

# Where does the dragon's gift go? Subnational distribution of China's aid to Sub-Saharan Africa from 2007 to 2012

*Leticia Jin Bei*

The London School of Economics and Political Science

## Abstract

As the largest emerging donor, China has seen its bilateral aid increasing at a staggering rate, particularly to Sub-Saharan Africa. Nevertheless, due to a lack of transparency and nonconformity to Western reporting practices, relatively little is known about the motivations, principles and modalities of Chinese aid. This paper makes use of geocoded datasets recently made available by AidData to investigate the subnational distribution of Chinese aid, examining China's economic interests and poverty in recipient countries as potential determinants of aid received by subnational regions. World Bank aid is used as a benchmark for comparison. While my analysis fails to find a correlation between economic interests and aid, it shows Chinese aid to be consistently less pro-poor than World Bank aid and inadvertently finds a strong tendency for Chinese aid to go into capital cities; both findings support the request-based nature of Chinese aid.

## Table of Abbreviations

<b>CRBC</b>	China Road and Bridge Corporation	<b>MPI</b>	Multidimensional Poverty Index
<b>DAC</b>	Development Assistance Committee	<b>NDRC</b>	National Development and Reform Commission
<b>DHS</b>	Demographic and Health Survey	<b>ODA</b>	Official Development Assistance
<b>FDI</b>	Foreign Direct Investment	<b>OOF</b>	Other Official Flows
<b>FOCAC</b>	Forum on China-Africa Cooperation	<b>SIDCA</b>	State International Development Cooperation Agency
<b>GADM</b>	Database of Global Administrative Areas	<b>SOE</b>	State-owned Enterprise
<b>MFA (China)</b>	Ministry of Foreign Affairs	<b>UCDP</b>	Uppsala Conflict Data Program

**MOFCOM** Ministry of Commerce  
(China)

‘Adhering to equality and mutual benefit, stressing substantial results, and keeping pace with the times without imposing any political conditions on recipient countries, China’s foreign aid has emerged as a model with its own characteristics.’

**State Council, 2011**

‘What they want to help you with, is what you have identified as your need. With Britain, America, they identify your needs.’

**Alhaji Momodu Koroma**

Former Foreign Minister of Sierra Leone, 2009

## **Introduction**

Since the turn of the century, the international community has witnessed the rise of emerging donors, often dubbed as “a silent revolution in development assistance” (Woods 2008, p. 1205). The People’s Republic of China, the leading donor among this group, increased its aid by a staggering 30% per annum between 2004 and 2009, nearly half of which went to countries on the African continent<sup>1</sup> (State Council 2011).

Sub-Saharan Africa is a region of particular interest for China. The country is already the largest trading partner of the region and its foreign direct investment (FDI) in Africa is rapidly rising. Assistance to Africa, which is the continent with the greatest number of developing countries by far, is of strategic interest to China’s core foreign policy of ‘South-South Cooperation’. Unlike the West, who has largely perceived the region as ‘hopeless’, China sees it as a land of opportunities (AfDB et al. 2011). The establishment of the Forum on China-Africa Cooperation (FOCAC) in 2000 bears testament to this sentiment.

Baffling observers and scholars, however, Chinese aid remains shrouded in considerable secrecy. Only two official white papers on foreign aid have been published to date and with vague and insufficiently disaggregated information. Further complicating the issue, as the Chinese government does not keep data on their aid projects as required by guidelines of the OECD Development Assistance Committee (DAC), it is difficult to fit them into the DAC’s categories. What is referred to as ‘aid’ in this paper conforms to DAC’s definition of Official Development Assistance (ODA), “government aid designed to promote the economic development and welfare of developing countries” (OECD 2018), which includes grants, loans with at least 25% grant element, and technical assistance. Chinese ODA-like projects include ‘turn-key’ infrastructure construction, technical assistance, training programmes, medical assistance, humanitarian aid, in-kind donations and debt relief (State Council 2014). On the other hand, much of what is described as ‘Chinese aid’ in the media instead falls under the DAC’s category of ‘Other Official Flows’ (OOF), which primarily consists of

---

<sup>1</sup> China does not adopt the convention of grouping North Africa under MENA, thus, Africa here refers to the entire continent. In this paper, however, unless otherwise stated, I use ‘Africa’ to refer to Sub-Saharan Africa.

export credits and support for private investment (Brautigam 2009). There is a consensus in the literature that China's ODA is much smaller than its OOF.

Fortunately, by tracking and triangulating media reports, AidData has managed to compile a geocoded dataset of Chinese projects in Africa and coded each project's resemblance to ODA or OOF (Strange et al. 2017). In this paper, I make use of the dataset in order to investigate the subnational distribution of Chinese aid. Understanding where aid goes is vital for helping us understand not only the motivations but also the principles and modalities of Chinese aid. This is of broader significance to the international community as observers see the rise of Chinese aid as presenting a new orthodoxy in the political economy of development (Mullins et al. 2010).

Given the limited availability of geocoded data for bilateral OECD donors, I compare the subnational distribution of Chinese aid to that of the World Bank. Despite an asymmetry in institutional design, the World Bank's largely independent bureaucracy (Barnett & Finnemore 2004) and rigorous economic analysis (Jenkins 1997) entails that aid decisions are made largely need-based and minimally affected by individual state interest. It thus serves as a useful benchmark.

Using a sample of 186 subnational regions in 19 countries within Sub-Saharan Africa with data on geolocatable aid commitment between 2007 and 2012, I examine two potential determinants of Chinese aid distribution: first, economic interest and, secondly, poverty in recipient countries. While my analysis fails to find a correlation between economic interests and aid, it shows Chinese aid to be consistently less pro-poor than World Bank aid and inadvertently finds a strong tendency for Chinese aid to go into capital cities; both these findings support the request-based nature of Chinese aid.

## Literature Review

While China's increased engagement in Africa since the early 2000s has attracted considerable media interest, scholarly attention lagged behind at least until the end of the last decade. Deborah Brautigam's 2009 book *The Dragon's Gift* constitutes the first comprehensive account of China's external assistance on the continent and a systematic attempt at debunking myths perpetuated by mainstream media outlets. Since then, a growing body of literature has emerged which examines different aspects of Chinese aid, utilising case studies, interviews and archival work. Some scholars (Tan-Mullins et al. 2010; Hackenesch 2011; Cabria 2013; Cheng & Taylor 2017; etc.) focus on the motives and modalities of Chinese aid, comparing it to that of Western donors. Others (Corkin 2011; Varrall 2016; Zhang & Smith 2017) have looked more specifically into the domestic actors and agendas involved in the decision-making process of Chinese aid disbursement. This first body of literature informs the hypotheses on motivations for Chinese aid distribution, which I construct in the next section.

Choosing another angle, several papers have analysed the geographical distribution of Chinese aid on the national level. Looking at Chinese ODA disbursed from 2000 to 2006, Dreher & Fuchs (2015) find China to favour countries with lower GDP per capita, which seems to suggest that Chinese aid is to some extent need-based; yet, an alternative explanation may be that political favour can be extracted more easily from poorer countries. They also discover Chinese ODA to be largely independent of recipient countries' resource endowment but linked to export interests and geopolitical considerations such as the recognition of Taiwan. In another paper using a different dataset, Dreher et al. (2018) find that Chinese ODA is largely guided by diplomatic interests and not correlated to bilateral trade and recipient countries' resource endowment. In sum, national-level quantitative analyses have not been entirely conclusive on the determinants of Chinese aid distribution.

More recently, after geocoded datasets were made available by AidData, scholars have attempted to analyse determinants of aid distribution on the subnational level. Briggs (2017) concludes that aid from the World Bank and the African Development Bank (AfDB) do not correlate with a region's share of the poorest quintile of the country's population and instead disproportionately flows to regions with more rich people. Desai & Greenhill (2017), in focusing on Nigeria, contradict Briggs and state that the regional distribution of World Bank aid per capita is indeed positively correlated with the level of poverty in the region. Aside from poverty, several scholars have also looked at electoral incentives and ethnicity (Jablonski 2014; Masaki 2018) as determinants of subnational aid allocation. Partly due to data quality issues, most of these papers are either solely focused on the World Bank or restricted to a single country. The only research on the subnational distribution of Chinese aid is from Dreher et al. (2006). They find that the birth regions of political leaders receive substantially more Chinese ODA than other regions and that this is not the case for World Bank aid. However, since their paper is only concerned with aid *capture*, there is still no research to date examining economic self-interest or poverty as determinants of Chinese aid at the subnational level.

This paper tries to bridge the gap between the two bodies of quantitative literature. While the subnational analysis does not allow us to investigate politico-strategic motivations for aid like the recognition of Taiwan or votes in the UN, my research marks an important foray into a relatively understudied area: the cross-country study of determinants of subnational Chinese aid distribution.

## **Theory & Hypotheses**

### **Economic interests**

Many scholars argue that China employs bilateral aid as a strategic means to the furthering of its own economic interests. Brautigam (2009) described Chinese external assistance as tools of an activist 'developmental state'. She notes that China's aid decisions are influenced by its own experience of receiving Japanese aid during the 1980s when loans were largely used to build transport infrastructure facilitating raw material exports to Japan. Given the rising

demand for raw material inputs that accompanied China's rapid economic expansion, energy security has become a core component of Beijing's foreign policy agenda (Alden & Alves 2009) and bilateral aid belongs to their foreign policy toolkit. This seems to be verified by China's use of 'The Angola Model', a funding arrangement where recipient countries use oil and other commodities as collateral to secure low-interest infrastructure loans (Corkin 2011). Large credit lines have been granted in exchange for oil supplies, mining development and exploration rights (Alden & Alves 2009).

