tease out the influence of FDI openness on democracy that is due to changing levels of corruption, we employ interaction terms between Chinese or ROW FDI openness and regime corruption index. To inspect the short-term effects, we follow Henri et al. (2019), Gossel (2018), and Quazi et al. (2014) and use system generalized method of moments (GMM) approach to build

models that include both contemporaneous and lagged values of democracy index and FDI openness. We also include the interaction terms in our dynamic models.

Using an unbalanced panel data over the period 2003–2017 for 48 African countries in our observed sample, we find mixed results on how investment liberalizations to China and ROW influence democratization in African countries with different levels of corruption in long and short run. The results in main models where the dependent variable is a composite democracy index from the Varieties of Democracy show that, after accounting for exogenous causes, when corrupt African regimes liberalize to Chinese FDI the democracy decreases in the long run which is against our hypothesized direction. However, as we expect there is a negative short-run relationship between democracy and Chinese FDI openness in African countries with high levels of corruption. Regarding the FDI openness to ROW, we find that in the long run the impact on democracy is positive as we hypothesized. The impact is still negative in the short run which is contrary to our expectations.

An important finding delivered by our results is that the effects of FDI openness highly vary depending on the measurement, operationalization and sources of the dependent variable, the democracy. For example, our robustness analysis reveals that while Chinese FDI openness negatively impacts some variables of democratic indices, it has a positive effect on others. Additionally, following Quazi et al. (2014), we check for the unit root and address its presence by making it stationary in some of the explanatory variables in order to bypass inaccurate estimations that could be driven by random noise in our stochastic process. To save space, more details on the procedures and methodological techniques we took for tackling this issue are outlined in Supplementary Materials of this article that are available online.

This article proceeds as follows. The first section reviews the existing empirical literature on short- and long-term relationships between FDI, corruption, institutions and democracy. In this section, we also discuss China's investments in Africa as well as the role of corruption in African countries for attracting FDI. The second section introduces the theoretical motivation behind the analytical framework surrounding the divergent relationship between FDI and democracy in Africa in long and short terms. This section also produces testable hypotheses derived from the main conceptual framework. "[Research design and econometric models](#)" section presents and describes the research design and econometrics models. This section also describes the data for main dependent and independent variables by interpreting some descriptive statistics. Also, in "[Research design and econometric models](#)" section, we discuss the instrument validity and explain study limitations. Section 4 discusses the main econometric outcomes of the static (long-term) and dynamic (short-term) models. "[Robustness analysis](#)" section defines the robustness check strategies and estimation procedures and presents explanation on the results of those estimations. "[Discussion and implications of findings](#)" section discusses the magnitude and implications of our key findings. "[Policy recommendations and future research](#)" section offers policy recommendations and suggests improvements for future research. Lastly, we conclude by summarizing the contributions of this article.

Review and Discussion of the Literature

In this section, we outline the main empirical and theoretical studies that investigate the importance of FDI on promoting democracy, as well as the reverse causation between the two as identified in the literature. Then, we survey the existing studies on Chinese investments in African countries and their repercussions on institutional development. Tables 16 and 17 in “Appendix” present the synthesis of methodologies and major findings in relevant empirical research. As we notice, most studies in this field examine the effects of institutional and governance qualities on some measure of FDI in different parts of the world. Unlike those approaches, we attempt to elucidate how openness to foreign investment from China and ROW in corrupt African countries shape democratization in the short and long terms.

Democratization has many endogenous and exogenous influences and distortions (Acemoglu et al. 2019). A rich body of scholarly works have shown significant and positive association between economic activities such as FDI and democratization.¹ Scholars have also identified foreign investments as a major factor for fostering economic growth that causes improvements in political institutions vital for democratization (Guha et al. 2020). Yet, the mechanism between FDI and democratization is complicated by the existence of pervasive institutional corruption (Freckleton et al. 2012). Developing countries with low levels of corruption and high levels of democracy receive more foreign capital than those where institutional corruption is prevalent (Ay et al. 2016). However, this view is challenged by some works which find that corruption and low institutional development do not discourage the presence of foreign investors in domestic markets. The investors are presented with opportunities to capture low rates on investments and high rates on capital returns (Resnick, 2001).

In this paper, we are interested in analyzing how unilateral FDI inflows from China and ROW change the levels of democratization in African countries overtime. Additionally, we focus on the macroeconomic role of pervasive corruption which as we argue produces different dynamic effects on the outcome of interest. Hence, while surveying the major works on FDI, institutions and democratization, we pay a close attention to how the presence of corruption may alter the short- and long-term impact of investments on democracy.

FDI, Institutions and Democracy

There is an important literature on the influence of FDI on institutional qualities and democratization or failure thereof (Lacroix et al. 2021; Ross 2019; Van Bergeijk and Brakman 2010; Busse and Hefeker 2007; Resnick 2001). However, the existing works are at odds with each other regarding which institutions are the most effective for capturing foreign investments. Factors that have been identified for attracting more FDI in democracies relate to democratic institutions’ ability to lower the costs associated with

¹ See Li et al. (2018) for a detailed literature review on recent development in the area of research that explores the link between democratization and foreign investments.

high level of regime corruption (Guha et al. 2020).² In democracies, investors rely on credible commitment of stable governance (Guerin and Manzoocchi 2009; Yang 2007; Busse and Hefeker 2007). Democracies attract more FDI than autocracies because they offer affordable tax rates on investments and stable property rights protection for foreign investors (Dorsch et al. 2014). Foreign investors prefer government regimes where economic policy outcomes are easy to predict and have strong checks and balances which prevent expropriation of revenues from foreign assets by corrupt elites (Li and Resnick 2003; Gastanaga et al. 1998). Dietrich (2013) argues that countries with weak governance and poor institutional qualities are less likely to receive foreign investments. Hence, democratization may be stalled in societies where lack of economic growth from foreign capital generates institutional instabilities.³

By contrast, some studies like Resnick (2001) find that democracy has a negative impact on FDI. Foreign capital in its turn promotes poor governance in Latin American countries that were already plagued with corruption (Subasat and Bellos 2013). A few recent studies examined variations of FDI while looking at differences in political institutions of autocratic or hybrid regimes (Bermeo 2016; Bak and Moon 2016; Moon 2019). In contrast to Dietrich (2013), Bellos and Subasat (2012a) design a gravity model between recipient and donor countries to show that instead of discouraging FDI the lack of good governance in transition economies is not an obstacle for alluring more investments. Similar to their results, using two-stage regression analysis Bak and Moon (2016) show that FDI can prolong the authoritarian durability by strengthening the long-term survival of regime elites in office. The elites use capital from abroad to pay the loyal agents, assuage possible escalation of challenges by the opposition and create FDI centered distributional coalitions for political parties. In a related work, Moon (2019) argues that autocratic countries which masquerade under democratic institutional structures such as elected legislatures attract more FDI than those without democratic features. The elected legislature provides transparency and credibility for multinational corporations to protect foreign interests in domestic markets.

Motivating Facts: Short- and Long-Term Links of FDI, Corruption and Democracy

A growing empirical research has tested temporal (short and long run) properties of FDI produced on institutional transformation leading to economic growth and democratization (Kahouli and Maktouf 2015; Gossel 2018; Li and Resnick 2003). Most studies in this line of research have relied on a prominent tool, System Generalized Method of Moments (SGMM), developed by Arellano and Bond (1991) to examine

² For example, Li et al. (2018) provide a well-defined set of factors which can be summarized as 1) high audience costs in democracies for breaking contracts with foreign investors, 2) presence of veto-players to block expropriation of foreign investments, 3) checks and balances provide policy stability for foreign partners, 4) democracies present better opportunities for investments as individual and property rights are well protected which lowers the expropriation risks, 5) democracies have more media freedom, transparent election, and political stability than autocracies which enable foreign investors to hold violators of investment contracts accountable.

³ Yet, other works such as Bermeo (2016) find that in the post-Cold War reality, the investments from foreign donors rarely contributed to the institutional development of hybrid regimes that are plagued with corruption.

the short-run dynamic effects of foreign investments. Others have employed a gravity model of FDI to assess the relationship between governance qualities, institutions and foreign investments (Borojo and Yushi 2020; Kahouli and Maktouf 2015; Bellos and Subasat 2012a,b; Guerin and Manocchi 2009; Talamo 2007). An earlier work by Feng (1997) develops a theoretical framework for diverging long- and short-run effects of economic growth and democracy. The results of multi-stage regression analysis reveal that economic growth has a positive long-run, however, negative short-run impact on prosperity of democracy. The econometric analysis by Yang (2007) employs OLS, seemingly unrelated regression (SUR) and Arellano–Bond system GMM methods for short-run effects to study the relationship between FDI and political regimes. The results from a panel data of 134 countries between 1983 and 2002 suggest that while the relationship between democracy and FDI in levels and FDI as ratio of GDP is insignificant, being a democratic regime is positively associated with high levels of FDI. Another study using dynamic short-run models by Aziz and Mishra (2016) finds that Arab countries with stable institutions attract more FDI in general. Others find that developing countries with significant corruption which achieved high economic growth rate receive more FDI than those with low economic growth Guha et al. (2020).

The Grabbing and Helping Hands of Regime Corruption

Finally, the macroeconomic impact of FDI on democracy in developing countries has been analyzed from the perspective of two related but competing hypotheses, the *helping hand* and the *grabbing hand*. The *helping hand* hypothesis suggests that corrupt governments of host countries may use bribing methods to appeal foreign investors eager to enter their markets (Quazi et al. 2014). Those methods may include relaxing the taxes on labor, materials, and lowering the wages for manufacturing (Gastanaga et al. 1998). Contrary to the helping hand hypothesis, the grabbing hand theory suggests that bribes initiated by corrupt regime elites may increase the risks associated with contracts on investments, property rights, and asset capital.

A prominent study by Gossel (2018) examines the interrelation between FDI, democracy and corruption in Sub-Saharan African (SSA) countries by probing empirical implications of these two conflicting hypotheses. Using the GMM estimation, this study finds that foreign investors who are keen on investing in specific SSA countries leverage the opportunities to obtain lower rates on spending and higher rates on revenue returns. This suggests that the implications of the *helping hand* hypothesis are more applicable within the context of SSA countries' governance styles. However, the study concludes that in the long run the *helping hand* aspects of the regime corruption become *grabbing hand* motivations and increase the democratic capital. In other words, corrupt African regimes receiving FDI improve their democratic regulatory and institutional qualities.

Similarly, Quazi (2014) uses generalized least squares estimation to analyze the impact of corruption on FDI in East Asian and South Asian countries from 1995 to 2011. In contrast to (Gossel 2018), this author finds that the *grabbing hand* of corruption is more dominant in those parts of the world as the results reveal a robust and

negative effect of corruption on FDI flows. However, when investigating the association between corruption and FDI in African countries with GMM models, Quazi et al. (2014) find support for the *helping hand* hypothesis.

Sino-African Economic Relations: Issues and Recent Developments

With the exception of few studies that have investigated the Sino-African economic activities (Broich 2017; Malikane and Chitambara 2017; Asiedu and Lien 2011), most research on the nexus between Chinese investments and democracy is limited, particularly in the context of Africa. In this paper, we attempt to provide new insights on how the openness to investment flows from China to African countries influences levels of democratization of the host economies in the short and long terms.

Several factors make the Sino-African economic relations important for systematic empirical examination. First, China is increasingly becoming one of the most influential capital donors in Africa (NguyenHuu and Schwiebert 2019). The investigation of Sino-African economic relations becomes significant because Africa includes the most countries with lowest levels of freedom, institutional stability, income equality, pervasive corruption and employment (Arezki and Gylfason 2013). Yet, the quantitative research that evaluates the democratic outcomes influenced by Chinese capital flows to Africa is scant.⁴ Second, empirical research that analyzes repercussions of Chinese investments on democratization in Africa is limited and does not account for potential endogeneity problems between FDI and democracy. Third, while studies that investigate Chinese investments in Africa are increasing, to the best of our knowledge the unobserved impact of investments from the rest of the world has not been introduced in empirical models in most of those studies. Our empirical exercise revisits all these gaps in the research by conducting logarithmic 2SLS regression analysis where in the first stage we use a gravity model of FDI to control for potential endogeneity bias and transaction costs.

China's Investments in African Countries

China's growing economic engagement in Africa has raised many alarms among academics and policy practitioners. At the core of these alarms lies the argument that China's economic presence in Africa demands "no preconditions" for cooperation from institutionally unstable African countries (Chen et al. 2018; Huiping 2013; Edoho 2011; Meidan 2006; Sautman and Hairong 2009). Yet, empirical research examining how Chinese investments impact democracy in African countries in the short and long term is scarce. A recent work by Borojo and Yushi (2020) develops a gravity model of FDI with pseudo-Poisson maximum likelihood regression to analyze how institutional qualities and business environments motivate Chinese investments in African countries. The results indicate that African countries with better institutional structures and

⁴ Borojo and Yushi (2020) use gravity models with PPML approach yet they analyze the reverse causation from institutional qualities and business environments in African countries on the extent of Chinese FDI flows. NguyenHuu and Schwiebert (2019) examine how the Chinese FDI to African countries impact poverty and income inequality.

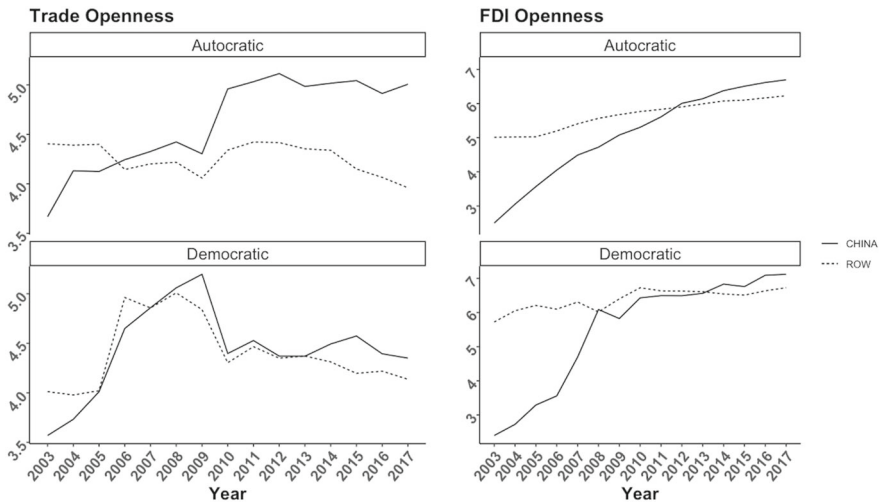
business opportunities are more likely to receive FDI from China than those countries lacking such environments.

In a related prominent study, Mourao (2018) examines Chinese FDI in Africa for 44 African countries between 2003 and 2010 relying on stochastic frontier models. The results show that Chinese investment destinations are determined by the presence of dynamic national markets with significant population size and extensive forest areas. The author derives efficiency scores for each African country based on political institutions. Particularly, countries with higher levels of political stability and regulatory quality receive more Chinese FDI. Other authors find that although China has a substantial role in African development finance, it does not resemble a “game changing” presence due to lack of economic progress in many African countries (Humphrey and Michaelowa 2019). This outcome can be attributed to China’s perception of African economies as supply sources for raw material and energy to fill in the gaps of shortages in China’s growing industries and markets. Other empirical studies reach inconclusive results regarding how Chinese investments shape mechanisms of institutional development and economic growth in African countries.

Similar to our approach, some previous studies have focused on the mitigating role of institutional conditions for inviting more FDI separately from China and the rest of the world countries (Fan et al. 2009). Chinese FDI and ROW FDI may distinctly influence democratization in Africa for various reasons. First, when investigating the impact of economic activities on democracy, it is important to control for the total magnitude of those activities. Although our primary objective is to analyze how openness to Chinese investments shapes democratization in African countries, the analysis would be incomplete and would yield inconsistent outcomes if we ignore the presence of investments from elsewhere. Second, while policymakers observe global investment trends concentrating on the bigger picture of continents like Latin America, Africa and Central America, as shown in Figure 1, there are some differences in the levels of openness to FDI from China and ROW that African countries with different government qualities have. Third, as opposed to dividing the investments to African countries by only its three or more sources, we only explore the consequences on democracy impacted by Chinese and ROW investments. The reason for this is the data availability from other big partners. For example, the UNCTAD reports include investment flows, however, for most big partner countries those country level reports have many missing values for the year-range that the data on Chinese investments are available from CAIR (2019) source.⁵ Lastly, Chinese and ROW FDI openness may differently effect democracy in African countries since some countries in Africa are more welcoming of non-Chinese firms than those entering from China (Knutsen and Kotsadam 2020).

Previous works find preconditions in the causal relationship between democracy and Chinese FDI in Africa. Broich (2017) controls for political, institutional, strategic, economic and geographic factors to show that Chinese development finance does not

⁵ Many country-level investment statistics reported by both African countries and their partners represent the flows of FDI, whereas in this study we are interested in the FDI stocks. Moreover, other sources like Bureau of Economic Analysis include information on US outward investments to African countries, yet, similar to European country reports from UNCTAD, the BEA also suffers from missing data on many country-year observations between 2003-2017 period.



SOURCE: the data for FDI inflows from China to Africa is from CAIR. FDI inflows from Rest of the World (ROW) is from UNCTAD, 2019.
NOTE: All values for FDI inflows from ROW were divided by 30 and openness to trade by 10 to balance the scales with the Chinese FDI and trade. The Democracy labels are from V-Dem 19 which are scaled as ≥ 0.5 as 'Democratic' and < 0.5 as 'Autocratic'.

