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African leaders and the geography of China's foreign assistance

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ABSTRACT

We investigate whether foreign aid from China is prone to political capture in aid-receiving countries. Specifically, we examine whether more Chinese aid is allocated to the birth regions of political leaders, controlling for indicators of need and various fixed effects. We collect data on 117 African leaders' birthplaces and geocode 1650 Chinese development projects across 2969 physical locations in Africa from 2000 to 2012. Our econometric results show that political leaders' birth regions receive substantially larger financial flows from China in the years when they hold power compared to what the same region receives at other times. We find evidence that these biases are a consequence of electoral competition: Chinese aid disproportionately benefits politically privileged regions in country-years when incumbents face upcoming elections and when electoral competitiveness is high. We observe no such pattern of favoritism in the spatial distribution of World Bank development projects.

1. Introduction

Visitors to the village of Yoni, located in Bombali district, Sierra Leone, will find "a wonderful school in the middle of what Africans call 'the bush'" (Acemoglu and Robinson, 2012). The school was built with Chinese aid, and at the time of its construction in 2010, Yoni was the hometown of Sierra Leone's President, Ernest Bai Koroma. A fancy, new school in the President's hometown could be a simple coincidence, but several studies suggest that government officials systematically favor their home regions (e.g., Barkan and Chege, 1989; Moser, 2008;

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Mu and Zhang, 2014; Burgess et al., 2015; Do et al., 2017; De Luca et al., 2018).[1] Hodler and Raschky (2014a) study political favoritism in a large sample of subnational administrative regions from all over the world. They find that the birth regions of political leaders have higher levels of nighttime light than other regions when those leaders are in power, which suggests that governments are systematically directing additional resources to those areas. Higher foreign aid inflows at the recipient-country level amplify this effect. As such, there are some grounds to believe that this "school in the bush" might reflect a broader pattern.

In this article, we investigate whether, when, and why African political leaders use foreign aid to favor their birth regions.[2] We first introduce a new georeferenced dataset on the subnational allocation of Chinese Government-financed development projects across Africa over the 2000–2012 period.[3] We then use these data to test whether China's demand-driven approach to aid allocation is vulnerable to political capture. More specifically, we study whether Chinese aid is disproportionately allocated to the birth regions of the political leaders of recipient countries. We run Ordinary Least Squares (OLS) and Poisson Pseudo-Maximum Likelihood (PPML) models and control for a number of subnational variables and various fixed effects.

Our results show that the birth regions of political leaders receive larger amounts of Chinese aid—at the first and second subnational administrative level (ADM1 and ADM2).[4] These results tend to be strongest for total official financing flows—concessional and non-concessional state financing with and without development intent—from China. Controlling for country-year- and region-fixed effects, our OLS estimates suggest that Chinese official financing to a political leader's birth ADM1 region nearly triples after that individual assumes power. When we use a stricter definition of aid that broadly aligns with the OECD's criteria for Official Development Assistance (ODA), our OLS fixed-effects regressions still suggest an aid increase of more than 75% to the ADM1 birth regions of political leaders. We do not find increases in Chinese aid in the years before leaders assume power or after they leave office, which suggests that these effects are causal.

We argue that our results are consistent with the clientelistic logic of political survival, which is predominant in Africa, and with Beijing's demand-driven approach to aid allocation, which makes Chinese aid vulnerable to political capture. To test these arguments, we exploit data on the timing and competitiveness of elections in recipient countries. We use these data on election pressures to test for heterogeneous treatment effects. We find a stronger birth-region bias in the allocation of Chinese aid in the year before an executive election and when executive elections are more competitive. These results support our argument that African leaders steer Chinese aid to their birth regions to improve their chances of staying in power.[5]

We then replicate our analysis with World Bank projects for comparison. The World Bank is a useful benchmark because it uses a relatively stringent set of project appraisal procedures that should make it more difficult for political leaders to misuse its financial support for political purposes (Jenkins, 1997; Deininger et al., 1998; Warner, 2010; Clemens and Kremer, 2016).[6] In contrast to Chinese aid, we find no evidence that World Bank funding disproportionately benefits the birth regions of political leaders. Nor do we find any evidence of birth-region bias in the allocation of World Bank aid in country-years when political leaders face upcoming elections. Our empirical results are therefore consistent with the notion that the Chinese Government's "on demand" approach to aid allocation is vulnerable to political capture, while World Bank project preparation policies and procedures reduce the risk that its aid will be misused for domestic political purposes.[7]

This paper builds upon and contributes to the empirical literature on aid allocation, which traces its origins to McKinlay and Little (1977).[8] This body of research is overwhelmingly focused on "traditional" donor countries that are members of the Development Assistance Committee of the OECD (OECD-DAC). However, the international development finance regime established after World War II is undergoing a period of unprecedented tumult, with growing competition from donors outside the OECD-DAC who are challenging prevailing rules and norms (Nielson et al., 2017; Fuchs and Müller, 2018).

Chief among these competitors is China. The conventional wisdom among Western politicians, journalists, and think tanks is that China—and other donors outside the OECD-DAC—favor corrupt countries and authoritarian regimes and they are more interested in advancing their own interests (e.g., natural resource acquisition) than addressing the needs of host country populations (Naím, 2007). However, Dreher et al. (2011) compare the cross-country allocation of aid from so-called "new" donors (excluding China) and OECD-DAC donors, and find that "new" and "traditional" donors behave similarly. Dreher and Fuchs (2015) focus on China, specifically, and using various sources of data on the cross-country allocation of Chinese foreign aid projects, find that its aid is not influenced by the governance characteristics of recipient countries. Nor do they find evidence that China's aid allocation is motivated by a desire to access natural resources in recipient countries. But Chinese aid does favor poor and populous countries, and countries that vote with China in the U.N. General Assembly (Dreher et al., 2018). Therefore, at the coun-

[1] When Koroma first came to power in 2007, Bombali was one of the country's poorest districts. However, it experienced significant development gains during the course of Koroma's ten-year presidency (World Bank, 2013). The capital of the President's home district (Makeni) was one of few places in the country that enjoyed 24 hour access to electricity by the end of his second term in office (Inveen, 2017). Bombali, which is one of the country's four most populous districts, also played an important role in helping Koroma get re-elected in 2012. He secured 93.2% of the vote there. In the country's remaining 13 districts, he achieved an average vote share of 51.2%.

[2] For ease of exposition, we use the term "aid" to refer to all official financing flows (Official Development Assistance and Other Official Flows). We introduce more precise, technical definitions below.

[3] This new dataset, which we have made available via http://aiddata.org/datasets, can be used to investigate important questions related to the nature, allocation, and impact of Chinese aid. Indeed, since we first published this dataset alongside the working-paper version of this study, it has been used to investigate how Chinese aid affects household wealth and educational attainment (Martorano et al., 2018), corruption (Brazys et al., 2017; Isaksson and Kotsadam, 2018a), environmental degradation (BenYishay et al., 2016; Marty et al., 2019), local conflict (Gehring et al., 2018), and trade union membership (Isaksson and Kotsadam, 2018b).

[4] We also tested whether political favoritism related to the allocation of Chinese funding extends to locations with inhabitants that share the same ethnicity of the current political leader. To identify the possibility of ethnic favoritism in the allocation of Chinese funding, we changed the unit of observation from subnational administrative units to ethnic regions within a country. Unlike our analysis of birth regions, we do not find robust evidence for ethnic favoritism. Appendix F elaborates on this analysis and shows basic results. Details are reported in the working-paper version of this article (Dreher et al., 2016).

[5] In this regard, our results are consistent with Khomba and Trew (2017); they too find that leaders allocate discretionary resources to geographical areas where the expected probability of voting for the ruling party is high.

[6] Another reason for focusing on the World Bank is the lack of geocoded aid project datasets for bilateral Western donors that cover a sufficiently large number of recipient countries during our study period.

[7] In the working-paper version of this article (Dreher et al., 2016), we provide preliminary evidence that Chinese aid promotes economic development at subnational scales, which suggests that the political favoritism that we detect in our allocation regressions has distributional consequences. We further explore this in Dreher et al. (2019).

[8] Prominent contributions include Maizels and Nissanke (1984), Alesina and Dollar (2000), Kuziemko and Werker (2006), and Faye and Niehaus (2012). On the World Bank, see Frey and Schneider (1986), Dreher et al. (2009), and Kilby (2009).

try level, Chinese aid does not seem to be allocated very differently from Western aid. Both are a function of recipient need and donor interest.

In contrast to previous work on Chinese aid, this study focuses on the subnational allocation of aid. While we are not the first to investigate the allocation of foreign aid within countries, until recently research that relies on subnationally geocoded aid data focus on a single country (e.g., Francken et al., 2012; Briggs, 2014; Jablonski, 2014; Nunnenkamp et al., 2017), or on a cross-section of subnational localities from different countries (e.g., Findley et al., 2011; Engelsma et al., 2017).[9] In this article, we analyze geocoded data for a large number of recipient countries over an extended period of time. This research design provides significant advantages over previous studies. If one focuses exclusively on cross-sectional variation, a positive association between the location of aid projects and the location of a leader's birthplace could simply be driven by permanent or highly persistent region-specific characteristics. We rely on variation across regions and over time in tandem with binary variables for the years just prior to and after the political leader's term in office. This approach allows us to estimate the causal effects of a political leader's birth region on the amount of aid it receives. The second difference between this paper and previous contributions is our focus on Chinese aid rather than aid allocated by "traditional" donors.

The remainder of this paper is structured as follows. Section 2 draws upon the logic of political survival to identify a set of testable implications about when and how aid is likely to be used by political leaders in host countries to stay in power. It also explains why Chinese aid might be particularly vulnerable to this type of political manipulation. In Section 3, we introduce our new dataset on Chinese development projects and leader characteristics at the subnational level. We also describe our empirical strategy. Section 4 presents our empirical findings. In Section 5, we conclude and outline potentially fruitful avenues for future research.

2. The logic of political survival and aid allocation to leader birth regions

Leaders who must compete in elections to stay in power have different resource allocation incentives than leaders who do not face such electoral pressures (Bueno de Mesquita et al., 2003). In Africa, the logic of political survival is generally governed by clientelism, whereby politicians provide particularistic rewards to their core constituents (or "clients") in exchange for votes (Wantchekon, 2003; van de Walle, 2007; Casey, 2015).[10] Therefore, African leaders who must compete in nationwide elections have strong incentives to provide particularistic rewards to the specific geographic areas where they have the best odds of influencing final election outcomes. These rewards can be private goods (cash, commodities, housing) or club goods (schools, clinics, water wells, electricity) since, in either case, leaders can grant access to some individuals and communities and deny access to others (Kimenyi, 2006; Kramon, 2017). However, in clientelistic political systems, politicians have particularly strong incentives to provide club goods because they are targetable like private goods, but more easily observed by a large number of voters than private goods (Ichino and Nathan, 2013).[11] Observability matters because it provides more opportunities for credit-claiming, which helps leaders maximize voter turnout and influence vote choice (Cruz and Schneider, 2017; Marx, 2017; Cruz et al., 2018a, 2018b).

The logic of political survival also suggests that leader incentives to engage in clientelistic behavior vary over geographic space and time. A leader should have stronger incentives to target particularistic rewards to those geographic areas that are less likely to engage in performance-based voting and more likely to engage in clientelistic voting (Engelsma et al., 2017).[12] The home regions of African political leaders are places where clientelistic voting is more likely because many co-partisans and co-ethnics are geographically concentrated in these areas (Wahman and Boone, 2018). They are also places where performance-based voting is unlikely for several reasons. First, voters in these regions are more likely to receive and believe misleading information about the political leader (as they are more trusting of the messengers who transmit such information).[13] Second, even if rational voters from the political leader's home region are disappointed in the performance of the incumbent, they may still support him if they expect that their co-partisans from the same region will support him or if they expect even worse treatment from a new political leader from another home region.[14] Therefore, from the vantage point of a vote-seeking political leader, club good provision to one's home region is a reliable and cost-effective method of buying votes. But the strength of this incentive should vary over time—in particular, the incentive to target particularistic rewards (club goods) to one's home region should be strongest when the risk of being removed from office is highest (Briggs, 2012; Labonne, 2016; Marx, 2017).

Three observable implications follow from this argument about the clientelistic logic of political survival in Africa. First, biases in the allocation of foreign aid projects should be most acute among projects financed by donors that grant high levels of site selection authority to incumbent political leaders of the recipient country. Second, any bias towards the home region of an incumbent political leader should be more acute in the run-up to an election. That is

[9] A notable exception is Öhler and Nunnenkamp (2014), who—among others—also investigate whether more World Bank projects are sited in leader regions in Africa, but their results are based on limited variation from just 17 African countries.

[10] The clientelist logic of political survival also suggests that leaders may seek to build inclusive coalitions and insure against coups and revolutions by allocating patronage to *elites* in proportion to the size of the ethnic groups to which they belong (Francois et al., 2015). Testing this theoretical prediction is beyond the scope of our present study, but it represents a promising avenue for future research.

[11] By contrast, in political systems where performance-based voting is prevalent, politicians have strong incentives to provide pure public goods that are non-rival in consumption and non-excludable—for example, a well-managed economy or polity (Wahman and Boone, 2018).

[12] Stated differently, even in political systems where clientelism is prevalent, leaders know that they face two different types of voters—those who will vote on a clientelistic basis (delivery of club goods and private goods) and those who will vote on a performance basis (delivery of nationwide public goods)—and they have to decide in which geographical areas the provision of particularistic rewards will return the most votes. Given resource constraints, a leader will prioritize the allocation of club and private goods to voters in geographical areas where the expected probability of clientelistic voting is high and not where the expected probability of performance-based voting is high. Evenly distributing clientelistic rewards across regions is not politically rational if leaders anticipate that voters will be differentially responsive to such rewards.

[13] Horowitz and Long (2016: 354) provide evidence that, in the run-up to the 2007 election, Kenyan voters from the home (ethnic) regions of presidential candidates mostly received news from so-called "vernacular" radio stations that targeted their specific home (ethnic) communities: Kenyans in Kikuyu areas predominantly listened to Kikuyu-language radio stations; Kenyans in Kamba areas predominantly listened to Kamba-language radio stations; and Kenyans in Luo areas predominantly listened to Luo-language radio stations. Horowitz and Long (2016) also provide evidence that each "vernacular" radio station allocated "disproportionate airtime to the co-ethnic candidate of the language group it served," making it easier for the political candidates to provide misleading information to voters in their home (ethnic) regions (without being challenged or corrected by their competitors).

[14] Indeed, it is rational to vote for a poorly-performing political incumbent if you expect that a new political leader will target clientelistic benefits to co-partisans in a region other than your own (Padró i Miquel, 2007; van de Walle, 2007).

to say, as an election nears, it should become more important for the political leader to provide targeted benefits to his or her core voters. But this effect may not be present for all types of elections. Most African countries have political systems characterized by strong presidents (Robinson and Torvik, 2016), so one would expect the effect to be most pronounced during executive elections—in particular, competitive executive elections. Third, to the extent that there is a higher probability of clientelistic voting in home provinces, it is possible that political leaders may broadly distribute aid *across* the districts in their home provinces rather than narrowly distribute aid *within* their home district. This type of resource allocation strategy should help political leaders maximize voter turnout in stronghold areas.[15,16]

In the remainder of this section, we focus on the cross-donor variation in the degree to which host governments are granted discretion over project site selection. We compare two donors with widely divergent systems for designing, selecting, and locating new development projects: the World Bank and China.

In principle, every project that the World Bank considers financing must be subjected to cost-benefit analysis prior to approval. A simple rule for project acceptability was codified in 1994 through the adoption of Operational Policy (OP) 10.04 ("Economic Evaluation of Investment Operations"): projects that are approved for World Bank financing should "[create] more net benefits to the economy than other mutually exclusive options for the use of the resources in question."[17] OP 10.04 further stipulates that the World Bank staff should evaluate "the project's consistency with the Bank's poverty reduction strategy" and "[consider] mechanisms for targeting the poor" (World Bank, 1994). According to the World Bank's Independent Evaluation Group, one of the main motivations for the adoption of OP 10.04 was to create "a safeguard against project choices being captured by narrow political or sectional interests" (Warner, 2010: 2). Elaborating on this point, Warner (2010: 2) notes that "[e]fficiency considerations always compete with other motives in project selection, and the policy is designed to give efficiency the upper hand in this competition."

Even though not all World Bank projects are subjected to cost-benefit analysis or distributional analysis in practice (Warner, 2010), these project appraisal procedures appear to be significantly more robust than those used to vet prospective Chinese aid projects. We consulted with two former employees of the Department of Foreign Aid (DFA) within China's Ministry of Commerce and they both informed us that there is no comparable set of economic analysis procedures in place to screen and select candidate projects.[18] Instead, China uses a demand-driven approach to select and site aid projects.