Aside from natural resource acquisition, aid is also used to benefit Chinese firms. While DAC donors have reduced so-called 'tied aid', the provision of aid on the condition that it be used to procure goods and services from the donor country, China still heavily practices it; the Ministry of Commerce (MOFCOM) manages the tender processes for large infrastructure projects and often only firms on the 'list of approved companies' are allowed to bid. Concessional loans often bypass beneficiary countries' accounts and are given directly to contracted Chinese companies (Cabria 2013). In addition to its relation with trade, aid is also interwoven with FDI: the 'Grand Economic Strategy' introduced by the Chinese government in 1995 sets out the goal of combining aid and other forms of economic cooperation to assist Chinese enterprises in opening up the markets of recipient countries (Cheng & Taylor 2017). This seems to have intensified under the 'Going Out' policy: formally introduced in 2001, the strategy promotes overseas investment and relocation of mature industries, providing financial incentives to large state-owned enterprises (SOEs) and private national champions like Huawei (Gu et al. 2016); external assistance could be part of the toolkit. For instance, aid to Angola has been characterised as a "narrow elite business dialogue" (Mullins et al. 2010, p.870), where aid is bundled up with investments from SOEs like the China Road and Bridge Corporation (CRBC). Beyond infrastructure construction, this also seems to be the case for aid in the agriculture sector. Chinese firms receive grants to build and operate agricultural technology demonstration centres for a number of years, after which the centres are expected to be self-sustaining (Brautigam 2009). In Mozambique, the establishment of the demonstration centre has encouraged many agricultural companies to seek investment opportunities there (Xu et al. 2016). Similarly, in Ghana, China's interest-free loan to build landing sites for fishing communities has improved access rights for Chinese fishing companies exploring off-shore processing opportunities (Mullins et al. 2010).

The dominance of economic interest is reflected in China's domestic institutional set-up. MOFCOM has been the primary agency in charge of aid (Breslin 2013; Varrall 2016); additionally, since 1995, a new system of concessional aid loans has been offered through the Export-Import (Exim) Bank to complement grants and interest-free loans and plays an increasingly significant role in the provision of Chinese aid (Brautigam 2009). Given the role played by actors with primarily commercial mandates, one would expect aid decisions to be predominantly driven by economic interests.

Lastly, it is noteworthy that China itself does not shy away from admitting the role self-interest plays in foreign aid; rather, the idea of 'mutual benefit' is emphasised by state media to distinguish Chinese assistance from paternalistic Western aid. 'The Eight Principles for

Economic Aid and Technical Assistance to Other Countries', announced in 1964 in the context of the Non-Aligned Movement and frequently referred to even today, clearly states that Chinese aid is based on the principle of 'equality and mutual benefit' and that the Chinese government never regards aid as "a kind of unilateral alms" (Government of China, 1964). In sum, lines are often blurred between aid, South-South cooperation, and investment. From the above, I infer my first hypothesis on the subnational distribution structure of Chinese aid in Sub-Saharan Africa:

**Hypothesis 1:** Chinese aid is more likely to go into regions with more natural resources and greater presence of Chinese business interests.

## Poverty

Due to the absence of such aims to begin with, Chinese aid is not expected to be targeted at poor people. Unlike with DAC donors, there is no explicit mention of any poverty-reduction agenda in China's official policy. This has to do with China's own development experience, which was driven by manufacturing and infrastructure construction and often criticised as a blind pursuit of GDP growth over social and environmental concerns. The absence of a pro-poor mandate is reflected in Chinese sectoral aid focus on infrastructure and energy, which stands in contrast to traditional donors' preferences for projects on social and civil society issues.<sup>1</sup>

Some may note, however, that due to interactions with the international aid community, the Chinese government has increasingly devoted attention to poverty reduction, seen in the announcement of intentions to prioritise 'cooperation areas concerning people's well-being' (FOCAC 2009) following the 2009 FOCAC Conference. Nonetheless, it is still dubious to what extent the verbal commitment has translated into poverty-sensitive aid allocation in reality, partly due to a relative lack of rigour in project approval and appraisal. Staff in MOFCOM's Department of Foreign Aid are often career bureaucrats who lack specialist knowledge or expertise in development (Varrall 2016; Brautigam 2009). Chinese officials largely deal only with the President's office, unlike traditional donors who prefer to deal with ministries instead (AfDB et al. 2011). There is thus limited input from line ministries in the decision-making process, which often entails an absence of rigorous cost-benefit analysis or feasibility studies. Moreover, by operating outside the DAC, China does not undergo regular peer reviews and thus does not need to conform to the DAC standards of aid effectiveness.

In addition to the absence of a lack of rigour in aid appraisal, Chinese aid is also likely to be less pro-poor because of the request-based nature of its aid system. Officials in China's Ministry of Commerce emphasize during interviews that "the initiatives generally come from the recipient side" (Dreher et al. 2016, p. 8). Large-scale loans are typically negotiated on a case-by-case basis at the highest political level (Hackenesch 2011), instead of being based

---

<sup>1</sup> This paper is only concerned with the allocation pattern of Chinese aid in relation to poverty. My discussion does not attempt to suggest that social sector projects are 'better'; many have noted the need for external finance to be used for productive purposes in the interest of Africa's long-term development.

upon the assessment of local needs. A request-based system is also consistent with the long-standing foreign policy principle of non-interference. China's anti-imperialist discourse has made it reluctant to assess development needs and devise strategies on behalf of other countries. The 2014 White Paper on Foreign Aid states that "*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 choosing their own paths and models of development*" (State Council 2014). While recipient governments can arguably use Chinese aid to alleviate poverty, given the poor governance quality in Sub-Saharan Africa in general, the scenario is unlikely; this is especially so given that, unlike with some DAC donors, Chinese aid is independent of institutional quality (Dreher & Fuchs 2015; Brautigam 2009).

In contrast, the World Bank clearly states that its mission is to end extreme poverty and promote shared prosperity. At least on paper, its aid allocation highly prioritises poverty reduction, especially after responds to criticisms of the dogmatic Structural Adjustment Programmes in the 80s and 90s and the commitment to the 2005 Paris Agreement on Aid Effectiveness, which promises better monitoring and a result-oriented approach to development aid (OECD, 2005). On top of its principle commitment, the World Bank's rigorous project approval process, which sets the standards for the international development community, makes its aid allocation likely to be poverty-sensitive in practice as well.

Thus, I infer my second hypothesis:

**Hypothesis 2:** Chinese aid has a weaker correlation with poverty in a region compared to World Bank aid. Rather, it has a comparatively higher tendency to go into rich regions.<sup>2</sup>

## Data

In my analysis, I use two of AidData's geocoded datasets: the *Chinese Official Finance to Africa dataset, 2000-2012* (Version 1.1.1) and the *World Bank Geocoded Research Release* (Version 1.4.2).<sup>3</sup> For Chinese official finance, AidData classifies each project's flow class into 'ODA-like', 'OOF-like' or 'Vague' based on the degree of concessionality and level of state involvement; I only use data on all projects coded as 'ODA-like'. Categorising Chinese flows based on Western standards of concessionality may not be ideal, as critics have pointed out that Chinese interest rates can be higher than DAC countries' because it is the only willing financier for certain types of projects with different risk parameters (Camba 2017). Nonetheless, given scant official reporting and for the purpose of my comparative analysis, the datasets are useful and sufficiently reliable.

---

<sup>2</sup> Empirically, if aid is not poverty-sensitive, it could go into richer regions due to project feasibility concerns (e.g. better pre-existing infrastructure in richer regions).

<sup>3</sup> The World Bank dataset includes projects from both the IBRD and IDA lending lines.

While data on Chinese and World Bank aid projects is available for 2000-2012, I only look at the period 2007-2012. For one, this is arguably a distinct phase of Chinese engagement in Africa. In late 2006, the first FOCAC summit was held, following which plans were announced to double aid effort to Africa in three years' time (Dreher & Fuchs 2015) and the China-Africa Development Fund was established. Furthermore, restricting the time period allows me to make use of Demographic and Health Survey (DHS) datasets in constructing my independent variables on wealth since only a limited number of surveys were conducted prior to the 2000s.

My sample is limited to all Sub-Saharan African countries where at least one Chinese and one World Bank project<sup>4</sup> in the given time period is geolocatable with a precision level at ADM1<sup>5</sup> regions or higher. It is further narrowed to countries for which a DHS survey was conducted between 2002 and 2007, making sure that data on wealth was measured not long before the period of interest. Notably few surveys were conducted in 2007 and thus not strictly antecedent to the period 2007-2012. Nonetheless, this arguably does not introduce reverse causality bias since aid projects are highly unlikely to change wealth distribution in the short term; I include them to receive a larger and more reliable sample.

The limitations outlined above leave us with 186 subnational regions in 19 Sub-Saharan countries. My sample of countries covers all sub-regions of Sub-Saharan Africa and includes countries with diverse area and population sizes. It also includes former colonies of France, Britain, Portugal, Germany and Belgium. Moreover, the countries have varying levels of resource endowment as well as varying levels of trade and investment links with China. However, it should be pointed out that the main factor limiting the size of my sample, availability of DHS dataset, is not random; the surveys are only carried out at the request of the countries. Be that as it may, this is not conceivably related to my variables of interests. In sum, the sample is largely representative of Sub-Saharan countries, with minimal selection bias.

Project data across 2007-2012 are merged into a cross-sectional dataset. The final dataset contains 351 Chinese projects (around 2 per subnational region on average) and 3605 World Bank projects.<sup>6</sup> A breakdown by country is shown in Figure I below.<sup>7</sup>

---

<sup>4</sup> Unless otherwise specified, 'projects' in this paper refers to unique subprojects, the unit of information used by AidData. These are technically only parts of larger projects if the project goes into two or more regions.