Fig. 1 Annual averages of trade and FDI openness to China and ROW in Africa: 2003–2017

systematically target authoritarian African countries with weak institutions. Using a large panel data of 112 countries between the years 1982–2007, Asiedu and Lien (2011) show that democratic countries are more likely to emerge as recipients of FDI when the share of minerals and oils in total exports is below a specific threshold. Additionally, they find that the magnitude of democracy's impact on FDI is strongly determined by the size instead of the type of a natural resources considered. Malikané and Chitambara (2017) show a positive association between FDI inflows, economic growth and democracy-building in some African countries. After applying the GMM model on a panel of 18 Southern African countries between 1980 and 2014, the authors present evidence for a positive linkage between FDI and economic growth. The authors attribute this effect to the levels of democracy in the sample of countries. This finding is significant because as suggested by Malikané and Chitambara, the Southern African countries with durable democratic institutions are more likely to capture the positive outcomes derived from incoming FDI compared to those countries with poor democratic governance.

Corruption and Short- and Long-Term Impact of Chinese FDI on Democracy in African States

Few studies show that developing countries especially in Africa with weak institutions and corruption attract more foreign investments from China and elsewhere (Jalil et al. 2016; Bellos and Subasat 2012a; Kolstad and Wiig 2011; Egger and Winner 2005). We claim this outcome can be explained by the argument that the rent-seeking behavior from local politicians in many African countries hampers a positive institutional transformation. In addition, the political survival of autocrats in resource-rich countries like

DRC, Zimbabwe and Mali contributes to exploitation of foreign capital for redistribution of goods and services to beneficiaries of elites in power. The lack of impetus from China to improve the political process of host countries further exacerbates opportunities for bureaucratic transformation that could promise changes in the societies of various weak African states. As such, Sino-African economic relations are unbalanced and asymmetrically relying mostly on two aspects: (1) successful completion of investment projects by African entrepreneurs and (2) revenue returns for Chinese investors. This behavior generates harmful practices against unfairly compensated labor force which encounters limited opportunities for growth.

Both theoretical and empirical studies on Chinese economic investments in African countries inform about two overarching frameworks. The first line of argument suggests that Chinese investments in Africa create substantial improvements in infrastructural sectors helping to alleviate poverty and decrease income inequality (NguyenHuu and Schwiebert 2019). Some factors contributing to poverty and inequality mitigation in Africa are tied to Chinese FDI's ability to diversify low-technology industries and generate better quality manufacturing exports (Amighini and Sanfilippo 2014). The second line of argument states that China's investments in Africa raise alarming concerns because capital inflows tend to be mismanaged by the rent-seeking bureaucrats and politicians in African economies with weak state capacity (Edoho 2011; Lynch and Crawford 2011; Eisenman 2012; Arezki and Gylfason 2013; Brautigam 2015; Swedlund 2017). Some scholars argue that China deliberately selects states with weak governance in order to make a swift entrance into the local economic sectors of resource abundant African countries (Alden and Alves 2008; Bodomo 2009). While China inarguably is becoming a heavyweight in the global trade and investment competition, many democracies of the Western world claim that China conducts economic activities within poorly governed countries by ignoring the violations of human rights and social liberties of the local governments toward their own population (Adolph et al. 2017).

These two predominant views explain different narratives of democratization in Africa. The growth of production heavy economies significantly relies on labor-intensive industries which have high- and low-skill sectors. When the production markets liberalize in developing countries, the high-skill labor force also gains traction. As demonstrated by the Heckscher–Ohlin theorem and interrelated Stolper–Samuelson model, an increase in high-skill labor motivates improvement in institutions that empower the middle class (Levchenko 2007). However, the definition of skill sectors varies across developed and developing countries as what qualifies as a low skill in a developed state may be considered a high skill in a developing state (Bogliaccini and Egan 2017). For the large-scale manufacturing sectors of goods and services to maintain momentum, foreign investment inflows are necessary to sustain factors of production. Thus, the country's relative endowments such as labor and capital will define its comparative advantage. China, which has both capital and labor resources, is economically more developed than an African country like Cameroon which could very well be on the path of economic development with vast natural resources in addition to some labor and/or capital abundance.

Liberalization to capital inflows from China and other countries can bring prospects for domestic progress for both democratically weak and strong African states. When

capital abundant partners like China, the USA, Russia and European Union enter a region with rich natural resources, the resulting economic cooperation expands the workforce for production of labor-intensive goods. Improvement of labor force will promote a growing working class which can have a more central role in the political process. Democratization will prosper in countries where the workers are able to profit from capital-intensive markets. A more stable working middle class will emerge as the number of beneficiaries from liberal investment policies increase. And finally, the flexible foreign capital investment in infrastructural projects will lead to democratization with the expansion of the wealthier middle class (Acemoglu et al. 2019; Persson and Tabellini 2009).

Theoretical Motivation

An important hypothesis that has received minimal attention in the quantitative literature is that there may be a tradeoff between FDI liberalization and democratization. We argue that pervasive corruption may hinder democratization in the short term as dishonest entrepreneurs exploit profits from foreign investments to distribute rents (Fredriksson et al. 2003). However, in the long run, the society accumulates enough resources from those investments (Kucera and Principi 2014) that stable participation in the democratic process becomes possible (Kurer et al. 2019). Rent-seeking institutions in the African continent have increased as a result of pervasive corruption in recent decades (Gossel 2018; Mathur and Singh 2013). Foreign investors pay close attention to the corruption in the host economies. Yet, this does not indicate that they are discouraged by ongoing corruptible practices. Moreover, an experimental research study on Chinese firms investing abroad shows that arbitrary corruption instead of predictable corruption allows more frequent entry to foreign markets (Zhu and Shi 2019).

The predictability of corruption divides the scholarly community into two camps with contrasting views. The proponents of the *helping hand* hypothesis suggest that predictable regime corruption greases the wheels of rent extracting machinery by offering foreign investors low tax rates on investment and labor wages (Marquette and Peiffer 2018). The contrasting hypothesis is labeled as the *gabbing hand* which suggests that corruption puts “sands in the wheels” instead of greasing them by discouraging foreign investors to take the gamble on transferring capital to governments with high risks of expropriation and fraudulence (Cheung et al. 2010). Quazi et al. (2014) investigate the empirical implications of these competing hypotheses on FDI in Africa. Using system GMM estimation, they find that in the short run corruption promotes high levels of FDI in Africa which provides support for the helping hand hypothesis. Gossel (2018) also presents empirical support for the helping hand hypothesis and shows that foreign investors leverage their opportunities for sealing deals with low costs by ignoring the corruption.

Analytical Framework

While the macroeconomic impact of foreign investments on democratization is well studied, the association between these two factors within countries with different levels of corruption remains a subject of academic debate. The novel contribution of our analytical framework is that, as opposed to the previous research, we do not disaggregate the influence of corruption into only one of the two types, *helping hand* or *grabbing hand*. Moreover, we argue that the impact of corruption on attracting FDI and FDI's subsequent impact on democracy works differently in the long and short runs.

Our analytical agenda is twofold. First, we combine the logic from both the *helping-hand* and the *grabbing-hand* hypotheses with the analytical framework of Heckscher–Ohlin theorem and Stolper–Samuelson (HOSS) model. In a nutshell, the HOSS assumes that higher extent of economic activities such as liberalization to foreign capital investments and trade will empower the middle class. This will allow for greater accountability from the elites, strengthen labor and property rights protections and generate institutions conducive for democratization (Knutsen 2011). We are interested in testing the assumptions regarding the short- and long-term impact of FDI on democratization. This will provide new insights about whether corruption in African countries serves as a *helping hand* or a *grabbing hand* for attracting FDI from China.

Second, we aim to understand whether there are any regularities that allow to shed a better light on debates whether China's economic activities in Africa have an overall positive or negative effect on democratization. We identify the following nexus on how openness to Chinese and ROW FDI will influence democratization in African countries. In societies with pervasive corruption, democratization will become a gradual process because FDI has exploitable rents that the dishonest entrepreneurs can seize in the short run. Borrowing from Gossel (2018), we theorize that exploitability of FDI revenues makes the assumptions of the *grabbing hand* hypothesis more relevant in the short run. When FDI revenues serve the economic welfare of the few in power, the benefits of the society are undermined (Acemoglu 2008). The appropriation of welfare may increase social unrest and economic grievances and promote corruption. These factors hinder democratization in the short run, for instance, within several years.

Yet, revenues extracted from foreign investments may still make their way to the society to benefit certain sectors that are crucial for improving democratic institutions (Persson and Tabellini 2009; Acemoglu et al. 2008). Henceforth, the properties of the *helping hand* hypothesis become more visible in the long run as the entrepreneurs in various regime types redistribute rents to the winning coalition in order to prolong their time in office (De Mesquita and Smith 2011, 2010; De Mesquita et al. 2005). Put simply, in the long run the cumulative effect of multi-year investments will positively influence democratization as the labor force will sustain productivity despite of expropriation of foreign investments in the short term. African countries will benefit from FDI openness in the long run as inflows can motivate better economic integration in the society. An efficient economic process triggered by global capital flows will redesign the redistribution of resources, property rights, and social values while

moving the political equilibrium towards democratic values. As such, we hypothesize the following relationship between openness to FDI and democracy:

H1 *Ceteris paribus*: As African countries with pervasive corruption become more open to Chinese FDI inflows, the levels of democracy will increase (decrease) within and across African countries in the long run (short run).

After controlling for other country characteristics, we can expect a similar trajectory for the relationship between the foreign investments streaming from ROW to African countries in the observed sample of countries.

H2 *Ceteris paribus*: As African countries with pervasive corruption become more open to FDI inflows from ROW, the levels of democracy will increase (decrease) within and across African countries in the long run (short run).

Table 1 summarizes our hypothesized direction of FDI openness on democracy levels in African countries. As illustrated in the Panel 1 of this table which demonstrates our main expectations, we expect that democracy prospects will decrease in the short term when African countries with significant levels of corruption liberalize to FDI from China and ROW. This outcome will make the characteristics of the *grabbing hand* hypothesis more relevant in this context as corruption will amplify regulatory inefficiencies, transaction, and reputational costs for foreign investors (Quazi et al. 2014). Nevertheless, in the long run the effects of the *helping hand* of corruption may produce positive outcomes on democratization because the regime elites would need to satisfy the demands and grievances of their constituency in order to avoid threats to the regime stability.

By contrast, if contrary to our expectation the short-term effects from FDI openness on democracy are positive instead of negative as we expect, then the characteristics of the *helping hand* are more visible as shown by Panel 2. The logic for this expectation is that the *grabbing hand* of corruption may hinder the emergence of democratization since the investors become more discouraged in uncertain business climates. Yet, the *helping hand* of corruption may increase investments to contribute for development of institutional qualities that can promote democratization. In other words, the novelty of our framework is that we postulate that instead of viewing them as separate influences, the scholarly community should consider the *grabbing* and the *helping hands* of corruption in conjunction as one hand complements the other.

Research Design and Econometric Models

We analyze the impact of FDI openness to China and ROW on democracy in African countries moderated by regime corruption. As such, we include interaction terms in our models to gauge the influence of changes in FDI openness that is due to changes in regime corruption on democracy index, the outcome variable of interest.⁶ Our research design is similar to that of Gossel (2018) and Quazi et al. (2014), as we likewise attempt

⁶ Malikane and Chitambara (2017) also include interaction terms between FDI and democracy. Instead of democracy we interact FDI openness to China and ROW with regime corruption indices in African countries.

to test the implications of the *grabbing hand* and the *helping hand* hypotheses in the context of FDI market liberalization in African countries. However, we move a step further by disaggregating sources of FDI to Africa, namely those coming from China and ROW. Our panel is unbalanced and includes 48 countries spanning from 2003 to 2017. The sample of countries is determined by the availability of FDI data from China to African countries. We obtain this data from China-Africa Research Initiative (CAIR, 2019). As argued by Humphrey and Michaelowa (2019), the information offered by the CAIR is one of the few comprehensive options given the absence of reliable data from Chinese authorities (p. 18).

Following the methodological structure in several of studies outlined in Lacroix et al. (2021), Culver (2021), Moon (2019), Bak and Moon (2016), Pinto and Zhu (2016), Kahouli and Maktouf (2015), and Pandya (2014) that explored the association between economic activities and democratization, we design a two-stage least-squares estimation to evaluate how FDI openness affects democracy in African countries in the long and short run. In the first stage, we use a gravity model of FDI openness to China and ROW from African countries to account for the costs of economic activities (Borojo and Yushi 2020) and endogeneity between democracy and FDI in the second stage regression (Bellos and Subasat 2012b). Second, we employ the predicted values of FDI openness from the first stage in the second stage where we regress the fitted values on our unique democracy index. Additionally, given the panel nature of our dataset, we control for country and year fixed effects—confounders that can potentially influence democracy. For both the first and second stages of our analysis, we include country, year or two-way fixed effects to isolate static differences per country and control for time constant omitted effects. To examine the short-run effects, we design a GMM model similar to Blundell and Bond (1998) to tease out the impact of both contemporaneous and previous values of the dependent and independent variables on trends of democratization in our sample of African countries.

Data

The descriptive statistics on all the variables are presented in Table 5 of “Appendix A.” Correlation figures in a cross-tabular format are also included in the same appendix.

Dependent Variable

The main dependent variable is the democracy index extracted from Varieties of Democracy (V-Dem) dataset (Coppedge et al. 2020). We produced this unique measure by averaging the five variables quantifying different levels of democracy available in the V-Dem: electoral democracy, liberal democracy, participatory democracy, deliberative democracy, and egalitarian democracy scores. The democracy index is a continuous variable ranging from 0 to 1 with lowest values assuming less democratic and higher values more democratic regimes. We estimate the level of democratization as the change from year $t_1, t_2 \dots t_n$ for a sample of 48 African countries for 15 years per country with missing years for some countries that had no FDI data available.

The left panel in Figure 1 shows that African countries with autocratic as well as democratic institutions became more open to trade with China than the ROW. The right panel in this figure reveals that Chinese investment in African states surpassed that of ROW only after 2011. One explanation can be that after the Arab Spring the risky political climate in countries such as Angola, Egypt, Morocco, Libya, Sudan and Tunisia as major recipients of ROW investments became uncertain. Meanwhile, the FDI from China has not experienced those apparent post-Arab Spring declines at the same level as FDI from ROW. Therefore, for the purpose of this paper, it is important to account for the effect of FDI from China and ROW on democracy levels both within and across African countries overtime.

The mixed evidence on many determinants of democracy that reach inconclusive results and various democracy measures tested in this field of research serve as strong basis for implementing alternative measures of democratic indices in our models. For those reasons, building on previous studies such as (Lacroix et al. 2021; Guha et al. 2020; Chen et al. 2018; Bak and Moon 2016; Pandya 2014; Morrissey and Udomkerdmongkol 2012; Busse and Hefeker 2007; Egger and Winner 2005; Asiedu and Lien 2011; Resnick 2001) we employ the following measurements of democracy in the robustness analysis. First, we normalize the combined democracy scores from Polity V project that range from -10 for least democratic to +10 for most democratic societies. After normalization this variable ranges from 0 to 1 where lower values indicate less democratic and higher values indicate more democratic polities. Second, we similarly normalize two measures of governance conditions, 1) voice and accountability (VA) and 2) rule of law (RL) measures obtained from the World Bank's Governance Indicators (GI) data sources.

The GI includes 7 measures of governance qualities from a global sample of countries. However, we employ only two of those indicators because as shown in Figure 4 in "Appendix A," only VA and RL had a low Pearson correlation (0.42) compared to other variables. Lastly, we introduce the political rights (PR) and civil liberties (CL) ratings from the Freedom House database. These measures range from 1 to 7 where higher values suggest more stable protection of citizens' rights and liberties. We likewise normalize these components to range from 0 to 1 for ease of interpretation of results in comparison to the other indices. Figure 5 in "Appendix A" illustrates the annual averages of all democracy indices that we use in addition to other GI indicators. We notice that there is a great amount of variation across VA, RL, CL, PR, POLITY and V-Dem's democracy index, the latter of which our main outcome of interest to generate larger variation between democratically stable and unstable countries which liberalize to foreign capital. All aforementioned variables that measure democracy were also extracted from the V-Dem data source which has gathered, stored and organized the original data (Coppedge et al. 2020).

Independent Variables

The main independent variables of interest are the stock FDI openness of African countries to China and ROW. The FDI stocks (in \$US millions) from China to an African country i ($i = 1, \dots, N$) at year t ($t = 1, \dots, T$) are from China-Africa Research Initiative (CAIR 2019). While some previous studies like Mathur and Singh (2013),

Bailey (2018), Gastanaga et al. (1998) and Li and Resnick (2003) have used FDI flows in their empirical analysis, yet, we follow the suggestion from Bak and Moon (2016), Pinto and Zhu (2016) and Kahouli and Maktouf (2015) to use the stock values in order to account for political implications of commercial activities by multinational organizations. The FDI stock flows (in \$US millions) from the ROW to an African country i and time t is the difference between FDI inflows from the world and FDI inflows from China. The data on FDI from the world to African countries is extracted from United Nations Conference on Trade and Development (UNCTAD 2019). We obtain this measure as follows:

$$\text{World FDI to Africa} - \text{China FDI to Africa} = \text{Rest of the World FDI to Africa}$$

As is standard in the literature, the FDI openness is calculated by dividing the total inflows by gross domestic product of each African country i and time t (Asiedu and Lien, 2011).

