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The Lure of Technocracy? Chinese Aid and Local Preferences for Development Leadership in Africa

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Abstract

Should politicians, technocrats, or the free market guide the economic development of a country? The historical development paths of countries vary widely. The government played a vital role in overseeing economic development in East-Asian countries. Other developing countries, such as Chile, followed the path of market liberalism. Public opinion concerning the appropriateness of development models also varies across space and over time. It is important to understand these micro-level preferences because politicians, even in authoritarian states, need to consider public preferences, especially for key issues such as development leadership. Using geocoded Chinese aid data from AidData and the second round Afrobarometer Survey, this paper studies how Chinese aid affects local preferences for economic leadership in 16 African countries, 2000-2005. Our causal identification strategy is to compare the preferences of respondents who lived near an aid project site where a Chinese aid project had been implemented at the time of the interview (treated group) to individuals who lived close to a site where a Chinese project would be initiated shortly after the interview (control group). We find that Chinese aid increases the local population's preference for economic experts to run the economy. Using the same research design, we find that World Bank aid has no impact on local preferences for economic leadership.

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Acknowledgements

Introduction

In September 2018, 51 African leaders visited Beijing during the Forum on China-Africa Cooperation (FOCAC) while only about half of them (27) came to New York for the UN General Assembly (UNGA) in the same month.[1] This striking difference raises interesting questions, for example, what drives the huge disparities in attendance between FOCAC and UNGA? Why is Beijing more attractive than the UN for these African leaders? More generally, what are the impacts of China on African countries?

The expansion of Chinese engagement in Africa has drawn much attention (Brautigam 2009; Naím 2007). For example, Ryan Kelly labeled Chinese engagement in Africa as neo-colonialism.[2] However, a recent Afrobarometer report includes a survey from 36 African countries showing that African public not only perceives Chinese economic and political role as influential, but also portrays its influence as beneficial: almost two-thirds (63%) of the respondents consider China's impact on Africa positive and China's model ranked as the second best model for national development (Lekorwe et al. 2016).[3]

Foreign aid is a major component of China's engagement in Africa. Chinese aid to Africa is also likely to further increase with the Belts and Road Initiative (BRI). Evaluating the impact of Chinese aid in Africa is therefore critical. This study examines how Chinese aid to Africa affects local preferences for economic leadership – that is, preferences about who should be running the economy. This is probably one of the most fundamental policy questions that low- and

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[1] "Twice as many African presidents made it to China's Africa summit than to the UN general assembly", Quartz Africa, October 5, 2018, https://qz.com/africa/1414004/more-african-presidents-went-to-chinas-africa-forum-than-un-general-assembly, accessed May 10, 2019.

[2] "How China's Soft Power Is Building A Neo-Colonial System In Africa", Ketagalan Media, Oct 9, 2017, http://www.ketagalanmedia.com/2017/10/09/how-chinas-soft-power-is-building-a-neo-colonial-system-in-africa/, accessed May 19, 2019.

[3] Afrobarometer round 6 (conducted in 2014 and 2015) survey shows that when being asked to choose model country for development, United States was ranked the first (30.82%), China followed as the second (24.41%), then Former Colonial Power as the third (12.56%), and South Africa the fourth (11.28%).

middle-income countries face. Our theory posits that China's domestic development experience affects the characteristics of Chinese foreign aid in Africa, which emphasize the transfer of technical expertise and the role of experts in aid implementation and management. We, therefore, hypothesize that exposure to Chinese aid leads to higher support for experts to run the economy.

We match the locations of Chinese aid projects in Africa with 13,129 respondents from the second round of the Afrobarometer surveys in 16 African countries, 2000-2005. Our causal identification strategy is to compare the preferences of respondents who lived near a Chinese aid site where a project had been implemented at the time of the interview (treated group) to individuals living close to a site where a Chinese project would be initiated *shortly after* the interview (control group). We find that Chinese aid increases local population's preference for economic experts (including foreign donors and investors) to run the economy, yet it has no effect on preferences regarding the government, the market, the local community, and the wealthy. Using the same research design, we find that World Bank aid has no impact on local preferences for economic leadership. The results are robust to several additional tests such as changing the cut-off distance to define the sphere of influence of Chinese aid and using different sub-samples of countries and years.

To the best of our knowledge, this is the first paper using geocoded aid projects data to systematically examines the impact of Chinese aid on local preferences of economic leadership. This paper contributes to several literatures. First, it enriches our understanding of foreign aid and economic development. Studies on aid and development are now legion. Often focusing on economic growth, many find that aid has no or even a negative effect on development.[4] Recent studies with a particular focus on Chinese aid suggest that foreign aid

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[4] Multiple causal mechanisms have been proposed and studied. For instance, aid is fungible, it helps to keep bad governments in power, and it might inadvertently help finance and perpetuate ongoing conflicts (Collier 1997; Easterly 2003; Morrissey 2004; Hariri 2015).

can help development (Brautigam 2009; Donou-Adonsou and Lim 2018; Dreher et al. 2017).[5]

Our study highlights how aid projects affect micro-level economic leadership preferences,

which might in turn affect choices of economic models and patterns of economic

development.[6]

Moreover, our paper helps to advance our understanding of how Chinese aid has

impacted African countries. One often finds two opposing perspectives on this topic. On the

one hand, some find that Chinese aid projects are associated with more corruption (Brazys,

Elkink, and Kelly 2017; Isaksson and Kotsadam 2018a), more unemployment (Wegenast et al.

2019), and less labor union involvement (Isaksson and Kotsadam 2018b). On the other hand,

Chinese aid to Africa has been found to boost economic growth (Dreher et al. 2017), reduce

economic inequality (Bluhm et al. 2018), and alleviate conflicts (Strange et al. 2017).[7] Our

paper finds that unlike World Bank aid which has no impact on local preferences for economic

leadership, Chinese aid increases local support for experts in managing the economy.

Finally, we contribute to the debate on the Chinese model of aid by pinpointing one

feature of Chinese aid to Africa: technocracy, a term that we understand as using technical

experts to manage the economy. We provide evidence consistent with recent case studies

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[5] For example, Dreher et al. (2017) find that Chinese aid projects are associated with higher economic growth in recipients countries.

[6] Our research resonates with a recent development in the foreign aid literature, which is to study foreign aid's local impacts using spatially disaggregated data. Recent studies have shown that aid projects are associated with an increased local perception of corruption (Isaksson and Kotsadam 2018a), higher infant mortality (Kotsadam et al. 2018), and more social conflicts (Bezerra and Braithwaite 2016; Moscona 2019).

[7] Blair and Roessler (2018) find that there is no significant difference between Chinese aid and World Bank aid regarding their effects on state legitimacy in recipient countries. Dreher and Fuchs (2015) find no evidence that Chinese aid is more responsive to domestic politics in recipient countries; they also highlight the fact that China's aid allocation is unrelated to a recipient country' natural endowment and political institutions. Relatedly, Morgan and Zheng (2019) find China's aid is more likely to target "old friends" in Africa which received more aid from China in the past.

which suggest that China transplants its domestic development experience to Africa through technology and knowledge transfers (Xu et al. 2016; Jiang et al. 2016). By comparing with World Bank aid projects, we find active Chinese aid projects are associated with higher citizens' approval of experts to run the economy (but not other types of economic leadership) in African countries. Thus, our study provides some suggestive evidence to support the narrative of aid with Chinese characteristics (Brautigam 2011).

The rest of the paper proceeds as follows. We first provide a brief literature review and discuss our main theoretical expectation. We then present the data and empirical strategy. The following sections report our main results, robustness checks, and empirical findings regarding the effect of World Bank aid. The final section concludes and discusses future research.

Chinese Aid and Local Preferences for Development Leadership

Foreign aid and its local impacts: Much research has been done to study the effect of foreign aid on economic development (Easterly 2003; Djankov, Montalvo, and Reynal-Querol 2008; Alesina and Dollar 2000; Bruce Bueno de Mesquita and Alastair Smith 2009; Gamso and Yuldashev 2018; Raudino 2016). The impacts of Chinese aid in particular have also been investigated (Brautigam 2009; Strange et al. 2017; Busse, Erdogan, and Mühlen 2016; Donou-Adonsou and Lim 2018). These studies often use cross-country regressions and they have greatly advanced our understanding of the relationship between foreign aid and development.[8]

More recently, there is a small but quickly growing literature that examines the local effects (within-country) of aid projects, using fine-grained georeferenced data (Isaksson and Kotsadam 2018a; Knutsen et al. 2017b; Kotsadam et al. 2018; Brazys, Elkink, and Kelly 2017;

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[8] Some other scholars instead study how trade with China affects African countries. For example, Adolph, Quince, and Prakash (2017) find that when a country increases export with China, the change in domestic labor standards depends on labor standards of other exports destinations that were replaced by China. They name this the Shanghai Effect.