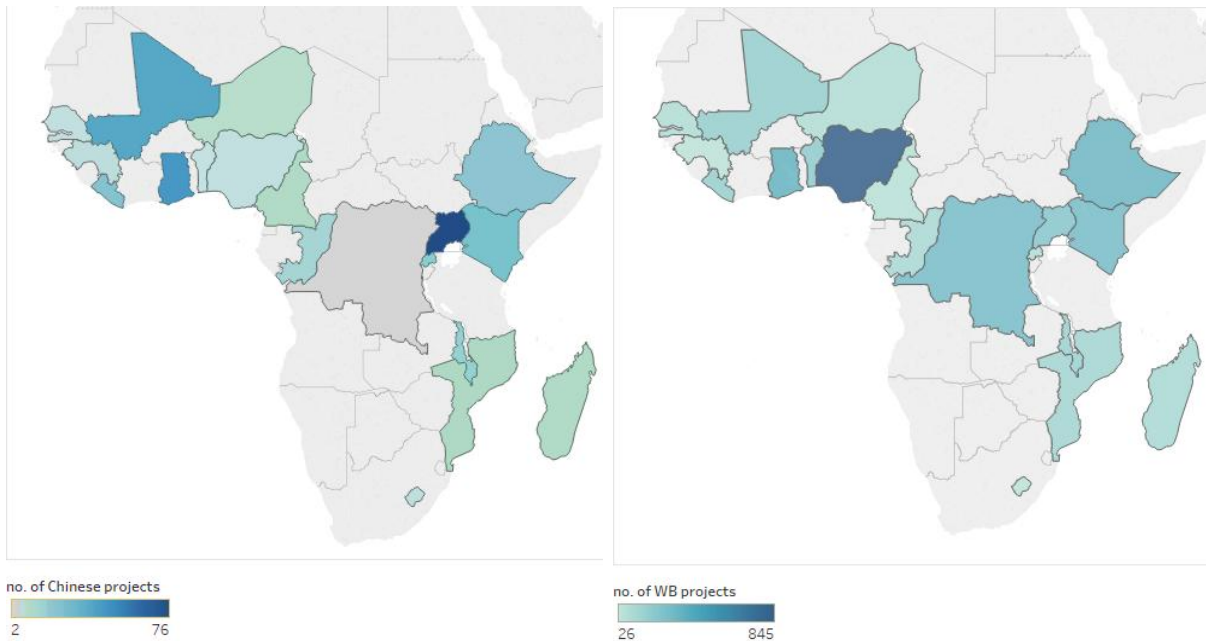
<sup>5</sup> ADM1 stands for First-order administrative division.

<sup>6</sup> Nation-wide projects (e.g. debt cancellation) or projects with no location information are excluded. Around 60% of all Chinese ODA projects and 90% of all World Bank projects are geolocatable to a subnational region.

<sup>7</sup> See Appendix A for more detailed metadata



Figure I. Sample of Sub-Saharan African countries and number of geolocatable aid projects, China and the World Bank (2007-2012)



## Methodology

My dependent variables, Chinese and World Bank aid per region, are operationalised in three ways. The first is a region's share of the country's total number of aid projects, essentially weighing all projects equally in value and significance. Problematically, given AidData's media-based method of data collection, the first measure will not be entirely accurate, as small projects may escape media attention and thus be omitted from the dataset. The second measure is a region's share of the total monetary value of aid the country receives, thus assigning weight to projects based on their financial value. Compared to the first measure, it also renders possible measurement error caused by project omission negligible. Nonetheless, it is not necessarily more accurate than the first measure; since social sector projects usually have much smaller monetary value than large infrastructural projects, this measure might only be able to tell us the distribution of aid in certain sectors. As financial information is only available for the larger projects which the geolocated subprojects are typically part of (for instance, only the overall cost is available for a railway that extends into several regions), I adopt the common practice in the literature to assume that the monetary value is evenly distributed across all subprojects. As the first two measures are constructed in relative terms, they yield results between 0 and 1. Lastly, the third measure takes the natural logarithm of the absolute monetary value of aid a region receives<sup>8</sup>. For consistency, all financial values are deflated to the base year of 2009.

One impediment is that for 22% of the Chinese projects financial information is missing. Dreher et al. (2016), who were involved in coding the dataset, note that most of the missing

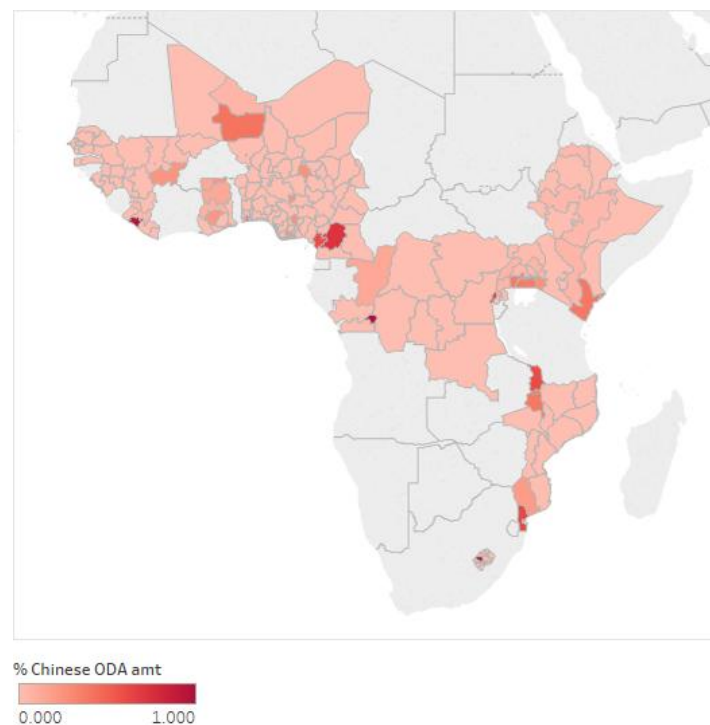
<sup>8</sup> If a region receives 0 USD in aid, I replace the value with 1 to enable log transformation.

values should correspond to small projects that did not attract much public attention. My inspection of project descriptions also shows that a large proportion of these projects involve in-kind donations (e.g. a few buses, computers), small medical teams and one-off training, which are likely to cost a relatively small amount. I thus set the missing values to 0. For a robustness check, I use an alternative method and replace missing values with an average value of other projects in the same sector. Since financial value is missing on all ODA projects in Madagascar, I drop it from the sample when I use the second and third operationalisation to measure Chinese aid (leaving us with 18 countries and 180 subnational regions).

All the data I use is on aid commitment, which is more readily available than that on actual disbursement. This increases the risk of overcounting as projects are often cancelled or scaled back (Strange et al. 2013). Yet, since this paper is primarily interested in aid motivations, principles and modalities, this is not a substantial limitation.

Figures IIa and IIb show aid per subnational region (adopting the second operationalisation). The fewer and smaller dark-coloured areas in Figure IIa almost always correspond with the location of national capitals which indicates that Chinese aid is more concentrated on and more likely to go into capital cities, which, geographically, are much smaller in size than other regions.

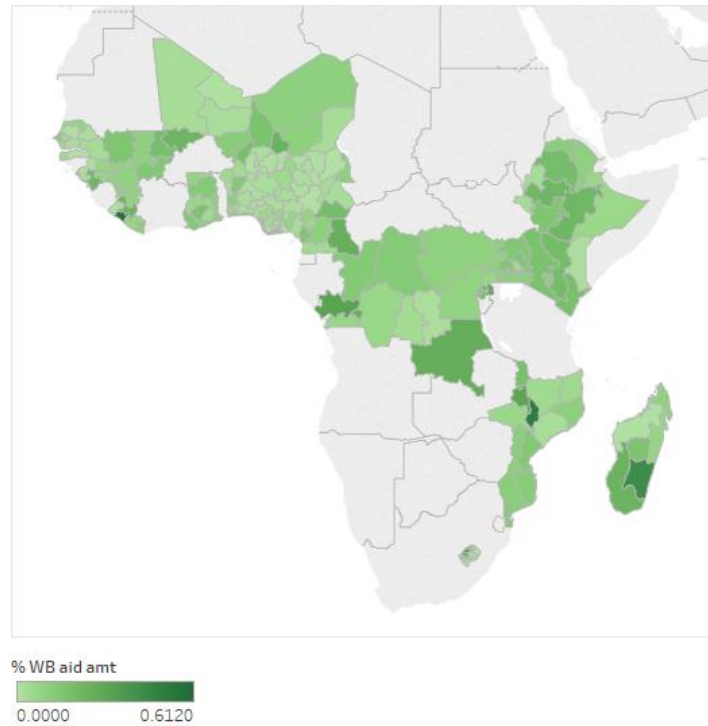
*Figure IIa. Subnational Regions' Share of Amount of Chinese Aid (2007-2012)*<sup>9</sup>



---

<sup>9</sup> Madagascar is excluded from the map, as explained above

Figure IIb. Subnational Regions' Share of Amount of World Bank Aid (2007-2012)



Using the three ways of operationalisation, I estimate two sets of regressions using ordinary least squares (OLS):

$$\%Aid_{ic} = \beta_1 \%Petrol_{ic} + \beta_2 \%OOF_{ic} + \beta_3 \%Poorest_{ic} + \beta_4 \%Richest_{ic} + \varphi X_{ic} + \gamma_c + \varepsilon_{it} \quad (1)$$

$$\begin{aligned} \ln(Aid)_{ic} = \\ \beta_1 \ln(Petrol)_{ic} + \beta_2 \ln(OOF)_{ic} + \beta_3 \ln(\%Poorest)_{ic} + \beta_4 \ln(\%Richest)_{ic} + \varphi X_{ic} + \\ \gamma_c + \varepsilon_{it} \quad (2) \end{aligned}$$