This approach is best understood in the context of one of the foundational principles of China's foreign aid policy: non-interference in the internal affairs of recipient countries and respect for their sovereignty. The principle can be traced back to the Final Communiqué of the 1955 Asian-African conference of Bandung, and it is highlighted in the Chinese Government's latest White Paper on Foreign Aid: "[w]hen providing foreign assistance, China adheres to the principles of not imposing any political conditions, not interfering in the internal affairs of the recipient countries and fully respecting their right to independently choose their own paths and models of development" (State Council, 2014).[19]

Officials from China's Ministry of Commerce, which is formally responsible for managing the country's foreign aid program, take this principle seriously. They informed us during interviews that "the initiative generally comes from the recipient side."[20] More specifically, the Chinese aid allocation process begins when the recipient government proposes a project to the Economic and Commercial Counselor's office attached to China's in-country diplomatic mission.[21] This office then submits the government's application—if it meets a minimum viability standard—to the Ministry of Commerce and the Ministry of Foreign Affairs in Beijing. A team of technical experts from the Ministry of Commerce then travels to the country that requested support to undertake a project and budget feasibility assessment in consultation with the domestic authorities. Upon their return to Beijing, the technical team prepares a final project proposal for the State Council's determination. If the State Council authorizes the project, the Ministry of Finance transfers funds to the Ministry of Commerce and the procurement process begins.[22] Notwithstanding these formal project preparation procedures, Dornan and Brant (2014) note that relatively little effort is made by any agency within the Chinese government to conduct rigorous economic analysis of potential projects and that project appraisal processes remain weak.

Chinese projects are also different from World Bank projects in that they are typically negotiated directly with the political leaders of recipient countries (AfDB et al., 2011).[23] This approach limits opportunities for technocrats in line ministries, opposition politicians, civil society organizations, and journalists to sound the alarm when politically-motivated projects are proposed (Jansson, 2013), and it creates significant scope for leaders to steer projects towards politically consequential regions (Engelsma et al., 2017). The Chinese Government is almost

[15] However, given that the probability of clientelistic voting is lower outside a leader's home regions, the incentive to broadly distribute particularistic rewards outside this region should be weaker.

[16] Of course, we do not argue that this is the only possible reason why Chinese aid might be channeled to leaders' birth regions. At least, four other channels come to mind: the possibility that African leaders might be economically privileging their home regions in anticipation of returning to these places after leaving office; the possibility that they are motivated by parochial altruism; the possibility that the Chinese government itself is directly or indirectly promoting its own domestic political culture wherein elected leaders disproportionately allocate public resources to their home villages (Mu and Zhang, 2014); and the possibility that Chinese firms in Africa with close ties to the leaders of African countries influence the project identification and selection process (Chen and Orr, 2009; Dornan and Brant, 2014; Zhu, 2015). While these potential motives are not mutually exclusive, we focus on the electoral motives of political leaders as it lends itself to empirical scrutiny.

[17] Specifically, OP 10.04 states that "[t]o be acceptable on economic grounds, a [World Bank-financed] project must meet two conditions: (a) the expected present value of the project's net benefits must not be negative; and (b) the expected present value of the project's net benefits must be higher than or equal to the expected net present value of mutually exclusive project alternatives."

[18] Authors' email correspondence with DFA officials in January 2019.

[19] The World Bank's Articles of Agreement also codify the principle of political non-interference in the affairs of recipient countries. Section 10 of Article IV makes clear that the organization should make investment decisions based on economic criteria: "[t]he Bank and its officers shall not interfere in the political affairs of any member; nor shall they be influenced in their decisions by the political character of the member or members concerned. Only economic considerations shall be relevant to their decisions, and these considerations shall be weighed impartially in order to achieve the purposes stated in Article I." However, China and the World Bank put the principle of non-interference into practice in very different ways. A case in point is the World Bank's use and China's non-use of cost-benefit analysis for screening, selecting, and siting projects.

[20] Authors' interview in June 2013. Officials from the Ministry of Health also told us that they "send medical teams to the areas of the country that are selected by the recipient government" (authors' interview in October 2014).

[21] Our description of this process relies heavily upon Davies et al. (2008) and Corkin (2011).

[22] There is a different procedure for recipient governments seeking a concessional loan worth more than RMB 20 million.

[23] The World Bank typically negotiates projects with government technocrats in the line ministries of recipient countries.

certainly aware of this fact.[24] Bräutigam (2012: 23) notes that"[t]hose designing China's aid program see nothing wrong with fulfilling a host president or key minister's desire to have a fancy Chinese school built in his or her hometown."

Sudan provides a useful illustration of how Chinese aid can be used by host government leaders to increase their odds of remaining in power. Over the last fifteen years, Sudan has received billions of dollars of Chinese development finance. Many of these projects have been located within the so-called "Hamdi Triangle," a region in the Nile River Valley between the cities of Dongola, Sennar, and El Obeid (in North Kordofan) that is considered to be the heartland of the Arab Riverine tribes and the political base of the ruling National Conference Party (NCP) (Roessler, 2013). President Bashir's hometown of Shendi lies along the bank of the Nile River and falls squarely within the Hamdi Triangle (Verhoeven, 2015). This area of the country assumed special political significance after 2005 when the authorities in Khartoum signed a Comprehensive Peace Agreement (CPA) with the Sudan People's Liberation Army (SPLA) that called for presidential and legislative elections in 2010 and a referendum on South Sudan's independence in 2011. In recognition of the domestic political threats posed by the presidential election and the referendum, Abdel Rahim Hamdi (a political strategist for the NCP and former Minister of Finance) laid out a "grand strategy" for domestic political survival at a 2005 NCP conference (Hamdi, 2005). He argued that the ruling party's electoral fortunes would hinge on its ability to deliver job opportunities and public services to the core constituents in the area between Dongola, Sennar, and El Obeid and, therefore, called for concentrated investment in this area. He also argued that non-Western funds would be necessary to target this area.[25] In the years following the adoption of this strategy, Chinese development and investment projects focused heavily in these areas and other pro-NCP constituencies (Roessler, 2013).

Foreign aid from Western donors and multilateral development agencies can of course also be influenced by the interests and demands of host country leaders, and there is some evidence that traditional sources of aid are vulnerable to political capture and manipulation (Cohen, 1995; Briggs, 2012, 2014; Jablonski, 2014; Masaki, 2018). Indeed, Faye and Niehaus (2012) show that Western donors use aid to help politically aligned recipient governments get reelected. But there do appear to be fundamental differences in the way that China and Western donors operationalize the principle of "country ownership." Nissanke and Söderberg (2011: 26) note that "Chinese arrangements appear to be […] much more flexible than the mechanisms offered by traditional donors […] [and] [p]roject selection is request-based: projects are initiated by borrowing countries, dependent on their preference, priority and circumstances." By comparison, many Western donors have due diligence standards and procedures in place to ensure that the process of designing projects and allocating scarce resources across subnational jurisdictions is guided by economic criteria (Jenkins, 1997; Deininger et al., 1998; Warner, 2010; OECD, 2015).[26]

3. Data and methods

This section introduces the data and empirical strategy that we use to test whether the political leaders' birthplace matters for the allocation of Chinese aid within African countries.

Our sample covers subnational units of 47 African countries over the 2000–2011 period.[27] These subnational units are administrative regions at the first and second subnational levels. ADM1 regions correspond to provinces, states, or governorates, while ADM2 regions are smaller and typically correspond to counties or districts. The Database of Global Administrative Areas (GADM) provides shapefiles with information on subnational administrative regions and their boundaries. There are 709 ADM1 regions and 5835 ADM2 regions in the 47 African countries covered in our sample.[28]

3.1. New georeferenced data on China's foreign aid activities

We build on the dataset in Strange et al. (2017), who provide project-level information about Chinese Government-financed activities in African countries (see Strange et al., 2014 for methodological details). These data on Chinese official financing were assembled using AidData's Tracking Underreported Financial Flows (TUFF) method, which synthesizes and standardizes a large amount of unstructured information in the public domain. In total, they cover 1650 projects committed to 49 African countries, amounting to approximately US$ 83.3 billion in official financing over the 2000–2012 period.[29] Despite the short time since the dataset's public release, it has already been used in a number of publications at the country level (e.g., Hendrix and Noland, 2014; Dreher and Fuchs, 2015; Hsiang and Sekar, 2016; Kilama, 2016; Hernandez, 2017; Li, 2017; Eichenauer et al., 2018) and—using the data introduced in this paper—also at subnational scales (e.g., BenYishay et al., 2016; Brazys et al., 2017; Gehring et al., 2018; Isaksson and Kotsadam, 2018a, 2018b; Martorano et al., 2018; Marty et al., 2019).

In order to take the data to the subnational level, we georeferenced the project-level data from version 1.1 of AidData's Chinese Official Finance to Africa dataset using the method described in Strandow et al. (2011).[30] This method relies on a double-blind system, where two coders employ a defined hierarchy of geographic terms and independently assign uniform latitude and longitude coordinates, information about the precision of the data, and standardized names to

[24] There are even reasons to believe that the Chinese Government may encourage this type of behavior. DiLorenzo and Cheng (2019) provide empirical evidence that China strategically increases the provision of aid to new leaders and governments shortly after they come to power. After Maithripala Sirisena was elected as the President of Sri Lanka, he attended a ceremony to celebrate the opening of a Chinese Government-financed hospital in his home district of Polonnaruwa and informed the crowd in attendance that "[w]hen the Chinese ambassador visited my house to fix the date for this ceremony, he said that Chinese President Xi Jinping sent me another gift. […] He has gifted 2 billion yuan [US$ 295 million] to be utilized for any project [that I] wish" (Reuters, 2018).

[25] Specifically, Hamdi (2005) wrote: "Financial flows […] from [Western] institutions will be characterized by the following: they will be late; will be far less than promised; they will be surrounded by rules and bureaucracy. […] Investment funds will go to areas that are already predetermined in the [CPA]; this is, to the geographical south with its defined borders, Nuba Mountains, Southern Blue Nile. Moreover, these investment funds will be supervised by certain Commissions which ensure that they go to the specified zones only. Due to these facts, foreign investment will remain out of our hands and will not benefit the North much. In a sharp contrast to that, [non-Western] investment, both official and private will go to the Geographical North."

[26] The World Bank, the Asian Development Bank, the Inter-American Development Bank, the European Union, and the U.S. Government's Millennium Challenge Corporation all use some form of cost-benefit analysis to vet candidate projects (Warner, 2010: 57).

[27] We exclude Western Sahara, a disputed territory, Somalia for the absence of a central government, and the five small island states of Cape Verde, Comoros, Mauritius, São Tomé and Príncipe, and Seychelles. Given potential concerns about the comprehensiveness of the 2012 data of the 1.1 version of AidData's China in Africa dataset, we follow Strange et al. (2017) and exclude 2012.

[28] The GADM database includes subnational boundaries only at the ADM1 level for Egypt, Equatorial Guinea, Lesotho, Libya, and Swaziland. In our ADM2-level analysis, we use ADM1 regions for these countries instead. Excluding these countries does not change the results qualitatively. ADM1 and ADM2 regions across Africa are shown in Fig. B.1 in Appendix B.

[29] The largest recipients of Chinese official financing are Ghana, the DRC, and Ethiopia, with registered flows in the range of US$ 7.9–12.1 billion. Unsurprisingly, the dataset does not contain any development projects in the four African countries that recognized the Republic of China (Taiwan) rather than the PRC during our period of study: Burkina Faso, the Gambia, São Tomé and Príncipe, and Swaziland.

[30] We exclude flows coded as non-binding pledges or suspended projects.

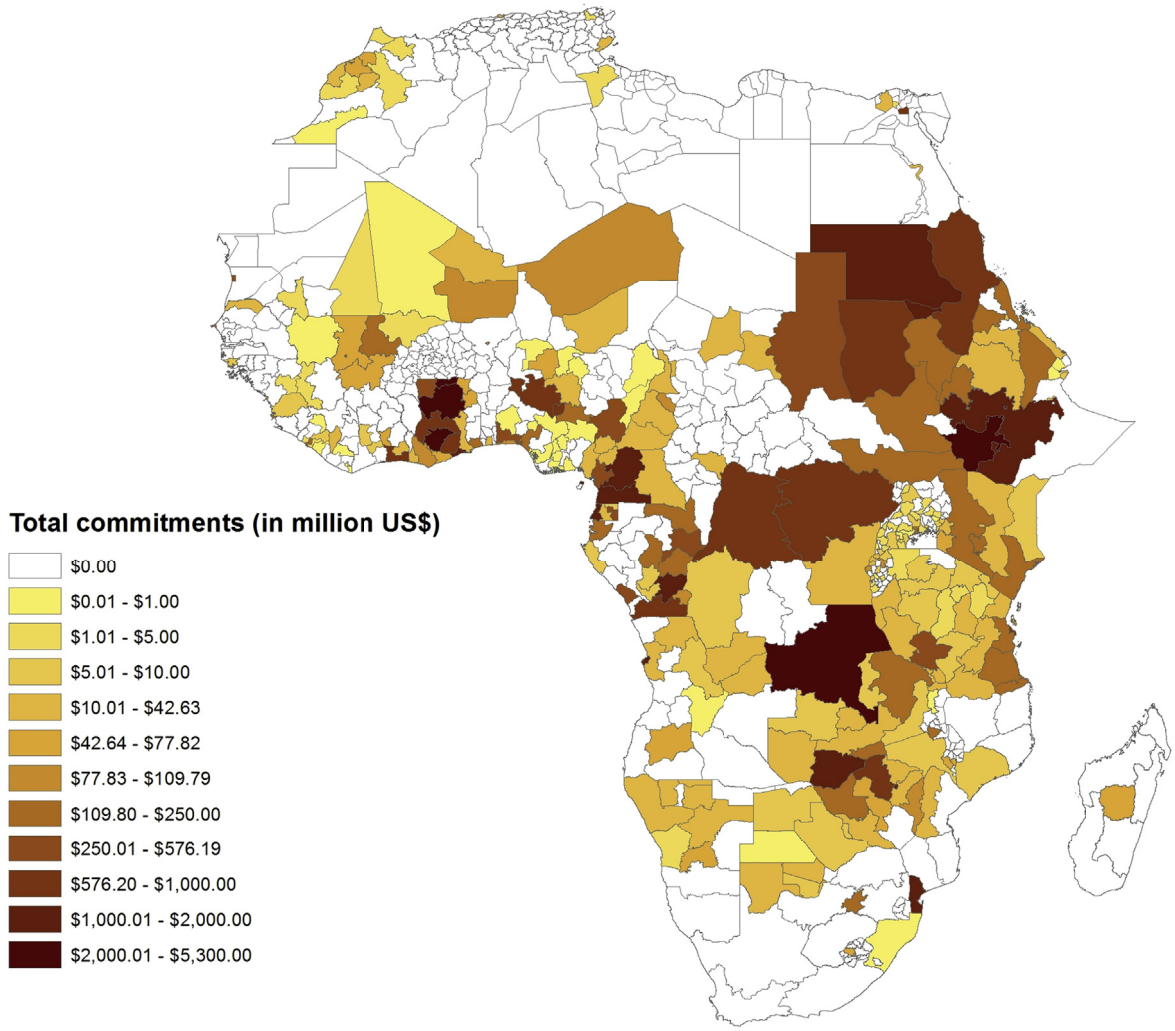

Fig. 1. Value of Chinese aid projects per subnational unit in Africa (total value in million 2009 US$, 2000–11, ADM1).

each geographic feature of interest. If the locations chosen by the two coders are not identical, then a senior researcher identifies the source of discrepancy and assigns the appropriate geocode. This process of arbitration between two independent coders by a third ensures strict quality control, minimizing missed or incorrect locations. For projects with more than one location, we georeferenced all locations.[31] Our application of this geocoding method yielded 1898 project locations geocoded at the ADM1 level and 1575 project locations at the ADM2 level.

Our dependent variable, Aid_{ict}, measures Chinese aid allocated to region i in country c and year t in constant 2009 US$. But we distinguish between two definitions of Aid_{ict}. First, we analyze the allocation of Chinese "aid" in the broadest sense, including all official financing activities from China as identified by Strange et al. (2017). To the maximum extent possible, Strange et al. (2017) code Chinese Government-financed projects as either "ODA-like" or "OOF-like" based upon the OECD criteria for Official Development Assistance (ODA) and Other Official Flows (OOF).[32] Fig. 1 shows the allocation of official financing across ADM1 regions.[33] Second, we restrict our analysis to Chinese "aid" in the strict sense of the term, i.e., those flows that Strange et al. (2017) identify as being "ODA-like."