Dreher et al. 2019; Isaksson and Kotsadam 2018b; Bluhm et al. 2018). This literature is partly stimulated by the newly released geocoded data from AidData and Afrobarometer projects (as well as the Demographic and Health Survey (DHS) and other geocoded datasets). One important motivation of this new, disaggregated approach is the idea that the impact of aid might display a significant level of within-country spatial variation. For instance, Isaksson and Kotsadam (2018a) find a higher local corruption perception near active Chinese aid projects. Brazys, Elkink, and Kelly (2017) find that the presence of Chinese aid projects in subnational localities is associated with higher levels of self-reported experiences with corruption after accounting for co-located World Bank projects.[9] Moreover, Isaksson and Kotsadam (2018b) suggest that Chinese aid projects to Africa discourage local union involvement while other aid donors (World Bank and other bilateral aid donors) do not. Finally, Kotsadam et al. (2018) find OECD's development aid projects reduce infant mortality for less privileged groups (Muslim and rural children) in Nigeria.

These studies have significantly advanced our understanding of the impacts of aid (including Chinese aid) on African countries. Our study aims at further advance this literature by focusing on whether and how Chinese aid affects micro-level economic leadership preferences, which we believe could affect choices of development models and potentially shape patterns of long-term economic development in Africa. The connection between public opinion and policy outputs is one of the most important questions for students of political science. In the context of foreign policy-making, public opinion has been linked with government decisions regarding war and peace and compliance with international agreements (Dai 2007; Trager and Vavreck 2011; Mansfieldand Milner 2012).[10] In American politics, Jones

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[9] Local World Bank projects are associate with lower self-reported experiences with corruption in the absence of Chinese aid. In cases where Chinese and World Bank projects are geographically co-located, the corruption-reducing effect of World Bank aid disappears (Brazys, Elkink, and Kelly 2017).

[10] This is often via the audience cost mechanism (Fearon 1994).

and Baumgartner (2012) argue that broad public support for policy change adds weight to other forces at work pushing against policy inertia.[11] Outside the US, Anderson et al. (2017) show that a public opinion shift towards prioritizing the environment is associated with the growth in renewable energy policy outputs in Europe. In the Chinese context (where there is no competitive election), even though no study has tested how public opinion affects government policies, Meng and Zhang (2019) show that citizens' participation in online forums has led governments to place greater emphasis on social welfare policies. In an African context, using Nigeria as an example, Ojieh (2015) finds that even non-democratic (military) regimes could be malleable to public opinion in foreign policy decision-making. Focusing on three states in southwest Nigeria, Aliyu et al. (2018) also show that there is a strong relationship between public opinion and public policy.

Technocracy and Chinese aid: Rapid economic development in China in the past few decades has often been used as an example that challenges the neo-classic model of economic development, that is, long-term economic growth is better served by having institutions such as private property rights and an effective legal system. Different from Western developed countries, China has achieved great economic growth without a democratic reform and the rule of law. Some believe that China's economic success is appealing for African leaders because they are more willing to adopt successful economic development models that do not threaten their current regimes (Boone and Dhawal 2009). Also, unlike Western donors that often ask African authoritarian leaders to meet political conditionalities before delivering aid, Beijing applies a controversial principle of no conditionalities (Alden 2007, 101–5).[12] According to Boone and Dhawal (2009), China's engagement in Africa is distinct from that of

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[11] Baumgartner (2006) finds evidence supporting the aforementioned punctuated equilibrium arguement in US environmental policy.

[12] No conditionalities is part of China's non-intervention in domestic politics tradition, a foreign policy paradigm that China has adopted since its independence in 1949.

many international institutions such as the IMF and World Bank as it cares less about the market mechanism, regime types, private investments, local governance, and accountability. At the same time, "China's model" is favored by almost a quarter of Africans in 36 countries (24.41%) as the best model for development according to the sixth round of Afrobarometer surveys (Lekorwe et al. 2016).

To what extent does Chinese foreign aid mirror its domestic development experience? What makes Chinese aid special? Fully addressing these questions goes beyond the scope of this paper, especially given an often controversial debate among scholars and policymakers regarding what the Chinese development model actually is. On the one hand, a prevailing narrative regards Chinese aid as a distinct aid model which challenges traditional aid norms and practices. Brautigam (2011) argues China's official aid cannot be understood as traditional OECD official development assistance (ODA), because the share of ODA in Chinese aid is too small compared with export credits, non-concessional loans, or aid used for Chinese investment. The main purpose of Chinese official aid is not for aiding African development, but for Chinese economic interests. Naím (2007) labels Chinese foreign aid as Rogue Aid because it is used as a tool to advance its interests abroad.

On the other hand, others believe that China's aid is not that different from Western aid. By tracing the historical records of 1,700 Chinese aid projects to Africa from 1956 to 1999, Morgan and Zheng (2019) finds that the traditional Chinese aid policy was indeed similar to that of conventional aid from the OECD Development Assistance Committee. They argue that social sectors such as health and education played a greater role in China's aid program than is commonly perceived; the mixture of Chinese ODA aid and non-ODA aid happened after 1999 when China changed its aid policy.

Some recent research has focused on an important character of Chinese aid. Using agricultural aid projects as an example, Xu et al. (2016) highlight the transfer of technology as a model of China's official aid to African countries. They trace the actual practice of 23

Agricultural Technology Demonstration Centers (ATDCs) across Africa and examine how they influence local economic development. The main actors in an ATDC are Chinese economic experts, African experts, government officials, and farmers. The Chinese experts teach the African counterparts who later spread the experience, knowledge, and skills to local African farmers. To promote and spread the technology, the Chinese aid experts also show their outcomes to local farmers in the farmland.

Western donors also send development experts or development brokers to African countries. But Chinese experts are different, especially in their motivations. ATDCs and other aid projects are often perceived as image engineering programs by the Chinese government and a key purpose is to demonstrate China's economic and technological achievement. For Chinese experts in ATDCs, the pressure to succeed and finish the mission from Beijing is extremely high (Zhang et al. 2019). Moreover, experts are carefully selected from China; they bring the best agricultural expertise and most productive seeds to Africa (Xu et al. 2016). Such Chinese aid projects are often considered high political tasks: they are not simply about the demonstration of technology, but also the presentation of China's development miracles in Africa. Qualitative evidence shows that locals always offer high praise to the technologies and impressive outputs of ATDCs, even if these projects are difficult to extend to broader farmlands due to reasons such as poor irritation infrastructure and weak local government capacities (Li et al. 2017).[13]

In fact, China has a long history of promoting development through technology transfer, which reflects Chinese domestic economic development strategies. Olson (2016) offers a brief review of the rise of China's technocracy under and after the Mao era. The Chinese government has long praised science and technocracy as the first productive force and emphasized the dominating role of (often government-backed) technologies in promoting

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[13] Similarly, Chen et al. (2016) provide suggestive evidence on the impact of technology transfer from China's foreign direct investment (FDI) on economic development in Nigeria.

productivity and economic growth. Technology, science, and knowledge transfer became highly cited concepts in the Forum on China-Africa Cooperation (FOCAC) and China's Policy Paper on Africa. The ATDC mechanism is considered a key institutional expression of the transformation of Chinese aid (Jiang et al. 2016). It represents an innovative dimension of Chinese aid and it combines various forms of aid programs such as methods teaching, technology exposition, expertise dispatch (Jiang et al. 2016).

The above discussion on the practice of Chinese aid projects to Africa hints that "technocracy" might be an arguably distinct feature of the Chinese aid model. It is important to note that here we use the most general definition of technocracy — "rule by experts".[14] We focus on the economic dimension of technocracy, namely, the importance of technical expertise to bring growth. In this paper, we argue that an emphasis on technocracy is an institutional expression of China's foreign aid to developing countries, especially to Africa. One (maybe unintended) consequence of this technology/experts driven approach of Chinese aid is that it affects the policy preferences of African residents. Since technology transfer benefits the local population, we expect that African citizens who are exposed to these Chinese aid projects would approve economic and technological experts to run the economy. We name this the "technocracy hypothesis" of Chinese aid.

Data

To analyze the effects of Chinese aid on local preferences for economic development, we use two newly released georeferenced datasets: China's official financial flows to Africa from AidData and the Afrobarometer surveys. Both datasets are geocoded with point coordinates using the same coding rules (BenYishay et al. 2017; Bluhm et al. 2018). We match the Chinese aid dataset, throughout 2000-2005, to the second round of the Afrobarometer surveys in 16 African countries.[15]

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[14] For a useful discussion of the concept, see Burris (1993).