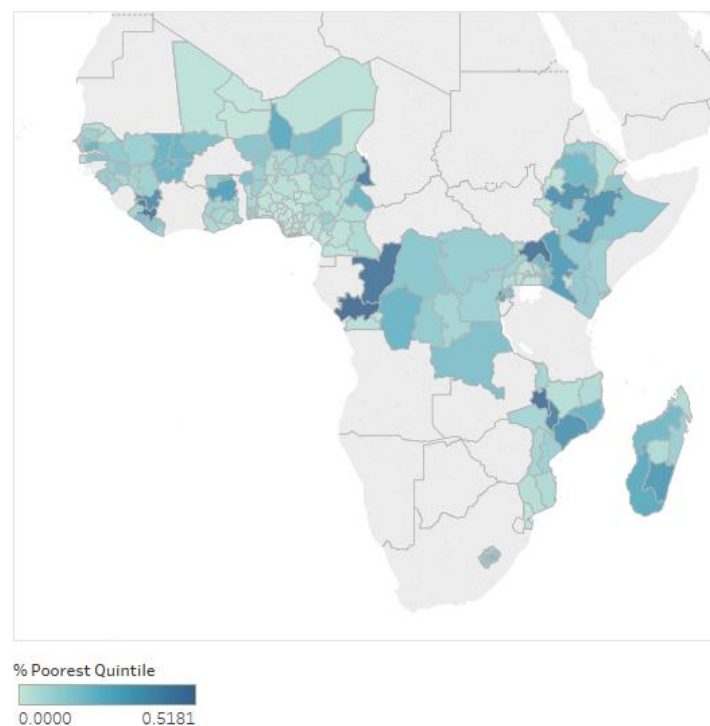
In Equation 1,  $\%Aid_{ic}$  is aid that goes into region  $i$  as a proportion of the total amount received by country  $c$  between 2007 and 2012; it thus relates to the first and second way of operationalisation. To test Hypothesis 1,  $\%Aid_{ic}$  is expressed here as a function of  $\%Petrol_{ic}$  and  $\%OOF_{ic}$ , i.e. region  $i$ 's share of the total amount of petroleum and Chinese OOF of country  $c$ . I use Lujala et al.'s (2007) dataset on global onshore oil and gas fields to construct the variable  $\%Petrol_{ic}$ , an operationalisation of natural resources. Using AidData's geo framework, which offers binary data on pixels overlapping with oil and gas fields<sup>10</sup>, I derive a measure of the number of 'petrol-producing' pixels in a region. Given the high resolution used in the geo framework (0.01 decimal degree), this measure offers a satisfactory approximation of a region's share of its country's petroleum.  $\%OOF_{ic}$  is used as a proxy for the level of Chinese business interests in the region. It might be noted that OOF may not be an entirely accurate proxy; allocation decisions are necessarily also affected by other factors other than business interest, such as project feasibility. Nonetheless, it is still useful since

<sup>10</sup> For a detailed discussion of the rasterization methodology, see Goodman, BenYishay & Runfola (2016).

readily available whereas Chinese trade and FDI figures cannot be disaggregated sub-nationally. While market size and amount of surplus labour could be potential predictors of Chinese FDI (Fu 2012), there is no available subnational data for these predictors either. Moreover, given its nature and the allocation procedure, OOF is likely to be a sufficiently accurate proxy of Chinese business interests. The bulk of China’s OOF is export buyers’ credits, offered mostly at commercial rates. OOF projects are almost entirely oriented towards commercial interests, with firms taking the initiative in requesting funding from the government (Brautigam 2009). The confidence in the proxy is also increased as Dreher et al. (2016)’s national-level analysis has consistently found OOF flows to be significantly correlated with bilateral trade ties. To construct the variable, I aggregate data on all OOF projects between 2002 and 2006.

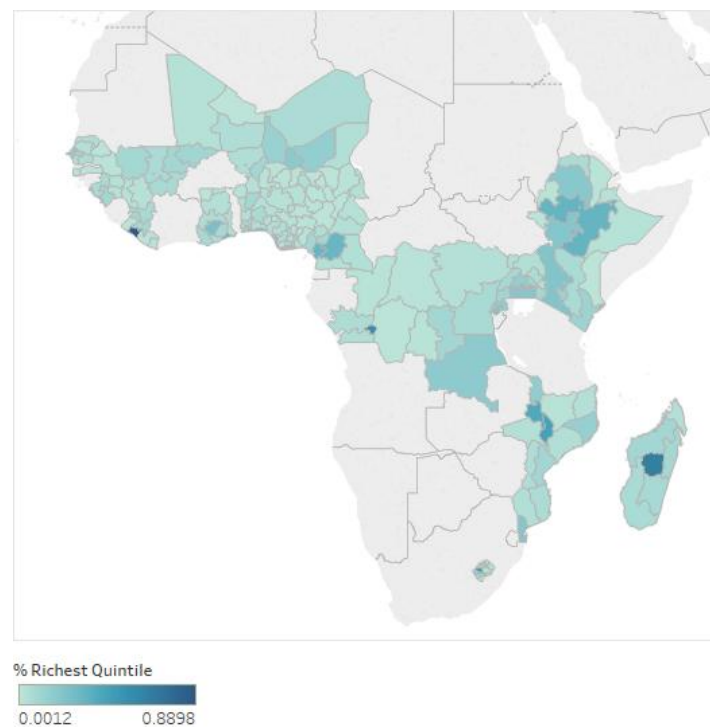
To test Hypothesis 2,  $\%Aid_{ic}$  is also expressed as a function of  $\%Poorest_{ic}$  and  $\%Richest_{ic}$ , region  $i$ ’s share of the poorest and richest quintile of country  $c$ ’s total population. To construct the variables, I replicate Briggs’ method of manipulating household survey results of the DHS. As the DHS uses a cross-nationally consistent methodology to group survey respondents into a wealth quintile relative to their country’s population, recalculating the figures yields an estimate of the proportion of each wealth quintile in each region<sup>11</sup>. Briggs’ measure looks at underlying wealth distribution rather than average wealth; it is thus preferable to common measures like night-time light intensity. Figure IIIa and IIIb show maps of each region’s share of the poorest and richest population quintiles.  $\phi X_{ic}$  in Equation 1 is a vector of control variables.

*Figure IIIa. Subnational Regions’ Share of the Poorest Population Quintile*



<sup>11</sup> For a detailed discussion of the recalculation steps, see Briggs (2017).

Figure IIIb. Subnational regions' share of the richest population quintile<sup>12</sup>



I include a dummy variable  $Capital_{ic}$ , as capital cities are likely to have a richer population and may also receive more aid.<sup>13</sup> A region is coded as 1 if it contains the country's capital, and 0 otherwise.<sup>14</sup>

$\%Area_{ic}$ , a region's share of the country's geographical size, is also controlled for. Larger regions logically are likely to contain more natural resources, and aid may be directed to larger regions, for instance, due to a greater need for network infrastructure. The variable  $Area$  is calculated from shapefiles of subnational boundaries from the Database of Global Administrative Areas (GADM).

$\%Conflict\ death_{ic}$  is a proxy for a region's relative conflict intensity, another potential confounding variable. Conflict can affect my independent variables on wealth, and donors may divert aid away from violent regions for security reasons. Conversely, donors might also commit more aid to violent areas in response to local needs and concerns (Bezerra & Braithwaite 2016). Using the Uppsala Conflict Data Program's (UCDP) dataset, I calculate each region's total number of fatalities resulting from conflict events between 2002 and 2006.

Given Dreher et al.'s (2016) finding that Chinese aid is more likely to go into political leaders' birthplaces, I also include a control variable  $Leaders' Birthregion_{ic}$ , which is likely to be correlated with my independent variables on wealth; Hodler & Raschky (2014)

<sup>12</sup> The fewer and smaller dark blue areas in Figure IIIb shows that the richest quintiles are highly concentrated and more likely to reside in capitals.

<sup>13</sup> These instincts are supported by bivariate scatterplots in Appendix B.

<sup>14</sup> For Benin, the official capital is Oueme, yet the seat of government is in Cotonou. I follow AidData's practice, coding Cotonou as 1 and Oueme as 0.

find subnational regions to have more intense night-time light when being the birth region of the incumbent political leader. I replicate and update Dreher et al.'s data to construct a list of birthplaces of African leaders in power between 2007 and 2012. I code a region as 1 if it appears on the list and 0 otherwise, creating a dummy variable. Similar to leaders' birthplace, co-ethnicity is another way through which domestic distributive politics may be a source of endogeneity. Yet given the insufficient granularity of my data, I am unable to control for ethnicity. Nonetheless, since the literature on ethnic favouritism is inconclusive (Kramon & Posner 2013) and Dreher et al. (2016) did not find a significant correlation between co-ethnicity and aid (in the same paper discussing leaders' birthplace), we can be somewhat confident that my results will not be significantly affected.

Since I am working with a cross-sectional dataset, all independent and control variables are either time-invariant (e.g. area, capital, natural resources) or measured before 2007 to prevent reverse causality bias.

Turning to Equation 2,  $\ln(Aid)_{ic}$  is the natural log of absolute values of aid received by region  $i$  of country  $c$  between 2007 and 2012, corresponding to the third operationalisation. Unlike in Equation 1, all my independent and control variables, except the binary ones, are operationalised as absolute rather than relative values, consistent with the dependent variables.<sup>15</sup> Given that  $\%Poorest_{ic}$  and  $\%Richest_{ic}$  are highly positively skewed, I take the natural log of these proportions as well.<sup>16</sup>

In both equations, I include the country fixed effect  $\gamma_c$ , to remove variance across countries. Although most of the variables in Equation 1 are already expressed in relative terms (share of national total), country fixed effects are still needed because dummy variables are present in my controls.

Noticeably, unobserved heterogeneity is a potential source of endogeneity in my model. This could be factors relating to project feasibility, for instance, level of pre-existing infrastructure or the topography of a region. There could also be a historical path dependency in aid distribution. Alpino & Hammersmark (2017) found the location of Christian missions, which often included health and education facilities, to be a reliable predictor for present-day spatial allocation of both World Bank and Chinese aid; since Chinese aid is unlikely to be influenced by Christian or Western biases, the correlation is likely to be explained by path dependency. Similar to Alpino & Hammersmark's methodology, I minimize the influence of unobserved confounders by using the World Bank as a benchmark and focusing on the peculiarities of Chinese aid.<sup>17</sup>

---

<sup>15</sup> For the variables  $Petrol_{ic}$  and  $Conflict\ Death_{ic}$ , I set the proportion to 0 if there is no petroleum or conflict death in the entire country.

<sup>16</sup> This is consistent with Briggs (2017), who logs transforms percentages as well. If the figure is 0, I replace the value with 0.000001 to enable log transformation.

<sup>17</sup> Assuming that project feasibility is evaluated by China and the World Bank in similar ways and ignoring certain factors that might only affect World Bank projects (e.g. environmental and social concerns).