FDI Openness to China

$$= \frac{\text{Total FDI stocks to an African country from China at year } t}{\text{An African country's GDP at year } t}$$

FDI Openness to ROW

$$= \frac{\text{Total FDI stocks to an African country from ROW at year } t}{\text{An Africa country's GDP at year } t}$$

All measurements for the ROW variables we calculated by using top commercial partners of African countries excluding China. The top partners in our sample include countries such as Belgium, Brazil, Great Britain, Germany, France, India, Indonesia, Italy, the Netherlands, Russia, United States, Turkey, and Spain.

Figure 2 shows the average level of regime corruption mapped for each African country in our sample and summarized by the market size (GDP per capita) and FDI openness to China and ROW. A noteworthy depiction that these maps present is that as we notice the island-countries like Seychelles, Cabo Verde, and Mauritius have substantially larger foreign investment liberalization to China and ROW than other big economies with larger markets and populations in Africa. One inference that we can draw from this illustration is that it will be important to conduct a sensitivity analysis by isolating small islands that have abnormally larger FDI openness relative to their population size and land area. Another inference is that those small islands still play an important role in understanding how institutional factors become central drivers of foreign investments as Seychelles, Mauritius and Cape Verde are one of the most developed island countries with constitutions that secure representative democracy for their respective citizens. Therefore, before excluding them from the main sample, our primary objective will be to have as comprehensive of a sample of African countries as possible. Thus, we include small islands in the main econometric exercise.



Fig. 2 Average levels of regime corruption scaled by market size and FDI openness to China and ROW, 2003–2017

Instrumental (Gravity Model) Variables for the First Stage Regression

Most studies summarized in this paper have been concerned with the impact of institutional qualities on fostering foreign investments. Several of those studies such as Borojo and Yushi (2020), Bellos and Subasat (2012a), Subasat and Bellos (2013), Kahouli and Maktouf (2015), and Bellos and Subasat (2012b) implement a gravity model of FDI to account for any potential transaction costs. The aforementioned authors agree that FDI is endogenous to political institutions of recipient countries. Yet, there might exist a reverse causation between democratization and capacity to attract foreign investments. To account for possible spurious estimation and endogeneity Bak and Moon (2016) construct a unique instrument for FDI. Their approach capitalizes on Pinto and Zhu (2016) who construct an inverse weighted measure of distance between two economic partners.⁷

Borrowing from this example, we calculate the inverse weighted distance between each African country i and China or ROW. Instead of including the GDP as a distinct instrument, we compute the GDP weighted inverse distance. We obtain the data on the distance from the Centre d'Études Prospectives et d'Informations Internationales (CEPII) (Head and Mayer 2014). The bilateral distance is an average between producers and consumers of major cities within each African country in our sample relative

⁷ They rely on the inverse of geographic remoteness weighted by the size of the economy (GDP), as such, the formula for this instrument is: $Z_i = \sum_{j=1}^n \frac{1}{dist_{i,j}} \times GDP$ per capita

to China and ROW. For the ROW, we extract the absolute values of distance for top commercial partners of African countries mentioned earlier and compute the average for all of them. Then we calculate the inverse distance weighted by the average GDP of each African country i at year t .⁸

The data for other instrumental variables such as bilateral membership in World Trade Organization (WTO) for each African country with China or ROW, their distance from China, and whether an African country is landlocked or has access to a sea/ocean are also from (CEPII) (Head and Mayer 2014). Using examples from Gossel (2018), Malikané and Chitambara (2017), Aziz and Mishra (2016), Jalil et al. (2016) and Yang (2007) we add the trade openness to the world (including China and ROW) measured as the ratio between exports and imports divided by GDP of each African country in a given year as our fourth instrumental variable. The aforementioned research provides significant empirical evidence for both linear and nonlinear relationship between FDI and trade openness. We likewise expect that trade openness to the World instead of separately for China and ROW will have an overall impact on the extent of FDI stocks from China and ROW to African countries. The reason for this claim is that wealthier economies are more likely to attract more investments in the long run (Busse and Hefeker 2007). We provide more details and explanation for the instrument validity, study limitations and other specification in section 3.2.

Other Control Variables

The prior literature informs that the effect of FDI on democratization depends on several factors, including recipient country's level of regime corruption (Egger and Winner 2005), market size scaled as GDP per capita (Aziz and Mishra 2016; Mathur and Singh 2013), and property rights (Chen et al. 2018; Li and Resnick 2003). We include these explanatory factors as additional controls in the second stage regression for both long- and short-term models. The regime corruption and property rights are from the Varieties of Democracy (Coppedge et al. 2020). These are continuous variables ranging between 0 and 1 with 0 indicating the lowest level and 1 the highest level for each scale. The regime corruption gauges the clientelistic behavior of politicians in systems of neopatrimonial rule who use their offices for private and/or political gain. Neopatrimonialism is interpreted as a regime where in social hierarchical environment patrons or principles use state resources and power to obtain loyalty from clients or agents in the society. The private property is not concerned with actual ownership of property. The conceptualization of this variable rather comprises rights such as acquiring, possessing, inheriting, and selling private property including land (Coppedge et al. 2020). The boundaries on property rights may be set by the government/state which can censor those rights or fail to enforce them (Acemoglu 2008). The restrictions on

⁸ Including similar variables such as inverse distance, bilateral WTO membership and landlocked for the ROW will introduce an overestimation bias in our models as more than 200 individual measures of each of these variables will need to be added to the regression for each country excluding China. To include only one measure per variable mentioned above for the ROW, we added the values for each variable among Africa's top economic partners around the world and averaged those results for an African country i at time t . For example, the ROW WTO membership variable takes on the value of 1 if an African country shares partnership in the organization with at least three of top commercial partner countries and 0 otherwise.

property rights may also come from customary laws and practices, religious or social norms (Li and Resnick 2003).

Instrument Validity, Limitations of Study and Other Specifications

Specifications for Instrument Validity

Several scholars have suggested that to properly control for observed and unobserved confounding factors in 2SLS analysis it is necessary to find valid instruments for explanatory variables that are correlated with the idiosyncratic error term (Lacroix et al. 2021; Kahouli and Maktouf 2015; Pinto and Zhu 2016; Bak and Moon 2016; Pandya 2014). To satisfy the proposed validity, the instrument(s) should possess a few properties. First, conceptually, the instrument must affect the main dependent variable through its statistically significant correlation only with other explanatory variables and not be directly correlated with the dependent variable e.g. Z impacts Y only through its effect on X (Goldsmith 2021). Second, it should have low or no correlation with unobserved factors (Bak and Moon 2016).

We conduct several tests for the validity of our instruments which are the bilateral inverse distance between a given African country and China or ROW, bilateral membership in WTO, and whether or not both ROW or China and African country i have access to a major coastline. First, our validity test in the long-run models is based on the Stock and Yogo (2002) who measure the strength of multiple instruments simultaneously relying on maximum allowable bias relative to OLS, and maximum size of the Wald test. We rely on the Wald test size estimation as it is based on Cragg and Donald (1993) which provides more efficient estimation procedure for a model with multiple endogenous variables. The null hypothesis is that instruments are weak. The Stock-Yogo test for instrument validity obtains the Cragg–Donald statistic for weak instruments and compares it to a critical value.⁹ This is particularly applicable to our models which include interaction terms between FDI openness and regime corruption, the market size, and property rights.

As such, we test for weak instruments in the first stage separately for when the dependent variable is the FDI openness to China and FDI openness to ROW. When the dependent variable is Chinese FDI openness, we use the weighted inverse distance to China. In the case of ROW FDI openness we substitute this instrument with the equivalent for ROW. The Cragg–Donald statistic for weak instruments given the Chinese FDI openness as the first stage dependent variable is 79.26 which is higher than the critical value of 16.85 at $\alpha = 0.05$ level, so we have sufficient statistical evidence to reject the null hypothesis that instruments are weak. Similarly, for ROW FDI openness as the main dependent variable in the first stage the statistic is 41.96 which is higher than the critical value of 16.85 at $\alpha = 0.05$ level, which allows us to confirm the strength of instruments.¹⁰

⁹ We set this critical value to $\alpha = 0.05$ which is also the default in the R package 'cragg'

¹⁰ The *landlocked* as an instrument is the same for both dependent variables. Our third instrument is a binary taking on a value of 1 when a given African country is jointly member of WTO with either China or any top partners included in the ROW. Following Aziz and Mishra (2016), Kim and Trumbore (2010),

Second, for the dynamic short-run models we report the Sargan test χ^2 values and p-test statistics for overidentification, the Wald test χ^2 values and p-test statistics for weak instruments, and AR(1) and AR(2) p-values for first and second order auto-correlated disturbances in the first-differenced equations in the GMM models. As shown by these test statistics, for the dynamic models we also reject the null hypothesis for overidentification, weak instruments and autocorrelation in the second order (AR2). As the results reveal in subsequent sections, the instruments for the dynamic models satisfy the conditions of validity based on all these specifications.¹¹

Limitations

As it is the case with most studies in this line of research, the current paper also has its weaknesses which we discuss in this section. First, there is a sampling bias in the data. In other words, the sample of countries in our data frame is not representative of the entire African continent. Our sample includes only 48 out of 54 African countries. The biggest factor for this sampling selection issue is the availability of foreign investment data from China to African countries which we were able to obtain only for 48 economic partners. However, the number of African countries in our analysis is dictated by the type of research problem we are investigating. Our main goal is to test the impact of openness to Chinese foreign capital on democratization in African countries in the short and long run while controlling for investment openness from elsewhere. To accomplish this task, we make a compromise to have less units in our analysis. Yet, biased sample size does not imply a small sample size that is inappropriate to use in statistical estimations. Our sample size consists of 48 countries spanning 11–15 years (2003–2017) which provides enough depth for both long and short term within country analysis.

The previous studies that estimated dynamic models to examine the relationship between institutional qualities and economic activities claim that both system and difference GMM approaches are reliable methods for addressing short-term endogenous impact and heterogeneity of covariates (Kahouli and Maktouf 2015; Egger and Winner 2005). Yet, others warn about several limitations that the GMM technique presents (Jalil et al. 2016; Kucera and Principi 2014). The GMM procedure can be unstable, and the predicted coefficients may depend on characteristics of the selected sample or be difficult to directly interpret (Kathavate and Mallik 2012). Next, the GMM estimator may be a weak approach to deal with serial correlation issues even when including the lagged variables (Henri et al. 2019). Additionally, it is difficult to find appropriate GMM instruments to some endogenous independent variables in cases when only weak instruments are available (Aziz and Mishra 2016). The latter problem is not pressing for our study as the GMM statistics reveal that our instruments are not weak,

Footnote 10 continued

Fan et al. (2009) and Gossel (2018) we incorporate the log of trade openness (exports + imports / GDP) for each African country with the world (including China and all top commercial ROW partners) as our last instrument.

¹¹ In the first order we expect to get a low p -value which establishes that there is no first order autocorrelation, while in the second order conditions we expect to obtain high p -values to establish the auto-correlation of first differenced equations.

and there are no issues of overidentification in all dynamic models presented in Table 3.

Unit Root Analysis

In both short- and long-term empirical models, we transform variables from level to logarithm because as the panel unit root analysis revealed, all variables had a unit root at the level but had not unit root present after the transformation. To save space, we provide detailed discussion on comprehensive panel unit root checks conducted for this study in the supplementary materials document which are available online.

Static (Long Run) and Dynamic (Short Run) Models

Static/Long-Term Model

Our primary objective is to test the short- and long-run impacts of two hypotheses that the previous research has found to be competing, the *grabbing hand* and *helping hand* of corruption on facilitating foreign investments which shape host countries' institutions. With this in mind, we theorize that the effect of FDI openness on democratization depends on the host country's level of regime corruption. In countries with high levels of corruption that liberalize to foreign investments, the effect on democratization will be negative in the short run, and positive in the long run. The negative short-run outcome on democracy is expected due to prevalent opportunities for elites in corrupt regimes for rent creation and appropriation. However, institutional advancement will still become possible as those elites need to maintain loyal base of selectorate to prolong time in office (Knutsen and Kotsadam 2020). Consequently, the revenue spillovers from foreign investments will positively influence prospects of democratization as the society will obtain means for political participation, voting and civic engagement in the long run.

To accurately proxy for diverging short- and long-run relationships between FDI openness and democracy moderated by regime corruption, we include interaction terms in our models (Maruta et al. 2020). We design a two-stage least-squares (2SLS) estimation to gauge the long-term effect of FDI openness on democracy. In the first stage, following a large body of research on determinants of FDI (Maruta et al. 2020; Broich 2017; Subasat and Bellos 2013; Kahouli and Maktouf 2015; Bak and Moon 2016; Moon 2019; Pinto and Zhu 2016) we instrument the openness to FDI from China and ROW in African countries by the inverse distance, trade openness, WTO membership and landlocked variables. The 2SLS design enables to account for endogeneity between FDI openness and democratization (Pandya 2014). The endogeneity may bias the regression outcomes as FDI openness will be highly correlated with the idiosyncratic component (Broich 2017). As such, closely following the suggestions from Borjo and Yushi (2020), Kahouli and Maktouf (2015) and Subasat and Bellos (2013) to address possible endogeneity biases in this empirical analysis with gravity-type instruments, our first-stage model consists of the following components.

We delegate the more in-depth discussion of gravity model and econometric intuition behind its theory to Methodology “Appendix B.”

Static/Long-run, first-stage gravity-type model:

$$\text{predicted FDI openness} = Ln(\hat{X}_{i,t}^n) = \alpha_i + \beta(Ln(Z_{i,t}^n)) + \delta_t + \mu_{i,t} \quad (1)$$

where $Ln(\hat{X}_{i,t}^n)$ is the predicted level of FDI openness in African country i at time t which based on the subscript n can be toward China or ROW. The vector $Ln(Z_{i,t}^n)$ contains the main instruments that we apply in this model such as the weighted inverse distance, WTO membership, landlocked and trade openness. The subscript n stands for China or ROW for weighted inverse distance and WTO membership variables. The term α_i is time invariant individual (country) level effect, the fixed year effect is accounted by δ_t which is time specific, and $\mu_{i,t}$ is the idiosyncratic error term. We estimate three different fixed effects models where we include either country, year or two-way fixed effects.

Static/Long-run, second-stage model:

$$\begin{aligned} Ln(D_{i,t}) = & \alpha_i + \beta_1(\hat{X}_{i,t}^n) + \beta_2 Ln(C_{i,t}) \\ & + \beta_3\left(\left(\hat{X}_{i,t}^n\right) \times Ln(C_{i,t})\right) + \lambda(Ln(V_{i,t})) + \delta_t + \mu_{i,t} \end{aligned} \quad (2)$$

In the second stage, we include the first-stage predicted levels of FDI openness to China and ROW in conjunction with interaction to the regime corruption. In this framework, the term $Ln(D_{i,t})$ is the outcome variable of interest which is the democracy index from V-Dem, the unique measure we construct for this study. The interaction term $\left(\left(\hat{X}_{i,t}^n\right) \times Ln(C_{i,t})\right)$ consists of the predicted levels of FDI openness to $n = \{\text{China or ROW}\}$ and regime corruption $Ln(C_{i,t})$ in the logarithmic form. The coefficient for β_3 is the main parameter we are interested to estimate as this will allow to proxy for our theory that there are different short- and long-term impacts of FDI openness on democracy that operate through changing levels of corruption. The vector $Ln(V_{i,t})$ comprises of our two main control variables, the market size measured by GDP per capita and property rights, both in logarithmic form. The terms α_i , δ_t and $\mu_{i,t}$ are unchanged.

Dynamic/Short-Term Model

There are two main sources that motivate the dynamic model framework for short-term effects of FDI on democracy. The first motivation is theoretical. The basis for designing a dynamic environment to examine the relationship between FDI liberalization and democracy is to discover whether our expectation that—high levels of regime corruption hinder allocation of fiscal resources for institutional development necessary for democratization—have any empirical justification in the short term. The results will help us to offer new insights for the existence or prevalence of influences caused

by the *grabbing hand* or *helping hand* of corruption via FDI liberalization on democratization in African countries. The results will also enable to provide empirically justified conclusions on academic debates for whether or not Chinese investments are favorable to African countries with weak institutions in the short term. Second, we build on numerous previous studies which have argued that there is an important short-term association between foreign investment and institutional factors (Gossel 2018; Malikane and Chitambara 2017; Aziz and Mishra 2016; Busse et al. 2016; Kahouli and Maktouf 2015; Kucera and Principi 2014; Quazi et al. 2014; Asiedu and Lien 2011).