[15] The countries are Cape Verde, Mali, Senegal, Ghana, Nigeria, Uganda, Kenya, Tanzania, Mozambique, Zambia,

Afrobarometer data: We are interested in whether Chinese aid in Africa affects local population's preferences regarding who should oversee economic development. To measure such micro-level preferences, we use one set of questions asked during the second round of the Survey. This is Question 13: *There are many ways to manage an economy, would you disapprove or approve of the following alternatives?* The respondents then were asked a series of questions listed in a table in the following order:

    A. The government plans the production and distribution of all goods and services;

    B. Individuals decide for themselves what to produce and what to buy and sell;

    C. People go back to the land and provide mainly for their own needs as a community;

    D. Economic experts (including foreign donors and investors) make the most important decisions about our economy;

    E. Wealthy Kenyans provide for the needs of their own communities.[16]

The answers to each question are: Strongly Disapprove, Disapprove, Neither Approve nor Disapprove, Approve, Strongly Approve, and Don't Know. (We do not include the last answer category ("Don't Know") in our empirical analysis.) These five questions ask respondents whether they think the government (A), the market (B), the community (C), the experts (including foreign donors and investors) (D), and the wealthy (E) should manage the economy. These are not mutually exclusive choices. For instance, the data shows that people who choose the government are also more likely to choose the experts (the correlation is 0.15) and the community (0.13), but less likely to choose the market (-0.15). Respondents who choose the market are also more likely to choose the community (0.25).

Point coordinates (latitude and longitude) are provided for clusters in Afrobarometer surveys. The number of respondents in a cluster range from 1 to 242, with a mean of 9.4. The precision of these coordinates varies. There are eight precision categories (1 to 8), higher numbers indicating less precise location (Strandow et al. 2011). We only use clusters with

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Zimbabwe, Malawi, South Africa, Namibia, Lesotho, and Botswana.

[16] "Kenyans" was replaced by other country names accordingly in other surveys.

accurate locations, that is, precision categories 1 and 2: the former indicates an exact location and the latter near the exact location (up to 25 km from that location). The total number of Afrobarometer Round 2 georeferenced clusters is 3,591: among them, there are 1,947 clusters with level 1 precision and 29 clusters with level 2 precision – together, 1,976 clusters are included in our analysis; the total number of respondents included in these 1,976 clusters is 13,129.

Chinese aid projects: We obtain geocoded data of Chinese aid projects in Africa from the 1.01 Version of AidData's Geocoded Chinese Official Finance Dataset (Bluhm et al. 2018). China does not systematically release data on its official foreign aid activities. AidData provides an open-source media-based data on Chinese aid activities (Strange et al. 2017). This data has been widely used to examine the causes or consequences of Chinese aid (Dreher et al. 2018; Brazys, Elkink, and Kelly 2017; Isaksson and Kotsadam 2018a; Kotsadam et al. 2018; Knutsen et al. 2017; Isaksson and Kotsadam 2018b; Robert and Philip 2018). It contains detailed information such as the purpose, volume, and type of each aid project. For this study, we especially take advantage of the information on when and where each Chinese aid project was implemented.[17]

Aid projects are also geo-coded with point coordinates whenever possible (Bluhm et al. 2018). For our research purpose, aid projects are matched to survey clusters/respondents using their point coordinates. Therefore, we cannot include aid projects that have no information on point coordinates: 173 aid projects are excluded because of this. In aid data, the spatial precision of the location is also identified by level 1 to level 8, following the same coding rule as in Afrobarometer (Strandow et al. 2011). Accordingly, we only keep aid projects with the two most accurate georeferenced information: precision level 1 and 2; 63 aid projects with a precision level higher than 2 are therefore excluded.

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[17] All types of aid projects were included: for the 197 aid projects included in the analysis, the share of ODA-like, OOF-like, and Vague (Official Finance) are 172 (87.3%), 9 (4.6%), and 16 (8.1%) respectively.

The total number of Chinese aid projects between 2000 and 2005 included in the analysis is 197: Table 1 shows the distribution of aid projects across country and over time. Note that in our main analysis, we do not drop the two countries which did not receive Chinese aid projects during 2000-2005: Malawi and South Africa. Respondents in these two countries are included as the reference group, that is, those that are not close to an ongoing/active Chinese project or to a soon-to-be active Chinese project. In our online appendices, we drop respondents from these two countries as a robustness check, and our main results do not change (online Appendices Table A2).

Table 1: The distribution of aid projects across country and over time.

Country	2000	2001	2002	2003	2004	2005
Botswana	0	0	0	2	15	0
Cape Verde	0	0	0	1	0	2
Ghana	0	1	1	7	17	2
Kenya	1	4	1	4	4	6
Lesotho	0	1	1	6	0	2
Malawi	0	0	0	0	0	0
Mali	0	0	1	0	0	0
Mozambique	0	0	2	2	2	0
Namibia	1	0	2	8	1	4
Nigeria	0	0	1	0	0	2
Senegal	0	0	0	0	0	1
South Africa	0	0	0	0	0	0
Tanzania	16	6	12	5	1	1
Uganda	4	2	5	7	2	1
Zambia	1	6	1	5	0	10
Zimbabwe	0	2	1	1	1	2
Total	23	23	30	51	47	38

We focus on the years between 2000 and 2005 for several reasons. First, the geocoded data on Chinese aid projects only covers Chinese aid between 2000 and 2014 (Bluhm et al. 2018). Second, it is around 2000 that the Chinese government re-oriented its foreign policy: a "Go Global" approach replaced the old "Keep a Low Profile" approach. China's foreign aid was

an important part of this transition (Morgan and Zheng forthcoming). Third, Afrobarometer Round 2 surveys were conducted between 2002 and 2004, with most done in 2002 and 2003. Zimbabwe is the only country with a 2004 survey (Table 2).

Finally, our choice of 2005 as the end-point of the empirical analysis is also motivated by our identification strategy: we estimate the causal effect of Chinese aid by comparing the preferences of survey respondents who lived near a site in which a Chinese aid project had been implemented before or at the time of the interview (treated group) to those of respondents who lived close to an aid project site where a Chinese project would be initiated *shortly after* the interview (control group).[18] Here, the "shortly after" condition is important, because our empirical strategy crucially depends on the assumption that the areas being treated by Chinese aid projects are very similar to those areas that are soon to be treated. The smaller the time gap between a survey conducted in a treated area and another survey conducted in a soon-to-be-treated area, the more likely the aforementioned assumption is realistic. Therefore, since the last year of the survey is 2004, we only include data untill 2005 in our main analysis. Aid projects in 2005 would help us identify soon-to-be-treated areas (treated in 2005) for which we can obtain data on individual preferences from surveys conducted before 2005. In robustness checks, we include later years; our main result does not change (see online Appendices: Table A3).

Table 2: The distribution of aid projects before and after round 2 survey.

Country	Year of survey	Before	After
Botswana	2003	2	15
Cape Verde	2002	0	3
Ghana	2002	2	26
Kenya	2003	10	10
Lesotho	2003	8	2
Malawi	2003	0	0
Mali	2002	1	0
Mozambique	2002	2	4

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[18] For the latter group of respondents, the implementation had not yet started at the time of the interview.

Namibia	2003	11	5
Nigeria	2003	1	2
Senegal	2002	0	1
South Africa	2002	0	0
Tanzania	2003	39	2
Uganda	2002	11	10
Zambia	2003	13	10
Zimbabwe	2004	5	2
Total	-	105	92

Table 2 shows the number of aid projects by country and by whether they were implemented before or after a survey was conducted. We code aid projects implemented in the same year in which a survey was conducted as "before" a survey, as AidData does not report the exact calendar dates (day, month, and year) of aid projects. In robustness checks, we drop an aid project if it was implemented in the same year a Round 2 Afrobarometer survey was conducted: our main result does not change (see Table 5). The map in Figure 1 shows Chinese aid projects and the Round 2 Afrobarometer clusters included in the main analysis.