Table I presents the summary statistics at the level of subnational regions. On average, each region received 47.8m USD of Chinese ODA and 79.8m of World Bank aid. Chinese aid seems to be more concentrated, given the larger standard deviation seen in all three ways of operationalisation.<sup>18</sup>

**Table I**  
**Summary statistics**

	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
<b>Dependent Variables</b>					
% Chinese ODA (no. of projects)	186	0.102	0.192	0	1
% Chinese ODA (value)	180	0.100	0.229	0	1
Chinese ODA (USD)	180	47.8m	169.3m	0	1,095m
% World Bank aid (no. of projects)	186	0.102	0.099	0	0.604
% World Bank aid (value)	186	0.102	0.106	0	0.612
World Bank aid (USD)	186	79.8m	114.6m	0	767.1m
<b>Independent Variables</b>					
% petrol	186	0.048	0.182	0	1
Petrol	186	468	1,563	0	12,784
% Chinese OOF (no. of projects)	186	0.102	0.214	0	1
% Chinese OOF (value)	186	0.102	0.259	0	1
Chinese OFF (USD)	186	55.6m	167.6m	0	1,144m
% poorest	186	0.102	0.112	0	0.518
% richest	186	0.102	0.147	0.001	0.890
<b>Control Variables</b>					
% area	186	0.102	0.105	0.0001	0.684
Area	186	48,506	79,335	33.75	536,790
% conflict death	186	0.081	0.199	0	1
Conflict death	186	176	878	0	9,773
Capital	186	0.102	0.304	0	1
Leaders' birth-region	186	0.172	0.378	0	1

## Results

The regression results from Equation 1 are shown in Table II. Columns 1 and 2 correspond to the first way of operationalisation, Columns 3 and 4 correspond to the second.

**Table II**  
**The effect of economic interest and poverty on aid allocation (relative value)**

<sup>18</sup> An alternative explanation may be that it is because there are 10 times more World Bank than Chinese projects in my dataset.

	(1) <b>% ODA projects</b>	(2) <b>% World Bank projects</b>	(3) <b>% ODA value</b>	(4) <b>% World Bank value</b>
% petrol	0.000 (0.049)	0.060 (0.048)	-0.034 (0.041)	0.041 (0.035)
% OOF projects	0.052 (0.100)	0.057 (0.053)		
% OOF value			-0.076 (0.068)	-0.036 (0.031)
% poorest	-0.060 (0.096)	0.331*** (0.068)	-0.211 (0.139)	0.201*** (0.063)
% richest	0.555*** (0.150)	0.370*** (0.090)	0.818*** (0.193)	0.574*** (0.090)
% area	0.078 (0.114)	0.024 (0.053)	0.025 (0.133)	0.008 (0.060)
% conflict death	0.034 (0.037)	-0.008 (0.022)	0.118 (0.081)	-0.002 (0.021)
Capital	0.231** (0.094)	-0.081*** (0.031)	0.246** (0.118)	-0.078*** (0.027)
Leaders' birth- region	-0.044 (0.027)	0.008 (0.012)	-0.030 (0.025)	-0.005 (0.015)
Country FE	Yes	Yes	Yes	Yes
No. of countries	19	19	18	19
No. of regions	186	186	180	186
Adjusted R <sup>2</sup>	0.56	0.53	0.55	0.53

Notes: robust standard errors (in parenthesis) clustered on countries. \*\*\* (\*\*,\*): significant at 1% (5%, 10%) level.

Most strikingly, for both Chinese and World Bank aid, there is a highly significant positive correlation between a region's share of the richest population quintile and its share of aid received. As the results are consistent across different models, we can be confident that when we operationalise aid in terms of both the number of projects and their financial value, the effect will not be driven by larger infrastructure or industry projects alone. The correlation is significant in substantive terms as well. If a region's share of the richest quintile increased from 0.1% to 89% (the minimum and maximum in our dataset), all else being equal, its share of the financial value of Chinese ODA would increase by almost 73% on average (e.g. from 1% to 74%), while its share of the financial value of World Bank aid would increase by about 51% (e.g. from 1% to 52%). In other words, rich regions are likely to receive the bulk of both Chinese and World Bank aid that flows into the country. Still, the much larger coefficients in Columns 1 and 3, compared to Columns 2 and 4, suggest that Chinese ODA may have a stronger bias towards wealthier regions.



While there is a positive correlation between a region's share of the poorest population quintile and its share of World Bank aid, there is no significant correlation when it comes to Chinese ODA. This evidence supports Hypothesis 2, suggesting Chinese aid is less pro-poor than World Bank aid. It is also noteworthy that for the World Bank, the coefficient on  $\%Poorest_{ic}$  is smaller than that on  $\%Richest_{ic}$ , especially in Column 4. This suggests a stronger bias towards richer regions than towards those with a poorer population and that projects in poorer regions are typically smaller.

With regards to other independent variables  $\%Petrol_{ic}$  and  $\%OOF_{ic}$ , neither of the effects turns out to be significant at conventional levels. This suggests that Chinese ODA is not correlated with economic interests. Hypothesis 1 is rejected.

Turning to the control variables, there is no significant correlation except for the variable  $Capital_{ic}$ . Interestingly, the coefficients are positive in Column 1 and 3, but negative in Columns 2 and 4. In other words, while Chinese ODA is highly likely to go into the subnational region containing the country's capital, World Bank aid is more likely (albeit slightly) to be diverted away from it. Simply by virtue of housing the capital city, a region receives on average 23.1% of the total number of Chinese ODA projects and 24.6% of the financial value of Chinese ODA in their country.

The absence of a significant correlation between aid and leaders' birth region is consistent with Briggs' (2017) results, but it contradicts Dreher et al.'s (2016) findings. This could be because Dreher et al. use a panel dataset, while Briggs and I look at cross-sectional data, which makes our result less sensitive to the time-variant effect of leaders' incumbency.

The regression results from Equation 2 are shown in Table III.

**Table III**  
**The effect of economic interest and poverty on aid allocation (absolute value)**

	(5) In(ODA value)	(6) In(World Bank value)
In(petrol)	-0.129 (0.195)	0.007 (0.029)
In(OOF value)	-0.003 (0.063)	0.002 (0.012)
In(% poorest)	-0.233 (0.283)	0.034 (0.042)
In(% richest)	1.400*** (0.421)	0.650*** (0.151)
In(area)	-0.185 (0.482)	0.066 (0.084)
In(conflict death)	0.114 (0.217)	0.027 (0.030)

Capital	5.461** (2.358)	-0.112 (0.477)
Leaders' birth-region	-0.735 (0.992)	0.166 (0.258)
Country FE	Yes	Yes
No. of countries	18	19
No. of regions	180	186
Adjusted R <sup>2</sup>	0.61	0.52

Notes: robust standard errors (in parenthesis) clustered on countries. \*\*\* (\*\*, \*): significant at the 1% (5%, 10%) level.

The result for Chinese ODA remains consistent when we operationalise the variables using absolute values. All else being equal, the region which shares 89% of the richest quintile, compared to one which shares 0.1% (the maximum and minimum in our dataset), received 13,463 times more Chinese ODA in terms of financial value. On average, the amount of Chinese ODA a capital receives is 235 times that of a non-capital.

For World Bank aid, however, the correlation between  $Aid_{ic}$  and  $\%Poorest_{ic}$  or  $Capital_{ic}$  disappears using the alternative model.  $\%Richest_{ic}$  remains highly significant, and alone accounts for half of the variation in the dependent variable. All else being equal, the region that shares 89% of the richest quintile, compared to one that shares 0.1%, received 83 times more World Bank aid in terms of financial value; yet, the effect is much less drastic in substantive terms compared to Chinese ODA.

Analysing the allocation of aid by the World Bank and AfDB, Briggs (2017) operationalises his variables in the same three ways I do. While he also finds a significant correlation between aid and a region's share of the richest quintile across all models, he additionally finds poverty to be significant only at 10% confidence level, when aid per region is measured as the share of number of projects.<sup>19</sup> Briggs also found aid to be positively correlated with the confounding variable *Area*, which contradicts my results as well. This might be explained by a difference in the samples used, different time periods of interest or a different operationalisation of some of our variables.

## Robustness Checks

All the results above hold across a variety of robustness checks, including variable transformations, dataset trimming and modelling choice changes.<sup>20</sup>

I run the regression again, replacing some of the continuous variables with a dummy. I try replacing  $Conflict\ Death_{ic}$  with a binary measure. The variable  $Petrol_{ic}$  is replaced by a binary measure indicating whether a region overlaps with any oil and gas fields. To account

<sup>19</sup> This holds even when Briggs disaggregates the analysis for the World Bank and AfDB.

<sup>20</sup> The results are reported in Appendix C.

for natural resources other than petroleum, I further check my results with an alternative binary measure that indicates whether a region contains petroleum, gemstones, diamonds or gold deposits, using datasets from Lujala (2009), Gilmore et al. (2005) and Balestri & Maggioni (2014). All of the adjustments above, made in isolation or together, do not change my results significantly. Replacing the missing projects' financial values with an average value instead of 0 also gives me similar results.

I also tried running the regression using a trimmed sample, dropping all countries that have fewer than five subnational regions or five geolocatable aid projects. This cuts six countries from the analysis. My core results remain consistent with the trimmed sample. Furthermore, I run 19 additional regressions with each country dropped sequentially at a time from the dataset; results remain consistent, showing that my findings are not driven by any individual country.

Given that for Equation 1 my dependent variables are bounded between 0 and 1, I use a random effects Tobit model that takes into account the censoring. Except that the effect of  $Capital_{ic}$  is weakened across all columns, the results remain consistent.

Since my unit of analysis is the subnational region, countries with more regions will contribute more to the analysis. Hence, I use an alternative model with all observations weighted such that each country contributes equally to the result. Even though some variables initially found to be insignificant turn out to be significant at conventional levels in this model, this is not systematic across the three ways of operationalisation. Meanwhile, my core results still hold.