We develop dynamic generalized method of moments (GMM) model proposed by Blundell and Bond (1998). As the empirical literature informs, the sizes of cross sections ($N = 699$) and time periods ($T = 15$) of our panel dataset are suitable for constructing dynamic models (Kahouli and Maktouf 2015; Roodman 2009). This empirical approach is appropriate to apply because in the cross-sectional type of panel where models pool data overtime concerns of simultaneity between two (or more variables) can still arise. The system GMM model allows to maintain the sample size in the presence of panel gaps.¹² Similar to another popular GMM estimation, the Arellano–Bond differenced model, the system GMM also employs internal instruments derived by previous observations of instrumented covariates (Roodman 2009).¹³ The system GMM improves the traditional Arellano–Bond dynamic model by exploiting both differences and levels when fitting the model. That advantage allows to examine the country level characteristics that could temporally alter the levels of democracy while accounting for simultaneity and common trends. In sum, we estimate an individual effect two-step system GMM where the dynamics of cross-sectional variations are investigated by considering the persistence of FDI openness along with rising democracy levels in some African countries. The subsequent setup illustrates the dynamic model:

Dynamic/Short-run model:

$$\begin{aligned} \Delta \text{Ln}(D_{i,t}) = & \sum_{j=1}^{p=2} \lambda_j \Delta(\text{Ln}(D_{i,t-j})) + \sum_{k=0}^{q=1} \beta_k \Delta(\text{Ln}(X_{i,t-k}^n)) + \sum_{c=0}^{q=1} \gamma_c \Delta(\text{Ln}(C_{i,t-c})) \\ & + \sum_{m=0}^{q=1} \gamma_m \Delta(\text{Ln}((X^n \times C)_{i,t-m})) + \lambda(\text{Ln}(V_{i,t})) + \alpha_i + \mu_{i,t} \end{aligned} \quad (3)$$

In this model, Δ stands for the difference between a given variable in year t and $t - 1$, $\text{Ln}(D_{i,t})$ is the democracy index in a logarithmic form, $\text{Ln}(D_{i,t-j})$ is the

¹² When, for example, there is a common trending pattern between democracy index and FDI openness, the fixed effects or instrumental variable analysis could neglect accounting for a spurious relationship. Therefore, by looking into equilibrium level of democracy in each country, something that neither IV nor fixed effects permit to initiate, the GMM model considered here examines the short-run unit specific characteristics that could have some influence on the democracy levels in African countries.

¹³ Specifically, the GMM estimation is predicted by two datasets of the original panel, one in differences and one in levels (original values). The instruments that are specific for the differenced equation take upon the value of zero for the equation in levels, and contrarywise the level equation-based instruments have values of 1 and 0 for other equations.

lagged dependent variable with first and second lags $p = 2$, $Ln((X^n \times C)_{i,t-m})$ is the interaction term between regime corruption and Chinese FDI openness or ROW FDI openness described earlier, with both contemporaneous values and maximum of one lag per variable, $Ln(V_{i,t})$ is a vector of control variables property rights and market size that we included previously, and finally, α_i is the indicator for the individual effect, p and q indicate the number of lags for covariates, and $\mu_{i,t}$ is the country and year specific error term. We formulate a system generalized method of moments model with lagged variables to gauge slow-paced properties of democratic transition. As some authors suggest, the existence of democratic practices is driven by the state institutions that preserved those practices in the past (Persson and Tabellini, 2009). We include up to two lags of the democracy index in the system-GMM model to account for this possibility. Additionally, we allow all lags of the democracy index variable beginning with year $t - 2$ as a GMM excluded instrument.¹⁴ Finally, we also include the trade openness, inverse distance to China and inverse distance to ROW as GMM instruments.

Main Econometric Outcomes

The main quantitative objective of this research is to test whether the long- and short-term effects of FDI openness on democratization are due to regime corruption in African countries. This in its turn allows us to clarify implications of two competing hypotheses, the *grabbing hand* and the *helping hand* of corruption. We hypothesize that in the long run FDI liberalization to China and ROW will positively effect democratization in societies with increasing regime corruption. In the short run, we expect that this effect will be negative in the short run because corrupt elites will be able to expropriate investment revenues faster than from other sources of wealth. We proceed with the discussion of the second-stage results as the first stage regression outcomes are not part of the main hypotheses.¹⁵ We then turn to interpreting the statistical importance and influence of estimated levels of FDI openness to China and ROW on democracy in African countries in the short term. More detailed discussion on implications of all our results, their relevance to prior studies and their meaning in a wider context are presented in sections 5 and 6.

¹⁴ We normalize the overspecification of instrumental variables in this model by enabling the collapse option in the `pgmm` function of `plm` R package. This allows to avoid the estimation bias resulted by increasing instrumental variable count. The collapse option restricts overfitting the endogenous variables in small samples. Using the collapse option also ensures that the number of GMM instruments does not exceed the number of countries in the observed sample.

¹⁵ We do not interpret those results since the intended use of the first stage models was to derive predicted probabilities for FDI openness to China and ROW by using gravity model instruments. Hence those are not of major significance for our hypothesis testing. We nonetheless report the regression results for the first stage gravity type models in the supplementary materials which are available online to preserve space in the main paper.

Static (Long Run) Results

We follow much of the existing research in this area by reporting the basic linear relationships between our variables in the OLS models where we iteratively include interaction terms as well as the main controls, *property rights* and *market size*. Table 2 reports the results of the second-stage static models for the long-run relationship between democracy index and our key variables of interest, the interaction terms of FDI openness to China/ROW and regime corruption.

First, the results in model 1 suggest that we do not find an empirical support for our baseline assumption that as African countries become liberalized to Chinese FDI in the long run, the democratization will increase. Contrariwise, similar to Subasat and Bellos (2013) and Bellos and Subasat (2012b) all of whom analyze a sample of Latin American countries, we find a statistically significant negative relationship between FDI openness on democratization in our sample of African countries. Particularly, the results show that a one unit increase in the predicted level of Chinese FDI openness (in the first stage) is associated with -5.7 percent ($100 \times (-0.057)$)% decrease in the democracy index.¹⁶ The direction of this effect does not change in the model 2 where we include the openness to FDI from ROW. We find that democracy index level decreases by 13.9% for every unit increase in the ROW FDI openness variable at a 10 percent significance level.

These baseline results do not directly test the major assumptions of hypotheses 1 and 2. To properly examine the long-term changes in the democracy levels of African countries when liberalizing to foreign investments from China and ROW, we add interaction terms with regime corruption in each country i at year t . The models 3, 4 and 5 yield standard errors clustered by country, year and two-way (country and year) levels. The significant F-statistic values in all models of Table 2 reveal that these regression estimations have strong fit for the independent variables that explain the democracy levels. They also suggest that the models explain substantial variation in the outcome of interest for this study.

Model 3 reports some contrasting outcomes given the predicted coefficients for the interaction terms. First, we observe that Chinese FDI openness that is due to increasing levels of regime corruption has negative effect on the democracy in the long run. Yet, this outcome has no statistical significance. We discover statistically significant support for our second hypothesis in the estimated coefficient of interaction between ROW FDI openness and regime corruption. The result indicates that as FDI openness to ROW increases by 1% in African countries with high level of regime corruption democracy index increases by 0.38%.¹⁷ This result suggests that when African countries with high

¹⁶ In the log-linear model, a one-unit change in X ($X = 1$) is associated with a $(100 \times \beta)$ % change in Y . In all our first stage models, we do not apply logarithmic transformation to the predicted levels of FDI openness to China or ROW. Additionally, the scale for Chinese and ROW FDI openness is the predicted value from the first stage. The predicted values can be negative or positive depending on the direction of the effect produced by the gravity model covariates.

¹⁷ Note that we include the logarithmically transformed regime corruption in the interaction term, while the predicted FDI openness is in original levels. Hence, this makes the interpretation of the coefficient in the log-log model to be in terms of elasticity. In the log-log model, a 1% change in X is associated with a β_i % change in Y . Thus, in this specification β_i is the elasticity of democracy index with respect to the interaction term.

Table 2 Results of the long-run models

<i>Dependent variable: democracy index (V-Dem)</i>						
Models						
	(1) OLS	(2) OLS	(3) OLS	(4) FE	(5) FE	(6) FE
Chinese FDI/GDP	-0.057** (0.025)	-0.017 (0.032)	0.038 (0.034)	-0.089*** (0.032)	-0.121*** (0.037)	0.028 (0.082)
ROW FDI/GDP		-0.139* (0.073)	-0.421** (0.166)	0.496*** (0.102)	0.250*** (0.055)	0.397*** (0.122)
log (Regime corruption)			-0.671** (0.018)	-0.508*** (0.023)	-0.615*** (0.016)	-0.514*** (0.024)
log (Market size)				0.136** (0.063)	0.150*** - 0.150*** (0.011)	0.138** (0.066)
log (Property rights)				0.219*** (0.043)	0.438*** (0.021)	0.228*** (0.043)
Chinese FDI/GDP × RC				-0.030** (0.014)	-0.062** (0.030)	-0.003 (0.068)
ROW FDI/GDP × RC				0.242*** (0.061)	0.088* (0.048)	0.446*** (0.066)
Constant	-1.207*** (0.047)	-0.501 (0.370)	-1.896*** (0.021)			
Observations	699	699	699	699	699	699
Fixed effects	none	none	none	country	year	both
Countries/years	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15
R2	0.007	0.013	0.67	0.51	0.82	0.48
F Statistic	5.376**	4.5**	281.9***	94.41***	437.5***	82.98***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

regime corruption liberalize to investments from the ROW, the investments coming from Chinese partners have insignificant influence on wealth redistribution trends. In other words, similar to arguments and findings in Chen et al. (2018) we also document that as opposed to alternative investment options, most African countries with tougher socio-political environments seek foreign capital from China, whereas those with relatively stable institutional environment liberalize to FDI from ROW.

The OLS results naturally raise the following crucial concerns: What is the source of the cross-sectional correlation between FDI liberalization and democratization in African countries? Why did countries with significant regime corruption and substantial foreign capital democratize? To address these concerns, we conduct a 2SLS regression analysis with country, year and two-way fixed effects in order to control for unobserved country and time invariant factors such as consistently gathered data on cultural and ideological transformations which are difficult to find.¹⁸ We include fixed effects in both first and second stages of our examination. The fixed effects approach of model specification also allows to reduce the selection bias given the within country variations.

The estimated coefficients for the interaction terms in the model 4 of Table 2 with country fixed effects indicate different long-run outcomes for FDI openness to China and ROW. First, we detect that the interaction term for Chinese FDI openness and regime corruption has a statistically significant negative effect on democratization in African countries, whereas the FDI openness to ROW in highly corrupt African countries positively influences democracy index outcome variable. Specifically, the levels of democracy decrease by -0.03 percent in the long term as African countries in our sample make their investment environments more open to China than ROW. By contrast, the openness to ROW FDI in corrupt regimes increases democracy by 0.24% in those countries. The statistically significant estimated coefficient for Chinese FDI openness variable outside of the interaction term also has a negative long-run impact on democracy index. Similarly, the ROW FDI openness has a long-term positive impact on democratization.

The interpretation of coefficients apart from interaction implies that for every unit change in Chinese FDI openness or ROW openness, the democracy index changes by certain percentage when regime corruption is zero. Since our measure for the regime corruption runs from 0 to 1, with lowest values indicating no corruption, we can say that—if we exclude the corruption in African countries, then Chinese FDI liberalization reduces the democracy by 8.9%, while openness to ROW investments increases it by 49.6%. Likewise, the effect of regime corruption outside of interaction terms stipulate the estimated impact on democracy when the values of Chinese/ROW FDI openness are zero. In line with previous findings (Gossel 2018; Quazi 2014; Egger and Winner 2005), the regime corruption variable outside of the interaction term has a negative effect on the democracy in African countries. In more details, for every percentage increase in regime corruption levels the democracy decreases at least by 0.65% within African countries between 2003 and 2017.

¹⁸ The OLS model assumes that the residuals are distributed independently and identically which creates a problem when estimating country specific effects as those are completely ignored by the OLS model. The fixed effects approach for within country investigation allows to control for time-invariant unobserved individual characteristics that can be correlated with the observed independent variables.

Consistent with previous findings (Guha et al. 2020; Jalil et al. 2016; Mathur and Singh 2013), the increases in the market size (GDP per capita) and improvements in property rights have statistically significant positive impact on democracy levels by 0.14% and 0.22%, respectively. The results in model 4 remain same after we replace the country fixed effects with year fixed effects in the model 5. A one percent increase in the interaction between Chinese FDI openness and regime corruption reduces democracy levels by 0.06 percent, whereas the interaction term with openness to ROW instead of China has statistically significant positive influence on democracy by 0.08 percent. The coefficients on FDI openness to China and ROW outside of the interaction terms still produce negative and positive effects on democracy, respectively. A striking outcome in model 5 is that unlike with country fixed effects, there are unobserved temporal influences that shift the influence of the market size on democracy. In this model, the market size has statistically significant negative effect on democracy by 0.15%. Once we include both country and year fixed effects, the only change we observe is the positive coefficient for the Chinese FDI openness outside of the interaction term. Nonetheless, it is statistically insignificant.

Dynamic (Short Run) Results

The results of dynamic system GMM with panel data are presented in Table 3. The mathematical interpretation of predicted coefficients in the GMM model may become complicated given the inclusion of interaction terms and exogenous GMM instruments (Henri et al. 2019). However, since we log transform our dependent and independent as well as GMM instruments that are including in these specifications, we are able to interpret the coefficients in terms of elasticities (Aziz and Mishra 2016; Quazi et al. 2014). This is similar to what we did with the log-log fixed effects models. The only difference is that now we only articulate the implications of variables that have statistical significance. To increase the robustness of our main dynamic model estimations, we follow previous studies like Kathavate and Mallik (2012) by including the lags of the interaction terms which in our case are between FDI openness to China/ROW and regime corruption. One apparent result is that in all models the first lag of the democracy index, which absorbs most of the autocorrelation in other controls, has a positive effect, while the second lag is negatively related to its contemporaneous value.

As before, first we introduce the basic short-run relationship between FDI openness and democracy in the model 7 that includes only the lags of the democracy index and FDI openness to China. The outcomes presented in the model 7 reveal that as we expected the contemporaneous values of Chinese FDI openness have a negative impact on democracy index by 0.021% in the short term. However, the first lag positively influences the democracy scores by 0.017%. The direction of this impact on democracy does not shift even when we add the openness to FDI from ROW in the model 8. Nevertheless, we do not find a significant effect for ROW FDI openness neither at the contemporaneous level nor at the first lag.

The model 9 introduces same interaction terms between FDI openness and regime corruption that we used for the long-term relationship. We notice that the estimated

Table 3 Results of the short-run models

	Dependent variable: democracy index (V-Dem)			
	Models			
	(7)	(8)	(9)	(10)
log (Democracy) _{<i>t</i>-1}	1.093*** (0.019)	1.108*** (0.018)	1.120*** (0.058)	1.155*** (0.075)
log (Democracy) _{<i>t</i>-2}	-0.109*** (0.020)	-0.093*** (0.023)	-0.065 (0.044)	-0.025 (0.102)
log (Chinese FDI /GDP)	-0.021** (0.010)	-0.029*** (0.011)	0.078*** (0.030)	0.104*** (0.029)
log (Chinese FDI /GDP) _{<i>t</i>-1}	0.017* (0.010)	0.022** (0.009)	-0.090*** (0.029)	-0.120*** (0.032)
log (ROW FDI / GDP)		-0.020 (0.021)	0.231** (0.099)	0.103 (0.113)
log (ROW FDI / GDP) _{<i>t</i>-1}		0.029 (0.021)	-0.211** (0.034)	-0.066 (0.124)
log (Regime corruption)			-2.160** (0.870)	-1.095 (1.067)
log (Regime corruption) _{<i>t</i>-1}			1.654* (0.854)	0.557 (1.070)
log (Chinese FDI / GDP × RC)			0.110** (0.050)	0.172*** (0.053)
log (Chinese FDP/ GDP × RC) _{<i>t</i>-1}			-0.133*** (0.047)	-0.189*** (0.052)
log (ROW FDI / GDP × RC)			0.294* (0.151)	0.087 (0.189)
log (ROW FDI / GDP × RC) _{<i>t</i>-1}			-0.195 (0.151)	0.018 (0.190)
log (Market size)				-0.003 (0.015)
log (Property rights)				-0.076 (0.058)
Observations	699	699	699	699
Countries/years	48/11-15	48/11-15	48/11-15	48/11-15
AR(1)	0.003	0.002	0.000	0.000
AR(2)	0.145	0.10	0.77	0.77
Wald test χ^2	402994.5	458712.6	180006.6	133846.4
<i>p</i> -value	0.000	0.000	0.000	0.000
Sargan test χ^2	22.64	20.41	13.34	11.52
<i>p</i> -value	0.75	0.77	0.86	0.87

p* < 0.1; *p*<0.05; ****p*< 0.01

coefficient for the interaction between Chinese FDI openness and regime corruption supports our expectations of hypothesis 1 only at the first lag. For a one percent increase in FDI liberalization to China, there is a 0.133 percent decrease in the democracy scores in African countries in the short run. The contemporaneous values of this interaction produce statistically significant positive effect on democracy levels by 0.110% which goes contrary to what we expect. The interaction term for ROW FDI openness and regime corruption does not show any statistical significance for proper interpretation of results. Unlike the outcomes of the model 8, in model 9 we document that both Chinese and ROW FDI openness outside of interaction term generate positive short-term impact on democracy at the contemporaneous values and negative impact at the first lag, all of which have meaningful statistical significance. To remind the reader, the predicted coefficients outside of the interaction term for FDI openness to China and ROW show the elasticities between democracy index and these variables when the regime corruption level is zero.

Lastly, in the model 10, we include our two control variables, the logarithmically transformed property rights and market size of 48 African countries in our sample. The only change that occurs is that the estimated coefficients for the ROW FDI openness and regime corruption lose their statistical significance. This means that both property rights and market size variables are important factors which absorb the explanatory power from FDI liberalization to ROW. By contrast, the statistical significance for the openness to Chinese FDI does not vanish neither in the interaction term nor outside of it. Same as in the model 9, in model 10 we notice that the contemporaneous levels of Chinese FDI openness and regime corruption interaction have a statistically meaningful positive effect on the democracy levels by 0.172%. A result that provides justification for our theory is the first lag of this interaction term. The estimated coefficient shows that as regime corruption levels and Chinese FDI openness increase by 1 percent, there is 0.189% decrease in the short-term democratization in African countries.