A caveat related to these two variable definitions is that 35% of the projects lack information on their respective financial values. Although this source of measurement bias is likely to be negligible because most of the missing values correspond to scholarship and technical assistance activities that typically have low financial values, we take two actions to account for this limitation of the dataset. First, if we know there are Chinese projects in a particular subnational locality but we have no information about any of their monetary amounts, we set Aid_{ict} to missing.[34] Second, we run robustness checks where our dependent variables

[31] Because we do not observe financial values at the project-location level but only at the project level, we spread project amounts equally across all locations identified in each project.

[32] In cases when a Chinese Government-financed project cannot be clearly categorized as ODA or OOF, Strange et al. (2017) assign it to a residual category called "Vague (Official Finance)." Our measure of Chinese "aid" includes all official financing activities, including those categorized as ODA-like, OOF-like, and Vague (Official Finance). In line with the bulk of the aid allocation literature, we do not scale official finance according to population size or level of development, but control for them on the right-hand side.

[33] In addition, Fig. B.2 in Appendix B shows a map with the number of Chinese aid projects across ADM1 regions.

[34] Our results are qualitatively unchanged if we set Aid_{ict} to zero in these cases (see Table E.1 in Appendix E).

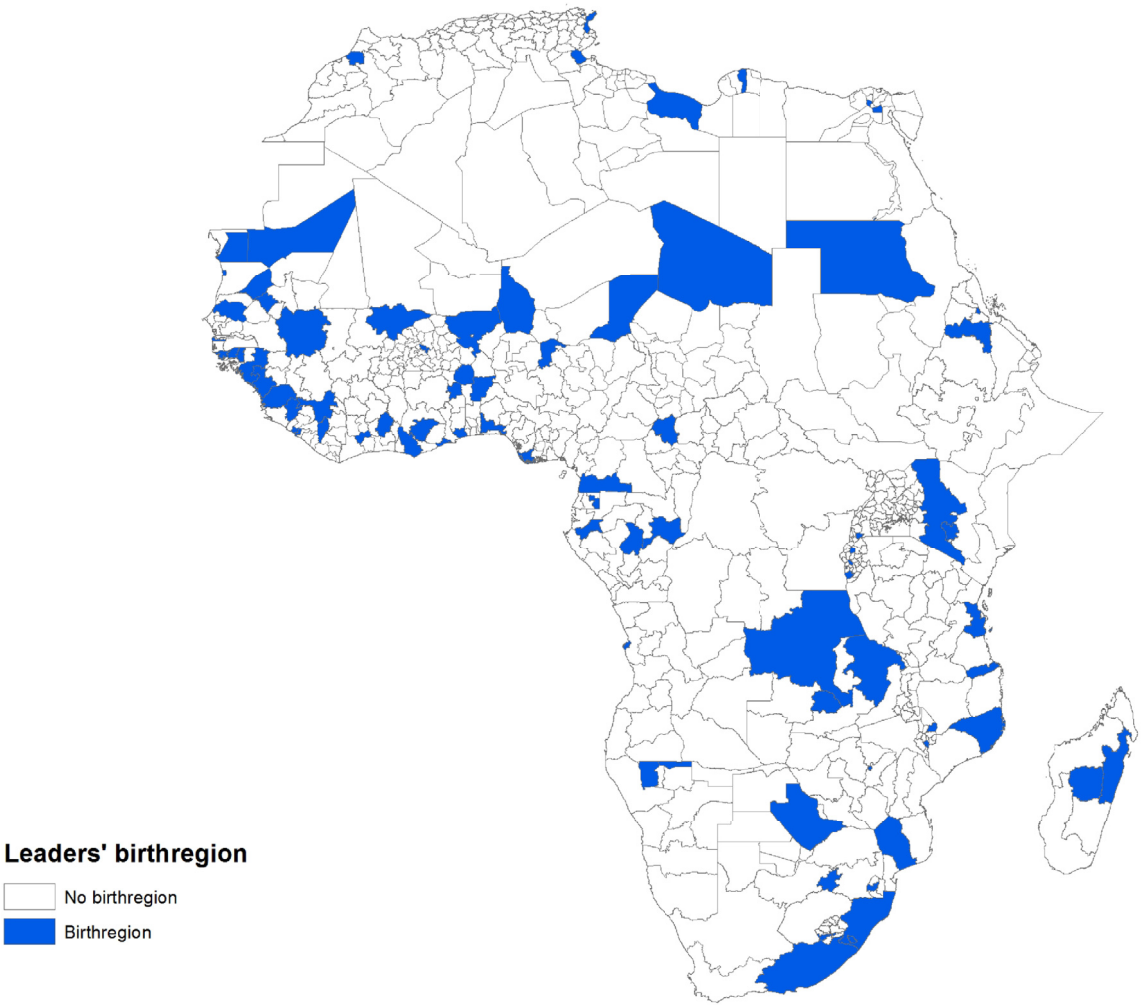

Fig. 2. Birth regions of effective political leaders in Africa (2000–11, ADM1).

are binary variables that assume values of one if a project has been committed to a subnational region in a given year, and zero otherwise (see Table E.2 in Appendix E).

We also look at the subnational allocation of aid from the World Bank, which is one of the largest "traditional" donors in Africa and one that is known for screening and selecting loan proposals based on strict project appraisal policies and procedures (as discussed in Section 2). For this purpose, we rely on a new georeferenced dataset provided by AidData (2015) that consists of all World Bank projects approved between 2000 and 2011.[35] The dataset includes 533 projects and 7519 project locations in Africa worth US$ 43.4 billion (in commitment terms).[36] Again, we distinguish between two definitions of the dependent variable to mimic the approach taken for Chinese aid. We first analyze the total value of World Bank financing (transformed to constant 2009 US$), which includes both concessional flows from the International Development Association (IDA) and non-concessional flows from the International Bank for Reconstruction and Development (IBRD), and then analyze IDA volumes separately.[37]

3.2. Birth regions of Africa's political leaders

Our main explanatory variable of interest is a binary variable, $Birthregion_{ict}$, that is equal to one if the political leader of country c in year t was born in administrative region i, and zero otherwise. We apply the definition of countries' effective leaders from Goemans et al.'s (2009) Archigos dataset, updated in Dreher and Yu (2016). In order to assign latitude and longitude coordinates to the birthplaces of the political leaders of African countries, we again follow Strandow et al. (2011).[38] We are able to attribute leaders to 76.7% of the country-years covered at the ADM1 level; the remaining leaders are either foreign-born or we were not able to gather sufficiently precise information to place them in ADM1 regions. Fig. 2 shows a map of the birth regions

[35] Comprehensive geocoded data for "traditional" bilateral donors are not available for long periods of time or for the entire African continent.

[36] See Findley et al. (2011) for a detailed description of an earlier release of these data.

[37] We exclude World Bank projects that are nationwide in scope or allocated to the central government and therefore cannot be attributed to a specific region. In total, approximately 40% of all projects are assigned to a distinguishable location (Dreher and Lohmann, 2015). Figs. B.3 and B.4 in Appendix B show maps of the allocation of World Bank aid across African ADM1 regions. The correlation between Chinese and World Bank aid is positive but low (0.062 for total amounts and 0.123 for concessional flows).

[38] We code their latitude and longitude coordinates using Geonames (see http://www.geonames.org). We record locations with five decimal places of precision. As secondary source we rely on the American National Geospatial Intelligence Service (NGA) (http://geonames.nga.mil/ggmagaz).

Table 1
Summary statistics, ADM1, 2000–11.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Chinese total flows (in levels)	8327	6.5m	86.8m	0	5.2b
Chinese ODA-like flows (in levels)	8307	1.6m	29.2m	0	1.5b
Chinese project dummy	8327	0.070	0.256	0	1
World Bank total flows (in levels)	8327	5.71m	30.77m	0	2.06b
World Bank IDA flows (in levels)	8327	4.53m	16.17m	0	297m
Birthregion	8327	0.066	0.248	0	1
Prebirth (2 years)	8327	0.009	0.093	0	1
Postbirth (2 years)	8327	0.08	0.089	0	1
Birthregion Spouse	8327	0.035	0.184	0	1
Light2000 (in levels)	8327	1.953	5.984	0	48.20
Population2000 (in levels)	8327	1.1m	1.7m	6047	21.9m
Capitalregion	8327	0.062	0.241	0	1
Mines (in levels)	8327	3.511	12.41	0	139
Oilgas	8327	0.176	0.381	0	1
Area (in levels)	8327	40952	81130	41.56	0.6m
Ports	8327	0.184	0.387	0	1
Roaddensity	8327	0.090	0.143	0	1.874
Executive election next year	8318	0.162	0.369	0	1
Legislative election next year	8327	0.211	0.408	0	1
Executive electoral competitiveness	8327	4.699	1.919	0	6
Legislative electoral competitiveness	8327	4.981	1.663	0	6
Provincial elections	6041	0.198	0.399	0	1

Notes: Descriptive statistics are based on the estimation sample used in Table 2, column 1. The exception are the election-related variables, where statistics are based on the estimation samples of Table 4.

of political leaders across the African continent at the ADM1 level. In total, we observe 117 leaders with 73 changes in the $Birthregion_{ict}$ variable over time at the ADM1 level. Appendix A lists all domestic-born leaders alongside their administrative birth regions.

3.3. Additional data

We prepare additional variables that are potential determinants of Chinese aid allocation and might be correlated with our variable of interest. We include nighttime light intensity from the National Oceanic and Atmospheric Administration (NOAA, 2014) as a proxy for economic activity at the subnational level.[39] A main advantage of these data is the high spatial granularity, which is particularly useful in the African context where regional GDP estimates are typically poor or unavailable. The variable $Light2000_{ic}$ corresponds to the log of the average nighttime light intensity of the pixels in region i of country c in 2000, which is at the beginning of our sample period.[40]

We further control for (log) geographical size and (log) population size of subnational regions. The variable $Area_{ic}$ is directly calculated from the shapefile of subnational boundaries, while $Population2000_{ic}$ is based on high-resolution data on the spatial distribution of the world population in 2000 by the Center for International Earth Science Information Network (CIESIN). We add the binary variable $Capitalregion_{ic}$ that takes the value of one if the capital city of country c is located in region i in order to account for the specific role played by the country's capital. To control for the possibility that Chinese aid is motivated by a desire for access to natural resources, we compute $Mines_{ic}$, which is defined as the log of the sum of mineral facilities in each subnational region i according to the Mineral Resource Data System of the United States Geological Survey (USGS, 2005).[41] As a second indicator of resource wealth, the variable $OilGas_{ic}$ takes a value of one if parts of an oil or gas field are within the boundaries of administrative region i (according to data from Lujala et al., 2007), and zero otherwise. Previous studies of subnational aid allocation suggest that donors favor areas with good baseline infrastructure conditions (e.g., Marty et al., 2017), so we also compute the total length of roads per square kilometer ($RoadDensity_{ic}$) using geographic data from CIESIN (2013) and construct a binary variable $Port_{ic}$ that is equal to one if a port is located in region i according to data from the World Port Index (NGA, 2011), and zero otherwise.

Table 1 provides summary statistics at the level of ADM1 regions. The likelihood of the average African region to receive Chinese aid in a given year is 7%. The average region receives approximately US$ 6.5 million in Chinese funding per year, of which US$ 1.6 million arrives in the form of ODA-like flows. An average ADM1 region is the political leader's birth region in 6.6% of the years.

3.4. Empirical strategy

In order to test whether the current political leaders' birthplaces matter for the allocation of Chinese aid, we estimate two sets of regressions:

$$Aid_{ict} = \alpha_{ct} + \sum_j \beta_j X^j_{ic} + \gamma Birthregion_{ict} + \epsilon_{ict}, \quad (1)$$

$$Aid_{ict} = \alpha_{ct} + \delta_{ic} + \gamma\ Birthregion_{ict} + \epsilon_{ict}, \quad (2)$$

where X^j_{ic} represents our time-invariant control variables, α_{ct} country-year-fixed effects, and δ_{ic} region-fixed effects.

To ease the interpretation of our results, we report results for all regressions with OLS. This approach comes with the disadvantage that

[39] NOAA uses satellite measures of light intensity from evenings during the dark half of the lunar cycle in seasons when the sun sets early. It removes observations that are likely to be affected by, e.g., cloud coverage, fires or other ephemeral lights. Henderson et al. (2012) and Hodler and Raschky (2014a) show that changes in nighttime light intensity are highly correlated with changes in national and subnational GDP, respectively. Bruederle and Hodler (2018) show that nighttime light intensity is also a good proxy for local human development outcomes.

[40] We follow Michalopoulos and Papaioannou (2013, 2014) and Hodler and Raschky (2014a, 2014b) in adding 0.01 to the average nighttime light intensity before taking its logarithm. Doing so ensures that we do not lose observations with a reported nighttime light intensity of zero. Using the year 2000 minimizes the possibility of reverse causality. Results are qualitatively the same when we use lagged nighttime light intensity instead.

[41] This cross-sectional dataset on historical and current mining facilities includes mines, plants, mills, and refineries of many mineral commodities such as coal, iron ore, copper, gold, silver, and zinc. We added one before taking the logarithm.

we have to add a value of US$ 1 before taking logarithms in order to avoid taking the log of zero. This might lead to a significant bias at the ADM2 level in particular, where we have a large number of zero observations. For comparison, we therefore also estimate our main regressions with Poisson Pseudo-Maximum Likelihood (PPML). Santos Silva and Tenreyro (2006) show that PPML outperforms simple OLS and Tobit approaches with heteroskedasticity and many zero observations in the data.[42]

Comparing the models in Equations (1) and (2), the former has two advantages. First, the omission of region-fixed effects allows us to also exploit between-region variation, which might be important to identify the relationship between leaders' birthplaces and aid absent large variation in the leaders' birth regions.[43] Second, this specification allows us to include variables that vary across regions exclusively. While the focus of our analysis is on the birth regions of political leaders, the inclusion of these variables facilitates comparison with the country-level literature on the allocation of aid. A shortcoming of this approach is that a statistically significant effect of these regions on aid might be spurious and could simply reflect the fact that certain regions receive more aid than others because of variables that we do not control for and that are unrelated to leaders. Equation (2) precludes such spurious results by exploiting region-specific variation over time exclusively. While this specification is the more rigorous one, we lose substantial variation, which makes identifying the relationship between aid and leaders' birth regions more difficult. We also go a step further and control for the last two years before the political leaders came to power and the first two years after they were out of power as placebo tests. The former is particularly important to rule out the possibility that our findings are driven by unobserved country-specific trends in aid over time. In all allocation equations, we cluster standard errors by country.[44]

Some readers might be concerned that the unofficial and open-source nature of the Chinese aid data threatens the reliability of our empirical tests.[45] To the extent that leaders' birthplaces get better coverage in the sources used in Strange et al. (2017), a positive effect of $Birthregion_{ict}$ on Chinese aid could reflect greater coverage rather than more projects. Moreover, it could be easier to georeference projects in birth regions of leaders if these regions attract more media coverage. This would imply that selection into the analysis dataset could be based on the independent variable of interest and—if true—could lead to an overestimation of the extent of political capture. This should be particularly likely for small projects as large projects are very visible and will likely receive some media coverage in non-birth regions as well. To test whether we are likely to miss small projects outside the political leaders' birth regions, we regress (log) average project size on our birth region variable, controlling for country-year- and region-fixed effects (see Table E.4 in Appendix E for details). At the ADM1 level, we find that the average project size does not change when a new leader originates from a region. At the smaller ADM2 regions, our results show that projects in birth regions are larger rather than smaller. Therefore, it is unlikely that a positive birthplace coefficient in our main regressions results from the detection of a larger number of small projects or an increased ability to georeference projects in leaders' birthplaces but not elsewhere.[46]

Appendix D further explores differences between project locations that can be precisely mapped to an ADM1 region to those with less precise information. Out of the 2969 project locations geocoded at the ADM1 level, 1898 locations (i.e., 64%) can be mapped to ADM1 regions. These project locations receive financial flows that are substantially larger (in terms of mean and median size), and more of them are loans while fewer of them are ODA-like flows. It is less likely that projects with precise information have reached the commitment stage but not the implementation stage or completion stage during our period of study.[47] In robustness tests, we investigate whether these observable differences influence our main findings (see Table E.8 in Appendix E). We find that our main results hold when we exclude (i) projects with loan amounts above the median, (ii) projects that did reach the implementation or completion stage during our period of study, or (iii) all projects financed via loans.