## **Discussion**

My results, showing no significant correlation between Chinese ODA and natural resources or business interests, are consistent with Dreher et al.'s (2018) quantitative analysis of Chinese ODA allocation on the national level. One might thus be tempted to conclude that China is an altruistic donor. However, this would contradict the qualitative literature based on which I formulated Hypothesis 1. To resolve this tension, I suggest that the statistical results might be the result of fragmentation in the decision-making process for Chinese aid. Scholars have pointed out that a significant source of conflict in Chinese aid stems from the competition between MOFCOM and the Ministry of Foreign Affairs (MFA), where the former act on commercial interests and the latter prioritises long-term diplomatic ties (Varrall 2016). While MOFCOM is the primary agency in charge, the MFA has advisory capacities and Chinese ambassadors can influence aid decisions in various ways. Zhang & Smith (2017) suggest that the MFA may play a bigger role than commonly believed in the literature; FOCAC, for instance, is housed within the MFA. Further complicating the picture, Chinese aid is not always under the control of the central government. The 'One Province, One Country' model has been applied to areas like medical and agricultural aid; each Chinese province is responsible for allocating aid to one recipient country respectively; for instance,

Hubei distributes aid to Mozambique and Anhui to Zimbabwe (Gu et al. 2016). This allows local political and commercial motivations to enter the decision-making process. The fragmentation is likely to be exacerbated by the vagueness of policy directives from the top leadership, which allows actors to adopt their own interpretations based on their respective agendas (Varrall 2016); the only official guideline remains one formulated before the reform era and consists only of broad principles. The level of fragmentation and incoherence can best be demonstrated by the government's most recent attempt at structural overhaul; a new agency, the State International Development Cooperation Agency (SIDCA), was set up in March 2018, supposedly for better coordination (Reuters 2018). In sum, this fragmentation potentially explains the absence of an economic interest correlation observed in my regression results.

On the other hand, it could also be the case that the literature has focused excessively on China's economic motives. Scholars like Brautigam, examining the history of Chinese aid since independence, often point to a shift in the reform era, when aid starts to be given on for economic rather than ideological reasons. Some also see the aid reform of 1995 as a distinct turning point, after which market-oriented principles were introduced. While these observations are valid, they might downplay the continuity in Chinese aid and depict only part of the picture. The only official guideline on external assistance to date was formulated by then-premier Zhou En Lai and it is still being referred to in the two official white papers on foreign aid published in 2011 and 2014. To justify commercially failing projects, state media today still cite Mao's quote that "African brothers carted China into the UN" ("*feizhou xiongdi tai women jinle lianheguo*"), referring to support from a bloc of African countries that enabled the People's Republic to replace Taiwan as a UN member state in the 1970s; the emphasis on historical solidarity in the official discourse suggests that political and geostrategic reasons have not been completely overshadowed by commercial imperatives. This might be particularly true as the idea of 'soft power' has been increasingly discussed in China's policy circle since the early 2000s (Shambaugh 2013). The undue emphasis on economic interest in the literature could also have been compounded by some degree of confusion between ODA and OOF; while most scholars are aware of the caveat, given insufficient information to make the distinction, they tend to discuss Chinese official finance in general and thus overstate the linkage between aid and economic motives.

Turning to Hypothesis 2, my results consistently show that Chinese ODA disproportionately goes into richer regions and that it is not correlated with poverty. As discussed earlier, it might be pointed out that wealth is correlated with unobserved variables relating to project feasibility like pre-existing infrastructure and topography. Nonetheless, using World Bank aid as a benchmark, which is shown to be positively correlated with a region's share of the poorest quintile in all except one model, one can confidently conclude that Chinese ODA is less pro-poor in a systematic manner. The confidence in this conclusion is further reinforced by the much larger coefficient (almost twice the size) on  $\%Richest_{ic}$  for Chinese ODA compared to the World Bank's. Critics may suggest that this could be due to a systematic measurement error in the case of Chinese ODA; given AidData's media-based data collection method, it might be the case that instead of receiving less aid, poorer regions simply enjoy

less extensive media coverage, which could lead to an underestimation of aid received by those regions. Nevertheless, the size of the difference observed between Chinese and World Bank aid is unlikely to be accounted for by such a measurement error alone. Moreover, researchers at AidData note that it is mostly the small projects that go unreported (Strange et al. 2017); since my results do not significantly differ when I operationalise aid as the number of projects or financial value, one can be confident that the measurement error causes only minimal bias. As such, one can safely conclude that the data provides strong support for the confirmation of Hypothesis 2.

The both substantively and statistically significant correlation found between Chinese aid and political capital, in stark contrast to the World Bank's, is unexpected and can be partially explained by data quality issues with the Chinese dataset. In some instances, when loans and in-kind donations (typically medicine and crops) are handed over to a ministry located in the capital, without further information available, AidData simply codes the location of the project as the capital city. However, an inspection of project descriptions shows that the data quality issue is only present in a small proportion of projects coded as such. A more important reason for the correlation is the nature of a considerable proportion of Chinese projects; many aid projects involve the construction of government buildings and equipment donations to ministries. This is consistent with the depiction of a request-based aid system in the literature. Tull (2006) notes that while Western donors are more preoccupied with development outcomes that benefit the civil society, Chinese aid tends to favour the recipient country's government directly. This has made Chinese aid popular among African governments (AfDB et al. 2011), which suits China's diplomatic objectives. Moreover, a considerable share of Chinese aid also involves 'image projects' like stadiums and convention centres, typically constructed in the capital. This most likely converges with African leaders' preferences, and also with the Chinese objective of generating a favourable public opinion towards China, again confirming the request-based and less pro-poor nature of Chinese aid.

Caution must be taken with regards to the external validity of my results. While one might be tempted to infer that Chinese aid is worse in terms of distributive consequences, given my focus on initial commitment rather than disbursement or implementation, it would not be prudent to make a snap judgement. 'Leakages' of aid due to corruption and diversion are well-researched in the literature. There is a consensus that the World Bank has failed to effectively reduce poverty in Africa, despite promises of reform and a heavy emphasis on human development (Woods 2006; Waever 2008). Boone (1996) found DAC aid to increase the size of government but not benefit the poor as measured by human development indicators. Moreover, while aid from traditional donors largely is not request-based in nature, this has not prevented recipient governments from usurping funds for their own purposes; Jablonski (2014) and Masaki (2018), looking at the case of Kenya and Zambia, respectively, found consistent electoral and ethnic biases. In short, conclusions on the actual distributive outcome cannot be extrapolated from this paper.

Furthermore, my research only targets Chinese aid to Sub-Saharan Africa during 2007-2012. Chinese aid practices in Africa are changing rapidly in response to criticism from the international community (Tan-Mullins et al. 2010). While absent in the 2011 white paper, the phrase ‘poverty reduction’ was mentioned in the 2014 white paper. Despite a deep-seated reluctance to coordinate with traditional donors, China has shown increasing signs of engagement, most notably secondments of MOFCOM officials to international organisations, and discussions of aid quality in the China-DAC Study Group (Varrall 2016). This trend suggests that China’s aid allocation could have become more pro-poor in recent years. Meanwhile, contrary to observers’ speculations, China appointed Wang Xiaotao, the former Deputy Director of the National Development and Reform Commission (NDRC), to head SIDCA (Cornish & Ravelo 2018); as Wang has neither a MOFCOM nor MFA background, this may be a sign of the central government’s determination to reduce bureaucratic competition. As the NDRC is the agency in charge of domestic macroeconomic management, and Wang has extensive experience from overseeing infrastructure projects under the Belt and Road Initiative, reduced fragmentation could mean that economic interests may figure more prominently in future aid decisions.

Since I compare Chinese aid to multilateral aid<sup>21</sup>, one cannot extrapolate from this paper whether Chinese aid is less pro-poor or prioritises economic interests more than other bilateral donors. Indeed, big DAC donors like France and the US are found to provide aid largely out of political and economic self-interest (Berthelemy 2006). Nonetheless, the World Bank’s pattern is likely to be similar to the Nordic donors within DAC, whose aid decisions are often channelled through multilateral institutions and not affected by politico-strategic factors (Alesina & Dollars 2000; Berthelemy 2006); as such, my research could give a hint at how China differs from certain traditional bilateral donors.

On the impact Chinese aid has had on the international community, scholars have noted that DAC donors experience competitive pressure from the rise in Chinese aid (Woods 2008; Corkin 2011; Hackenesch 2011). This could lead to traditional donors converging to ‘the Chinese way’ both as a result of declining negotiation power vis-a-vis recipient countries and as an attempt to retain geopolitical influence. The World Bank delivers loans with fewer conditions to countries also assisted by China (Hernandez 2016). Kilama (2016)’s quantitative analysis shows that not only do DAC donors increase the quantity of bilateral aid in response to Chinese pressure, but they have also made changes in aid modality to strategically important countries. On one hand, they have increased the share of programmatic aid, giving recipient governments more control. On the other, they also seem to substitute social sector aid for that in economic infrastructure. These changes in aid modality and sector are potentially alarming in light of Winters & Martinez (2015)’s finding; looking at bilateral aid between 2004 and 2010, they found better-governed countries to receive more programmatic and infrastructure aid (as a proportion of total aid received) from DAC donors, because both types of aid are more susceptible to governance problems. In other words,

---

<sup>21</sup> Assuming that World Bank’s modality and procedures are representative of other multilateral institutions, given its huge influence in the development community.

competitive pressure from China may decrease DAC donors' discretion over governance issues and lead to a race to the bottom in terms of aid quality.

## Conclusions

Using the World Bank as a benchmark, my analysis at the subnational level has shown that Chinese aid in Sub-Saharan Africa is not correlated with economic self-interest in that it does not favour regions with more natural resources or Chinese business interest present. This shows the complexity of actors and motivations involved in Chinese aid planning; the existing literature's tendency to depict Chinese aid solely as tools of a developmental state is too simplistic. Meanwhile, my analysis provides strong evidence that Chinese aid is less pro-poor compared to that of the World Bank. While the regression analysis alone is unable to verify the causal mechanisms, I theorised based on existing literature (absence of a poverty-reduction mandate, weak project appraisal process, request-based aid system) and am supported by the strong tendency found for Chinese aid to go into capital cities. I have also shown that the results are not driven by factors like a region's geographical size, conflict intensity, or political leaders favouring their birthplace.

The analysis my paper offers on the principle and modality of Chinese aid has greater implications. The less pro-poor allocation of Chinese aid points to the tension between the promise of greater 'country ownership' in the 2005 Paris Agreement and the delivery of more equitable development outcome; there exists a fine line between giving local actors more voice in agenda-setting and aligning aid with the preferences of political elites. The AfDB's stakeholder survey shows that China is perceived as a more effective development partner by African leaders as it targets government priority sectors like manufacturing and construction (AfDB et al. 2011). Yet, at the same time, the highly-centralised nature of 'country ownership' in the context of Chinese aid has largely translated into attention to the needs of the government rather than the needs of the people. The implication is not just limited to a philosophical challenge to thinking in the Western development community, but also applies in practical terms, as traditional donors have experienced competitive pressure from the increase in Chinese aid which could lead to them to turn to similar aid practices.