Figure 1: Chinese aid projects, clusters from the second round (R2) of Afrobarometer surveys, and countries included, 2000-2005.
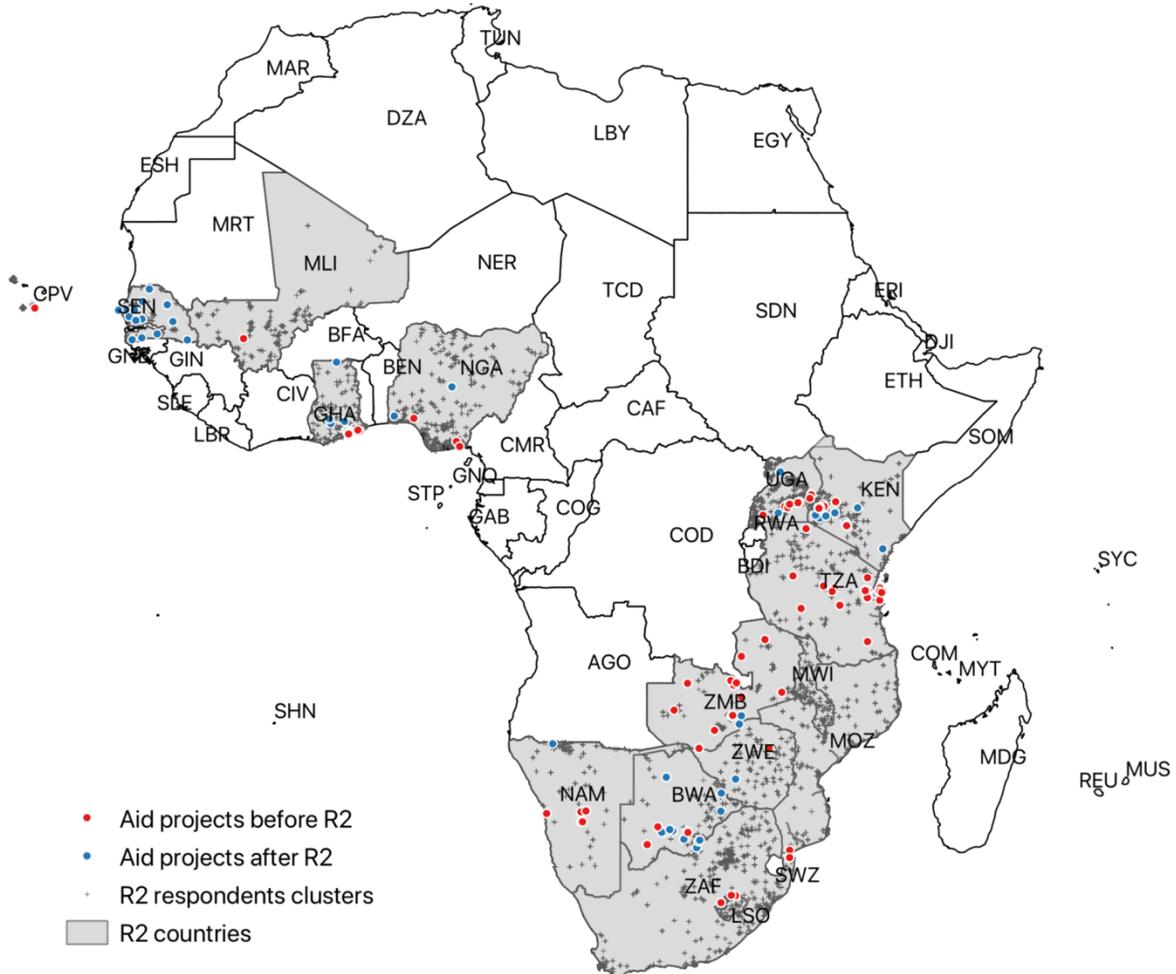
Empirical Strategy

The distribution of aid projects is unlikely to be random because some areas are more likely to be targeted than others. For instance, Chinese aid projects in countries included in this study often started in and around either the capital city or big coastal cities. They then slowly expanded into more rural, peripheral areas. One can include variables such as the level of urbanization and the distance to the capital city to control for such a selection effect. However, there are also often unobserved characteristics that might affect the location choice of aid projects. Therefore, to estimate the causal effect of Chinese aid on the local preference of

economic development, we employ a research design used by recent studies such as Knutsen et al. (2017a) and Isaksson and Kotsadam (2018a).

Intuitively, to control for potential unobservable local characteristics that may influence Chinese aid site selection, our strategy is to compare the preferences of respondents who lived near a site where a Chinese aid project was being implemented at the time of the interview to the preferences of those who lived close to an aid project site where a Chinese project would be initiated *shortly after* the interview. Again, the key assumption here is that the areas being treated by Chinese aid projects are very similar to those areas that are soon to be treated.[19] The baseline regression is as follows:

$$Y_{ivt} = \beta_1 active_{it} + \beta_2 inactive_{it} + \alpha_s + \delta_t + \gamma X_{it} + \varepsilon_{ivt} \quad (1)$$

Y_{ivt} is the response to one of the five questions asked in Question 13 of the survey for individual *i* in cluster *v* and year *t*. For our main results, we use both ordered logistic regressions – we keep the five answers from "Strongly disapprove" to "Strongly approve" and code them from 1 to 5 – and logistic regressions which binarize the answers (more explanations in the next section). δ_t represents year fixed effects; α_s is sub-national region fixed effects. ε_{ivt} are standard errors clustered at the survery cluster level.

γX_{it} includes individual and local level variables. Individual characteristic variables are provided by Afrobarometer surveys and include age, gender, urban/rural residence, and education. Different from past studies that do not control for local context, we include a few

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[19] There is a possibility that some people in the "soon to be active" sites had already heard about Chinese aid projects. If this is the case, in a way they are treated as well. We can call this treated by hearing. While those in the treatment group are treated by observing or direct contact with Chinese aid projects. When we look at the difference in preferences between these two groups and we are able to find a positive treatment effect – the treatment increases a preference for experts to run the economy – in reality, the true treatment effect is likely to be stronger, because the effect we find is actually the difference between treatment effect by observing/contact and treatment effect by hearing. Therefore, hearing about Chinese aid in the "soon to be active" sites is unlikely to threaten our causal inference, unless hearing Chinese aid generates the opposite effect from observing or indirect contact of Chinese aid, which we think is very unlikely.

variables on local characteristics. They are extracted from the PRIO-GRID 2 database (Tollefsen, Strand, and Buhaug 2012). The data contains various local information (e.g., population, resources, and night lights) at the grid level.[20] We link this local information to the survey data by matching Afrobarometer clusters' coordinates with PRIO grids, that is, we use the information of a grid that contains a survey cluster to describe the local context for this survey cluster. The selection of variables is not only based on our investigation of possible local factors that attract Chinese aid (see online Appendices Table A4), but also based on recent aid literature which highlights determinants of aid. These variables include distance to the border, distance to the capital, excluded groups (the number of groups which are discriminated or powerless in the local area), satellite night lights, oil, diamond, and gold.[21]

$active_{it}$ is a dummy variable indicating whether a respondent i at year t lived close to an ongoing Chinese aid project; $inactive_{it}$ indicates whether one lived close to a site where a Chinese project was planned but not yet implemented by the time of the survey. Note that there are a large number of respondents who lived close to neither an ongoing nor a soon-to-be Chinese aid project. In the regression setting specified by equation (1), they are the reference group that one compares the $active_{it}$ and the $inactive_{it}$ group to respectively. In other words, the coefficient associated with the $active_{it}$ variable (β_1) captures the difference in preference between post-treatment individuals (close to an active Chinese project) and a reference individual (not close to an ongoing Chinese project active or a soon-to-be active Chinese project); the coefficient associated with the $inactive_{it}$ variable (β_2) captures the

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[20] PRIO grids are of roughly 55km by 55km.

[21] Locations far way from borders and closer to the capital are more likely to be targeted by Chinese aid projects. Nighttime nights light is often used as a proxy for local economic development in the absence of government data (Henderson et al 2012). Areas rich in resource (e.g., oil, diamond, and gold) may receive more Chinese aid (Alden 2005; Dreher et al.2018). Finally, politically excluded areas are less likely to receive aid projects since Chinese aid is often strongly tied with African governments (Dreher et al. 2019). For details of variables, see the Online Appendices, Table A1.

difference in preference between a pre-treatment individual (close to a soon-to-be active Chinese project) and a reference individual (not close to ongoing Chinese project active or a soon-to-be active Chinese project). The causal effect of a Chinese aid project is then the difference between β_1 and β_2, which is to compare the *difference* between a post-treatment individual and a reference individual with the *difference* between a pre-treatment individual and a reference individual.

In our main analysis, we use 20 km as the threshold to define proximity to an ongoing or a soon-to-be ongoing Chinese aid project.[22] Using this cut-off, for each respondent, if there was at least one Chinese aid project that existed before or during the year the Afromatometer round 2 survey was conducted, we code the *active* variable as 1 (otherwise 0). The *inactive* variable equals 1 if 1): there would be an aid project within 20 km in the very near future, that is, by 2005, but it was not established when the survey was conducted, and 2): there was no active aid project within 20km in the meantime. Using the 20 km threshold, among a total of 13,025 observations, there are 1,229 *active* ones, and 1,079 *inactive*.

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[22] In robustness checks, we experimented with other reasonable thresholds such as 30 km, 40 km, and 50 km; our main results hold at 30 km threshold but disappear when the threshold is higher than or equal to 40 km. This seems to suggest that there is a boundary for the aid effect: this seems to be between 30 km and 40 km (Table 7).