4. Results

4.1. Main results

We start by presenting our baseline results where we analyze China's aid allocation at the level of ADM1 regions (such as provinces). Columns 1 to 4 of Table 2 show the results from estimations of Equation (1), which includes country-year-fixed effects but not region-fixed effects. Columns 1 and 2 consider total flows of Chinese official financing, estimated with OLS and PPML, respectively. In Columns 3 and 4, we replicate the analysis but focus on a stricter definition of Chinese aid—ODA-like flows rather than all forms of official financing. The maximum number of observations is 8375 from 709 ADM1 regions in 47 countries. However, not all of these observations contribute to the identification of the birth-region effect. In the regressions without region-fixed effects for total aid, 4886 observations are from country-years with no variation in our dependent variable, so that coefficients are identified based on variation from the remaining 3441 observations (from 43 countries). When we include fixed effects for regions in addition, this number is further reduced to 1991 observations (from 43 countries).

Starting with the control variables, we find few consistent results across models and type of financing. As one exception, our results show that regions containing the country's capital receive significantly more funding. Funding amounts increase with a region's level of economic

[42] While initially introduced into the trade literature, PPML becomes more widely used in the empirical aid literature as well (e.g., Fuchs and Vadlamannati, 2013; Acht et al., 2015; Davies and Klasen, 2019). We use the user-written Stata command "poi2hdfe" to estimate a Poisson regression model with high dimensional fixed effects (Guimaraes and Portugal, 2010; Figueiredo et al., 2015).

[43] Leader changes are infrequent. In our sample, we observe 73 (82) changes in *Birthregion* at the ADM1 (ADM2) level.

[44] Our results do not depend on how we cluster standard errors. Table E.3 in Appendix E shows that clustering for periods each leader is in power (where country-years with power transitions or without domestic-born leaders receive a separate country-specific leader ID), ADM1 regions or—using two-way clustering—at the country and year, ADM1 and year, or ADM1 and country-year level, does not change our conclusions.

[45] Kilby (2017) investigates whether and to what extent the TUFF methodology may be subject to detection bias at the country level and points to the importance of English as an official language. Factors that do not vary over time within regions or are constant across regions in any one year are captured by our fixed effects. Muchapondwa et al. (2016) find a high level of correspondence between the Chinese development project data collected through the TUFF methodology and data collected through the systematic implementation of field-based data collection protocols by local enumerators in Uganda and South Africa.

[46] Furthermore, in the working-paper version of this article (Dreher et al., 2016), we test whether aid is less effective when it is committed to a region when it is the leader's birth region compared to aid committed at other times. To the extent that aid reporting rather than the volume of aid increases in the leaders' birth regions, the aid "committed" to birth regions should be less effective in promoting development (as larger amounts of aid would not flow to these regions but would merely be more likely to be reported there). Since this is not what we find, this further increases our confidence that the open-source nature of the Chinese aid data does not threaten our identification strategy. We further explore this issue in Dreher et al. (2019).

[47] A typical project location that cannot be mapped to an ADM1 region would be an unrestricted grant (e.g., general budget support to the central government).

Table 2
Birth regions and China's aid I, ADM1, 2000–11.

	(1) Total OLS	(2) Total PPML	(3) ODA OLS	(4) ODA PPML	(5) Total OLS	(6) Total PPML	(7) ODA OLS	(8) ODA PPML
Birthregion	0.688**	0.969***	0.283	0.921	1.082**	0.267*	0.569**	2.257***
	(0.324)	(0.359)	(0.209)	(0.564)	(0.423)	(0.142)	(0.252)	(0.328)
Light2000 (in logs)	0.293**	0.218	0.242*	−0.117				
	(0.119)	(0.158)	(0.125)	(0.444)				
Population2000 (in logs)	0.087	0.389*	0.014	0.367*				
	(0.094)	(0.227)	(0.089)	(0.210)				
Capitalregion	4.164***	1.558***	2.837***	2.988***				
	(0.544)	(0.431)	(0.459)	(1.023)				
Mines (in logs)	0.117*	0.186*	0.003	0.224				
	(0.067)	(0.106)	(0.041)	(0.179)				
Oilgas	0.070	0.326	0.077	0.036				
	(0.149)	(0.438)	(0.133)	(0.807)				
Area (in logs)	0.234**	0.367	0.183**	−0.420				
	(0.091)	(0.233)	(0.080)	(0.497)				
Ports	−0.068	−0.256	−0.155	−1.797*				
	(0.193)	(0.684)	(0.150)	(1.044)				
Roaddensity	1.145	1.406	1.181	4.137*				
	(1.198)	(2.166)	(1.080)	(2.360)				
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	No	No	No	No	Yes	Yes	Yes	Yes
R-squared	0.40		0.35		0.30		0.28	
Observations	8327	8327	8375	8375	8327	8327	8375	8375
Regions	709	709	709	709	709	709	709	709

Notes: The dependent variable is Chinese total flows (in logs) in columns 1 and 5, Chinese total flows (in levels) in columns 2 and 6, Chinese ODA-like flows (in logs) in columns 3 and 7, and Chinese ODA-like flows (in levels) in columns 4 and 8. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

development (proxied by nighttime light intensity) in our OLS regressions (at least at the 10% level of statistical significance), but become insignificant when we estimate regressions with PPML. Therefore, while more Chinese aid is allocated to poorer countries (Dreher and Fuchs, 2015), our results show that, if anything, poorer regions within countries (i.e., regions with less nighttime light intensity, after controlling for regional population size) receive less support from China. According to the OLS results, geographically larger regions receive significantly more funding, while countries with larger populations receive more funding according to the PPML regressions. Road density and ports are not related to the receipt of Chinese funding in our OLS regressions (but reach statistical significance for ODA-like flows when estimated with PPML). Also, contrary to conventional wisdom, the availability of oil and gas does not seem to correlate with Chinese funding at the subnational level, while ADM1 regions with mines do receive significantly more Chinese funding (at the 10% level). However, this latter effect disappears when we restrict the sample to ODA-like flows—that is, aid in the strict sense (see columns 3 and 4). This pattern is in line with the findings of Dreher et al. (2018), who report that China's commercial motives matter more for less concessional flows than for ODA-like flows at the country level.

Turning to our primary variable of interest, the results in columns 1 and 2 show that larger amounts of Chinese funding go to the birth regions of a country's political leader, at the 5% and 1% levels of significance.[48] The coefficient of the OLS regression implies an increase in total financial flows of almost 100% to ADM1 regions containing the political leader's birthplace.[49] The quantitative size of the effect is even larger according to the PPML result, which suggests that the amount of aid committed to the political leaders' birth regions is 164% larger.[50] Analyzing ODA-like flows only in columns 3 and 4, the results for our main variable of interest are weaker than for total official financing flows. The coefficient of $Birthregion_{ict}$, while still positive, is no longer statistically significant at conventional levels in the OLS regression and marginally insignificant in the PPML regression (p-value: 0.103).

In columns 5 to 8, we report our regressions from Equation (2). That is, we replace our time-invariant control variables with region-fixed effects. Controlling for both country-year- and region-fixed effects absorbs a large share of the variation in our variable of interest, so this approach represents the more conservative specification. Controlling for this set of fixed effects makes the existence of a spurious relationship between birthplace and aid flows less likely. At the same time, the region-fixed effects imply that the estimates in columns 5 to 8 can only be based on the 29 African countries with at least one change in the political leaders' birth region during our sample period. That is, these estimates are neither based on the 17 countries where the same leaders hold power throughout our sample period (see Table A.1 in Appendix A), nor on the Democratic Republic of the Congo where Laurent-Désiré Kabila was followed by his son Joseph Kabila who was born in the same ADM1 region. It is therefore remarkable that the results tend to become stronger with the inclusion of region-fixed effects. The coefficient estimate in column 5 suggests that total official financing flows increase by approximately 195% when ADM1 regions become the political leader's birth region (though the coefficient esti-

[48] Including $Birthregion_{ict}$ to a specification with only the control variables used in column 1 increases the adjusted R-squared from 0.352 to 0.353. While having a statistically significant and quantitatively substantive effect, the explanatory power of leader birth regions is thus rather low. The increase of the adjusted R-squared is comparable in size to including $Population2000_{ic}$ or $Roaddensity_{ic}$ in the baseline specification.

[49] Fig. C.1 in Appendix C shows the partial leverage plot corresponding to column 1. As can be seen, the result is not driven by obvious outliers.

[50] Alternatively, using a project dummy as dependent variable, the coefficient of $Birthregion_{ict}$ is positive and statistically significant at the 10% level (see Table E.2 in Appendix E). We find that the likelihood of a birth region to receive Chinese aid is 3.2% higher, which is sizable given the sample mean of 9%. This highlights that our main finding cannot be driven by individual, large-scale projects ("mega projects").

Table 3
Birth regions and China's aid II, ADM1, 2000–11.

	(1) Total OLS	(2) Total PPML	(3) ODA OLS	(4) ODA PPML	(5) Total OLS	(6) Total PPML	(7) ODA OLS	(8) ODA PPML
Birthregion	1.169**	1.859**	0.636**	1.032***	0.992**	0.277**	0.495*	2.661***
	(0.470)	(0.829)	(0.295)	(0.342)	(0.415)	(0.120)	(0.266)	(0.418)
Prebirth (2 years)	−0.177	0.883	−0.406	−1.983				
	(0.463)	(0.852)	(0.409)	(1.437)				
Postbirth (2 years)	0.553	1.074	0.682	−0.635				
	(0.413)	(0.827)	(0.472)	(1.450)				
Birthregion Spouse					1.020*	0.628***	0.774	1.909***
					(0.606)	(0.111)	(0.500)	(0.157)
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.30		0.28		0.30		0.28	
Observations	8327	8327	8375	8375	8327	8327	8375	8375
Regions	709	709	709	709	709	709	709	709
Birthregion = Prebirth	0.018	0.204	0.011	0.028				

Notes: The dependent variable is Chinese total flows (in logs) in columns 1 and 5, Chinese total flows (in levels) in columns 2 and 6, Chinese ODA-like flows (in logs) in columns 3 and 7, and Chinese ODA-like flows (in levels) in columns 4 and 8. The last row reports the p-value of a test on whether the coefficient of Birthregion equals the coefficient of Prebirth. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

mated with PPML drops in size compared to column 2).[51] ODA-like flows increase by slightly more than 75%, at the 5% level of significance (column 7) and show a larger and highly significant coefficient when estimated with PPML (column 8). In summary, the weight of the evidence across these different specifications suggests that the political interests of African leaders strongly shape the subnational allocation of Chinese aid.

Next, we test whether this bias reflects a catch-up effect of poorer regions that become the leader's birth region, which—as one might argue—could be desirable from a development perspective.[52] In order to do so, we run regressions where we replace initial nighttime light with the (logged) level of nighttime light in the previous year and add its interaction with $Birthregion_{ict}$. If more Chinese aid was indeed directed to poorer areas to help them converge with other parts of the country, we would expect to observe a negative coefficient on the interaction term, i.e., a stronger effect in poorer regions that become birth regions. However, we find the opposite to be true as the effect of $Birthregion_{ict}$ is stronger rather than weaker in richer regions (see column 10 of Table E.5 in Appendix E).[53]

In a next step, we include the binary indicators $Prebirth_{ict}$ and $Postbirth_{ict}$ to our specifications with country-year- and region-fixed effects. $Prebirth_{ict}$ is equal to one in the last two years before a region becomes the birth region of the (new) political leader, while $Postbirth_{ict}$ is equal to one in the first two years in which a region is no longer the birth region of the (old) political leader. A statistically significant coefficient on $Prebirth_{ict}$ would imply that the political leaders' birth regions received more Chinese funding before political leaders assumed power, which would cast doubt on our interpretation that these regions receive more Chinese funding because political leaders favor them. By contrast, a statistically significant coefficient on $Postbirth_{ict}$ would not necessarily invalidate a causal interpretation. It might well be that part of the funding pledged for a birth region is formally committed right after the leader left office.

As Table 3 shows, neither $Prebirth_{ict}$ nor $Postbirth_{ict}$ are statistically significant in any of the specifications (and $Prebirth_{ict}$ even has a negative coefficient in three of the four regressions). We also test whether the coefficient of $Prebirth_{ict}$ is significantly different from those of $Birthregion_{ict}$ (rather than being significantly different from zero). With the exception of our PPML regression for total flows shown in column 2, the coefficients for total flows and ODA-like flows are statistically different between pre-birth regions and birth regions (see p-values in the last row of Table 3). This finding provides remarkably strong support for our interpretation that the political leader's birth region registers a causal effect on the receipt of Chinese aid.[54]

To provide further evidence for this interpretation, we focus on the birth regions of the spouses of the political leaders. The underlying idea is that it would be unlikely that the birth region of a leader's spouse would get more Chinese aid during her husbands' tenure for some region-specific time-varying characteristics other than her husband having the power to play favorites. We georeferenced the birth regions of the spouses of the political leaders in our sample (where sufficient information was available) and added the resulting binary indicator of the spouses' birth regions to our regression. In cases of a polygamous leader, the spouse that assumes representative functions is

[51] Fig. C.2 in Appendix C shows the partial leverage plot corresponding to column 5. Again, the result is not driven by obvious outliers. To make sure that this finding is not driven by single countries or years, we replicated this regression excluding each time one of the countries or years in our sample. Tables E.9 and E.10 in Appendix E show that our main finding is robust. Moreover, Table E.11 in Appendix E shows that we obtain similar findings when replacing aid with per-capita aid as dependent variable (and remove population from the set of control variables).

[52] On this point, see footnote 1.

[53] Table E.5 in Appendix E also investigates the potential heterogeneity of these effects in other dimensions. There is no evidence that the effect of birth regions differs systematically with the tenure of the political leader, the quality of political institutions (as measured by the Polity Score), years of schooling, perceived corruption, quality of the bureaucracy, the country's natural resource endowment, or voting patterns in the United Nations General Assembly. In addition, the birth region effect is not restricted to a small number of sectors but represents a broader pattern. Table E.6 in Appendix E applies OECD-DAC definitions to categorize Chinese projects into "Social Infrastructure & Services," "Economic Infrastructure & Services" and "Production Sectors," and run separate regressions for each category. The coefficient estimates suggest sizable birth-region effects for each of these three categories, but the effect is not statistically significant at the 10% level for "Economic Infrastructure & Services." One potential explanation is that geographic features make roads, railways and other types of economic infrastructure less vulnerable to political capture.

[54] We further explore the relevance of pre-birth and post-birth regions by defining *Prebirth (1st year)* and *Postbirth (1st year)* for the one year immediately before and after a leader is in power (rather than two years). As can be seen from Table E.7 in Appendix E, *Prebirth (1st year)* is insignificant in all regressions. This again supports the causal interpretation of our main findings. The significant effect of *Postbirth (1st year)* in two specifications most likely reflects delayed commitments of aid that is pledged during the leaders' tenure. Adding a further lag, *Postbirth (2nd year)*, results in insignificant (and negative) coefficients, while our main results are hardly affected by its inclusion.

Table 4
Birth regions, elections and China's aid, ADM1, 2000–11.

	(1) Total OLS	(2) Total OLS	(3) Total OLS	(4) Total OLS	(5) Total OLS
Birthregion	0.848*	0.984**	−1.108	0.130	−0.278
	(0.442)	(0.439)	(0.681)	(1.403)	(0.581)
* Executive election next year	1.311*				
	(0.741)				
* Legislative election next year		0.458			
		(0.641)			
* Executive electoral competitiveness			0.441***		
			(0.135)		
* Legislative electoral competitiveness				0.176	
				(0.250)	
* Provincial elections					2.767**
					(1.022)
Country-year FE	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes
R-squared	0.30	0.30	0.30	0.30	0.28
Observations	8318	8327	8327	8327	6041
Regions	709	709	709	709	517

Notes: The dependent variable is Chinese total flows (in logs). Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table 5
Birth regions and China's aid, ADM2, 2000–11.