A request-based system also implies a greater importance of the agency of African regimes, which is often neglected in discussions of development aid. In examining the geopolitical and economic interest of both DAC and emerging donors, Africans are often tacitly side-lined and assumed to be bystanders in the 'scramble' for its resources, markets and political alignment. Rather, African actors' negotiation and oversight is often crucial in shaping their engagement with China and subsequently the development outcomes (Gu, et al, 2015; Mullins, et al. 2010). In policy terms, this shows the importance of governance and institution-building in recipient countries. In academic terms, it could be worthwhile for future researches to comparatively examine the role of recipient governments' incentives in the allocation of aid from different donors. While my research included leaders' birth region as a control variable, I have been unable to investigate the effect of either co-ethnicity or electoral incentives,

especially as the wide variation in electoral systems and elite incentives inhibits a cross-country study. With more resources at disposal, future researches could do so by conducting in-depth country case studies, and possibly also go beyond aid commitment and relate differences in modalities to actual development outcomes.

Future research could benefit from better data on aid allocation. The accuracy of my results would be improved if a larger proportion of Chinese projects had enough details to be geolocatable to ADM1 regions. Moreover, were there more updated geocoded data on Chinese and World Bank aid, my results could have been triangulated using alternative measures of poverty. For instance, using Oxford Poverty and Human Development Initiative's Multidimensional Poverty Index (MPI) datasets, one can calculate the proportion of a region's proportion in multidimensional poverty, a cross-nationally meaningful measure compared to wealth quintile; this has not been possible in my study as MPI data is not available prior to 2015. Besides data availability, better reporting practices would also facilitate comparative analyses, ensuring that data on aid indeed belongs to ODA. While it is unrealistic to expect China to join the DAC regime in the near future, some degree of standardisation is still possible given existing institutions for mutual learning like the China-DAC study group.

## Appendices

### Appendix A. Sample of Countries & Metadata

<b>Country</b>	<b>No. of subnational regions</b>	<b>DHS Survey Year</b>	<b>No. of geolocatable Chinese projects</b>	<b>No. of geolocatable World Bank projects</b>
<b>Benin</b>	12	2006	3	187
<b>Cameroon</b>	10	2004	10	49
<b>Congo (Brazzaville)</b>	4	2005	14	97
<b>DR Congo</b>	9	2007	2	286
<b>Ethiopia</b>	11	2005	21	326
<b>Ghana</b>	10	2003	45	350
<b>Guinea</b>	8	2005	6	26
<b>Kenya</b>	8	2003	28	283
<b>Lesotho</b>	10	2004	5	32
<b>Liberia</b>	5	2007	24	164
<b>Madagascar</b>	6	2003	10	97
<b>Malawi</b>	3	2004	19	145
<b>Mali</b>	9	2006	39	167
<b>Mozambique</b>	11	2003	11	122
<b>Niger</b>	8	2006	7	70
<b>Nigeria</b>	37	2003	4	845



<b>Rwanda</b>	5	2007-8	23	64
<b>Senegal</b>	11	2005	4	69
<b>Uganda</b>	9	2006	76	226

## Appendix B. Bivariate scatterplots supporting footnote 14

Figure BI.  
Bivariate scatterplot of % Richest against Capital

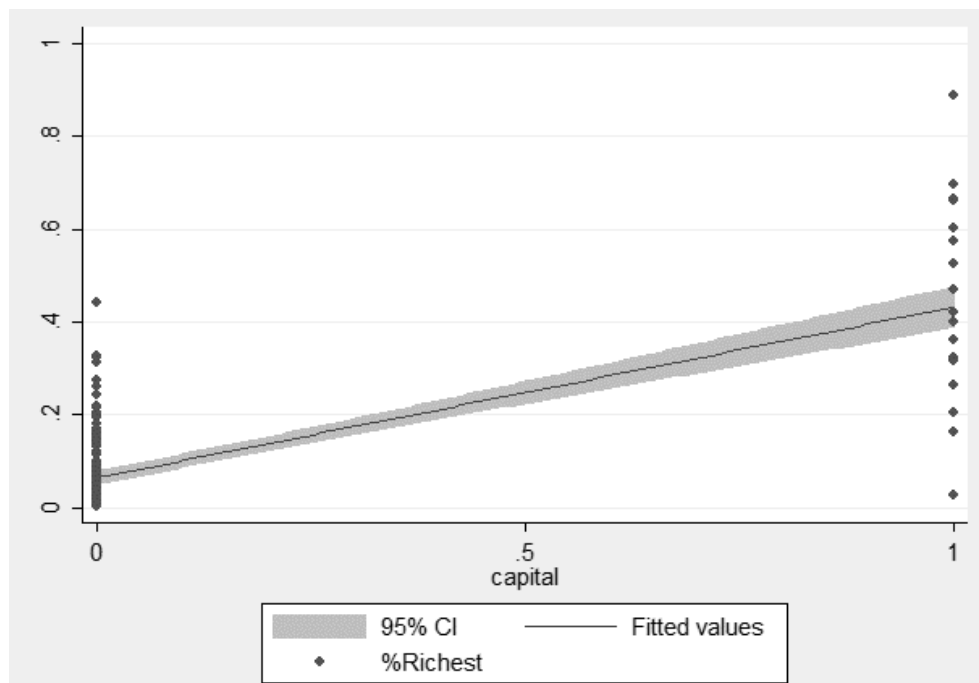


Figure BIIa.  
Bivariate scatterplot of % Chinese ODA value against Capital

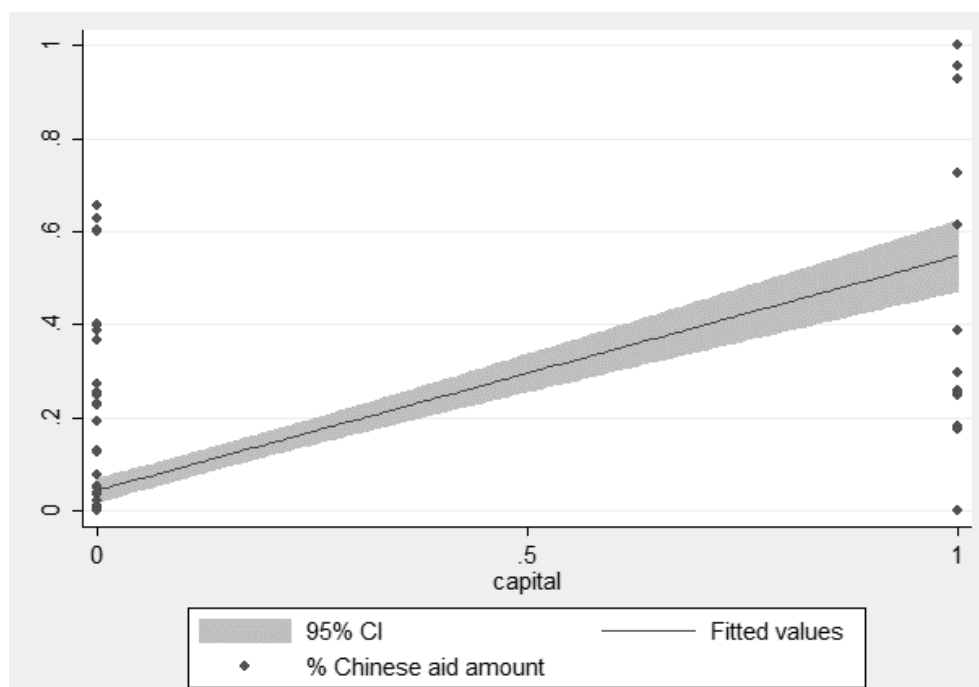
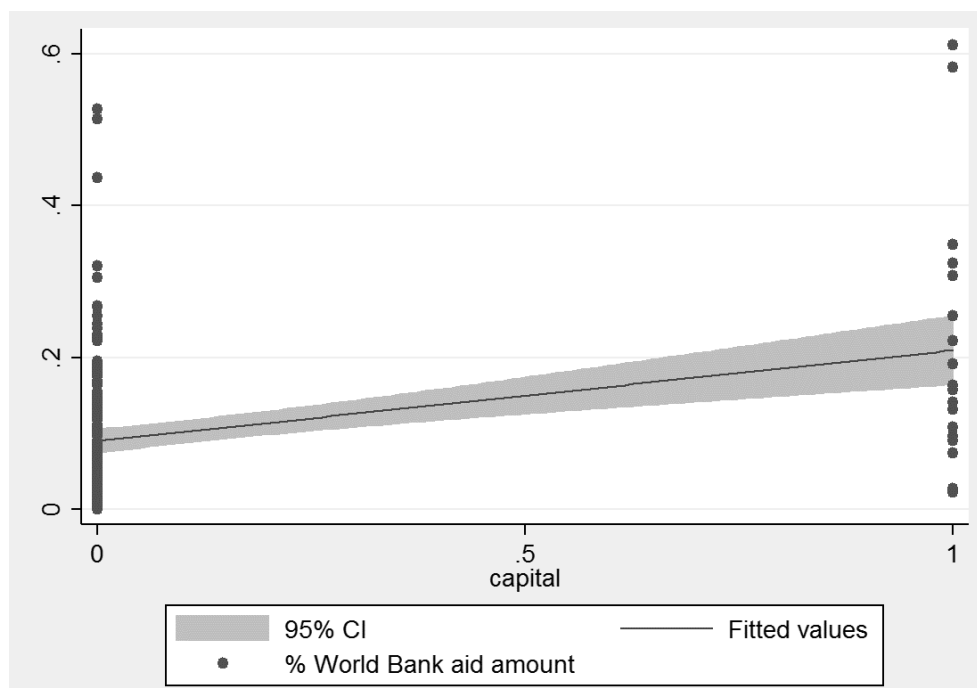


Figure BIIb.  
Bivariate  
scatterplot of  
% World Bank  
aid value  
against Capital



## Appendix C. Results of Robustness Checks

Table C1a: Main Analysis (relative value) with trimmed sample

	(1) <b>% ODA projects</b>	(2) <b>% World Bank projects</b>	(3) <b>% ODA value</b>	(4) <b>% World Bank value</b>
% petrol	0.018 (0.059)	-0.031 (0.026)	-0.068 (0.053)	-0.006 (0.038)
% OOF projects	-0.089 (0.080)	0.008 (0.031)		
% OOF value			-0.176** (0.083)	-0.038 (0.032)
% poorest	0.077 (0.097)	0.209*** (0.057)	-0.133 (0.136)	0.166** (0.075)
% richest	0.267* (0.152)	0.551*** (0.081)	0.705*** (0.238)	0.559*** (0.094)
% area	0.024 (0.124)	-0.063 (0.051)	-0.144 (0.143)	-0.008 (0.078)
% conflict death	0.066 (0.045)	-0.004 (0.019)	0.197* (0.107)	-0.003 (0.028)
Capital	0.372*** (0.121)	-0.157*** (0.034)	0.328** (0.160)	-0.116*** (0.034)
Leaders' birth- region	-0.025 (0.033)	-0.003 (0.015)	-0.020 (0.040)	-0.005 (0.018)
Country FE	Yes	Yes	Yes	Yes
No. of	13	13	12	13

countries				
No. of regions	110	110	104	110
Adjusted R <sup>2</sup>	0.53	0.45	0.55	0.30

Standard errors (in parenthesis) clustered on countries.\*\*\*(\*\*,\*): significant at the 1% (5%, 10%) level.