Robustness Analysis

In this section, we conduct a series of robustness checks for our baseline findings. The sensitivity tests are organized in three main comprehensive ways. First, we re-estimated all specifications using alternative outcome variable measures for democracy. Following the previous works in this field, we include the combined democracy scores from POLITY V project (Gossel 2018; Malikané and Chitambara 2017; Pandya 2014), voice and accountability (VA) as well as rule of law (RL) measures from the Governance Indicators (GI) (Mourao 2018; Broich 2017; Morrissey and Udomkerdmongkol 2012), and lastly the political rights (PR) and civil liberties (CL) measures from the Freedom House database (Chen et al. 2018; Kucera and Principi 2014). We normalize all the original scales for these variables to range from 0 to 1 for ease of interpretation and comparison to the main findings using the composite democracy index we constructed with V-Dem data.

Figure 5 shows the average yearly time series line plots for all different indices of democracy we utilize. As we may observe, there is a striking variation among these

variables. For example, the VA and RL indicators of democracy resemble similar trajectories from 2003 to 2014; however, after 2014 there is more drastic incline in VA than in RL measure. The progression of normalized POLITY scores is more comparable to the pattern of V-Dem democracy index, although for the years 2007–2017 its variance evolves slightly more than V-Dem index. Similar observation can be drawn for the PR and CL measures. The PR scores have more visible decay and revitalization between 2005 and 2014 than the CL measures. After estimating the short- and long-run models with the VA, RL, CL, PR and Polity, the results confirm that there are crucial differences in measurements and methodology of democracy indices that researchers in this field must pay close attention to.

Second, we take 3- and 5-year non-overlapping averages of our complete data frame for all variables. The averages are taken by country and year maintaining the panel structure of the data frame. Following suggestions of the extant literature we employ the averages of FDI openness, regime corruption, property rights, market size and democracy in order to (1) observe low frequency effects of FDI openness to China and ROW on democratization in Africa (Acemoglu et al. 2008), (2) account for long-term fluctuations in the business climate (Malikane and Chitambara 2017), and (3) avoid unobserved global trends influencing the investment market volatility in African countries (Kucera and Principi 2014).

Third, following the sensitivity check strategy from Gossel (2018), we isolate the impact of outlier countries and perform both short- and long-term analysis on the revised data frame. We identify outlier African countries as those which have significantly greater levels of FDI openness to China and ROW. Figure 10 compares the average levels of FDI openness versus FDI stocks for each country. An interesting inference we can draw from this figure is that the top recipients of FDI stocks are totally different from countries with top FDI openness levels. For instance, when closely observing the top two graphs for Chinese and ROW FDI stock we notice that the top five countries receiving external investments from China are South Africa, Nigeria, Zambia, DRC and Algeria. Similarly, South Africa, Egypt, Nigeria, Morocco and Tunisia are the top five recipient countries of ROW FDI stocks. However, the bottom two figures for FDI openness show that the five countries with greatest level of FDI openness to China are Zambia, Seychelles, Liberia, Republic of Congo, and Mauritius, while top five countries with openness to FDI are Liberia, Seychelles, Republic of Congo, Mozambique, and Cabo Verde. We exclude the top countries with FDI openness relative to both China and ROW. Since there are overlapping countries among both sets, the isolated countries are Liberia, Seychelles, Zambia, Republic of Congo, Mozambique, Mauritius, and Cabo Verde. Using this new filtered dataset, we perform static and dynamic model estimation on both annual as well as on the 3- and 5-year averaged version of the filtered data.

Results of Robustness Checks

The results of the robustness test are displayed in Tables 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 available in “Appendix A”: Data. First, we are able to replicate similar short- and long-term results while using alternative measures of democracy from various

sources. Table 6 for long-run results with POLITY scores as the main dependent variable shows that the interaction term between Chinese FDI openness and regime corruption has a negative and significant effect on the outcome variable, while the interaction of regime corruption with ROW FDI openness is negative and statistically significant. These results are similar to what we found while employing V-Dem's composite democracy index in our main econometric models.

One of the crucial outcomes from our sensitivity analysis was that the source, measurement and operationalization of democracy/democratization as a dependent variable are of central importance for hypothesis testing in this field of research. For instance, we were able to obtain some support for our hypothesis with only selected alternative measures of democracy. Our main expectation was that in the long run the estimated coefficient on interaction for FDI openness and regime corruption will be positive. As such, the results in Table 7 show that when corrupt African regimes liberalize to Chinese investments, the effect on the political rights normalized score is positive in line with our expectations. However, the effect on civil liberties normalized measures is negative. Unlike our findings from previous models, we also document that ROW FDI openness in corrupt African regimes reduces the level of both political rights, and civil liberties.

It must be mentioned that these results highly depend on the type of model specifications. For example, we observe that in models 19 and 21 of Table 7, the effect of interaction term for Chinese FDI openness and regime corruption on civil rights is positive while in model 20 with year fixed effects is negative. These diverging outcomes additionally confirm that there are temporal unobserved factors that influence consolidation of democratic values promoting political rights in corrupt African regimes that open up their markets to Chinese partners. Also, the positive association between Chinese FDI openness and democracy indices measuring institutional qualities in our sample of African countries are consistent with findings in Mourao (2018), Chen et al. (2018), (Borojo and Yushi 2020), Broich (2017) NguyenHuu and Schwiebert (2019), and Busse and Hefeker (2007). All these authors offer some empirical evidence for the existence of strong relationship between Chinese FDI openness and improvement in institutional qualities and various measurements of democracy while controlling for regime weaknesses such as corruption.

Similar to political rights and civil liberties from the Freedom House, the voice and accountability (VA) and the rule of law (RL) measurements of democratization from Governance Indicators generate different results in their respective models. Table 8 shows that when interacted with regime corruption, the Chinese FDI openness has negative impact on VA in the model 22 with country fixed effects, while positive influence (which confirms the hypothesis 1) on the RL. Contrariwise, the openness to ROW FDI in corrupt regimes positively effects VA levels while having a statistically significant influence on RL.

The short-run dynamic effects are displayed in Table 9. Similar to the long-run outcomes, the utilization of different democracy indices yields mixed results. For example, the findings based on the predicted coefficients for the Chinese FDI openness and regime corruption in the models 29 (RL), 30 (CL), 31 (PR) and 32 (POLITY) provide statistically significant evidence that corrupt regimes liberalizing to Chinese investments experience degradation in democratic institutions, whereas the interaction

for the ROW FDI openness with regime corruption has positive short-term effect on VA, RL and POLITY, which is contrary to our expectations in the hypothesis 2.

Our second robustness test employed 3- and 5-year averages of all variables in the main models. We used the 5-year averages in the long-run models, and the 3-year averages for the dynamic models.¹⁹ The results for the 2SLS long-run models are shown in Table 10.²⁰ Similar to the outcomes from our full data frame, these results are robust to country, year and two-way fixed effects. Overall, we find that the impact of interaction for Chinese FDI openness is negative, yet, unlike previous models it is statistically insignificant. The interaction of ROW FDI openness and regime corruption is positive with country fixed effects and two-way fixed effects.

In the dynamic models for short-run relationships using 3-year averages, we find similar influences of our main interaction terms as we found with the full data frame. The results are illustrated in Table 11, with a complete set of democracy indices which include V-Dem democracy index (model 39), VA (model 40), RL (model 41), CL (model 42), PR (model 43) and POLITY (model 44). We find support for hypothesis 1 regarding the negative short-term effect from the interaction term between Chinese FDI openness and regime corruption on democracy in models 41, 42, 43 and 44. Additionally, we provide strong evidence for hypothesis 2 regarding interaction for ROW FDI openness in model 39 only. A noteworthy aspect about these results is that the impact of Chinese investment liberalization in corrupt African countries has a negative effect on RL, CL, PR and POLITY measures of democratic indices, whereas the same expectation for ROW investment liberalization is validated only for the composite democracy index from V-Dem. Again, these outcomes confirm that the measurement and operationalization of the dependent variable measuring democratic institutions is very important to consider.²¹

Lastly, we repeat all previous model specifications using both full data frame and 3- and 5-year averaged versions while excluding top 5 countries with FDI openness to China and ROW. For the most part, the predicted coefficients and general results are robust to exclusion of top 5 countries. We find that the effect of FDI openness to China in corrupt African regimes still produces a negative long-run and positive short-run impact on democracy depending on the source and methodology of those indices. The effect of FDI openness to ROW in countries with high corruption is positive in the long run, and negative in the short run depending on the source of democracy indices.

¹⁹ As the literature informs, to make more robust inferences about the short-run relationship between economic activity variables and democracy levels of African countries we need to have sufficient variation in the cross sections and time-periods (Roodman, 2009; Blundell and Bond, 1998). Therefore, following Kucera and Principi (2014) we use the 3-year averages in order to maintain the requirement for the minimum size of time periods.

²⁰ The dependent variable is composite democracy index that we constructed using the five indices of democracy from V-Dem.

²¹ The test specifications for Sargan (J-test), Wald test, AR(1) and AR(2) suggest that the exogenous and GMM specific instruments are not weak, that there is no overidentification, and no auto-correlation present in the estimated models, which validates the robustness of these results.

Discussion and Implications of Findings

In this section, we synthesize our short- and long-term findings through the lenses of the grabbing and helping hand hypotheses. First, we find that there is an inter-related association between the *grabbing hand* and *helping hand* influences of openness to foreign investments on democracy that is mitigated by regime corruption in African countries. Second, another important result derived in this study is that the mitigating impact is due to the sources, operationalization and methodology of indices that measure democratization in developing countries. As we have shown, different indices of democracy and democratic institutions had varying relationships with the openness to FDI from China and ROW in corrupt African countries. Lastly, our robustness checks showed that the popular criticisms regarding Chinese firms' substantial presence in African countries and how they influence the democratic institutions are valid but only depending on how one operationalizes democratic institutions. For instance, openness to Chinese firms in corrupt countries increases political rights, however, negatively impacts civil liberties and Polity measures of democratization.

Given the empirical outcomes of the current paper which contribute to prior studies by Henri et al. (2019), Mourao (2018), Chen et al. (2018), Gossel (2018), Broich (2017), Bak and Moon (2016), and Malikane and Chitambara (2017), we find mixed results on how investment market openness to China and ROW shape democratization in African countries with different levels of corruption. Referring to the details in Table 1, we summarize our findings in Table 4. To initiate insightful summary based on our results, this table puts the predicted results into the crosstab cells referring to Table 1 where we demonstrated our theoretical framework. For the short-run influences, only the first interaction term between Chinese FDI openness and regime corruption in the model 9 of Table 3 provides empirical evidence that liberalization to Chinese investments has negative dynamic impact on democracy in Africa. This result suggests that when African countries open up to investments to Chinese firms, the democracy in African countries may suffer in the short term. This outcome also suggests that the relationship between democracy levels in Africa and Chinese investment liberalization moderated by corruption makes the *grabbing hand* factors more prevalent than the *helping hand* characteristics. However, only the effect of investment openness to ROW that is due to high levels of regime corruption supports our expectation that democracy will prosper in the long run.

While we expected both Chinese and ROW FDI openness to have negative short-term impact on democracy only openness to China in corrupt African countries produced that outcome. Also, contrary to our expectations, only ROW FDI openness in significantly corrupt African states positively impacts democracy in the long term. What can explain this difference in how ROW and Chinese FDI influence democratic trajectories in African countries?

These conflicting results may be rationalized by comparing them to the findings from previous research. For instance, Quazi et al. (2014) document that African countries with low corruption attract more FDI in the short term which validates the assumptions of the *helping hand* hypothesis. However, similar to some of our findings related to the ROW FDI openness, they find that in the long term, African countries with weak institutions may receive more FDI as the helping hand degenerates into

Table 4 Hypothesized and predicted direction of effects by FDI openness on democracy levels

Type of FDI effect on democracy	Hypotheses	
	Panel 1	Panel 2
Short run	Lower democracy* (GH)	Higher democracy (HH)
Long run	Higher democracy* (HH)	Lower democracy (GH)
	Predicted effects	
	Panel 5: Main hypotheses	Panel 6: Alternative hypotheses
Short run (Table 3, model 9)	Chinese openness \times RC_{t-1} **	ROW openness \times RC
Long run (Table 2, models 4 and 5)	ROW openness \times RC **	Chinese openness \times RC

The single asterisks in the Panel 3 indicate our primary expectation highlighted in the Hypotheses 1 and 2 defined earlier. The double asterisks in the Panel 5 show the predicted variables which provide the strongest support for the main hypotheses. GH = grabbing hand, HH = helping hand, and RC – regime corruption.

the *grabbing hand* of corruption. Similarly, Gossel (2018) finds that foreign investors encounter the helping hand characteristics of corruption in African countries in the early stages of business process. Yet, the corrupt African regimes transform the helping hand into grabbing hand to seize better opportunities for rent extraction. In line with this logic, we find varying effects on democracy in Africa as produced by openness to Chinese and ROW FDI.

Consistent with the critiques and empirical findings offered by Chen et al. (2018), we show that when African countries with pervasive corruption liberalize investment markets to China the democracy declines in both the long and short term. Yet, the liberalization to investments from ROW positively impacts democracy in those countries. Since democracy is a key factor for driving economic growth in African countries (Malikane and Chitambara 2017), our empirical results were robust to the market size and property rights of African countries in addition to country and year fixed effects. Lastly, unlike Culver (2021) who analyzes how FDI flows from China and other developing countries change corruption levels and finds no significant difference between the two, we find noticeable distinctions in the way this work. Chinese FDI has short- and long-term negative influences on democracy, while ROW FDI openness has positive effect. Both of these outcomes highly differ based on which variable of democracy is included.

In contrast with our theorized framework, we find that Chinese FDI openness has negative long-term impact on democracy, however, positive short-term effect at the contemporaneous levels as the interaction terms showed. One explanation for this outcome is that Chinese investors learn to tolerate the inevitable corruption in their long-time investment destinations such as Algeria, Angola, Egypt, Cameroon, DRC, Niger and Nigeria. Figures 8 and 9 compare the geo-spatial maps for the long-term changes in original vs predicted levels of democracy based on the model 4 of Table 2. We observe that corrupt regimes like Libya, Niger, Kenya and Nigeria experienced improvements in democracy from 2003 to 2017. Whereas countries like Zambia and Zimbabwe witnessed deterioration in democratic institutions. Another explanation is that in congruence with our theorized mechanism, corrupt African regimes relax entries to their local investment markets with the *helping hand* only to later seal long-term business partnerships to exercise the *grabbing hand* of corruption to generate more profits.

While the presence of the *helping hand* of corruption may contribute to advancements in socio-economic conditions which is central for driving democratic institutions, the *grabbing hand* characteristics create new opportunities for the regime elites to expropriate without redistribution. In this scenario, the short-term costs of corruption are high for institutions such as voting, political participation and transparent media, all of which are vital for democratization. In the long run, these institutions profit from liberalization from FDI if the foreign investors cast their capital into projects that serve to advance democratic practices, norms and institutional behavior.

Policy Recommendations and Future Research

Several key policy implications arise from these results. First, public policy can observe the varying impact of foreign capital on long- and short-term democratic processes. China is likely to grow its influence in Africa and continue to be a major partner to both weak and strong states. Despite recent setbacks in competitiveness in the global sectors, the FDI regulating policies in African countries can focus on enhancing technological development opportunities for domestic companies. This will allow to improve information diffusion and civic engagement through social media during important political events like elections. Second, in countries where the control of economy is concentrated among the state actors, the government policies can design protective measures for potential spill outs of foreign investment revenues to non-state actors. This is where the government corruption, clientelistic behavior and rent-seeking culture insinuate asymmetric relationship between institutions and the society. Democratic political institutions do not flourish in societies dominated by informal economic practices. Third, the policymakers must address imbalances in the investment market system in many African countries. Approaches to industrial development based on allocation of foreign capital to developing high skill manufacturing must be prioritized. The government policies should be oriented toward the long-term incorporation of resources and service industries into social welfare, property and employee rights protection programs.

Stalemates in effective policy implementation could partly be explained by the fact that democratic change is not a quick process especially for developing countries that have other constraints such as weak institutional structures and corruption. Those constraints may allow modernization of the society at the expense of rent seeking, vote buying and expropriation of foreign aid (Arezki and Gylfason 2013; Mathur and Singh 2013). This can be driven by China's growing presence in only specific sectors of FDI and development projects in African countries which are concentrated among the circles of elites who disproportionately reallocate the benefits back to the society. The elites in developing African countries might exploit the foreign direct investments essential for the growth of economic sectors.

Political institutions are also vital when opportunities exist for the elite to expropriate from government spending. The political survival agenda of leaders in weak states could spoil the productivity of the entire economy when the cash transfers for fiscal redistribution inflate the income inequality (Kammas and Sarantides 2019). However, not all partners of African countries take advantage of unsubstantiated access to domestic markets and development sectors in the region. While some African countries might not introduce strict regulations for economic cooperation with capital-intensive partners, the partners themselves could require more legitimate regulations the absence of which deteriorates other prospects for more cooperation.

The convolution of properly examining how the openness to foreign direct investments shifts democratic levels in any political environment must be carefully recognized. The empirical analysis of this paper offers one mechanism for exploring the Sino-African economic nexus; however, it also calls for a better understanding of the observed trajectories. The future research on this topic may be improved in several ways. First a more detailed analysis of country case studies where Chinese firms invest intensively will add valuable insights to this line of research. Second, a panel-data estimation similar to research designs in Chen et al. (2018) and Gossel (2018) with sector specific investments will be important if the new studies can examine how those sectors affect democratic institutions at a micro-level.