	(1) Total OLS	(2) Total PPML	(3) ODA OLS	(4) ODA PPML	(5) Total OLS	(6) Total PPML	(7) ODA OLS	(8) ODA PPML
Birthregion (same ADM2)	0.277	1.510***	0.281	3.511***	0.284	1.467***	0.284	3.623***
	(0.271)	(0.095)	(0.248)	(1.162)	(0.271)	(0.065)	(0.248)	(1.179)
Birthregion (other in ADM1)					0.086**	−0.426	0.031	2.595**
					(0.042)	(1.204)	(0.021)	(1.274)
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM2 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.10		0.07		0.10		0.07	
Observations	69817	69817	69880	69880	69817	69817	69880	69880
Regions	5835	5835	5835	5835	5835	5835	5835	5835
Birthregion (same) = Birthregion (other)					0.473	0.106	0.321	0.558

Notes: The dependent variable is Chinese total flows (in logs) in columns 1 and 5, Chinese total flows (in levels) in columns 2 and 6, Chinese ODA-like flows (in logs) in columns 3 and 7, and Chinese ODA-like flows (in levels) in columns 4 and 8. The last row reports the p-value of a test on whether the coefficient of Birthregion (same ADM2) equals the coefficient of Birthregion (other in ADM1). Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

coded as the "first spouse."[55] As can be seen from columns 5 to 8 in Table 3, we obtain similar results for spouses as for the political leaders themselves, with significant coefficients for total official financing flows and—in the PPML model—ODA-like flows. We interpret this similarity as further evidence that political leaders direct Chinese aid to their and their spouses' birth regions.[56]

4.2. The role of elections

The results so far show that African leaders are successful in ensuring that their birth regions receive more Chinese aid than other regions. This finding is consistent with the clientelistic logic of political survival in Africa discussed in Section 2. This logic implies that the bias towards the political leaders' birth regions should become more pronounced in the run up to an executive election. We therefore use various measures of electoral pressure from the Database of Political Institutions by Beck et al. (2001) and add interaction terms between $Birthregion_{ict}$ and these variables to Equation (2).[57] Table 4 presents our OLS estimates. The electoral variable used in column 1 is a binary variable indicating whether a national executive election takes places in the next year. Most of the countries in our sample have electoral systems that focus on a strong president, so that we expect the leader to be particularly interested in providing particularistic rewards in the form of Chinese aid projects prior to executive elections.[58] The regression results show that the amount of Chinese aid indeed increases significantly and substantially prior to executive elections. In column 2 we use a binary variable for national legislative (rather than executive) elections. The coefficient of the interaction is considerably lower and not statistically significant at conventional levels. In columns 3 and 4, we use indices measuring the electoral competitiveness of executive and legislative elections, respectively. These indices are based on both electoral rules and electoral outcomes. For the ease of interpretation, we rescale these indices such that they range from 0 to 6, with higher values indicating greater competitiveness. Column 3 shows that more Chinese aid is channeled to the leaders' birth regions, at the 1% level of significance, if executive

[55] Typically, this spouse is the person who the leader is most often seen with and–in the case of a male leader–this person is called the "first lady." The correlation between the binary variables for the political leader's ADM1 birth region and their spouse's ADM1 birth region is 0.186.

[56] There could be different motives for why political leaders aim at attracting Chinese aid to their spouses' birth regions. First, they may extend their clientelistic policies aimed at political survival onto these regions. Second, they may be motivated by parochial altruism. Of course, the two motives are not mutually exclusive.

[57] The country-year-fixed effects in Equation (2) absorb possible direct effects of these electoral variables.

[58] As can be seen from Table 1, 16.2% of region-year pairs face elections in the upcoming year.

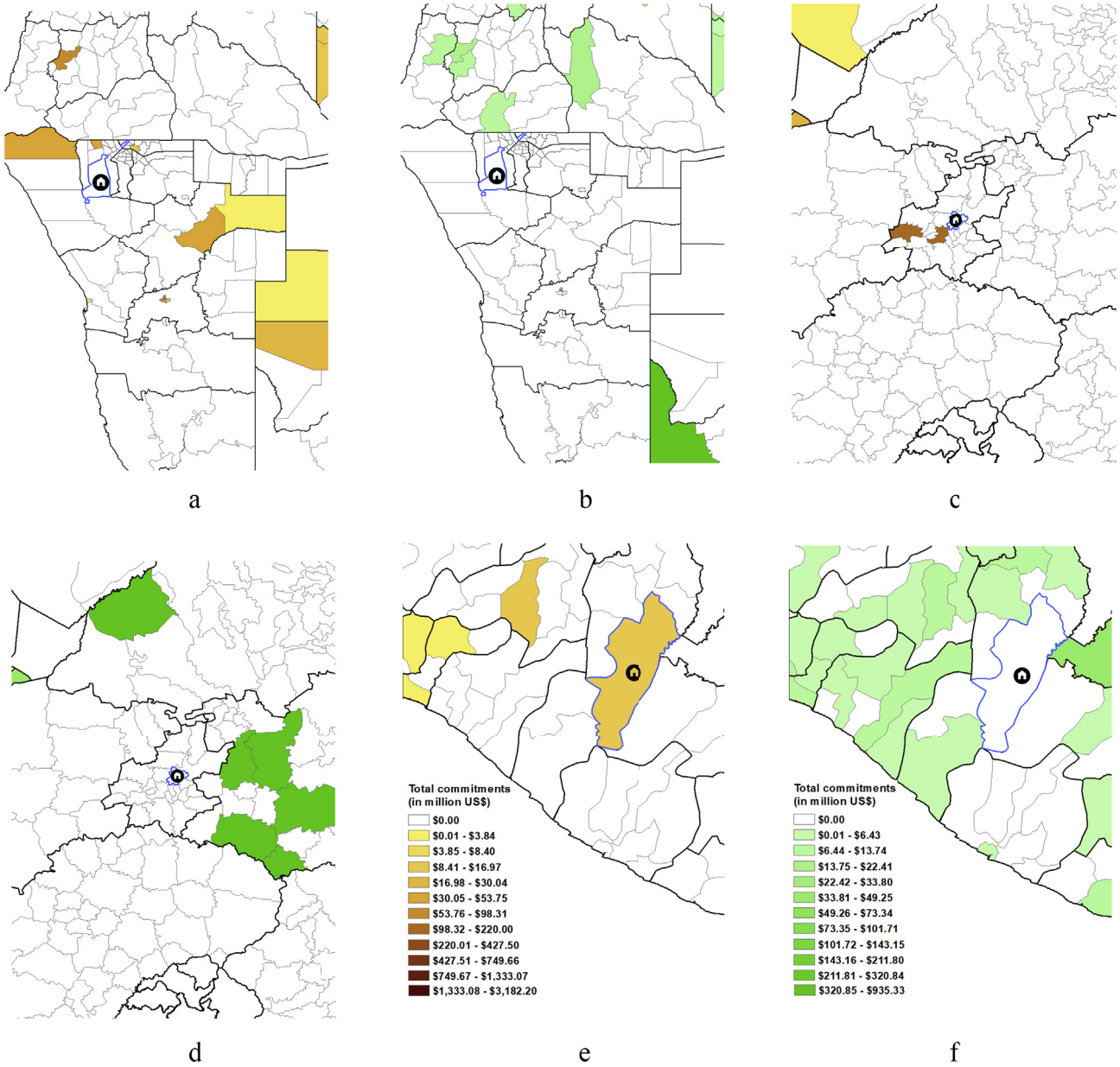

Fig. 3. Maps of Chinese and World Bank aid allocation and leader birth regions.
Notes: Comparison of the subnational allocation of total (2000-2011) Chinese aid (upper maps) and World Bank aid (lower map) from the following three countries: Namibia (left), South Africa (center), and Liberia (right). The light grey lines indicate ADM2 boundaries while the bold, black lines indicate ADM1 boundaries. The house symbol indicate the political leaders' ADM2 birth regions. Darker colors indicate higher total aid commitments to the respective ADM2 region.

elections are more competitive.[59] In column 4, we find no comparable results for the competitiveness of legislative elections.

We would ideally like to also test the effect of regional elections. In addition to channeling Chinese aid to areas that advance their own electoral goals, one might expect national political leaders to use aid to support political allies in their home regions. We are however not aware of data on the timing of sub-national elections for a large sample of African countries and years. We therefore test whether the *existence* of elections at the ADM1 level changes the amount of Chinese aid that is committed to the leaders' birth regions. To do so, we interact $Birthregion_{ict}$ with a binary indicator for the existence of provincial elections. Using the "state" variable from Beck et al. (2001), we construct a measure that takes a value of one if either the executive or legislature are elected at the ADM1 level, and zero otherwise. As can be seen in column 5, there is indeed a differential birth-region effect between those country-years where provincial elections exist and those where provincial elections do not exist.

In summary, the evidence presented in Table 4 suggests that the electoral motivations of political leaders can explain why their home regions disproportionately benefit from the receipt of Chinese aid. This finding is consistent with the clientelistic logic of political survival in Africa.

4.3. Birth provinces versus birth districts

We also argued in Section 2 that African leaders might have incentives to broadly distribute aid across different districts within their home province rather than narrowly targeting just their home district.

[59] We find no evidence that the birth region-effect of upcoming elections becomes stronger at times when competitiveness is higher.

Table 6
Birth regions and World Bank aid, ADM1 & ADM2, 2000–11.

	(1) ADM1 Total OLS	(2) ADM1 Total PPML	(3) ADM1 IDA OLS	(4) ADM1 IDA PPML	(5) ADM2 Total OLS	(6) ADM2 Total PPML	(7) ADM2 IDA OLS	(8) ADM2 IDA PPML
Birthregion	−0.127	−0.209	−0.061	−0.182	0.114	−0.005	0.169	0.129
	(0.181)	(0.156)	(0.176)	(0.157)	(0.448)	(0.314)	(0.444)	(0.317)
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	No	No	No	No
ADM2 FE	No	No	No	No	Yes	Yes	Yes	Yes
R-squared	0.41		0.42		0.24		0.25	
Observations	8508	8508	8508	8508	70020	70020	70020	70020
Regions	709	709	709	709	5835	5835	5835	5835

Notes: The dependent variable is World Bank total flows (in logs) in columns 1 and 5, World Bank total flows (in levels) in columns 2 and 6, World Bank IDA flows (in logs) in columns 3 and 7, and World Bank IDA flows (in levels) in columns 4 and 8. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table 5 turns to ADM2 regions such as districts rather than ADM1 regions such as provinces, and focuses on the results from our regressions of Equation (2), which now include ADM2 region-fixed effects. In this table, $Birthregion_{ict}$ is set equal to one only for the ADM2 regions where the political leaders were born. Columns 1 and 2 focus on total amounts, estimated with OLS and PPML respectively; columns 3 and 4 turn to ODA-like flows instead. As can be seen, the results depend substantially on how we estimate regressions. While the coefficient of $Birthregion_{ict}$ is always positive, it is not significant at conventional levels in OLS regressions. It is significant at the 1% level when we use PPML instead. Compared to the ADM1 level of analysis, the number of zero observations is much larger here, so adding a value of one before taking logs and estimating with OLS becomes more consequential. We take these results as tentative evidence that the effect of the political leaders' birth regions on Chinese aid applies at the ADM2 level too.

Columns 5–8 further address the question of targeting and include a binary indicator that is set to one for all ADM2 regions nested within a political leader's ADM1 birth region, but zero for the ADM2 region in which the leader was born. This indicator has a positive and statistically significant effect in two of these four specifications. The comparison of the two coefficients within specifications (i.e., within each regression of columns 5–8) also merits attention. In each specification, the point estimates suggest that the effect tends to be stronger in the political leader's birth district than in the other districts within the same province. However, since these differences are not statistically significant at conventional levels (with a p-value of 0.106 in column 6 and higher p-values in other columns), we conclude that there is no strong evidence that Chinese aid benefits the birth districts (ADM2 birth regions) of political leaders more than other districts within the birth provinces (ADM1 birth regions) of political leaders.

The maps in the upper panel of Fig. 3 provide graphical illustrations of this empirical pattern. Maps a, c and e focus on areas in Namibia, South Africa and Liberia, respectively. In Namibia and South Africa, some of the ADM2 regions nested within the political leader's ADM1 birth region received Chinese aid, while the actual ADM2 region where the leader was born did not receive any Chinese aid. In contrast, the leader's ADM2 birth region in Liberia was the only ADM2 region in the corresponding ADM1 region that received Chinese aid.

Overall, our results suggest that Chinese aid is broadly distributed across different districts within the African leaders' home provinces. The clientelistic logic of political survival in Africa suggests that the leaders may do so in order to maximize political support (and voter turnout) in these stronghold areas.

4.4. Comparison with World Bank aid

Finally, we turn to the allocation of World Bank funding to test whether financial support from a donor with strict project appraisal policies and procedures can be politically manipulated to the same extent as financial support from China, with its strong emphasis on political non-interference and its lack of such procedures.

In Table 6 we again focus on total official financing and ODA-like flows. Total flows are commitments made through either the IBRD or IDA windows of the World Bank; IDA flows include only grants and highly concessional loans and thus mirror our ODA-like regressions for China in previous tables. Columns 1 to 4 show results for ADM1 regions,

Table 7
Birth regions, elections and World Bank aid, ADM1, 2000–11.

	(1) Total OLS	(2) Total OLS	(3) Total OLS	(4) Total OLS	(5) Total OLS
Birthregion	−0.118	−0.109	−0.319	−0.249	−0.312
	(0.188)	(0.191)	(0.253)	(0.278)	(0.311)
* Executive election next year	−0.070				
	(0.263)				
* Legislative election next year		−0.091			
		(0.226)			
* Executive electoral competitiveness			0.039		
			(0.054)		
* Legislative electoral competitiveness				0.023	
				(0.052)	
* Provincial elections					0.588
					(0.469)
Country-year FE	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes
R-squared	0.41	0.41	0.41	0.41	0.40
Observations	8499	8508	8508	8508	6169
Regions	709	709	709	709	517

Notes: The dependent variable is World Bank total flows (in logs). Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

and columns 5 to 8 for ADM2 regions.[60] We find no evidence that ADM1 or ADM2 regions get more World Bank funding in years when they are the current political leader's birth region than in other years.

The maps in Fig. 3 illustrate how the subnational allocation of Chinese aid (upper panel) and World Bank aid (lower panel) differs in three countries: Namibia, South Africa, and Liberia. In Namibia and South Africa, the ADM1 regions that contain the leaders' ADM2 birth regions received Chinese aid (maps a and c), but no World Bank aid (maps b and d). In Liberia, the leader's ADM2 birth region directly benefited from Chinese aid, even though Chinese aid was relatively sparsely allocated across ADM2 regions in the southeastern part of the country. By contrast, World Bank aid was more broadly distributed across the ADM2 regions in the area, and the leader's ADM2 birth region did not receive any World Bank aid.

In Table 7 we focus on ADM1 regions and include interaction terms between $Birthregion_{ict}$ and variables that measure the timing and competitiveness of national elections or the existence of regional elections. None of these interaction terms are statistically significant. Hence, it seems that African leaders cannot use funding from the World Bank for patronage politics in the same way they can use Chinese funding.[61]

5. Conclusions

China often seeks to differentiate itself from Western donors by arguing that its aid is demand-driven and thus more responsive to the needs of recipient countries. Others credit China for providing African governments with more "ownership" and "policy space" (e.g., Bräutigam, 2011; Kragelund, 2011; Reisen and Stijns, 2011). However, it is unclear who Beijing expects to benefit from the system it has put in place for selecting and siting aid projects. "Recipient need" could refer to the needs of the general population or to governing elites and their clients, but the interests of these groups are not necessarily aligned.

In order to analyze Chinese aid allocation across subnational localities, we introduce a new georeferenced dataset on officially-financed Chinese development projects across Africa over the 2000–2012 period. Our results highlight the potential development risks of an "on-demand" approach: controlling for indicators of recipient need and various fixed effects, more Chinese development finance is located in the birth regions of African leaders. When granted access to a highly discretionary source of aid, African leaders play favorites by allocating substantial additional resources to their home regions. This finding is robust when we restrict aid to those flows that comply with OECD definitions of official development assistance or use a binary outcome variable rather than aid amounts.

We also recover evidence that this birth-region effect is significantly larger in the years immediately preceding executive elections and when competitiveness of executive elections is high. This empirical pattern is consistent with the notion that African leaders who face electoral competition are particularly keen on using Chinese aid to deliver clientelistic rewards to their core constituents.

In the working-paper version of this article (Dreher et al., 2016) and follow-up work (Dreher et al., 2019), we provide suggestive evidence that Chinese "aid" does improve local economic development outcomes—inside and outside of the birth regions of political leaders. In this regard, our results call attention to the fact that Chinese funding will have longer-term, distributional effects on the ground that are not yet fully appreciated. Chinese-funded projects seem to increase economic growth at subnational scales, but these benefits accrue disproportionately to the birth regions of political leaders, which are already wealthier than other regions (Hodler and Raschky, 2014a). It is beyond the scope of this study to examine the consequences of spatial inequalities that are reinforced by China. However, the fact that Chinese development projects target politically privileged regions necessarily means that politically marginalized regions benefit less from such projects. Future research should therefore assess whether and to what extent Chinese development finance *indirectly* increases the probability of social unrest, state repression, or violent conflict.[62]

Finally, our paper compares the subnational allocation of Chinese and World Bank development finance. The World Bank is a useful benchmark institution because, during our period of study, it used cost-benefit analysis to vet prospective projects and minimize the risk of political capture. China did not have a comparable institutional safeguard in place during our period of study. Therefore, we use subnational geocoded Chinese project data and World Bank project data to explore whether donors with widely divergent project appraisal systems are differentially vulnerable to political capture. We do not find any evidence that World Bank projects favor the home regions of political leaders. Nor do we find evidence that World Bank projects favor the home regions of political leaders in the run up to (competitive) executive elections. This empirical pattern is consistent with the argument that, when governments propose projects to the World Bank that are (implicitly) based upon political site selection criteria, there is a higher probability of detection and a lower probability of project approval. However, additional research—covering a wider set of donors with more diverse project appraisal systems—will be necessary to pinpoint the specific rules and procedures on the donor side that prevent resources from being politically misused.