Figure 2. Aid projects before and after the Afroborameter survey, 20km-radius buffers around them, and culsters of respondents from the survey in Kenya.
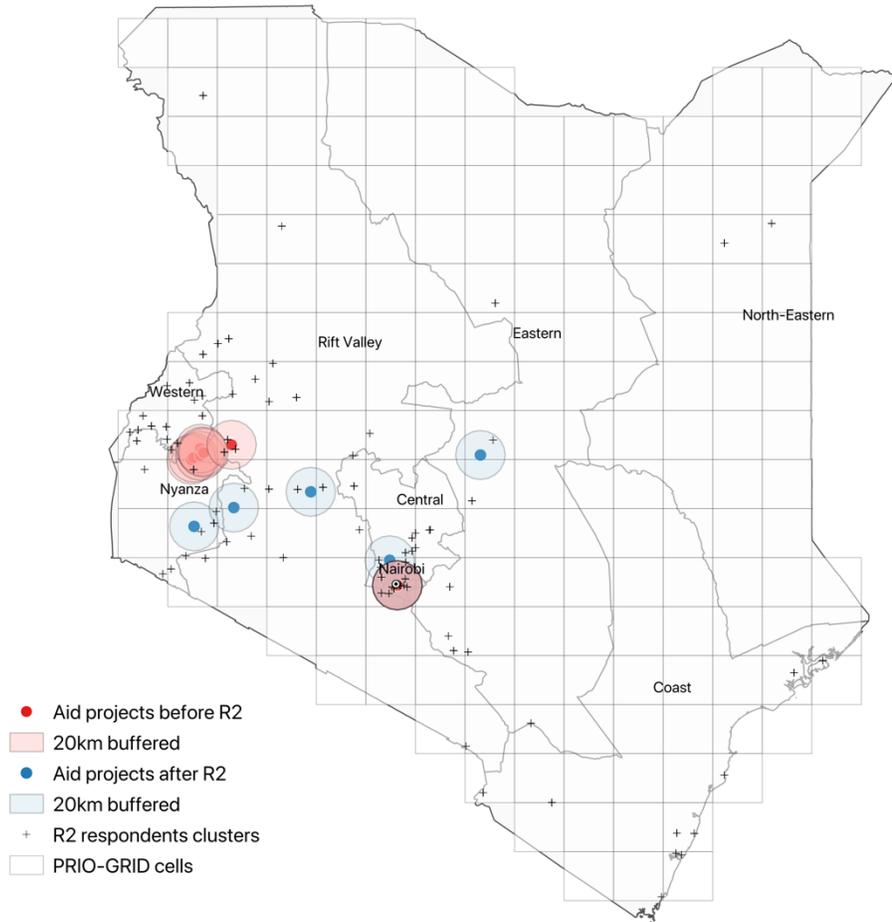
Using Kenya as an example, Figure 2 shows the distribution of aid projects (further distinguished between before and after the Afroborameter survey), 20km-radius buffers around them, and clusters of respondents from the survey. The survey in Kenya was conducted 2003; thus, respondents are assigned to the *active* group if their distance to a Chinese project is less than 20 km and the project was being implemented at or finished before 2003. On the other hand, for a respondent, if there would be Chinese aid projects within 20 km after 2003 but no later than 2005 and there was no active aid project within 20km in the meantime, we classify

her/him as *inactive*.[23] During 2000 to 2005, the number of *active* respondents in Kenya is 248 and the number of *inactive* respondents is 88. Finally, Table 3 presents the descriptive statistics for the variables used in our main analysis. For details of coding methods and data sources of all variables see online Appendices Table A1.

Table 3: Descriptive statistics.

Variables	N	Mean	SD	Min	Max
Dependent variables					
prefer government: dummy	11,550	0.577	0.494	0	1
prefer government: ordinal	11,550	3.348	1.304	1	5
prefer market: dummy	11,811	0.697	0.460	0	1
prefer market: ordinal	11,811	3.701	1.157	1	5
prefer experts: dummy	11,039	0.425	0.494	0	1
prefer experts: ordinal	11,039	2.926	1.379	1	5
prefer the wealthy: dummy	11,550	0.501	0.500	0	1
prefer the wealthy: ordinal	11,550	3.154	1.355	1	5
prefer community: dummy	11,754	0.659	0.474	0	1
prefer community: ordinal	11,754	3.644	1.176	1	5
Key independent variables					
active:20km	13,025	0.105	0.306	0	1
inactive: 20km	13,025	0.0696	0.255	0	1
Control variables: individual level					
age	12,185	28.45	7.605	18	66
gender	12,185	1.445	0.497	1	2
urban	12,185	1.720	0.449	1	2
education	12,185	6.466	1.437	0	9
Control variables: local level					
distance to border	13,025	84.21	76.96	0.004	381.7
distance to capital	13,025	336.6	326.9	5.197	1,867
excluded	13,025	0.168	0.402	0	2
night lights	13,025	0.0936	0.115	0.0340	0.715

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[23] If a respondent was both within a 20km radius buffer zone for an active aid project and a 20km radius buffer zone for would-be-active aid project, it is code as *active*.

oil	13,025	0.0386	0.193	0	1
diamond	13,025	0.0333	0.179	0	1
gold	13,025	0.0365	0.188	0	1

Main Results

Table 4 reports our baseline models that include individual level controls, local controls, year fixed effects, and 405 sub-national region dummy variables. Again, the causal effect of aid is estimated by looking at the difference between the coefficient of *active* (β_1) and that of *inactive* (β_2), which is to compare the difference between a post-treatment individual and a reference individual *with* the difference between a pre-treatment individual and a reference individual. More specifically, we calculate the difference in coefficients of *active* (β_1) and *inactive* (β_2), $\beta_1 - \beta_2$, and label this "difference in difference" in our regression tables. We employ a *F*-test to decide whether this difference in difference estimate is statistically significant.

The most statistically significant difference in difference estimate is in the case of "experts" (model specification 3 of Panel A in Table 4): recall this is when a respondent was asked whether he/she agrees with the statement that economic experts (including foreign donors and investors) make the most important decisions about our economy. *F*-test is statistically significant (p=0.02) and the positive sign of the difference in difference estimate suggests that Chinese aid makes residents living close to aid project sites more in favor of letting experts run the economy.

The size of the estimate is also substantively important. To get a quick sense of the substantive effect of active Chinese aid projects, we turn to the logistic models in Panel B of Table 4: here, we code the answer of "Strongly Approve" and "Approve" as 1, "Strongly Disapprove" and "Disapprove" as 0. And we code "Neither Approve nor Disapprove" as missing, since their preferences are not explicitly captured in the survey. For a variable in a logistic model, we can divide its coefficient by 4, which gives an upper bound of the predicted difference corresponding to a unit difference in this independent variable (Gelman and Hill

2007). The coefficient mean estimate for the difference in difference measure is 0.49 from the

third model specification in Panel B of Table 4. This suggests that the predicted difference in

probability of favoring experts between a post-treatment resident and a pre-treatment resident

has an upper bound of around 0.12.

Interestingly, if we look at the coefficient estimates of *active: 20* (β_1) and *inactive: 20* (β_2)

for example in the third model specification in Panel A of Table 4, the former does not achieve

significance, while the latter is statistically significant and negatively associated with approval

of experts compared to a reference individual. This seems to suggest that residents in the pre-

treatment condition – those who lived near a soon-to-be active aid project site – is actually less

likely to approve experts as those who should run the economy. However, after the treatment

of Chinese aid, such preference against experts disappeared. Therefore, the net effect of

Chinese aid is an increase in micro-level preferences in favor of the experts.

Table 4: main results on the effects of Chinese aid.

Dependent variable:	(1)	(2)	(3)	(4)	(5)
Economic preferences	Government	Market	Experts	The wealthy	Community
Panel A: ordered logit regressions					
active20	-0.00443	0.0714	0.0129	-0.189	-0.172
	(0.135)	(0.133)	(0.122)	(0.149)	(0.118)
inactive20	-0.111	0.115	-0.339***	0.0681	-0.455***
	(0.129)	(0.113)	(0.110)	(0.138)	(0.142)
difference in difference	0.106	-0.043	0.351	-0.257	0.283
F test (difference =0)	0.44	0.07	5.39	2.19	2.86
p-value	0.506	0.785	0.020**	0.138	0.091*
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	11,550	11,811	11,039	11,550	11,754
Panel B: logistic regressions					

active: 20km	0.0440	0.120	-0.00512	-0.248*	-0.330**
	(0.149)	(0.156)	(0.131)	(0.147)	(0.138)
inactive: 20km	-0.164	0.199	-0.496***	0.0706	-0.468***
	(0.145)	(0.128)	(0.124)	(0.134)	(0.148)
difference in difference	0.208	-0.079	0.490	-0.318	0.138
F test (difference =0)	1.27	0.17	8.42	3.25	0.53
p-value	0.26	0.68	0.003***	0.071*	0.468
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	11,512	11,774	11,018	11,501	11,678

Notes: To save space, the outputs of constant cuts in Panel A and results of control variables in Panel A and B are not reported. Standard errors are in parentheses (clustered by survey cluster). *** p<0.01, ** p<0.05, * p<0.1.