Third, possible research puzzles that can further be leveraged in this field would ask the following questions: How does public opinion affect economic liberalization in Africa? Why do some African countries with pervasive ethnic violence receive more foreign investments from China and others, while other countries do not? How do various electoral rules influence the underlying association between trade and FDI openness and democratic development? Why do some African countries with heavy military presence in the government attract economic cooperation with foreign actors while other countries dissuade such cooperation? How does the presence of free media garner foreign aid for development projects in some African countries but not in others? Political upheavals have been prevalent in many African states during the past several decades. This paper serves as the stepping-stone for examining those upheavals in political liberalization and governance legitimacy by utilizing foreign and domestic economic elements.

Conclusion

How does FDI openness to China and elsewhere influence democracy in African countries across time and space? Do African countries that liberalize economically also experience positive changes in domestic democratic institutions? This paper contributes systematic empirical analysis to this growing field of research that attempts to address these and similar questions (Borojo and Yushi 2020; Mourao 2018; Chen et al. 2018; Broich 2017). We argued that the mechanism by which market liberalization to FDI from China and elsewhere effects democracy in Africa is moderated by regime corruption. Unlike other forms of capital like trade revenue which takes longer time to generate, the investment capital is more exploitative for corrupt elites in the short term. With this logic at hand, we formulated a theoretical framework which draws contrasts between two competing hypotheses of corruption, the *grabbing hand* and the *helping hand*.

The core of our framework is that in the short run, the investment market liberalization in corrupt regimes will enable opportunistic entrepreneurs to expropriate rents from the investments which will negatively impact prospects of democratization. However, in the long run the capital spillovers from investment projects will positively influence democracy as the regime agents must redistribute to the selectorate to extend their power and time in office. Unlike the existing analytical frameworks and arguments in Borojo and Yushi (2020), Chen et al. (2018), Gossel (2018) and Quazi et al. (2014), we claim that the influences of corruption working through the grabbing or helping hands do not operate in isolation, but transition in cycles. Where one influence ends or weakness the other picks up its pace.

To properly gauge the impact of corruption on the relationship between FDI openness and democracy, our empirical design introduced interaction terms for regime corruption and Chinese or ROW FDI openness in 48 African countries over the period 2003–2017. Capitalizing on the previous studies that have dealt with endogeneity issues in this field of research, we developed two-stage least squares models to analyze the long-term impact (Maruta et al. 2020; Broich 2017; Kahouli and Maktouf 2015; Bak and Moon 2016; Pinto and Zhu 2016; Pandya 2014) and GMM models for the dynamic short-term impact of FDI openness on democracy (Borojo and Yushi 2020; Gossel 2018; Malikane and Chitambara 2017; Kucera and Principi 2014; Quazi et al. 2014). Borrowing from Subasat and Bellos (2013), Bellos and Subasat (2012a), and Borojo and Yushi (2020), in the first stage we design a gravity-type model to examine how the GDP weighted inverse distance, bilateral membership in WTO, access to a major coastline and trade openness will influence the levels of FDI openness to China and ROW in African states. Then, we employed the predicted coefficients for each country-year dyad in the second stage models starting with simple OLS and gradually adding country, year and two-way fixed effects.

To test the robustness of our main results, we conducted several sensitivity checks. First, we introduced various measures of democracy indices from the Freedom House, POLITY V project and the World Bank's Governance Indicators. Second, we transformed our complete data set into 3- and 5-year non-overlapping averages to parse out the market volatility, business climate fluctuations and low frequencies of FDI openness on democracy in African countries. Third, we excluded the top 5 countries

with FDI openness to China and ROW in order to smooth the temporal characteristics that make some FDI destinations more attractive than others.

The prior studies on the effects of FDI openness on democracy are very limited. Moreover, among the existing ones such as Bak and Moon (2016) the specific focus on how Chinese investments influence the democratic transitions in the short and long horizons is greatly undermined.²² Our study contributes to similar prior research from Culver (2021), Henri et al. (2019); Gossel (2018); Mourao (2018); Malikane and Chitambara (2017) and Bak and Moon (2016) in several ways. First, we find that as we expected there is an endogenous relationship between FDI openness and democratic transition in Africa that is mitigated by corruption levels of each country. As our model estimations revealed, in line with our expectations there is a periodic association between the *grabbing hand* and the *helping hand* characteristics in investment climates of African countries. While the openness to Chinese investments in corrupt regimes reduces the extent of democracy in the long run (support for the *helping hand* theory), the investment from ROW has positive effect (support for the *grabbing hand* theory and hypothesis 2). Conversely, the short-term negative influence of Chinese FDI openness on democratization supports our assumptions of hypothesis 1 and validates the prevalence of the *grabbing hand* features of corruption in the short run. However, we do not find any support for the hypothesis 2 that ROW FDI openness has negative short-run effect on democracy.

Second, combining the strengths from several of previous studies we offer a comprehensive empirical approach to examine the impact of FDI openness on democracy. The novelty of our approach is that unlike the previous works from Bak and Moon (2016), Moon (2019), and Humphrey and Michaelowa (2019), we further address concerns of feedback loops in the error terms that create endogeneity between the outcome variable and covariates by using the gravity model of FDI in the first stage. Third, we show that the future research on this topic must be mindful about the measurement and operationalization of the democracy as the dependent variable.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1057/s41294-021-00176-x>.

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²² Borojo and Yushi (2020) treat Chinese investments to Africa as the outcome of interest, while Mourao (2018) used Chinese FDI as percentage of GDP in each African country as the dependent variable. Both of these studies include controls for institutional qualities, yet none performs empirical analysis to observe endogenous regime transitions.

Appendix A: Data

In this section, we discuss the conceptual descriptions of variables and their measurements and we also present descriptive statistics in Table 5. To preserve space, we present the results and discussions of the first-stage models for our main empirical estimations in the supplementary materials available online. In this section, we report the robustness check results using different indices of democracy, and 3- and 5-year averages of our key data frame.

Below are the definitions of the five democracy measures from the Varieties of Democracy version 10 that we use to construct the composite variable of democracy index used in our study. The scales for the five democracy indices from V-Dem dataset are coded based on expert survey responses. The scale ranges between 0 and 1.

Electoral Democracy

Question To what extent is the ideal of electoral democracy in its fullest sense achieved?

Clarification The electoral principle of democracy seeks to embody the core value of making rulers responsive to citizens, achieved through electoral competition for the electorate's approval under circumstances when suffrage is extensive; political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country. In between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance. In the V-Dem conceptual scheme, electoral democracy is understood as an essential element of any other conception of representative democracy liberal, participatory, deliberative, egalitarian or some other.

Liberal Democracy

Question To what extent is the ideal of liberal democracy achieved?

Clarification The liberal principle of democracy emphasizes the importance of protecting individual and minority rights against the tyranny of the state and the tyranny of the majority. The liberal model takes a "negative" view of political power insofar as it judges the quality of democracy by the limits placed on government. This is achieved by constitutionally protected civil liberties, strong rule of law, an independent judiciary, and effective checks and balances that, together, limit the exercise of executive power. To make this a measure of liberal democracy, the index also takes the level of electoral democracy into account.

Deliberative Democracy

Question To what extent is the ideal of deliberative democracy achieved?

Clarification: The deliberative principle of democracy focuses on the process by which decisions are reached in a polity. A deliberative process is one in which public reasoning focused on the common good motivates political decisions—as contrasted with emotional appeals, solidary attachments, parochial interests or coercion. According to this principle, democracy requires more than an aggregation of existing preferences. There should also be respectful dialogue at all levels—from preference formation to final decision—among informed and competent participants who are open to persuasion. To make it a measure of not only the deliberative principle but also of democracy, the index also takes the level of electoral democracy into account.

Participatory Democracy

Question To what extent is the ideal of participatory democracy achieved?

Clarification The participatory principle of democracy emphasizes active participation by citizens in all political processes, electoral and non-electoral. It is motivated by uneasiness about a bedrock practice of electoral democracy: delegating authority to representatives. Thus, direct rule by citizens is preferred, wherever practicable. This model of democracy thus takes suffrage for granted, emphasizing engagement in civil society organizations, direct democracy and subnational elected bodies. To make it a measure of participatory democracy, the index also takes the level of electoral democracy into account.

Deliberative Democracy

Question To what extent is the ideal of egalitarian democracy achieved?

Clarification The egalitarian principle of democracy holds that material and immaterial inequalities inhibit the exercise of formal rights and liberties and diminish the ability of citizens from all social groups to participate. Egalitarian democracy is achieved when 1 rights and freedoms of individuals are protected equally across all social groups; and 2 resources are distributed equally across all social groups; 3 groups and individuals enjoy equal access to power. To make it a measure of egalitarian democracy, the index also takes the level of electoral democracy into account.

The Freedom House

Civil liberties Civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law and personal autonomy without interference from the state. The more specific list of rights considered varies over the years. Political rights: Political rights enable people to participate freely in the

political process, including the right to vote freely for distinct alternatives in legitimate elections, compete for public office, join political parties and organizations and elect representatives who have a decisive impact on public policies and are accountable to the electorate. The specific list of rights considered varies over the years.

Political rights Political rights enable people to participate freely in the political process, including the right to vote freely for distinct alternatives in legitimate elections, compete for public office, join political parties and organizations and elect representatives who have a decisive impact on public policies and are accountable to the electorate. The specific list of rights considered varies over the years.

Table 5 Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Max	Sources
V-Dem Democracy index	699	0.319	0.169	0.053	0.726	Coppedge et al. (2020)
Chinese FDI openness	699	15.5	23.5	0.015	172.5	CAIR (2019)
ROW FDI openness	699	422.5	585.9	2.2	5061	UNCTAD (2019)
Regime corruption	699	0.509	0.279	0.051	0.987	Coppedge et al. (2020)
Market size (GDP per-cap)	699	2,490	3,390	119	22,942	UNCTAD (2019)
Property rights	699	0.561	0.208	0.046	0.923	Coppedge et al. (2020)
WTO membership	699	0.813	0.391	0	1	Head and Mayer (2014)
Landlocked	699	0.730	0.444	0	1	Head and Mayer (2014)
Inverse dist. China	699	13.9	1.5	10.5	17.7	Head and Mayer (2014)
Inverse dist. ROW	699	14.4	1.5	11.2	18.4	Head and Mayer (2014)
GI: Rule of law	699	0.409	0.210	0.000	0.253	Coppedge et al. (2020)
GI: Voice and account.	699	0.501	0.230	0.000	0.322	Coppedge et al. (2020)
FH: Civil liberties	699	0.543	0.249	0.000	0.333	Coppedge et al. (2020)
FH: Political rights	699	0.577	0.308	0.000	0.333	Coppedge et al. (2020)
Trade openness	699	105,087	192,472	2155	2,209,683	Coppedge et al. (2020)

World Bank Governance Indicators

Rule of Law “Rule of Law” includes several indicators which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary

Table 6 Results of the long-run models

	Dependent variable: Democracy index (V-Dem)		
	Models		
	(11) FE	(12) FE	(13) FE
Chinese FDI/GDP [instrumented]	-0.020 (0.014)	-0.068*** (0.020)	0.088*** (0.034)
ROW FDI/GDP [instrumented]	0.122*** (0.043)	0.059* (0.030)	0.226*** (0.050)
log (Regime corruption)	-0.163*** (0.009)	-0.199*** (0.009)	-0.159*** (0.010)
log (Market size)	0.041 (0.027)	-0.053*** (0.006)	0.080*** (0.028)
log (Property rights)	0.098*** (0.018)	0.071*** (0.012)	0.096*** (0.018)
Chinese FDI/GDP × RC	-0.015** (0.006)	0.029 (0.021)	-0.044 (0.029)
ROW FDI/GDP × RC	0.085*** (0.026)	0.017 (0.027)	0.120*** (0.029)
Observations	684	684	684
Countries/years	47/11-15	47/11-15	47/11-15
Fixed effects	Country	Year	Both
R^2	0.41	0.55	0.36
F-statistic	61.7***	117.1***	49.4***

Significance codes denoted as: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

FE fixed effects. *RC* regime corruption

We include the natural log of RC in the interaction terms; however, we do not log transform the instrumented Chinese FDI/GDP and ROW FDI/GDP variables estimated in the first stage. All models exclude Seychelles as no data were available for POLITY V.

Table 7 Results of the long-run models

	DV = log (Civil liberties)			DV = log (Political rights)		
	Models					
	(16) FE	(17) FE	(18) FE	(19) FE	(20) FE	(21) FE
Chinese FDI/GDP	0.111*** (0.027)	-0.007 (0.029)	-0.081 (0.064)	0.172*** (0.040)	-0.094** (0.039)	0.028 (0.097)
ROW FDI/GDP	-0.318*** (0.081)	-0.134*** (0.043)	-0.051 (0.094)	-0.537*** (0.122)	-0.056 (0.058)	-0.396*** (0.143)
log(Regime corruption)	0.139*** (0.018)	0.457*** (0.013)	0.161*** (0.018)	0.409*** (0.027)	0.598*** (0.017)	0.452*** (0.028)
log(Market size)	-0.142*** (0.050)	0.031*** (0.009)	-0.048 (0.051)	-0.240*** (0.076)	0.051*** (0.012)	-0.211*** (0.077)
log(Property rights)	-0.038 (0.034)	-0.164*** (0.017)	-0.045 (0.033)	0.013 (0.051)	-0.151*** (0.023)	0.007 (0.051)
Chinese FDI/GDP × RC	0.010 (0.011)	-0.069*** (0.023)	0.056 (0.052)	0.073*** (0.016)	-0.186*** (0.031)	0.177** (0.079)
ROW FDI/GDP × RC	-0.016 (0.049)	0.056 (0.038)	-0.020 (0.051)	-0.334*** (0.074)	-0.195*** (0.051)	-0.396*** (0.078)
Observations	699	699	699	699	699	699
Fixed effects	country	year	both	country	year	both
Countries/years	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15
R2	0.132	0.773	0.153	0.275	0.753	0.310
F Statistic	14.0***	328.9**	16.3***	34.9***	294.9***	40.5***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 8 Results of the long-run models

Models	DV = log (Voice and accountability)					DV = log (Rule of law)				
	(22) FE	(23) FE	(24) FE	(25) FE	(26) FE	(27) FE	(28) FE	(29) FE	(30) FE	(31) FE
Chinese FDI/GDP	-0.028*** (0.009)	-0.037*** (0.009)	0.012 (0.021)	0.009 (0.010)	-0.019 (0.014)	0.022 (0.023)				
ROW FDI/GDP	0.094*** (0.026)	0.049*** (0.014)	0.066** (0.031)	-0.079*** (0.030)	-0.0001 (0.020)	-0.111*** (0.034)				
log(Regime corruption)	-0.091*** (0.006)	-0.162*** (0.004)	-0.095*** (0.006)	0.013* (0.007)	-0.110*** (0.006)	0.001 (0.007)				
log(Market size)	0.027* (0.016)	-0.023*** (0.003)	0.037** (0.017)	0.030 (0.018)	0.020*** (0.004)	0.021 (0.018)				
log(Property rights)	0.055** (0.011)	0.107*** (0.005)	0.054** (0.011)	0.083** (0.012)	0.075** (0.008)	0.084** (0.012)				
Chinese FDI/GDP × RC	-0.020*** (0.011)	-0.018*** (0.008)	-0.007 (0.017)	0.007* (0.004)	-0.011 (0.011)	-0.046** (0.019)				
ROW FDI/GDP × RC	0.069*** (0.016)	0.009 (0.012)	0.050*** (0.017)	-0.043** (0.018)	0.048*** (0.018)	-0.008 (0.018)				
Observations	699	699	699	699	699	699				
Fixed effects	country	year	both	country	year	both				
Countries/years	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15				
R2	0.350	0.826	0.327	0.141	0.601	0.221				
F Statistic	49.5***	457.9***	43.7***	15.13***	145.8***	25.5***				

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 9 Results of the short-run models

	<i>Dependent variables</i>				
	28: V&A	29: RoL	30: CL	31: PR	32: POLITY
log (DV) _{t-1}	0.920*** (0.067)	0.933*** (0.103)	0.457*** (0.025)	0.770*** (0.062)	0.673*** (0.046)
log (DV) _{t-2}	-0.123*** (0.053)	-0.034 (0.039)	-0.376*** (0.020)	-0.130*** (0.011)	0.049** (0.021)
log(Chinese FDI/GDP)	0.006 (0.008)	-0.009* (0.005)	-0.063 (0.055)	-0.136*** (0.059)	-0.012 (0.025)
log(ROW FDI/GDP)	0.017* (0.009)	0.010** (0.005)	-0.108*** (0.040)	-0.053 (0.047)	0.074** (0.032)
log(Regime corruption)	-0.234** (0.078)	-0.105** (0.041)	0.744** (0.362)	1.130** (1.067)	-0.873*** (0.307)
log(Chinese FDI/GDP × RC)	0.001 (0.007)	-0.009* (0.005)	-0.096** (0.048)	-0.141*** (0.050)	-0.047* (0.053)
log(ROW FDI/GDP × RC)	0.034*** (0.012)	0.010** (0.004)	-0.077 (0.053)	0.087 (0.076)	0.115** (0.052)
log(Market size)	-0.004 (0.005)	-0.001 (0.004)	0.065* (0.039)	0.115*** (0.015)	-0.086*** (0.024)
log(Property rights)	0.045*** (0.015)	0.002 (0.012)	-0.192 (0.224)	0.291 (0.274)	0.373*** (0.117)
Observations	699	699	699	699	699
Countries/years	48/11-15	48/11-15	48/11-15	48/11-15	48/11-15
AR(1)	0.001	0.001	0.178	0.07	0.04
AR(2)	0.406	0.975	0.149	0.233	0.89
Wald test χ^2	26568.85	61744.49	6859.40	10334.05	1496.192
p-value	0.000	0.000	0.000	0.000	0.000
Sargan test χ^2	26.05	16.90	8.58	16.77	15.68
p-value	0.29	0.81	0.99	0.82	0.86