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[60] We focus on regressions including region-fixed effects to reduce clutter.

[61] These results remain unchanged if we add $Prebirth_{ict}$ and $Postbirth_{ict}$ to the regressions.

[62] In a recent paper, Gehring et al. (2018) provide some evidence that Chinese aid *indirectly* increases the probability of non-lethal government repression but they find no evidence of a significant increase of demonstrations, strikes, or riots.

Appendix A. Leader data

Table A.1
African leaders in the sample.

Country	Leader name	Entered office	Left office	ADM1 region	ADM2 region	Ethnicity
Angola	Jose Eduardo dos Santos	10.09.1979	ongoing	Luanda	Maianga	Kimbundu
Benin	Mathieu Kerekou	04.04.1996	06.04.2006	Atakora	Toffo	Somba
Benin	Thomas Yayi Boni	06.04.2006	ongoing	Borgou	Tchaourou	Yoruba
Botswana	Festus Mogae	31.03.1998	01.04.2008	Central	Serowe	Bechuanas
Burkina Faso	Blaise Compaore	15.10.1987	ongoing	Oubritenga	Ziniare	Mossi
Burundi	Pierre Buyoya	25.07.1996	30.04.2003	Bururi	Rutovu	Tutsi
Burundi	Pierre Nkurunziza	26.08.2006	ongoing	Bujumbura Mairie	Roherero	Hutu
Burundi	Domitien Ndayizeye	30.04.2003	26.08.2006	Kayanza	Kayanza	Hutu
Côte d'Ivoire	Alassane Ouattara	11.04.2011	ongoing	N'zi-Comoé	Dimbokro	Dioula
Côte d'Ivoire	Laurent Gbagbo	26.10.2000	11.04.2011	Fromager	Gagnoa	Krou (Bete)
Cameroon	Paul Biya	06.11.1982	ongoing	Sud	Dja-et-Lobo	Beti
Cape Verde	Jose Maria Neves	01.02.2001	ongoing	Santa Catarina		Portugese
Cape Verde	Carlos Veiga	04.04.1991	29.07.2000	São Vicente		Portugese
Central African Republic	Ange-Felix Patasse	22.10.1993	15.03.2003	Ouham-Pendé	Paoua	Sara-Kaba
Chad	Idriss Deby	02.12.1990	ongoing	Bet	Ennedi Ouest	Zaghawa
Comoros	Ikililou Dhoinine	26.02.2011	ongoing	Nzwani		Swahili
Comoros	Azali Assoumani	27.05.2002	26.05.2006	Njazídja		Swahili
Comoros	Ahmed Abdallah Mohamed Sambi	27.05.2006	26.05.2011	Mwali		Hadrami
Comoros	Azali Assoumani	30.04.1999	21.01.2002	Njazídja		Swahili
Democratic Republic of Congo	Laurent-Désiré Kabila	16.05.1997	16.01.2001	Katanga	Tanganika	Luba
Democratic Republic of Congo	Joseph Kabila	17.01.2001	ongoing	Katanga	Haut-Lomami	Luba
Egypt	Mohammed Hussein Tantawi	11.02.2011	ongoing	Al Qahirah		Nubian
Egypt	Hosni Mubarak	14.10.1981	11.02.2011	Al Minufiyah		Arab
Equatorial Guinea	Teodoro Obiang Nguema Mbasogo	03.08.1979	ongoing	Wele-Nzás		Fang
Eritrea	Isaias Afewerki	24.05.1993	ongoing	Anseba	Asmara City	Biher-Tigrinya
Ethiopia	Meles Zenawi	27.05.1991	ongoing	Tigray	Central Tigray	Tigray-Tigrinya
Gabon	Omar Bongo Ondimba	28.11.1967	08.06.2009	Haut-Ogooué	Lé coni-Djoué	Teke
Gambia	Yahya Jammeh	22.07.1994	ongoing	Western	Brikama	Jola
Ghana	John Evans Atta-Mills	07.01.2009	ongoing	Western	Wassa West	Fanti
Ghana	John Agyekum Kufuor	08.01.2001	07.01.2009	Ashanti	Kumasi	Asante
Ghana	Jerry Rawlings	31.12.1981	07.01.2001	Greater Accra	Accra	Ewe
Guinea	Lansana Conté	03.04.1984	22.12.2008	Kindia	Coyah	Susu
Guinea	Sekouba Konate	05.12.2009	21.12.2010	Conarky	Conarky	Mandinka
Guinea	Alpha Conde	21.12.2010	ongoing	Boké	Boké	Mandinka
Guinea	Moussa Dadis Camara	23.12.2008	05.12.2009	Nzérékoré	Nzérékoré	Kpelle
Guinea-Bissau	Joao Bernardo Vierira	01.20.2005	02.03.2009	Bissau	Bissau	Papel
Guinea-Bissau	Raimundo Pereira	02.03.2009	08.09.2009	Oio	Mansaba	
Guinea-Bissau	Malam Bacai Sanha	08.09.2009	ongoing	Oio	Mansaba	Mandinka
Guinea-Bissau	Kumba Iala	18.02.2000	14.09.2003	Cacheu	Bula	Balante
Guinea-Bissau	Henrique Pereira Rosa	28.09.2003	01.10.2005	Bafatá	Bafatá	Balante
Kenya	Daniel arap Moi	22.08.1978	30.12.2002	Rift Valley	Baringo	Kalenjin
Kenya	Mwai Kibaki	31.12.2002	ongoing	Central	Nyeri	Kikuyu
Lesotho	Pakalithal Mosisili	29.05.1998	ongoing	Mohale's Hoek		Basotho
Liberia	Charles Taylor	02.08.1997	11.08.2003	Bomi	Klay	Gola
Liberia	Gyude Bryant	14.10.2003	16.01.2006	Montserrado	Greater Monrovia	Grebo
Liberia	Ellen Johnson Sirleaf	16.01.2006	ongoing	Montserrado	Greater Monrovia	Gola
Libya	Muammar al-Gaddafi	01.09.1969	23.08.2011	Surt		Qadhadhfa
Madagascar	Marc Ravalomanana	06.07.2002	17.03.2009	Antananarivo	Analamanga	Merina
Madagascar	Didier Ratsiraka	09.02.1997	06.07.2002	Toamasina	Atsinanana	Malagasy
Madagascar	Andry Rajoelina	17.03.2009	ongoing	Antananarivo	Analamanga	Merina
Malawi	Bakili Muluzi	21.05.1994	24.05.2004	Machinga	SC Chiwalo	Yao
Malawi	Bingu wa Mutharika	24.05.2004	ongoing	Thyolo	TA Nchilamwela	Lhomwe
Mali	Alpha Oumar Konare	08.06.1992	08.06.2002	Kayes	Kayes	Bambara/Fula
Mali	Amadou Toumani Toure	08.06.2002	ongoing	Mopti	Mopti	Mandingo
Mauritania	Ely Ould Mohamed Vall	03.08.2005	19.04.2007	Nouakchott	Nouakchott	Bidan
Mauritania	Mohammed Ould Abdelaziz	05.08.2009	ongoing	Inchiri	Akjoujt	Bidan
Mauritania	Maaouya Ould Taya	12.12.1984	03.08.2005	Adrar	Atar	Bidan
Mauritania	Ba Mamadou Mbaré	15.04.2009	05.08.2009	Gorgol	Maghama	Fula
Mauritania	Sidi Ould Cheikh Abdellahi	19.04.2007	06.08.2008	Brakna	Aleg	Bidan
Mauritius	Navinchandra Ramgoolam	05.07.2005	ongoing	Port Louis		Hindu
Mauritius	Anerood Jugnauth	18.09.2000	30.09.2003	Plaines Wilhems		Hindu
Mauritius	Navinchandra Ramgoolam	22.12.1995	17.09.2000	Port Louis		Hindu
Mauritius	Paul Berenger	30.09.2003	05.07.2005	Moka		French
Morocco	Mohammed VI of Morocco	23.07.1999	ongoing	Rabat - Salé - Zemmour - Zaer	Rabat	Arabs
Mozambique	Armando Emilio Guebuza	02.02.2005	ongoing	Nampula	Murrupula	Tsonga
Mozambique	Joaquim Alberto Chissano	06.11.1986	02.02.2005	Gaza	Chibuto	Tsonga

(*continued on next page*)

Table A.1 *(continued)*

Country	Leader name	Entered office	Left office	ADM1 region	ADM2 region	Ethnicity
Namibia	Sam Daniel Nujoma	21.03.1990	21.03.2005	Omusati	Okahao	Ovambo
Namibia	Hifikepunye Pohamba	21.03.2005	ongoing	Ohangwena	Engela	Ovambo
Niger	Mahamadou Issoufou	07.04.2011	ongoing	Tahoua	Illéla	Hausa
Niger	Salou Djibo	08.02.2010	07.04.2011	Tillabéry	Kollo	Djerma
Niger	Mamadou Tandja	22.12.1999	08.02.2010	Diffa	Ma'iné-Soroa	Kanuri
Nigeria	Goodluck Jonathan	09.02.2010	ongoing	Bayelsa	Ogbia	Ijaw
Nigeria	Olusegun Obasanjo	29.05.1999	29.05.2007	Ogun	Abeokuta South	Yoruba
Nigeria	Umaru Musa Yar'Adua	29.05.2007	09.02.2010	Katsina	Katsina (K)	Fulani
Republic of the Congo	Denis Sassou Nguesso	15.10.1997	ongoing	Cuvette	Owando	Mbochi
Rwanda	Paul Kagame	19.07.1994	ongoing	Gitarama	Tambwe	Tutsi
Senegal	Abdoulaye Wade	02.04.2000	ongoing	Louga	Kébémer	Wolof
Sierra Leone	Ahmad Tejan Kabbah	10.03.1998	17.09.2007	Eastern	Kailahun	Mende
Sierra Leone	Ernest Bai Koroma	17.09.2007	ongoing	Northern	Bombali	Temne
South Africa	Jacob Zuma	09.05.2009	ongoing	KwaZulu-Natal	Nkandla	Zulu
South Africa	Thabo Mbeki	16.06.1999	24.09.2008	Eastern Cape	Idutywa	Xhosa
Sudan	Umar Hassan Ahmad al-Bashir	30.06.1989	ongoing	Northern	River Nile	Ja'alin
Swaziland	Mswati III of Swaziland	25.04.1986	ongoing	Manzini		Swazi
Tanzania	Jakaya Kikwete	21.12.2005	ongoing	Pwani	Bagamoyo	Kwere
Tanzania	Benjamin Mkapa	23.11.1995	21.12.2005	Mtwara	Masasi	Ngoni
Togo	Faure Gnassingbe	04.05.2005	ongoing	Maritime	Lacs	Kabre
Togo	Gnassingbe Eyadema	14.04.1967	05.02.2005	Kara	Kozah	Kabre/Kabiye
Tunisia	Zine El Abidine Ben Ali	07.11.1987	14.01.2011	Sousse	Sousse Médina	Tunisia Arabs
Tunisia	Fouad Mebazaa	15.01.2011	13.12.2011	Tunis	Bab Souika	Tunisia Arabs
Uganda	Yoweri Museveni	26.01.1986	ongoing	Ntungamo	Ruhaama	Banyankole
Zambia	Frederick Chiluba	02.11.1991	02.01.2002	Copperbelt	Kitwe	Bemba
Zambia	Levy Mwanawasa	03.01.2002	19.08.2008	Copperbelt	Mufulira	Lenje
Zambia	Michael Sata	23.09.2011	ongoing	Northern	Mpika	Bemba
Zimbabwe	Robert Mugabe	04.03.1980	ongoing	Harare	Harare	Shona

Appendix B. Additional maps

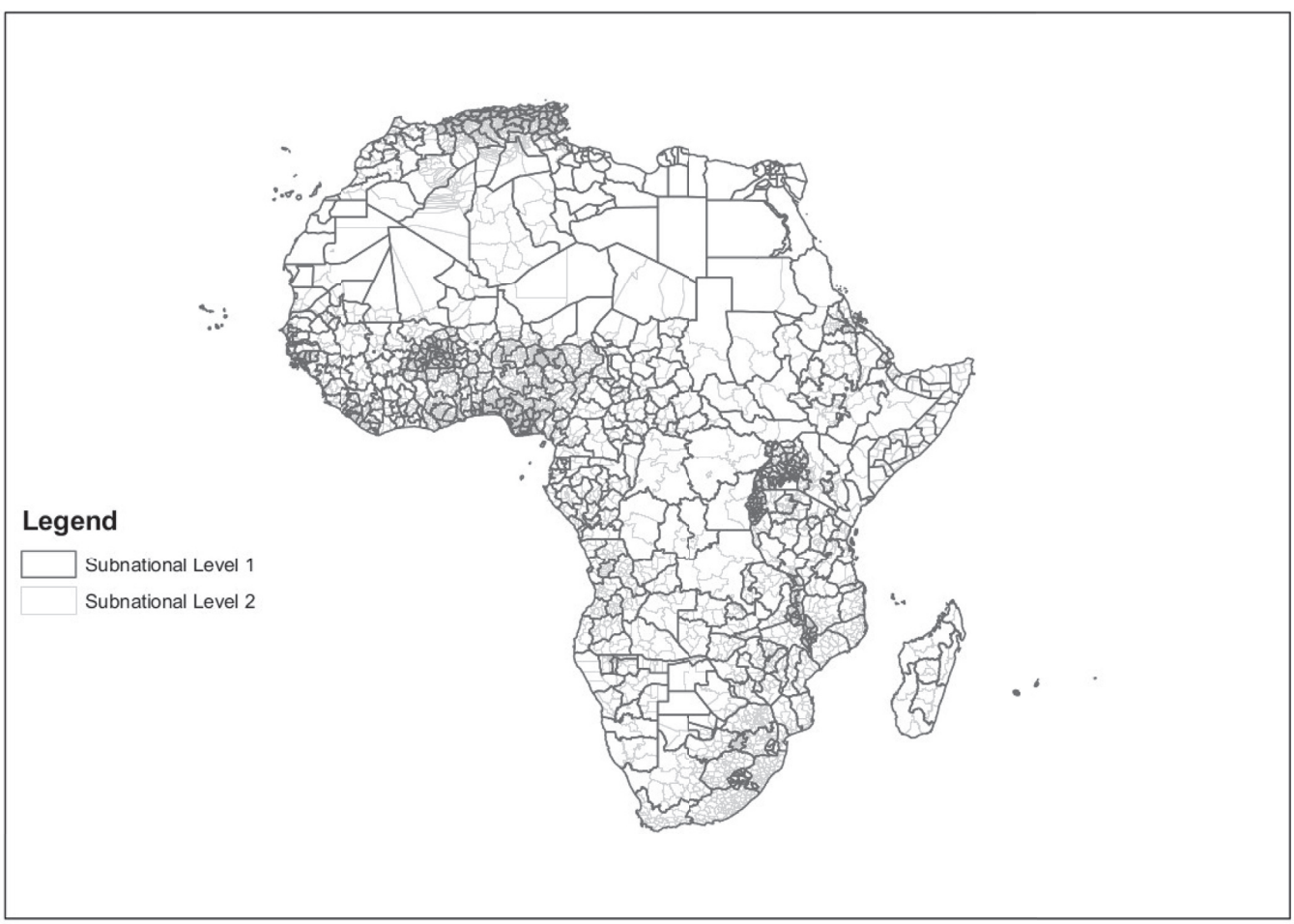

Fig. B.1 Subnational boundaries.