Other than experts as leaders of economic development, Panel A of Table 4 suggests that Chinese aid also affects people's perception on "Community". A positive and significant difference in difference estimate indicates that Chinese aid makes the respondents more likely to embrace community when it comes to managing the economy. However, the difference in difference estimate here achieve significance at only at 0.10 level and its statistical significance disappears when we use logistic regressions in Panel B of Table 4 and in robustness checks as in Table 5 and Table 6. None of the preferences for the other three types of economic leadership — the government, the market, and the community — is consistently affected by Chinese aid. For instance, the difference in difference estimate for the "wealthy" does not reach normal statistical significance in ordered logit models (Panel A of Table 4).

Robustness Checks

The finding that Chinese aid affects local survey respondents and makes them more likely to

support experts as a way of managing the economy is stable across a wide range of

robustness checks. To save space and to better present the results, we do not report the

regression outputs for control variables in the following sections. The full results are provided in

online appendices.

Removing projects that started the same year as a survey was conducted: The aid data is

recorded at the year level while the Afrobarometer data is reported with the exact date of the

survey. In our main analysis, we coded an aid project as *active* if it started in the same year as

a survey. This may mistakenly assign some *inactive* aid projects as *active*. For example, an aid

project that started in December of 2005 actually happened *after* an R2 survey conducted

during October of 2005. Therefore, we drop the observations if the time of the survey and the

time of aid projects were in the same year. Table 5 reports the results, which are similar to our

main results in Table 4.

Table 5: logistic regression results after removing aid projects that started the same year as a survey was conducted.

Dependent variable: Economic preferences	(1) Government	(2) Market	(3) Experts	(4) The wealthy	(5) Community
active20	-0.00996	0.0451	-0.0815	-0.270	-0.389**
	(0.211)	(0.216)	(0.196)	(0.191)	(0.187)
inactive20	-0.362**	0.0855	-0.535***	-0.290*	-0.197
	(0.179)	(0.173)	(0.167)	(0.151)	(0.211)
difference in difference	0.352	-0.04	0.453	0.02	-0.192
F test (difference =0)	2.47	0.03	4.03	0.01	0.61
p-value	0.116	0.873	0.044**	0.915	0.433
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	5,256	5,306	4,959	5,199	5,254

Notes: standard errors in parentheses (clustered by survey cluster). *** p<0.01, ** p<0.05, * p<0.1.

Only using countries with Chinese aid both before and after the survey: In our main analysis, there are countries that only have aid projects before or after a survey was conducted. Including these countries increases the number of observations in the reference group, which may affect the regression results. Therefore, we exclude these countries: observations from South Africa, Mali, Senegal, Malawi, and Cape Verde are dropped. The regression results after this (in Table 6) are also similar to the main results in Table 4.

Table 6: logistic regression results only using countries with aid projects both before and after a survey.

Dependent variable:	(1)	(2)	(3)	(4)	(5)
Economic preferences	Government	Market	Experts	The wealthy	Community
active20	0.0889	-0.0204	-0.0387	-0.376**	-0.244*
	(0.166)	(0.157)	(0.141)	(0.156)	(0.140)
inactive20	-0.232	0.00735	-0.548***	-0.224*	-0.238
	(0.153)	(0.136)	(0.144)	(0.118)	(0.176)
difference in difference	0.352	-0.04	0.453	0.02	-0.192
F test (difference =0)	2.94	0.02	7.94	0.85	0
p-value	0.086*	0.887	0.004***	0.355	0.975
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	7,189	7,320	6,826	7,203	7,215

Notes: standard errors in parentheses (clustered by survey cluster). *** p<0.01, ** p<0.05, * p<0.1.

Using different distance thresholds: We expect Chinese aid projects to have the strongest impact on residents who live nearest to them, since they are most likely to expose to these projects. For the main results and other robustness checks, we use only 20km as a threshold to define the sphere of influence of Chinese aid. Here we use 30km, 40km, and 50km as

additional thresholds to test where the impact of aid projects stops. Table 7 reports the results.

When using a 30km buffer, the result of experts remains, though its significance level

decreases to the 0.1 level (column 3 Panel A). As we expand to 40km, the effect of aid

disappears. The analysis here seems to suggest that there is a boundary for Chinese aid's

effect on local economic preferences (for experts): this seems to be between 30 km and 40 km.

Table 7: logistic regression results using other cut-off distances.

Dependent variable: Economic preferences	(1) Government	(2) Market	(3) Experts	(4) The wealthy	(5) Community
Panel A: 30 km buffer					
active30	-0.100	0.135	-0.0435	-0.279*	-0.377***
	(0.146)	(0.147)	(0.128)	(0.147)	(0.132)
inactive30	-0.0215	0.0427	-0.333***	-0.0472	-0.561***
	(0.137)	(0.118)	(0.125)	(0.130)	(0.144)
difference in difference	-0.078	0.092	0.289	-0.231	0.184
F test (difference =0)	0.19	0.27	3.04	1.73	1.01
p-value	0.661	0.602	0.081*	0.188	0.313
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	11,512	11,774	11,018	11,501	11,678
Panel B: 40 km buffer					
active40	-0.192	0.260*	-0.0970	-0.169	-0.279**
	(0.144)	(0.145)	(0.125)	(0.134)	(0.124)
inactive40	0.115	0.0873	-0.343***	-0.187*	-0.252*
	(0.138)	(0.120)	(0.111)	(0.104)	(0.130)
difference in difference	-0.307	0.172	0.246	0.018	-0.027
F test (difference =0)	2.87	1.11	2.48	0.02	0.03
p-value	0.090*	0.291	0.115	0.898	0.868
individual controls	yes	yes	yes	yes	yes

local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	11,512	11,774	11,018	11,501	11,678
Panel C: 50 km buffer					
active50	-0.261*	0.261*	-0.115	-0.237*	-0.256**
	(0.135)	(0.143)	(0.128)	(0.134)	(0.124)
inactive50	0.102	0.155	-0.212*	-0.120	-0.188
	(0.139)	(0.127)	(0.115)	(0.107)	(0.124)
difference in difference	-0.363	0.106	0.097	-0.117	-0.068
F test (difference =0)	4.50	0.42	0.43	0.66	0.20
p-value	0.033	0.515	0.509	0.415	0.657
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	11,512	11,774	11,018	11,501	11,678

Notes: standard errors in parentheses (clustered by survey cluster). *** p<0.01, ** p<0.05, * p<0.1.

Aid and FDI: Some may wonder whether the effect of Chinese aid on economic preferences could be driven by Chinese foreign direct investment (FDI) to Africa. For instance, China uses its aid as an instrument to pursue economic interests such as to increase investment in Africa (Naím 2007). Or Chinese aid simply follows Chinese FDI because investment projects provide infrastructure and connections that help aid implementation. In both cases, Chinese aid would be highly correlated with its FDI. However, based on what we learned from the data, this is not the case.

As far as we know, geo-coded, open source subnational-level Chinese FDI data are not

available.[24] We use the second-best data, that is, the recipient country-year level data on Chinese FDI to all African countries and to the 16 countries included in our study respectively. Note the FDI data is only available from 2003 on.[25] Between 2003 and 2005, for the 16 countries included in our study, the correlation between yearly Chinese aid and Chinese FDI is 0.22.[26] In our online appendices, we run and report several regressions using Chinese FDI to predict Chinese aid. The coefficients of the FDI variable is far from being statistically significant across all model specifications (online Appendices Table A5).[27] Interestingly, when we extend the sample to the 2003-2014 period, regardless whether we use all African countries or only the 16 countries, the coefficient of the FDI variable becomes negative, though also not statistically significant. Therefore, it seems unlikely that the effect of aid projects on local preferences for economic leadership is driven by co-located Chinese FDI projects.

Chinese Aid and World Bank Aid: A Tale of Two Donors?

We do not find an equivalent effect from World Bank aid projects. We follow the same research design to study the effect of World Bank aid on local preferences. Panel A of Table 8 shows that there is not any significant relationship between World Bank aid projects and local economic preferences. For instance, for experts, the difference in difference estimate does not achieve significance (column 3 of Panel A, Table 8).

Table 8: World Bank aid results, using 20km as threshold for aid buffer.

Dependent variable: *Economic preferences*	(1) Government	(2) Market	(3) Experts	(4) The wealthy	(5) Community

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[24] the Financial Times fDi Markets dataset provides commercial data on both greenfield and expansion of physical FDI projects. However, Brazys and Kotsadam (2019) show that there are discrepancies, when aggregated at the global level, between this data set and official statistics such as the World Bank IBRD-IDA data.