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 10 Results of the long-run models, second stage, 5-year averages

	Dependent variable: Democracy index (V-Dem)					
	Models					
	(33) OLS	(34) OLS	(35) OLS	(36) FE	(37) FE	(38) FE
Chinese FDI/GDP	-0.109* (0.060)	-0.091 (0.080)	-0.063 (0.102)	-0.066 (0.069)	-0.175** (0.078)	0.057 (0.133)
ROW FDI/GDP		-0.052 (0.159)	0.445 (0.427)	0.411** (0.183)	0.229** (0.108)	0.620*** (0.229)
log(Regime corruption)			-0.668*** (0.039)	-0.526*** (0.049)	-0.636*** (0.034)	-0.531*** (0.050)
log(Market size)				0.055 (0.127)	-0.148*** (0.021)	0.092*** (0.110)
log(Property rights)				0.153 (0.097)	0.412*** (0.046)	0.229*** (0.094)
Chinese FDI/GDP x RC			-0.076 (0.105)	-0.035 (0.037)	-0.106 (0.065)	0.021 (0.127)
ROW FDI/GDP x RC			0.403 (0.386)	0.245* (0.137)	0.051 (0.098)	0.431** (0.172)
Constant	-1.100*** (0.118)	-0.843 (0.797)	-1.884*** (0.044)			
Observations	144	144	144	144	144	144
Fixed effects	none	none	none	country	year	both
Countries/years	48/3	48/3	48/3	48/3	48/3	48/3
R2	0.016	0.010	0.675	0.384	0.827	0.375
F Statistic	3.329**	1.707	60.480***	20.460***	99.917***	21.276***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 11 Results of the short-run models, 3-year averages

	Dependent variables						
	39: Dem. index	40: V&A	41: RoL	42: CL	43: PR	44: POLITY	
$\log(DV)_{t-1}$	0.466*** (0.090)	0.677*** (0.039)	0.719*** (0.061)	0.916*** (0.048)	0.815*** (0.026)	0.717*** (0.052)	
$\log(\text{Chinese FDI/GDP})$	0.011 (0.010)	0.012 (0.018)	-0.030* (0.055)	-0.013 (0.013)	-0.056*** (0.014)	0.029* (0.017)	
$\log(\text{ROW FDI/GDP})$	-0.073*** (0.009)	-0.011 (0.014)	-0.020 (0.040)	0.020 (0.014)	0.071*** (0.022)	-0.011 (0.013)	
$\log(\text{Regime corruption})$	-0.166* (0.078)	-0.249** (0.088)	0.031 (0.084)	0.140* (0.083)	-0.121 (0.263)	-0.236** (0.096)	
$\log(\text{Chinese FDI/GDP} \times \text{RC})$	0.009 (0.008)	0.008 (0.008)	-0.022** (0.011)	-0.029*** (0.011)	-0.057*** (0.014)	0.022*** (0.008)	
$\log(\text{ROW FDI/GDP} \times \text{RC})$	-0.035*** (0.012)	0.005 (0.015)	-0.015 (0.014)	0.050*** (0.076)	0.088** (0.041)	0.006 (0.011)	
$\log(\text{Market size})$	-0.061*** (0.016)	-0.040*** (0.010)	-0.012 (0.010)	-0.009 (0.010)	-0.037** (0.018)	-0.029*** (0.011)	
$\log(\text{Property rights})$	0.233*** (0.070)	0.155*** (0.059)	0.128*** (0.041)	-0.007 (0.023)	-0.063 (0.040)	-0.142*** (0.049)	
Observations	239	239	239	239	239	234	
Countries/years	48/4-5	48/4-5	48/4-5	48/4-5	48/4-5	47/4-5	
AR(1)	0.004	0.225	0.219	0.02	0.04	0.02	
AR(2)	0.369	0.90	0.113	0.842	0.11	0.253	
Wald test χ^2	5842.24	5613.474	6163.58	10644.22	2112.54	4218.80	
p-value	0.000	0.000	0.000	0.000	0.000	0.000	
Sargan test χ^2	12.95	10.66	10.62	14.65	12.49	9.885	
p-value	0.23	0.38	0.387	0.145	0.25	0.45	

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 12 Results of the long-run models excluding the top 5 countries with FDI openness to China and ROW

	Dependent variable: democracy index (V-Dem)					
	Models					
	(1) OLS	(2) OLS	(3) OLS	(4) FE	(5) FE	(6) FE
Chinese FDI/GDP	-0.037 (0.027)	-0.081** (0.033)	0.080* (0.039)	-0.080* (0.041)	-0.093** (0.036)	- 0.025 (0.101)
ROW FDI/GDP		-0.210** (0.089)	-0.210** (0.041)	0.484*** (0.119)	0.313*** (0.067)	0.444*** (0.166)
log (Regime corruption)			-0.709*** (0.022)	-0.536*** (0.024)	-0.619*** (0.018)	-0.532*** (0.026)
log (Market size)				0.104 (0.078)	-0.163*** (0.012)	0.110 (0.093)
log (Property rights)				0.207*** (0.045)	0.423*** (0.023)	0.211*** (0.043)
Chinese FDI/GDP × RC			-0.060 (0.041)	-0.025 (0.014)	-0.075** (0.034)	0.007 (0.072)
ROW FDI/GDP × RC			0.487*** (0.176)	0.271*** (0.071)	0.172*** (0.061)	0.264*** (0.082)
Constant	-1.309*** (0.046)	-2.368*** (0.451)	-1.922*** (0.023)			
Observations	599	599	599	599	599	599
Fixed effects	None	None	None	Country	Year	Both
Countries/years	41/12-15	41/12-15	41/12-15	41/12-15	41/12-15	41/12-15
R2	0.003	0.010	0.64	0.49	0.80	0.44
F-statistic	1.850	3.7**	213.9***	88.77***	354.27***	75.83***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 13 Results of the short-run models excluding the top 5 countries with FDI openness to China and ROW

	Dependent variable: democracy index (V-Dem)			
	Models			
	(7)	(8)	(9)	(10)
$\log(\text{Democracy})_{t-1}$	1.073*** (0.027)	1.073*** (0.028)	1.012*** (0.057)	0.991*** (0.090)
$\log(\text{Democracy})_{t-2}$	-0.098*** (0.027)	-0.084*** (0.031)	-0.030 (0.049)	-0.052 (0.081)
$\log(\text{Chinese FDI / GDP})$	-0.047*** (0.013)	-0.046*** (0.013)	0.027 (0.028)	0.027 (0.081)
$\log(\text{Chinese FDI / GDP})_{t-1}$	0.041*** (0.012)	0.037** (0.012)	-0.051*** (0.024)	-0.062* (0.035)
$\log(\text{ROW FDI / GDP})$		-0.004 (0.021)	0.068 (0.088)	-0.209* (0.115)
$\log(\text{ROW FDI / GDP})_{t-1}$		0.029 (0.021)	-0.067 (0.096)	-0.235* (0.132)
$\log(\text{Regime corruption})$			-0.070 (0.810)	1.378 (1.207)
$\log(\text{Regime corruption})_{t-1}$			-0.061 (0.816)	-1.514 (1.189)
$\log(\text{Chinese FDI / GDP} \times \text{RC})$			0.038 (0.061)	0.079 (0.072)
$\log(\text{Chinese FDP / GDP} \times \text{RC})_{t-1}$			-0.067 (0.049)	-0.114* (0.063)
$\log(\text{ROW FDI / GDP} \times \text{RC})$			0.100 (0.138)	-0.382* (0.219)
$\log(\text{ROW FDI / GDP} \times \text{RC})_{t-1}$			-0.128 (0.141)	0.413* (0.218)
$\log(\text{Market size})$				-0.011 (0.015)
$\log(\text{Property rights})$				-0.052 (0.079)
Observations	599	599	599	599
Countries/years	41/12-15	41/12-15	41/12-15	41/12-15
AR(1)	0.003	0.008	0.002	0.009
AR(2)	0.145	0.10	0.80	0.70
Wald test χ^2	357179	339048	128707.8	59722.67
p-value	0.000	0.000	0.000	0.000
Sargan test χ^2	21.39	20.05	13.06	12.49
p-value	0.80	0.79	0.87	0.82

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 14 Results of the long-run models, 5-year data excluding the top 5 countries with FDI openness to China and ROW

	Dependent variable: democracy index (V-Dem)					
	Models					
	(45) OLS	(46) OLS	(47) OLS	(49) FE	(49) FE	(50) FE
Chinese FDI/GDP	-0.097 (0.066)	-0.152* (0.078)	-0.082 (0.118)	-0.055 (0.091)	-0.126* (0.084)	-0.018 (0.171)
ROW FDI/GDP		0.235 (0.179)	0.582 (0.097)	0.454* (0.232)	0.247* (0.127)	0.937** (0.392)
log (Regime corruption)			-0.719*** (0.048)	-0.547*** (0.053)	-0.634*** (0.039)	-0.532*** (0.056)
log (Market size)				0.009 (0.164)	-0.154*** (0.024)	0.046 (0.156)
log (Property rights)				0.148 (0.102)	0.405*** (0.050)	0.227** (0.100)
Chinese FDI/GDP × RC			-0.099 (0.129)	-0.037 (0.046)	-0.120* (0.071)	-0.045 (0.153)
ROW FDI/GDP × RC			0.600 (0.479)	0.333* (0.173)	0.093 (0.120)	0.691** (0.274)
Constant	-1.204*** (0.118)	-2.377*** (0.901)	-1.917*** (0.049)			
Observations	123	123	123	123	123	123
Fixed effects	None	None	None	Country	Year	Both
Countries/years	41/3	41/3	41/3	41/3	41/3	41/3
R2	0.009	0.015	0.64	0.42	0.82	0.39
F-statistic	2.163	1.95	45.22***	19.13***	80.41***	19.057***

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 15 Results of the short-run models, 3-year averages, excluding the top 5 countries with FDI openness to China and ROW

	Dependent variables				
	53: Dem. index	54: V&A	55: RoL	56: CL	58: POLITY
log (DV) _{<i>t</i>-1}	0.919*** (0.058)	1.116 *** (0.051)	0.830*** (0.029)	0.257** (0.109)	0.193*** (0.023)
log (Chinese FDI/GDP)	0.024*** (0.007)	0.011* (0.006)	-0.006 (0.005)	-0.013 (0.015)	0.012** (0.006)
log (ROW FDI/GDP)	0.095*** (0.011)	0.108*** (0.010)	0.081*** (0.008)	0.054*** (0.017)	-0.039** (0.005)
log (Regime corruption)	-0.873*** (0.103)	-0.680*** (0.087)	-0.624*** (0.098)	0.369* (0.215)	-0.536** (0.093)
log (Chinese FDI/GDP × RC)	0.134*** (0.016)	0.120*** (0.014)	0.097** (0.016)	-0.065** (0.030)	0.074*** (0.014)
log (ROW FDI/GDP × RC)	0.025*** (0.006)	0.019*** (0.006)	0.005*** (0.006)	0.009 (0.016)	0.014** (0.005)
log (Market size)	0.033*** (0.008)	-0.055*** (0.007)	-0.047*** (0.006)	-0.036*** (0.011)	-0.028*** (0.005)
log (Property rights)	-0.015 (0.027)	0.142*** (0.034)	0.039 (0.025)	-0.055 (0.033)	-0.086*** (0.021)
Observations	205	205	205	205	205
Countries/years	41/5	41/5	41/5	41/5	41/5
AR(1)	0.010	0.74	0.655	0.09	0.05
AR(2)	0.83	0.879	0.818	0.719	0.485
Wald test χ^2	15708.1	10610.98	7237.67	1446.2	2779.02
<i>p</i> -value	0.000	0.000	0.000	0.000	0.000
Sargan test χ^2	25.79	23.14	16.29	31.56	16.91
<i>p</i> -value	0.004	0.01	0.09	0.001	0.076

p*< 0.1; *p*< 0.05; ****p*<0.01

Table 16 Summary of past research on the association between democracy, corruption, institutional qualities and FDI

Author	No of countries/period	Estimation method	IV	DV	Estimated effect
Goldsmith (2021)	8 (4 pairs)/1970-2018	Case studies w/difference-indifferences	Democracy scores	FDI inflows	Positive small effect for consolidation of institutions
Lacroix et al. (2021)	115/1997-2015	Difference-indifferences	Democratic transition measures	FDI flows	Positive for consolidated transition
Guha et al. (2020)	192/2004-2017	Cross-sectional regression	Governance, corruption	FDI inflows	Positive for both IVs
Moon (2019)	86/1970-2008	Panel analysis	Autocratic political institutions	FDI	Positive
Bailey (2018)	97 prior studies from 1976-2011	Meta-analysis	Institutional quality, political stability, rule of law, and corruption	FDI flows	Positive for institutional qualities and negative for corruption
Ay et al. (2016)	10/1995-2013	Panel cointegration, panel error correction	Democracy, corruption	FDI flows	
Busse et al. (2016)	43/1991-2010	OLS w/FE and System GMM, instrumental variables	FDI, trade, and aid from China and ROW	GDP per capita	Significant positive impact for Chinese trade, and positive effect for Chinese and ROW FDI in countries with strong rule of law
Bak and Moon (2016)	92/1970-2010	Two-stage residual inclusion	FDI/GDP	Authoritarian stability	Positive
Kim and Trumbore (2010)	195/1981-2006	Two-stage residual inclusion	FDI (transnational mergers and acquisition)	Government respect for human	Positive

Table 16 (continued)

Author	No of countries/period	Estimation method	IV	DV	Estimated effect
Pandya (2014)	90/1970-2000	OLS, 2SLS	Democracy	FDI entry restrictions	Negative
Lee et al. (2014)	111/1980-2006	Fixed effects w/Panel corrected SE	Governance indicators	FDI/GDP flows	Positive
Dietrich (2013)	22/2005-2009	OLS and Probit regressions	Governance quality	State/non-state aid	Negative in poorly governed recipient countries
Mathur and Singh (2013)	29/1980-2000	Generalized least squares w/RE	Democracy, corruption	FDI flows	Negative
Asiedu and Lien (2011)	112/1982-2007	Difference and System GMM	Democracy	FDI/GDP	Positive for 90 and negative for 22 countries
Fan et al. (2009)	61/1961-2003	OLS with clustered SE	Governance, corruption and institutional qualities of China and rest of the world	FDI per capita	Positive
Guerin and Manzocchi (2009)	38/1992-2004	Gravity form random effect Tobit	Democracy	Bilateral FDI flows	Positive
Busse and Hefeker (2007)	83/1984-2003	Cross-sectional regression	Political risks and institutions	FDI net inflows	Positive
Li and Resnick (2003)	53/1982-1995	OLS w/Panel corrected SE, 3SLS, Random and fixed effects	Democracy, property rights	FDI net flows	Positive through improved property rights
Resnick (2001)	19/1971-2003	OLS w/Panel corrected SE	Various indicators of democratization	FDI flows	Negative
Gastanaga et al. (1998)	49/1970-1990	Multivariate analysis	Corruption, Bureaucratic delay index	FDI flows	Positive

Table 17 Summary of past research on the short- and long-run models for institutional qualities and FDI

Author	No of countries/period	Estimation method	IV	DV	Estimated effect
Culver (2021)	52/2002-2013	static fixed effects and dynamic GMM/short effects models	FDI to African countries from China and ROW	Corruption	No significant difference between Chinese and ROW FDI on corruption
Borojo and Yushi (2020)	44/2003-2017	Poisson pseudo-maximum likelihood gravity model and I.V. estimators	Institutional quality and business environments	Chinese FDI flows to Africa	Positive
Humphrey and Michaelowa (2019)	46/2000-2014	Poisson pseudo-maximum likelihood regression	Chinese development finance	Competition from the World Bank and African Development Bank	No significant evidence that WD and AfDB shift their finance in response to Chinese finance
NguyenHuu and Schwiebert (2019)	34/1995-2017	OLS for fractional response models	Chinese FDI and exports to African countries	Poverty and income inequality	Positive
Henri et al. (2019)	49/1990-2016	Static and Dynamic Panel data models	FDI/GDP flows	Financial development	Positive long-run and negative short-run effect between FDI and financial development
Mourao (2018)	48/2003-2010	Stochastic frontier models	Population, forest areas, and political and institutional qualities	% of Chinese FDI in each African country's GDP	Positive
Gossel (2018)	30/1985-2014	Various dynamic GMM models	Democracy, corruption	FDI/GDP	Positive for both

Table 17 (continued)