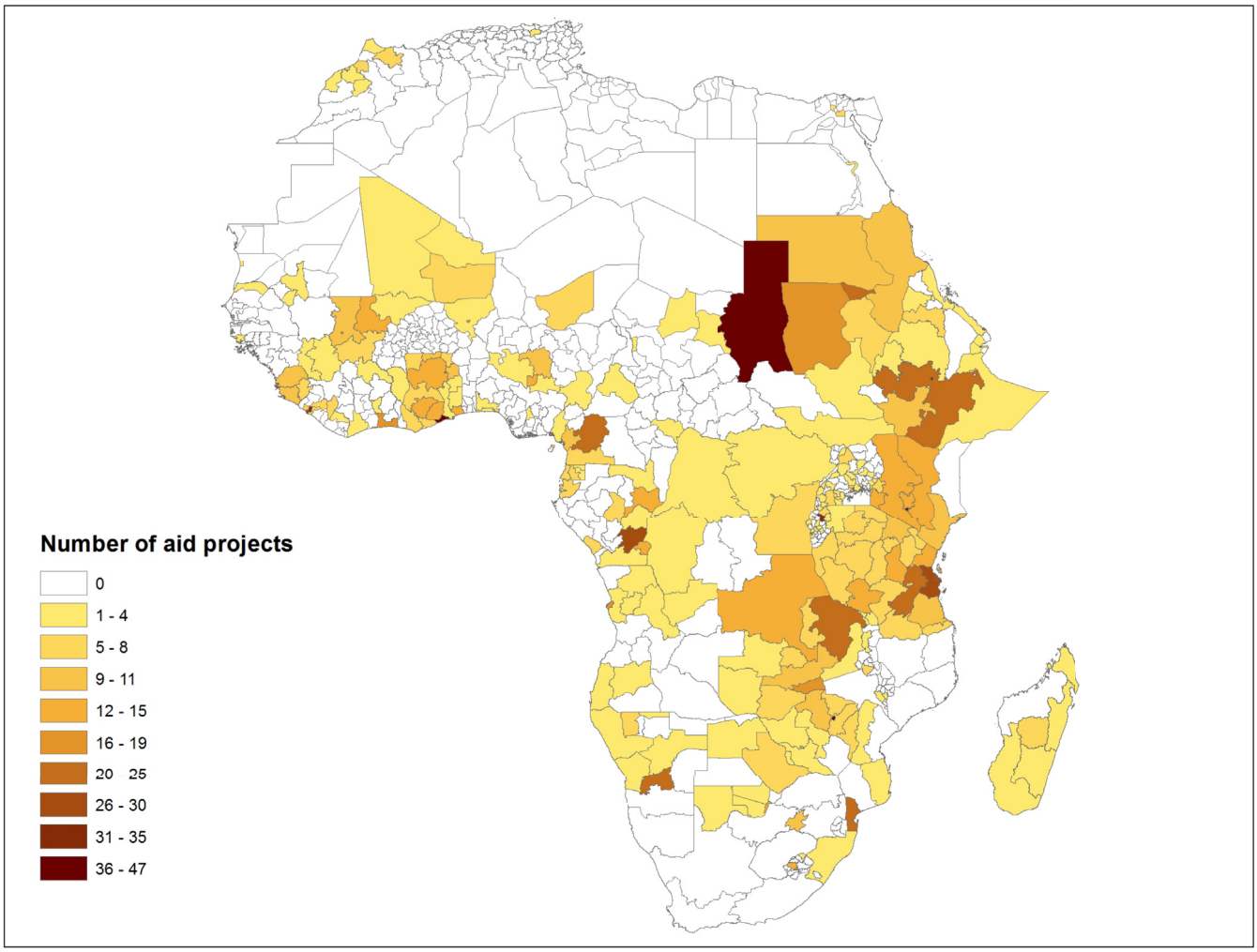

Fig. B.2 China's aid projects per subnational unit in Africa (total number of projects, 2000–11, ADM1).

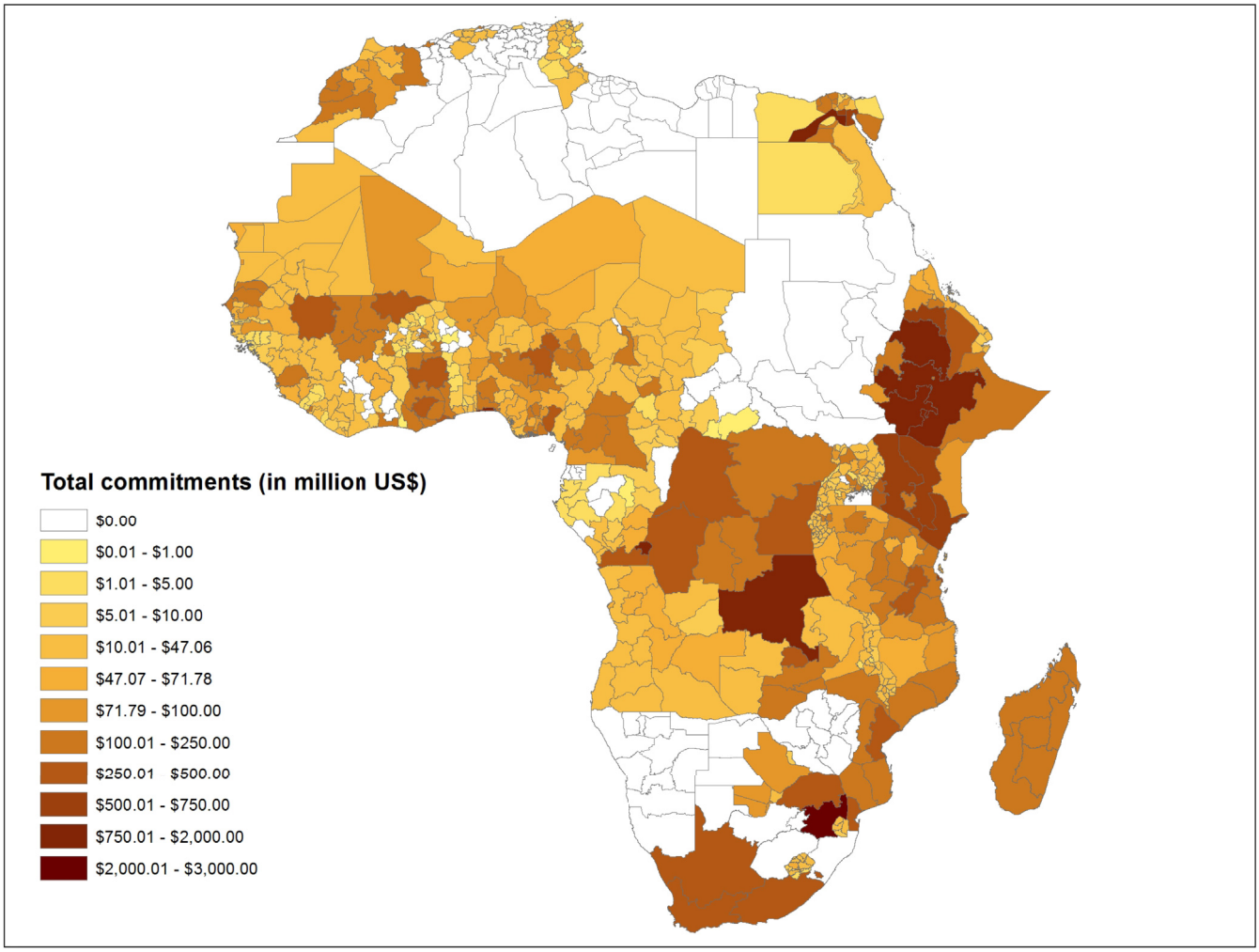

Fig. B.3 Value of World Bank aid projects per subnational unit in Africa (total value in million 2009 US$, 2000–11, ADM1).

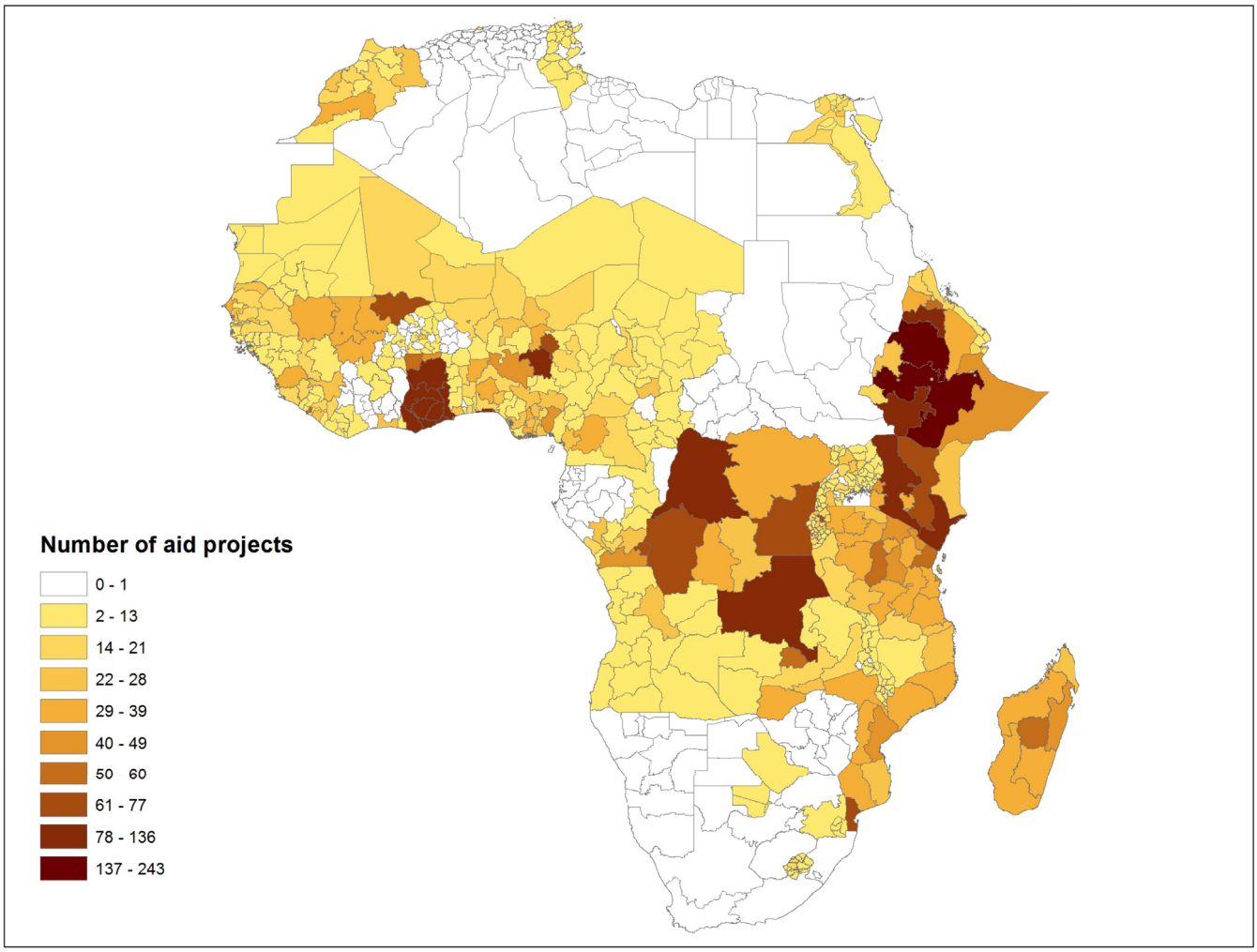

Fig. B.4 World Bank aid projects per subnational unit in Africa (total number of projects, 2000–11, ADM1).

Appendix C. Partial leverage plots

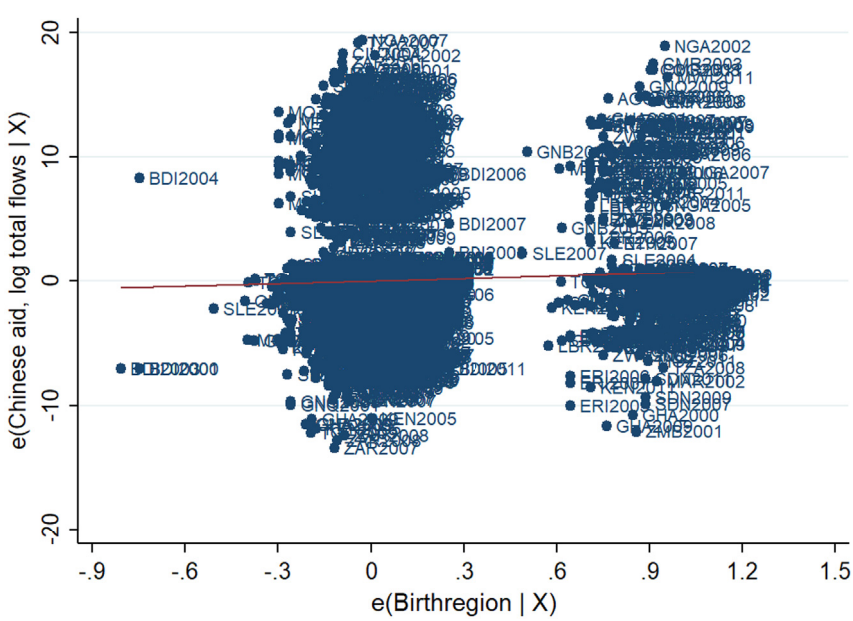

Fig. C.1 Table 2, column 1.

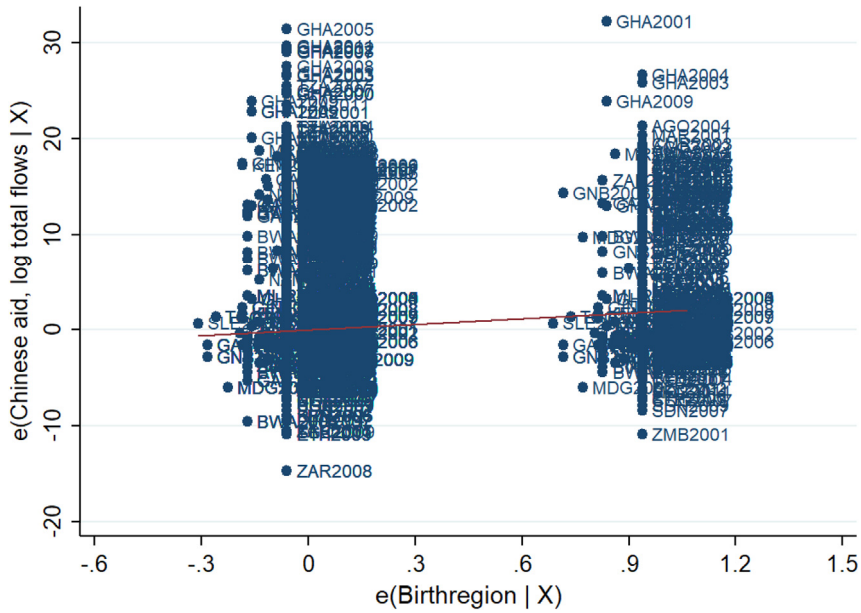

Fig. C.2 Table 2, column 5.

Appendix D. Projects without locational details

Table D.1
Project location characteristics by precision of locational information.

	precise	imprecise
Number of project locations	1898	1071
Mean loan size	236.00	70.50
Median loan size	35.80	7.26
Share of locations without data on loan size	26.40	40.00
Share of locations not completed or in implementation	17.65	39.31
Share of loans	40.09	22.04
Share of ODA	51.58	70.31

Notes: The table compares project locations that can be mapped to an ADM1 region with locations where this is not possible. Specifically, "precise" project locations are those with AidData precision code smaller than 5. "imprecise" project locations are those larger than 4, which for example includes locations that can only be related to estimated coordinates, projects that are country-wide or committed to larger geographic areas, or locations that are unclear.

Appendix E. Additional regressions

Table E.1
Birth regions and China's aid with alternative treatment of missing financial values, OLS, ADM1 & ADM2, 2000–11.

	(1) ADM1 Total	(2) ADM2 Total	(3) ADM1 ODA	(4) ADM2 ODA
Birthregion	0.993**	0.281	0.531**	0.265
	(0.414)	(0.296)	(0.235)	(0.251)
Country-year FE	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes
R-squared	0.28	0.10	0.27	0.07
Observations	8508	70020	8508	70020
Regions	709	5835	709	5835

Notes: The dependent variable is Chinese total flows (in logs) in columns 1 and 2 and Chinese ODA-like flows (in logs) in columns 3 and 4. Here we set the value of the flows to zero if we know there are Chinese projects in a particular ADM1 or ADM2 region but have no information about any of their monetary amounts (while we set these values to missing in Tables 2–5). Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.2
Birth regions and China's aid, linear probability model (OLS), ADM1, 2000–11.

	(1) Total dummy	(2) Total dummy
Birthregion	0.032*	0.036*
	(0.018)	(0.021)
Light2000 (in logs)	0.021***	
	(0.007)	
Population2000 (in logs)	0.009	
	(0.006)	
Capitalregion	0.269***	
	(0.031)	
Mines (in logs)	0.008*	
	(0.005)	
Oilgas	−0.000	
	(0.009)	
Area (in logs)	0.018***	
	(0.006)	
Ports	−0.007	
	(0.013)	
Roaddensity	0.104	
	(0.068)	
Country-year FE	Yes	Yes
ADM1 FE	No	Yes
R-squared	0.39	0.28
Observations	8508	8508
Regions	709	709

Notes: The dependent variable is a binary variable that takes a value of one if one or more Chinese aid projects have been committed to an ADM1 region in a given year, and zero otherwise. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.3
Robustness to alternative clustering of the standard errors, OLS, ADM1, 2000–11.