[25] Data from: http://www.sais-cari.org/chinese-investment-in-africa, accessed August 10, 2019.

[26] The correlation slightly increases to 0.29 if we extend the time-period to 2003-2014.

[27] We also include control variables such as population, GDP per capita, regime type, and land areas.

		Panel A: ordered logit regressions			
active20	-0.0479	0.0734	-0.0819	-0.181**	-0.120
	(0.0850)	(0.0742)	(0.0682)	(0.0863)	(0.0752)
inactive20	-0.161	0.0297	-0.0402	0.000932	0.0425
	(0.132)	(0.110)	(0.110)	(0.144)	(0.120)
difference in difference	0.113	0.043	-0.041	-0.181	-0.162
F test (difference =0)	0.64	0.13	0.12	1.32	1.56
p-value	0.424	0.720	0.727	0.250	0.211
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	12,355	12,641	11,826	12,361	12,577
		Panel B: logistic regressions			
active20	-0.157	0.0283	-0.0862	-0.208**	-0.205**
	(0.0969)	(0.0855)	(0.0757)	(0.0935)	(0.0858)
inactive20	-0.421***	0.0164	-0.0357	-0.0256	-0.0508
	(0.146)	(0.134)	(0.122)	(0.145)	(0.135)
difference in difference	0.264	0.011	-0.050	-0.182	-0.154
F test (difference =0)	2.88	0.01	0.15	1.30	1.15
p-value	0.089*	0.934	0.701	0.253	0.284
individual controls	yes	yes	yes	yes	yes
local controls	yes	yes	yes	yes	yes
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
Observations	12,317	12,588	11,805	12,312	12,501

Notes: standard errors in parentheses (clustered by survey cluster). *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Only in Panel B of Table 8 in which we use logistic regressions, we find that World Bank aid increases preferences for national governments; however, once we use ordered logit

models, as in Panel A of Table 8, this relationship disappears, which suggests that the impacts of Chinese aid projects and World Bank aid projects on local economic preferences are different from each other. Our finding is particular to Chinese aid. Though World Bank aid and Chinese aid are both considered as from foreign donors and investors, unlike World Bank aid that has no impact on local preferences of developmental models, Chinese aid is able to increase local preferences of economic leadership that prefers experts to make the most important decisions about economic development.

Conclusion and Discussion

Africa has struggled with state-building and economic development for centuries. Western powers and international organizations have had an outsized role in African development over the past 70 years, but China's rapidly expanding financial reach is not raising a new set of questions. Given the vast scale of Chinese aid to African countries, understanding the ways that Chinese aid affects micro-level economic preferences is both of practical and theoretical importance. Also, given China's growing presence in Africa and the mounting criticism it has received, its socio-economic impacts are an especially urgent topic for students of international relations and development studies. In line with the recent studies that examine the local effects of aid projects in recipient countries, this paper departs from cross-country studies by examining within-country variation using geocoded aid and public opinion data.

We argue that Chinese aid to Africa has a unique character when compared with that of the Western donors. We name it the "technocracy hypothesis" which summarizes one core characteristic of Chinese aid projects to Africa. The technocracy thesis emphasizes technology transfers and the role of experts in solving development problems. This approach is consistent with China's domestic economic development experience over the past few decades (which is also linked to the ill-defined concept of a China Model). We have illustrated this technocratic approach by presenting qualitative evidence from Chinese aid projects to Africa such as the

ATDCs.[28]

More importantly, our results highlight that even brief exposure to Chinese aid projects can have a meaningful impact on popular preferences for economic leadership in Africa. Local exposure to active Chinese aid projects is associated with an increase in preference for economic leadership by experts, but it has no impact on preferences for other economic leaderships including the government, the market, the rich, or local community. Given that changes in perceptions and preferences could have a substantial influence on choices of local and national economic development models, our results have important policy implications for the development of aid-receiving countries. However, future research should find more evidence that explains *why* Chinese aid projects are generally perceived as advocating for an expert- and technology-driven development model by local populations in Africa.

Finally, our work sheds lights on the heterogenous effects of Chinese and World Bank aid to Africa. Our findings suggest that aid from the World Bank does not shape local economic preferences. However, we do not yet have a good sense of why this is the case. In other words, what accounts for the differential effects of Chinese aid and World Bank aid? Are the characteristics of these projects different? Or do the differences lie in implementation?[29] While more research is certainly needed to better understand the impacts of Chinese aid on Africa and its differences with aid from other donors, we hope this article has contributed to this new

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[28] A technocracy model does not challenge current rulers in Africa. It may just meet African's need for critical goods such as infrastructure investment and agricultural technologies and skills. Chinese aid may even bring more support for political leaders in African democratic states. For instance, Dreher et al. (2019) suggest that China's aid tends to target African leaders' birthplaces. Our findings might help to explain why Beijing is more attractive to African leaders than the UN.

[29] Gehring et al. (2019) also study the heterogeneous effects of World Band and Chinese aid. Their focus is on conflict, citizen protest, repression, and popular acceptance of authoritarian vs. democratic norms. They highlight the diffrence between a more economic growth and stability-oriented Chinese perspective and a rule-based democratic perspective of the World Bank. However, they emphasize that the impact of Chinese and World Bank aid on stability is rather complex.

and exciting area of empirical inquiry.

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Online Appendices

Table A1. Variable descriptions.

Variables	Descriptions
Dependent variables	
prefer government: dummy	Dummy variable equal to one if, the respondent "Approve" or "Strongly Approve" "*The government plans the production and distribution of all goods and services*". Zero if the respondent selects "Disapprove" or "Strongly Disapprove".
prefer government: ordinal	Ranging from 1 to 5, capturing the response categories "Strongly Disapprove", "Disapprove", "Neither Approve Nor Disapprove", "Approve", and "Strongly Approve" respectively, given response to the question "*The government plans the production and distribution of all goods and services*".
prefer market: dummy	Same as government dummy but using question of "*Individuals decide for themselves what to produce and what to buy and sell*".
prefer market: ordinal	Same as government ordinal but using question of "*Individuals decide for themselves what to produce and what to buy and sell*".
prefer experts: dummy	Same as government dummy but using question of "*Economic experts (including foreign donors and investors) make the most important decisions about our economy*".
prefer experts: ordinal	Same as government ordinal but using question of "*Economic experts (including foreign donors and investors) make the most important decisions about our economy*".
prefer the wealthy:	Same as government dummy but using question of "*Wealthy

dummy	Kenyans [for Kenya] provide for the needs of their own communities".
prefer the wealthy: ordinal	Same as government ordinal but using question of "Wealthy Kenyans [for Kenya] provide for the needs of their own communities".
prefer community: dummy	Same as government dummy but using question of "People go back to the land and provide mainly for their own needs as a community".
prefer community: ordinal	Same as government ordinal but using question of "People go back to the land and provide mainly for their own needs as a community".

Distance to aid, km

active: 20km	Dummy variable equal to one if the respondent lives within 20 km of a Chinese projects site where aid project is been or being implemented at the time of the interview, zero otherwise.
inactive: 20km	Dummy variable equal to one if the respondent lives within 20 km of a Chinese aid project where the implementation of the project had not yet started at the time of the interview (but will before 2005) and no any active projects within the same distance.
active: 30km	Same as active20 but using a cut-off of 30 km.
inactive: 30km	Same as inactive20 but using a cut-off of 30 km.
active: 35km	Same as active20 but using a cut-off of 35 km.
inactive: 35km	Same as inactive20 but using a cut-off of 35 km.

Control variables
individual controls

age	Age in years.
gender	Dummy variable equal to one if the respondent is female, zero otherwise.
urban	Dummy variable equal to one if the respondent lives in an urban area, zero otherwise.
education	Education in years.

Control variables
local controls
(all variables are from Prio-Grid data)

distance to border	"bdist3". It "gives the spherical distance (in kilometer) from the cell centroid to the territorial outline of the country the cell belongs to".
distance to capital	"capdist". It "gives the spherical distance in kilometers from the cell centroid to the national capital city in the corresponding country".
excluded	It "counts the number of excluded groups (discriminated or powerless)".
night lights	"nlights_calib_mean". It measures average nighttime light emission from a grid in given year.
oil	"petroleum_y". It "is a dummy variable for whether onshore petroleum deposits have been found within the given grid cell for any given year."
diamond	"diamprim_y". It "is a dummy variable for whether primary (kimberlite) diamond deposits have been found within the given grid cell for any given year".
gold	"Goldsurface_y". It "is a dummy variable for whether surface gold deposits defined as deposits that are located near the surface".

Table A2. Results after Dropping Malawi and South Africa.