Author	No of countries/period	Estimation method	IV	DV	Estimated effect
Chen et al. (2018)	49/1998-2012	Linear probability model	Political stability, rule of law	FDI, Chinese ODI	Chinese ODI is indifferent to recipient countries' political stability
Broich (2017)	50/2000-2011	OLS, instrumental variable, RE, FE analysis	Democracy/autocracy measures	Chinese development finance to Africa	Chinese finance doesn't target authoritarian countries
Malikane and Chitambara (2017)	8/1980-2014	System GMM	Interaction (FDI/GDP) and democracy	GDP per capita	Positive
Aziz and Mishra (2016)	16/1984-2012	System GMM	Government stability, corruption, market size	FDI inflows	Positive for good stable institutions
Jalil et al. (2016)	42/1984-2012	short- and long-term models	Corruption	FDI inflows	Positive in Asia and Africa, negative in Latin America
Kahouli and Makrouf (2015)	51/1990-2011	Static and dynamic gravity model	Market size and economic growth	FDI stock	Positive
Kucera and Principi (2014)	54/1994-2010	System GMM	Democracy indices	US FDI outflows	Positive, depending on industry
Quazi et al. (2014)	53/1995-2012	System GMM	Corruption, government effectiveness	FDI inflows to Africa	Negative for corruption and positive for government effectiveness
Subasat and Bellos (2013)	18/1985-2004	Gravity model	Governance indicators	FDI stock	Negative

Table 17 (continued)

Author	No of countries/period	Estimation method	IV	DV	Estimated effect
Bellos and Subasat (2012a)	15/1990-2005	Gravity model	Corruption	FDI stock	Positive
Bellos and Subasat (2012b)	14/1993-2005	Gravity model	Governance	FDI	Negative
Kolstad and Wiig (2011)	29/2003-2006	OLS w/FE	Institutions and natural resources	Chinese FDI	Positive for weak institutions and more resources
Talamo (2007)	89/1980-2001	Gravity model	Corporate governance	FDI flows	Positive
Yang (2007)	134/1983-2004	OLS and Seemingly Unrelated Regression (SUR), System GMM	Democracy	FDI/GDP, FDI per capita, and FDI in levels	No significant association
Egger and Winner (2005)	73/1995-199	Static and dynamic fixed effect models	Corruption	FDI real stocks	Positive

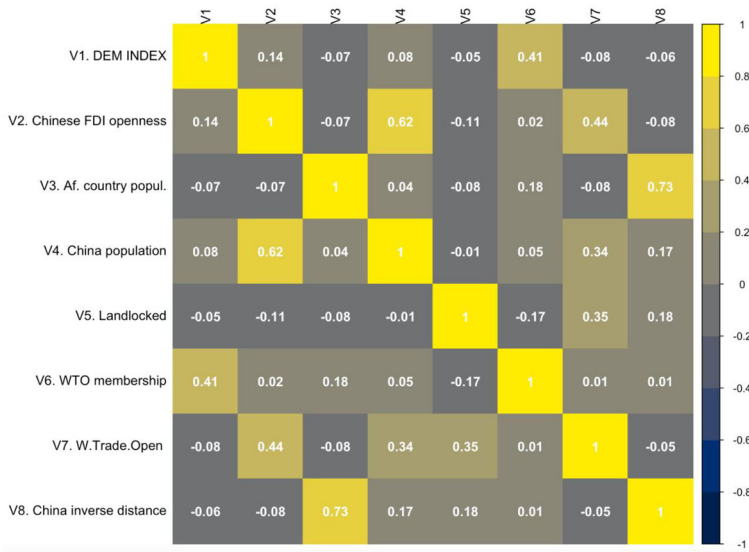


Fig. 3 Correlation for first-stage instruments applied on Chinese FDI openness

and the enforceability of contracts. Together, these indicators measure the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions and the extent to which property rights are protected.

Voice and Accountability “Voice and Accountability” includes a number of indicators measuring various aspects of the political process, civil liberties and political rights. These indicators measure the extent to which citizens of a country are able to participate in the selection of governments. This category also includes indicators measuring the independence of the media, which serves an important role in monitoring those in authority and holding them accountable for their actions.

See Figs. 3, 4, 5, 6, 7, 8, 9, 10 and Tables 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17.

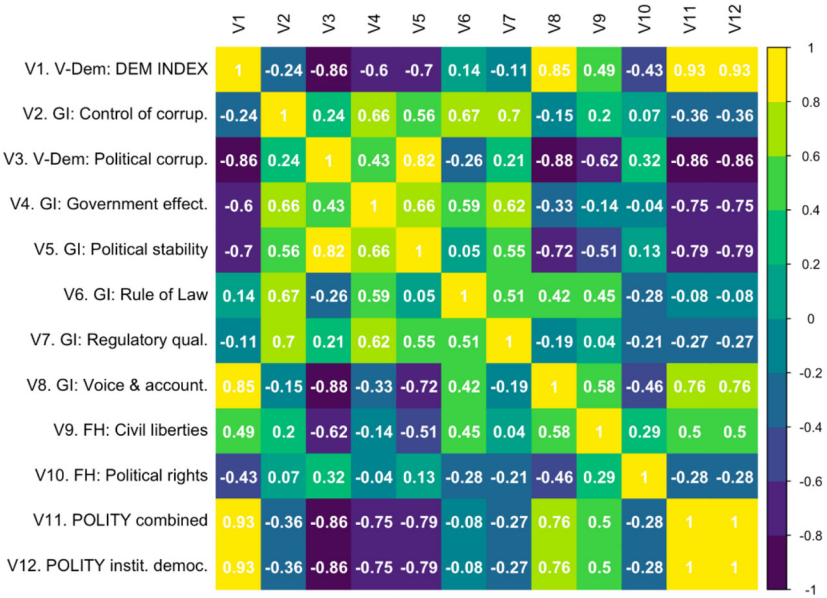


Fig. 4 Correlation between V-Dem, governance indicators, POLITY and freedom house indices

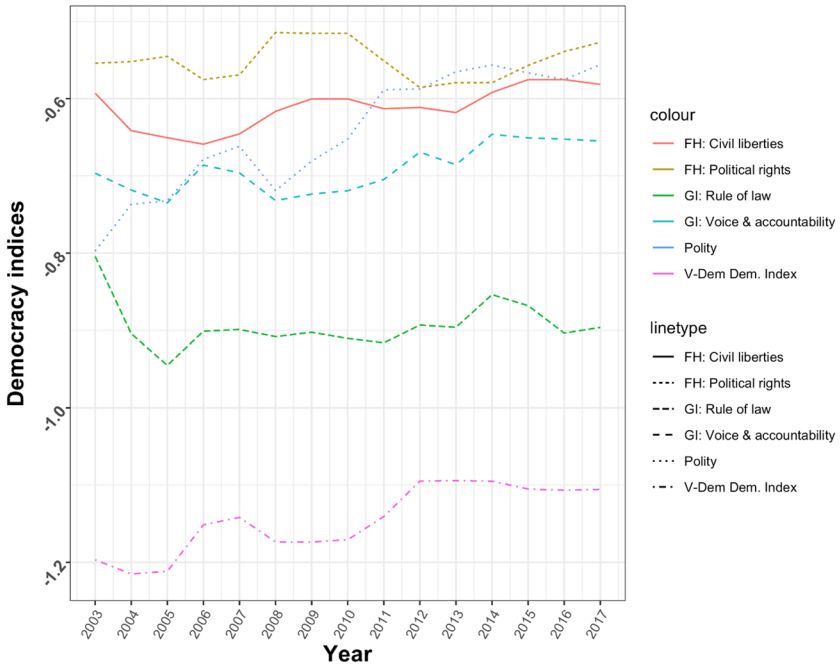


Fig. 5 Annual averages of normalized democracy indices

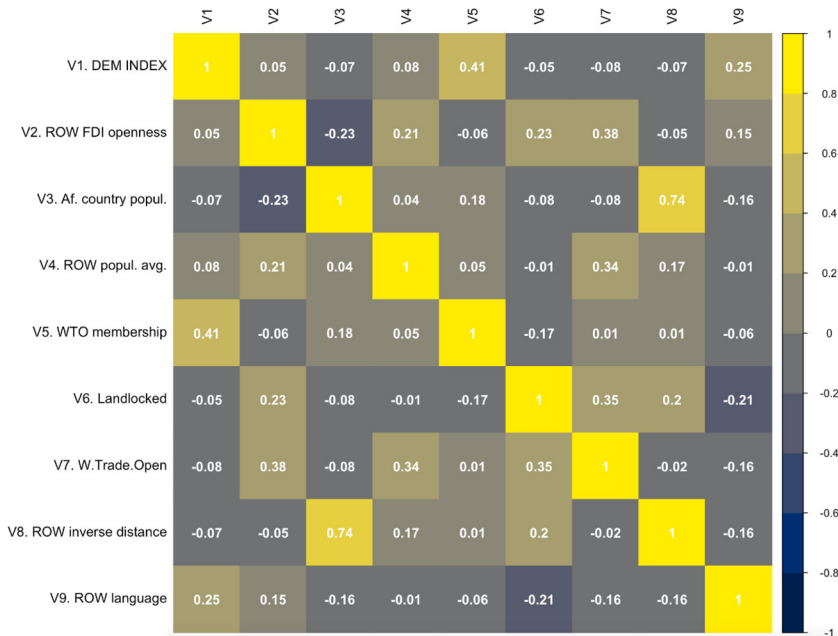


Fig. 6 Correlation for first-stage instruments applied on ROW FDI openness

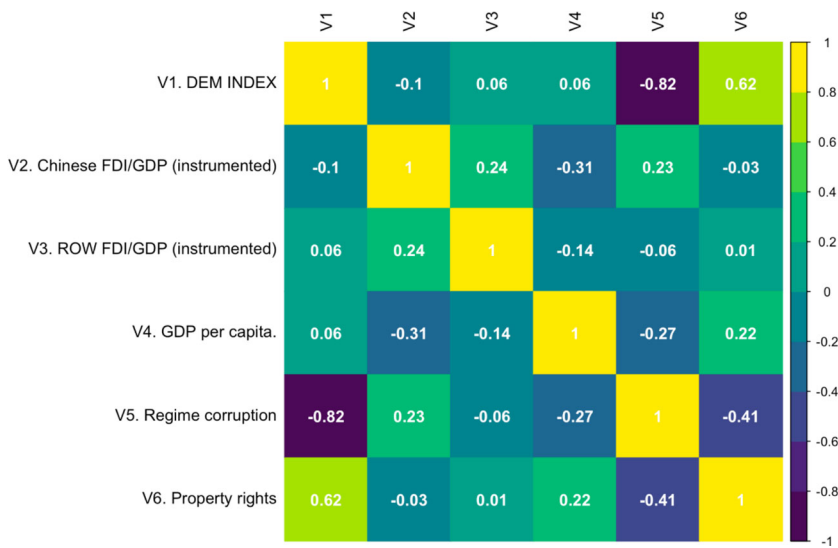


Fig. 7 Correlation for second-stage variables including predicted values from the first-stage FDI openness

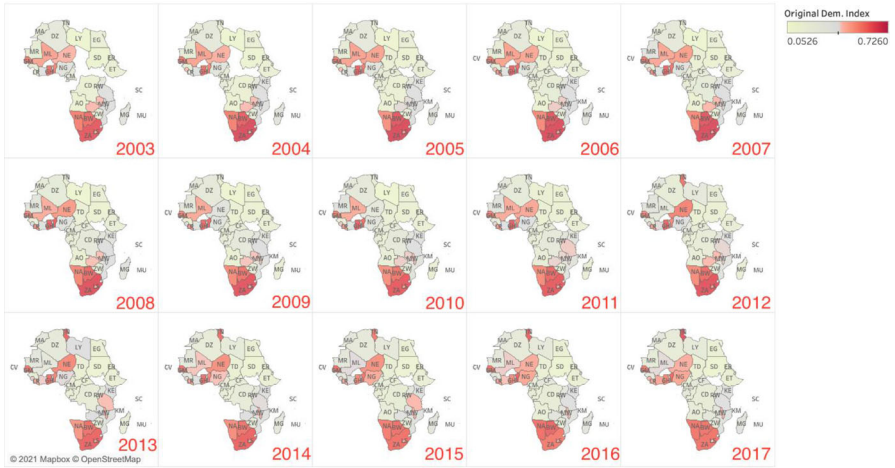


Fig. 8 Original levels of democracy index by country and year

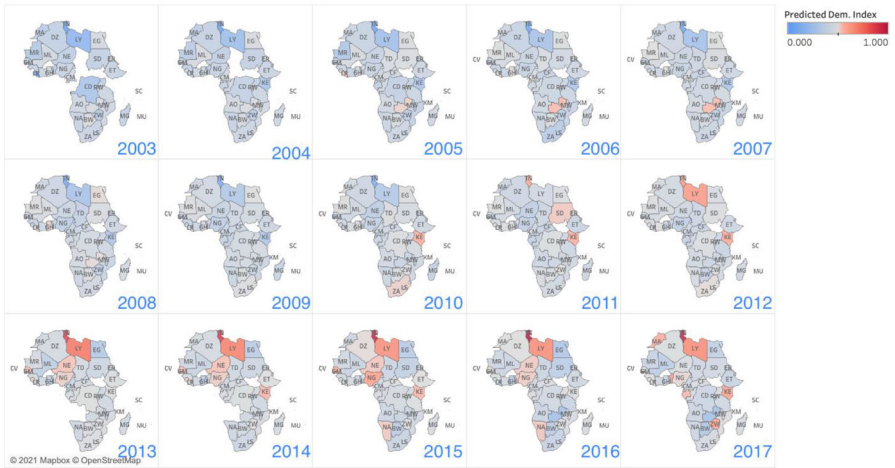


Fig. 9 Predicted levels of democracy index by country and year

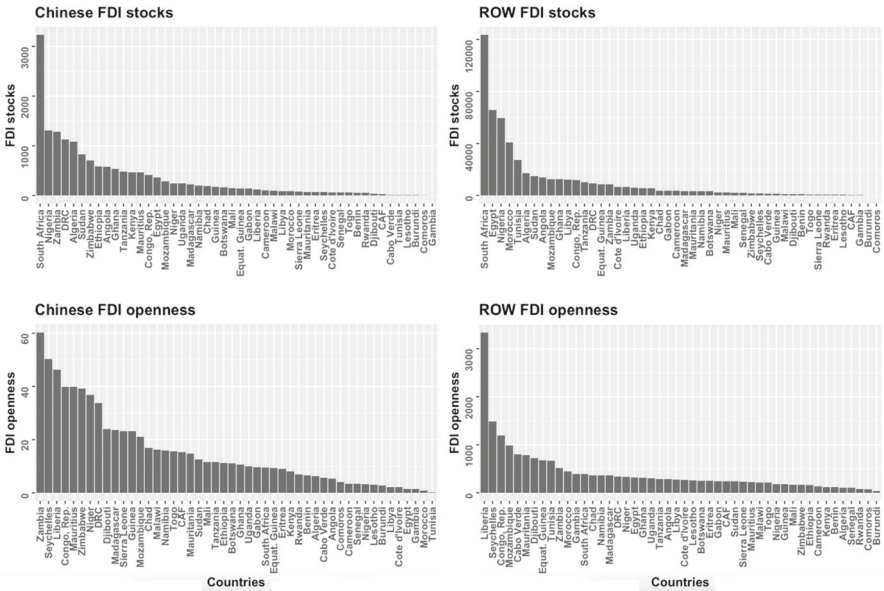


Fig. 10 FDI stocks versus openness

Appendix B: Methodology

Theoretical Underpinnings of the Gravity Model

In simplest form, the gravity model is motivated by Newton’s formula of gravity which estimates bilateral interaction between two countries with the ratio of economic size and distance (Sellner, 2019). The economic size is scaled as GDP of exporter/investor and importer/recipient countries. The model takes the following form:

$$F_{i,j} = C * \frac{G_j * G_i}{D_{i,j}} \tag{4}$$

where F is the FDI flow from country *i* to *j*, G is the GDP of economic partners, the denominator D indicates the distance between them, and C is a constant term. The logic of this model implies that larger countries with more wealthier economies will engage in commercial activities more than emerging economies (Head and Mayer 2014). Anderson and van Wincoop (2003) elaborate on the standard gravity equation by modifying it to control for the transaction costs of trade or FDI. They show that the relative trade/FDI costs directly influence the bilateral expenditures. Those relative costs are determined by country *j*’s inclination to import from country *i* and vice versa based on multilateral resistance among the partners.

$$F_{i,j} = C * \frac{G_j * G_i}{W} * \left(\frac{y_{ij}}{E_i L_j} \right)^{1-\alpha} * \omega_{ij} \tag{5}$$

where F is the FDI flow revenue, W is the total GDP of all N countries in the world/dataset, G is the GDP of economic partners, y_{ij} is the cost exporter/investor, j incurs from importing/receiving from country i , $\alpha > 1$ is the substitution elasticity term, E_i and L_j are the multilateral resistance terms for exporter/investor j and importer/recipient i indicating the flexibility of market access outwardly for i and inwardly for j , and ω_{ij} is the disturbance error term.

The traditional econometric practice has been to linearize the multiplicative form of the gravity model by log transforming both sides of the equation (Santos Silva and Tenreiro, 2006). Performing linear log on Eq. (2) derives:

$$\ln(F_{i,j}) = \beta_0 + \beta_1 \ln(G_j) + \beta_2 \ln(G_i) + \beta_3 \ln(y_{ij}) + \beta_4 \ln(E_i) + \beta_5 \ln(L_j) + \ln(\omega_{ij}) \quad (6)$$

where previous assumptions on G , y , E , L and ω_{ij} apply in addition to β_0 denoting the constant term and other β_i 's representing the coefficient parameters of interest to be estimated with $\beta_3 = (1 - \alpha)$. After linearizing Eq. (5), Eq. (6) allows to log transform both sides of the equation (except the dummy variables) to estimate the elasticities between FDI openness and a vector of control variables that will account for transaction costs and unobserved endogeneity issues in the second-stage regression.

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