	(1) Total	(2) Total	(3) Total	(4) Total	(5) Total	(6) Total
Birthregion	1.082**	1.082***	1.082**	1.082**	1.082**	1.082**
	(0.423)	(0.369)	(0.458)	(0.431)	(0.465)	(0.441)
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster 1	Country	Leader	ADM1	Country	ADM1	ADM1
Cluster 2				Year	Year	Country-year
R-squared	0.30	0.30	0.30	0.30	0.30	0.30
Observations	8327	8327	8327	8327	8327	8327
Regions	709	709	709	709	709	709

Notes: The dependent variable is Chinese total flows (in logs). Standard errors (in parentheses) clustered at the level indicated in the rows "Cluster 1" and "Cluster 2." Columns 4–6 use the Stata command "xtivreg2" that allows for two-way clustering. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.4
Birth regions and average Chinese project size, OLS, ADM1 & ADM2, 2000–11.

	(1) ADM1 Project size	(2) ADM2 Project size
Birthregion	0.516	0.381***
	(1.007)	(0.127)
Country-year FE	Yes	Yes
ADM1 FE	Yes	No
ADM2 FE	No	Yes
R-squared	0.77	0.83
Observations	586	671
Regions	276	428

Notes: The dependent variable is average project size, i.e., Chinese total flows divided by the number of projects in a given region-year. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.5
Birth regions and heterogeneous effects of China's aid, OLS, ADM1, 2000–11.

	(1) Total	(2) Total	(3) Total	(4) Total	(5) Total	(6) Total	(7) Total	(8) Total	(9) Total	(10) Total
Birthregion interacted with	Tenure	Polity	Bureaucracy	Corruption	School	Oilgas	Mines	UN agree.	UN dist.	Light
Birthregion	1.437***	−0.467	2.301**	0.375	−0.040	1.244**	0.991	6.138	0.768	2.113**
	(0.510)	(1.694)	(0.853)	(1.638)	(0.920)	(0.518)	(0.932)	(10.876)	(0.665)	(0.805)
Interaction	−0.060	2.350	−0.822	0.427	0.208	−0.760	0.031	−5.246	1.021	0.559**
	(0.043)	(2.338)	(0.677)	(0.734)	(0.249)	(0.763)	(0.369)	(10.882)	(1.972)	(0.258)
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.30	0.30	0.31	0.31	0.31	0.30	0.30	0.30	0.30	0.30
Observations	8327	8303	6937	6937	6239	8327	8327	8187	8187	8327
Regions	709	709	591	591	531	709	709	709	709	709

Notes: The dependent variable is Chinese total flows (in logs). Each regression contains an interaction term between Birthregion and the variable indicated in the respective column. Column 10 further includes lagged light (in levels). Standard errors (in parentheses) clustered at the country level. *** (**): significant at the 1% (5%) level.
Definitions and sources of interacted variables: *Tenure:* Number of years the leader is in office (with zero indicating the year of entry)–Goemans et al.'s (2009) Archigos dataset, updated in Dreher and Yu (2016). *Polity*: Measure of regime authority on a 21-point scale ranging from −10 (hereditary monarchy) to +10 (consolidated democracy)–Polity IV Project, Political Regime Characteristics and Transitions, 1800–2013, http://www.systemicpeace.org/inscrdata.html. *Bureaucracy.*: Quality of the bureaucracy–International Country Risk Guide (ICRG), http://www.prsgroup.com/about-us/our-two-methodologies/icrg. *Corruption*: Corruption within the political system–International Country Risk Guide (ICRG), http://www.prsgroup.com/about-us/our-two-methodologies/icrg. *School*: Years of schooling for total population aged 15 and over–Barro and Lee (2010). *Oilgas*, *Mines*, and *Lagged light*: See main text. *UN agree.*: Voting similarity index (0–1) equal to (total of votes where both states agree)/(total of joint votes), computed using two-category vote data (1 = "yes" or approval for an issue; 2 = "no" or disapproval for an issue)–Bailey et al. (2017). *UN dist.*: Distance between a pair of states' foreign policy preferences based on UNGA voting–Bailey et al. (2017).

Table E.6
Differential effects across sectors, OLS, ADM1, 2000–11.

	(1) Total	(2) Total	(3) Total
Sector	Social Infrastructure & Services	Economic Infrastructure & Services	Production Sectors
Birthregion	0.624*	0.307	0.275*
	(0.326)	(0.281)	(0.147)
Country-year FE	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes
R-squared	0.27	0.28	0.11
Observations	8370	8459	8470
Regions	709	709	709

Notes: The dependent variable is Chinese total flows (in logs) for the sector indicated in the respective column. Social Infrastructure & Services includes Education, Health, Population Pol./Progr. & Reproductive Health, Water Supply & Sanitation, Government & Civil Society, and Other Social Infrastructure & Services. Economic Infrastructure & Services includes Transport & Storage, Communications, Energy, Banking & Financial Services, and Business & Other Services. Production Sectors include Agriculture, Forestry, Fishing, Industry, Mining, Construction, Trade Policies & Regulations, and Tourism. Standard errors (in parentheses) clustered at the country level. ** (*): significant at the 5% (10%) level.

Table E.7
Birth regions with one-year leads and lags and China's aid, OLS with country-year- and region-fixed effects, ADM1, 2000–11.

	(1) Total	(2) ODA	(3) Total	(4) ODA
Birthregion	1.309***	0.593**	1.246***	0.592**
	(0.434)	(0.273)	(0.462)	(0.276)
Prebirth (1st year)	0.467	−0.772	0.428	−0.773
	(0.778)	(0.584)	(0.788)	(0.588)
Postbirth (1st year)	1.471*	0.836	1.395*	0.835
	(0.772)	(0.624)	(0.799)	(0.627)
Postbirth (2nd year)			−0.478	−0.006
			(0.473)	(0.656)
Country-year FE	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes
R-squared	0.30	0.28	0.30	0.28
Observations	8327	8375	8327	8375
Regions	709	709	709	709

Notes: The dependent variable is Chinese total flows (in logs) in columns 1 and 3 and Chinese ODA-like flows (in logs) in columns 2 and 4. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.8
Robustness to the exclusion of various project types, OLS, ADM1, 2000–11.

Excludes projects with	(1) Large amounts	(2) Implementation	(3) Loans
Birthregion	0.420**	0.496**	0.907**
	(0.205)	(0.250)	(0.371)
Country-year FE	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes
R-squared	0.27	0.27	0.24
Observations	8008	8475	8314
Regions	709	709	709

Notes: The dependent variable is (log) Chinese flows, modified as indicated in the column header. Based on the descriptive statistics reported in Appendix D, we exclude large projects ("Large amounts," i.e., projects with commitment amounts above the median), projects that are completed or in implementation ("Implementation"), and are loans ("Loans"). Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.9
Leave one country out, OLS, ADM1, 2000–11.

Regression	Country removed	Birthregion		R-squared	Observations
(1)	None	1.082**	(0.423)	0.30	8327
(2)	AGO	1.082**	(0.423)	0.30	8116
(3)	BDI	1.138**	(0.446)	0.30	8129
(4)	BEN	1.136**	(0.441)	0.30	8184
(5)	BFA	1.082**	(0.423)	0.30	7799
(6)	BWA	1.148***	(0.424)	0.30	8219
(7)	CAF	1.109**	(0.431)	0.30	8123
(8)	CIV	1.106**	(0.425)	0.30	8102
(9)	CMR	1.082**	(0.423)	0.28	8210
(10)	COG	1.082**	(0.423)	0.30	8207
(11)	DJI	1.082**	(0.422)	0.30	8267
(12)	DZA	1.082**	(0.423)	0.30	7752
(13)	EGY	1.132**	(0.423)	0.30	8018
(14)	ERI	1.082**	(0.422)	0.30	8258
(15)	ETH	1.082**	(0.423)	0.30	8206
(16)	GAB	1.137**	(0.427)	0.30	8223
(17)	GHA	1.218***	(0.420)	0.29	8211
(18)	GIN	1.129**	(0.437)	0.30	8239
(19)	GMB	1.082**	(0.422)	0.30	8255
(20)	GNB	1.010**	(0.449)	0.30	8223
(21)	GNQ	1.082**	(0.422)	0.30	8259
(22)	KEN	0.991**	(0.425)	0.29	8237
(23)	LBR	1.002**	(0.435)	0.29	8150
(24)	LBY	1.091**	(0.426)	0.30	7943
(25)	LSO	1.082**	(0.423)	0.30	8209
(26)	MAR	1.082**	(0.423)	0.30	8148
(27)	MDG	1.043**	(0.434)	0.30	8264
(28)	MLI	1.083**	(0.437)	0.29	8220
(29)	MOZ	1.123**	(0.441)	0.30	8209
(30)	MRT	1.115**	(0.461)	0.30	8174
(31)	MWI	1.038**	(0.441)	0.30	8020
(32)	NAM	1.094**	(0.442)	0.30	8179
(33)	NER	1.108**	(0.431)	0.30	8238
(34)	NGA	1.041**	(0.447)	0.30	7872
(35)	RWA	1.082**	(0.423)	0.30	8214
(36)	SDN	1.082**	(0.423)	0.30	8224
(37)	SEN	1.082**	(0.423)	0.30	8195
(38)	SLE	1.009**	(0.428)	0.29	8295
(39)	SWZ	1.082**	(0.422)	0.30	8279
(40)	TCD	1.082**	(0.423)	0.30	8111
(41)	TGO	0.939**	(0.414)	0.29	8275
(42)	TUN	1.113**	(0.430)	0.30	8039
(43)	TZA	1.290***	(0.384)	0.30	8031
(44)	UGA	1.082**	(0.424)	0.30	7635
(45)	ZAF	0.906**	(0.401)	0.30	8225
(46)	ZAR	1.082**	(0.423)	0.29	8222
(47)	ZMB	0.977**	(0.417)	0.28	8223
(48)	ZWE	1.082**	(0.423)	0.29	8211

Notes: The dependent variable is Chinese total flows (in logs). All regressions include country-year- and ADM1 region-fixed effects. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.10
Leave one year out, OLS, ADM1, 2000–11.

Regression	Year removed	Birthregion		R-squared	Observations
(1)	None	1.082**	(0.423)	0.30	8327
(2)	2000	1.157***	(0.401)	0.30	7623
(3)	2001	0.825*	(0.474)	0.30	7627
(4)	2002	1.085***	(0.399)	0.30	7628
(5)	2003	1.151**	(0.486)	0.30	7628
(6)	2004	1.152**	(0.456)	0.30	7629
(7)	2005	0.968**	(0.446)	0.29	7628
(8)	2006	1.103**	(0.478)	0.30	7644
(9)	2007	1.051**	(0.424)	0.27	7639
(10)	2008	1.237***	(0.454)	0.30	7633
(11)	2009	1.012**	(0.407)	0.30	7642
(12)	2010	1.358***	(0.435)	0.28	7640
(13)	2011	0.852**	(0.393)	0.31	7636

Notes: The dependent variable is Chinese total flows (in logs). All regressions include country-year- and ADM1 region-fixed effects. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Table E.11
Birth regions and China's aid per capita, ADM1, 2000–11.

	(1) Total OLS	(2) Total PPML	(3) ODA OLS	(4) ODA PPML	(5) Total OLS	(6) Total PPML	(7) ODA OLS	(8) ODA PPML
Birthregion	0.644*	1.081**	0.233	1.022*	1.082**	0.697	0.569**	3.178**
	(0.337)	(0.439)	(0.229)	(0.527)	(0.423)	(0.734)	(0.252)	(1.319)
Light2000 (in logs)	−0.052	−0.018	−0.131	−0.145				
	(0.133)	(0.217)	(0.139)	(0.293)				
Capitalregion	4.498***	1.525**	3.193***	2.763***				
	(0.563)	(0.739)	(0.480)	(0.918)				
Mines (in logs)	0.059	−0.015	−0.059	0.005				
	(0.091)	(0.206)	(0.073)	(0.240)				
Oilgas	0.272	−0.464	0.299**	−0.581				
	(0.175)	(0.708)	(0.137)	(0.651)				
Area (in logs)	−0.097	−0.201	−0.181	−0.422				
	(0.119)	(0.202)	(0.126)	(0.266)				
Ports	0.008	0.825	−0.076	−1.603**				
	(0.245)	(1.120)	(0.209)	(0.801)				
Roaddensity	0.768	0.518	0.750	3.754				
	(1.148)	(1.179)	(1.007)	(2.535)				
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	No	No	No	No	Yes	Yes	Yes	Yes
R-squared	0.38		0.37		0.30		0.28	
Observations	8327	8327	8375	8375	8327	8327	8375	8375
Regions	709	709	709	709	709	709	709	709

Notes: The dependent variable is Chinese total flows per capita (in logs) in columns 1 and 5, Chinese total flows per capita (in levels) in columns 2 and 6, Chinese ODA-like flows per capita (in logs) in columns 3 and 7, and Chinese ODA-like flows per capita (in levels) in columns 4 and 8. We divide by *Population2000* to obtain these per-capita values, omitting *Population2000* from the set of control variables. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5%, 10%) level.

Appendix F. Ethnic regions

We expect that political favoritism related to the allocation of Chinese funding is not limited to the subnational administrative units in which political leaders were born. Political leaders might also want people from their own ethnic group to benefit disproportionately from development projects. If this is true, it implies that one should examine a wider set of locations with inhabitants that share the ethnicity of the current political leader. To identify the possibility of ethnic favoritism in the allocation of Chinese funding, we change the unit of observation from subnational administrative units to ethnic regions (GREG regions, see Weidmann et al., 2010) within a country.

We begin this analysis at the level of ethnic regions by estimating a variant of Equation (1) (which does not control for region-fixed effects) where we replace $Birthregion_{ict}$ by $Ethnicregion_{ict}$. The results in Table F.1 suggest that regions populated by individuals with the same ethnicity as the current political leader are more likely to receive support from China (columns 1 and 2). The coefficients of the control variables follow a similar pattern as the results based on ADM1 regions. Richer ethnic regions (again measured by the level of nighttime light intensity in 2000) and ethnic regions that include the country's capital receive more Chinese funding compared to other regions.

Columns 3 and 4 replicate the regressions for the geographic regions populated by the ethnic groups of political leaders, where we now include fixed effects for ethnic rather than administrative regions. Using this more conservative specification, we find no evidence that the political leaders' ethnic regions receive significantly more funding from China.[63] We offer four speculative explanations for these insignificant results that stand in contrast to our findings for leaders' birth regions. First, the larger size of the ethnic regions compared to administrative regions reduces variation over time, making it more difficult to identify the effect with the inclusion of region-fixed effects. Second, the substantially lower number of development projects that we are able to assign to ethnic regions compared to administrative regions increases noise, again making the identification of significant

[63] These results remain unchanged if we add $Preethnic_{ict}$ and $Postethnic_{ict}$ to the regressions, defined in analogy to the $Prebirth_{ict}$ and $Postbirth_{ict}$ indicators above. They also hold for World Bank financing.

effects more difficult. Third, the number of changes in the ethnic groups of political leaders is smaller than the number of changes in leader birth regions. Fourth, political leaders might not steer Chinese funding to their ethnic groups. This final reason would be in line with Ahlerup and Isaksson (2015: 144), who present evidence that "ethnic and regional [favoritism] are not the same, but rather have independent effects that exist in parallel."

Table F.1
Ethnic regions and China's aid, OLS, GREG, 2000–11.

	(1) Total	(2) ODA	(3) Total	(4) ODA
Ethnicregion	1.020***	0.524*	0.184	−0.064
	(0.353)	(0.285)	(0.477)	(0.319)
Light2000 (in logs)	0.227***	0.119**		
	(0.076)	(0.051)		
Population2000 (in logs)	0.016	−0.022		
	(0.077)	(0.050)		
Capitalregion	4.682***	3.495***		
	(0.664)	(0.552)		
Mines (in logs)	0.233	0.188		
	(0.165)	(0.146)		
Oilgas	−0.138	−0.256		
	(0.426)	(0.274)		
Area (in logs)	0.139	0.045		
	(0.086)	(0.052)		
Ports	0.201	0.023		
	(0.443)	(0.327)		
Roaddensity	0.986	0.299		
	(1.810)	(0.791)		
Country-year FE	Yes	Yes	Yes	Yes
Ethnic region FE	No	No	Yes	Yes
R-squared	0.35	0.33	0.19	0.20
Observations	6578	6606	6602	6630
Regions	559	559	559	559

Notes: The dependent variable is Chinese total flows (in logs) in columns 1 and 3, and Chinese ODA-like flows (in logs) in columns 2 and 4. Standard errors (in parentheses) clustered at the country level. *** (**, *): significant at the 1% (5,% 10%) level.

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Appendix H. Supplementary data

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