Dependent variable:	(1)	(2)	(3)	(4)	(5)
Economic preferences	Government	Market	Experts	The wealthy	Community
active20	0.134	0.0725	0.00906	-0.259*	-0.259*
	(0.160)	(0.158)	(0.136)	(0.154)	(0.135)
inactive20	-0.0907	0.168	-0.487***	0.0780	-0.409***
	(0.146)	(0.130)	(0.127)	(0.140)	(0.154)
age	0.00713	-0.0111	-0.0258***	-0.00431	-0.0103
	(0.00779)	(0.00777)	(0.00791)	(0.00745)	(0.00767)
gender	0.0228	0.0487	0.169**	0.101	0.239***
	(0.0697)	(0.0747)	(0.0697)	(0.0618)	(0.0735)
education	0.0251	-0.0964***	0.0245	-0.0298	-0.0419
	(0.0349)	(0.0355)	(0.0336)	(0.0334)	(0.0377)
urban	-0.0164	0.0232	0.0588	0.0630	0.157*
	(0.0795)	(0.0774)	(0.0881)	(0.0840)	(0.0840)
distance to capital	0.000317	-0.000184	0.000334	-0.000542	6.85e-05
	(0.000398)	(0.000333)	(0.000405)	(0.000430)	(0.000383)
distance to border	-0.00164**	0.000197	-0.000597	-0.000730	0.000483
	(0.000805)	(0.000676)	(0.000760)	(0.000821)	(0.000736)
night lights	-1.292	0.205	-0.440	-0.670	-2.688***
	(0.962)	(0.878)	(0.918)	(0.855)	(0.918)
excluded	0.153	0.0897	-0.0470	0.290***	0.111
	(0.127)	(0.129)	(0.0989)	(0.108)	(0.116)
oil	-0.117	0.886**	0.243	0.643***	0.848*
	(0.304)	(0.390)	(0.285)	(0.220)	(0.438)
diamond	-0.320	0.149	-0.212	-0.270	0.733**
	(0.336)	(0.221)	(0.253)	(0.265)	(0.323)
gold	-0.283	-0.195	-0.00839	-0.224	-0.494**
	(0.241)	(0.282)	(0.219)	(0.163)	(0.231)
Constant	0.472	1.698***	0.583	-0.0229	0.889**
	(0.365)	(0.396)	(0.396)	(0.362)	(0.401)
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
difference in difference	0.224	-0.095	0.496	-0.337	0.150
F test (difference =0)	1.51	0.24	8.62	3.53	0.64
p-value	0.219	0.622	0.003***	0.060*	0.421
Observations	9,059	9,254	8,680	9,121	9,177

Notes: logit regressions. Standard errors in parentheses (clustered by survey cluster). *** p<0.01, **

p<0.05, * p<0.1.

Table A3. Results Using Surveys Up to 2006.

Dependent variable:	(1)	(2)	(3)	(4)	(5)
Economic preferences	Government	Market	Experts	The wealthy	Community
active20	0.0652	0.204	-0.00576	-0.165	-0.505***
	(0.134)	(0.140)	(0.120)	(0.134)	(0.126)
inactive20	-0.214**	-0.00908	-0.310***	-0.447***	-0.360***
	(0.106)	(0.0924)	(0.111)	(0.106)	(0.106)
age	-0.0142***	0.00751*	-0.0232***	-0.0100**	-0.00408
	(0.00433)	(0.00443)	(0.00463)	(0.00455)	(0.00434)
gender	-0.0288	0.00333	0.193***	0.0405	0.127**
	(0.0579)	(0.0599)	(0.0568)	(0.0512)	(0.0598)
education	0.0411	-0.108***	0.0287	-0.0144	-0.0541*
	(0.0296)	(0.0288)	(0.0284)	(0.0277)	(0.0307)
urban	0.0545	0.0873	-0.00380	0.0808	0.256***
	(0.0698)	(0.0686)	(0.0744)	(0.0744)	(0.0851)
distance to capital	-0.000236	-8.93e-05	0.000127	-0.000497*	-7.83e-05
	(0.000255)	(0.000212)	(0.000240)	(0.000259)	(0.000246)
distance to border	-0.00141**	0.000464	-0.000742	-0.000443	0.000158
	(0.000681)	(0.000567)	(0.000609)	(0.000627)	(0.000595)
night lights	0.230	-0.549	-0.209	-0.0773	-1.051**
	(0.479)	(0.447)	(0.493)	(0.420)	(0.450)
excluded	0.0776	0.162	-0.0586	0.265***	-0.000437
	(0.112)	(0.133)	(0.100)	(0.100)	(0.106)
oil	-0.208	0.943**	0.236	0.621***	0.752*
	(0.303)	(0.387)	(0.278)	(0.213)	(0.419)
diamond	-0.0125	-0.388**	0.352**	-0.119	-0.361**
	(0.166)	(0.155)	(0.154)	(0.149)	(0.171)
gold	0.237	0.0224	-0.158	0.00932	-0.00422
	(0.185)	(0.172)	(0.163)	(0.151)	(0.195)
Constant	0.945***	1.329***	0.613*	0.0397	0.825***
	(0.290)	(0.312)	(0.314)	(0.293)	(0.311)
region fixed effects	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes
difference in difference	0.2792	0.21308	0.30424	0.282	-0.145
F test (difference =0)	3.24	1.36	3.49	1.24	0.62
p-value	0.071*	0.243	0.061*	0.265	0.432
Observations	9,059	9,254	8,680	9,121	9,177

Notes: logit regressions. Standard errors in parentheses (clustered by survey cluster). *** p<0.01, **

Table A4. Determinants of local Chinese aid projects, 2000-2005.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2000-2005	2000	2001	2002	2003	2004	2005
distance to border	-0.0109**	-0.0220***	-0.0104**	-0.0345***	-0.00557	0.00581	-0.00666
	(0.00434)	(0.000456)	(0.00527)	(0.00899)	(0.00572)	(0.00468)	(0.00654)
distance to capital	-0.0102***	-0.0208***	-0.00603*	-0.0332***	-0.00886***	-0.00101	-0.0105***
	(0.00183)	(0.00131)	(0.00345)	(0.00651)	(0.00299)	(0.00108)	(0.00217)
excluded	-1.018	-13.57	-2.338**	-1.384	-0.431	-1.372	-0.170
	(0.683)	(8.462)	(1.022)	(1.339)	(0.857)	(0.860)	(0.653)
night lights	-5.121	199.6*	0.184	-13.78	-9.731*	81.12***	-13.75**
	(8.251)	(119.0)	(14.65)	(8.776)	(5.613)	(20.91)	(6.867)
urban index	0.994***	-1.023	1.107***	1.929***	1.125***	1.384**	1.640***
	(0.171)	(1.342)	(0.428)	(0.287)	(0.266)	(0.557)	(0.382)
gold	1.432		1.460		0.141	4.243***	2.734***
	(0.935)		(2.156)		(1.916)	(1.269)	(0.948)
oil	-	-	-	-	-	-	-
diamond	3.438***		4.167	6.700***	4.063***		6.471***
	(1.315)		(2.810)	(1.096)	(1.247)		(1.675)
Observations	16,101	1,046	1,413	2,327	1,996	1,308	1,741

Notes: Using logistic regressions. Some results omitted because of "predicts failure perfectly" or "collinearity". Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A5. Relations between China's aid and FDI in Africa.

Dependent variable: Aid (logged)	(1) All country (2003-2014)	(2) R2 country (2003-2014)	(3) All country (2003-2005)	(4) R2 country (2003-2005)
FDI stock (logged)	-0.0780	-0.209	-0.0341	0.280
	(0.162)	(0.262)	(0.369)	(1.031)
polity	0.00942	-0.271	0.516*	-0.245
	(0.0832)	(0.179)	(0.304)	(1.142)
land area (logged)	-2.312	0.268	-5.845	-2.186
	(4.452)	(2.426)	(14.62)	(5.780)
population (logged)	2.378	3.918	7.743	4.525
	(4.834)	(7.284)	(15.72)	(17.65)
resource rich	0.0217	-0.00723	0.0720	0.194
	(0.0263)	(0.0738)	(0.117)	(0.246)
GDP per capita	-0.00140*	-0.00273**	0.00236	0.00105
	(0.000749)	(0.00108)	(0.00324)	(0.00354)
Constant	3.226	-24.00	-60.19	-33.57
	(36.93)	(82.26)	(118.6)	(191.7)
year fixed effects	yes	yes	yes	yes
recipient country fixed effects	yes	yes	yes	yes
Observations	344	156	68	34
R-squared	0.439	0.431	0.675	0.598

Notes: Using OLS regressions. Chinese aid stock is aggerated into country level from AidData and using sum of aid volume in each year for each country (USD). Missing values are mainly contributed by aid data which extracted from AidData. The number missing is 127 out of 648 (accounts for 19.5%) for all African countries from 2003 and 2014. Polity data collected from PolityIV, other control variables obtained from World Bank Indicators. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.