Table CIb: Main Analysis (absolute value) with trimmed sample

	(5) <b>In(ODA value)</b>	(6) <b>In(World Bank value)</b>
In(petrol)	-0.197 (0.297)	-0.065 (0.049)
In(OOF value)	-0.012 (0.073)	-0.001 (0.020)
In(% poorest)	-0.127 (0.364)	0.035 (0.081)
In(% richest)	1.958*** (0.704)	0.878*** (0.295)
In(area)	-0.063 (0.603)	0.017 (0.121)
In(conflict death)	0.302 (0.367)	0.045 (0.059)
Capital	5.841* (3.484)	-0.813 (1.166)
Leaders' birth-region	-1.561 (1.425)	0.126 (0.365)
Country FE	Yes	Yes
No. of countries	12	13
No. of regions	104	110
Adjusted R <sup>2</sup>	0.62	0.49

Standard errors (in parenthesis) clustered on countries.\*\*\*(\*\*,\*): significant at the 1% (5%, 10%) level.

Table CII: Tobit Models

	(1) <b>% ODA projects</b>	(2) <b>% World Bank projects</b>	(3) <b>% ODA value</b>	(4) <b>% World Bank value</b>
% petrol	-0.045 (0.094)	0.058 (0.050)	-0.299** (0.149)	0.041 (0.031)
% OOF projects	0.050 (0.174)	0.058 (0.065)		
% OOF value			-0.191 (0.162)	-0.034 (0.029)
% poorest	0.035	0.369***	-0.200	0.243***

	(0.205)	(0.083)	(0.270)	(0.082)
% richest	0.976***	0.422***	1.566***	0.632***
	(0.267)	(0.111)	(0.427)	(0.075)
% area	0.321*	0.088	0.269	0.081
	(0.191)	(0.054)	(0.270)	(0.070)
% conflict	0.056	-0.008	0.175	-0.002
death	(0.065)	(0.019)	(0.139)	(0.019)
Capital	0.255*	-0.084**	0.288	-0.081***
	(0.152)	(0.039)	(0.195)	(0.028)
Leaders' birth-	-0.092	0.006	-0.071	-0.006
region	(0.064)	(0.012)	(0.067)	(0.014)
Random effects	Yes	Yes	Yes	Yes
No. of	19	19	18	19
countries				
No. of regions	186	186	180	186

Standard errors (in parenthesis) clustered on countries. \*\*\*(\*\*,\*): significant at the 1% (5%, 10%) level.

Table CIIIa: Models with unit of analysis weighted (relative value)

	(1)	(2)	(3)	(4)
	<b>% ODA projects</b>	<b>% World Bank projects</b>	<b>% ODA value</b>	<b>% World Bank value</b>
% petrol	-0.016	0.083*	-0.032	0.057
	(0.053)	(0.049)	(0.053)	(0.037)
% OOF projects	-0.010	0.116**		
	(0.090)	(0.055)		
% OOF value			-0.087	-0.025
			(0.068)	(0.030)
% poorest	-0.122	0.366***	-0.342	0.258***
	(0.121)	(0.065)	(0.214)	(0.068)
% richest	0.504***	0.361***	0.725***	0.623***
	(0.135)	(0.094)	(0.206)	(0.083)
% area	0.181	0.032	0.159	-0.021
	(0.136)	(0.057)	(0.175)	(0.066)
% conflict	0.048	-0.008	0.173	-0.004
death	(0.043)	(0.027)	(0.111)	(0.027)
Capital	0.252***	-0.111***	0.248**	-0.115***
	(0.088)	(0.033)	(0.117)	(0.027)
Leaders' birth-	-0.055*	0.014	-0.039	-0.009
region	(0.032)	(0.015)	(0.035)	(0.017)
Random effects	Yes	Yes	Yes	Yes
No. of	19	19	18	19
countries				

No. of regions	186	186	180	186
Adjusted R <sup>2</sup>	0.58	0.62	0.55	0.59

Standard errors (in parenthesis) clustered on countries.\*\*\*(\*\*,\*): significant at the 1% (5%, 10%) level.

Table CIIIb: Models with unit of analysis weighted (absolute value)

	(5) In(ODA value)	(6) In(World Bank value)
In(petrol)	-0.334 (0.208)	-0.021 (0.036)
In(OOF value)	-0.028 (0.063)	0.005 (0.012)
In(% poorest)	-0.519** (0.258)	0.027 (0.041)
In(% richest)	1.586*** (0.467)	0.683*** (0.161)
In(area)	0.182 (0.539)	0.094 (0.084)
In(conflict death)	0.005 (0.261)	0.009 (0.034)
Capital	4.116** (1.896)	-0.309 (0.387)
Leaders' birth-region	-0.865 (1.303)	0.123 (0.237)
Country FE	Yes	Yes
No. of countries	18	19
No. of regions	180	186
Adjusted R <sup>2</sup>	0.64	0.52

Standard errors (in parenthesis) clustered on countries.\*\*\*(\*\*,\*): significant at the 1% (5%, 10%) level.

## Bibliography

African Development Bank (AfDB), Organisation for Economic Co-operation and Development (OECD), United Nations Development Programme (UNDP) & United Nations Economic Commission for Africa (UNECA). (2011). *African Economic Outlook 2011*. Tunis, Tunisia: AfDB. Retrieved from: <http://www.afdb.org>

AidData (2017). *WorldBank\_GeocodedResearchRelease\_Level1\_v1.4.2*. Williamsburg, VA and Washington, DC: AidData. Retrieved from: <http://aiddata.org/research-datasets>.

Alden, C. & Alves, A.C. (2009). *China and Africa's natural resources: The challenges and implications for development and governance*. (SAIIA Occasional Paper #41) Johannesburg, South Africa: South African Institute of International Affairs

- Alesina, A., & Dollar, D. (2000). Who gives foreign aid to whom and why?. *Journal of economic growth*, 5(1), 33-63.
- Alpino, M., & Hammersmark, E. M. (2017). *Lighting the Path: The Influence of Historical Christian Missions on Modern-day Development Aid Allocation in Africa*. (AidData Working Paper #47). Williamsburg, VA: AidData. Accessed at: <http://aiddata.org/working-papers>.
- Balestri S. & Maggioni, M. A. (2014). Blood diamonds, dirty gold and spatial spill-overs: Measuring conflict dynamics in Western Africa. *Peace Economics, Peace science and Public Policy*, Vol. 20 (4): 551-564.
- Barnett, M., & Finnemore, M. (2004). International Organizations as Bureaucracies. In *Rules for the world: International organizations in global politics*. Cornell University Press.
- Berthelemy, J. C. (2006). Bilateral donors' interest vs. recipients' development motives in aid allocation: do all donors behave the same?. *Review of Development Economics*, 10(2), 179-194.
- Bezerra, P., & Braithwaite, A. (2016). Locating foreign aid commitments in response to political violence. *Public Choice*, 169(3-4), 333-355.
- Boone, P. (1996). Politics and the effectiveness of foreign aid. *European economic review*, 40(2), 289-329.
- Brautigam, D. (2009). *The dragon's gift: the real story of China in Africa*. Oxford University Press.
- Brautigam, D. (2011). Chinese development aid in Africa: What, where, why, and how much?. In *China Update 2011*. Canberra, Australia: National University
- Breslin, S. (2013) China and the South: objectives, actors and interactions. *Development and Change* 44(6): 1273 - 94.
- Briggs, R. C. (2017). Does foreign aid target the poorest?. *International Organization*, 71(1), 187-206.
- Cabria, N. (2013). *Does China plan and evaluate foreign aid projects like traditional donors?* (CCS Discussion Paper No. 2013-06). Stellenbosch University, Centre for Chinese Studies.
- Camba, A. (2017, November 28). Fact-checking critics of Chinese aid. *East Asia Forum*. Retrieved from: <http://www.eastasiaforum.org/>
- Cheng, Z., & Taylor, I. (2017). Contemporary China's Foreign Aid in Africa. In *China's Aid to Africa: Does Friendship Really Matter?* (Vol. 11). London & New York: Taylor & Francis.

- Corkin, L. (2011). Redefining Foreign Policy Impulses toward Africa: The Roles of the MFA, the MOFCOM and China Exim Bank. *Journal of Current Chinese Affairs*, 40, 4, 61-90.
- Cornish, L. & Ravelo, J. L. (2018, April 20) China's new aid agency: What we know. *Devex*. Retrieved from: <https://www.devex.com/>
- Croicu, M., & Sundberg, R. (2017). *UCDP GED Codebook version 17.1*. Department of Peace and Conflict Research, Uppsala University
- Desai, H. & Greenhill, R. (2017) *Aid allocation within countries: does it go to the areas left behind?* (ODI Briefing paper). London: Overseas Development Institute.
- Dreher, A., & Fuchs, A. (2015). Rogue aid? An empirical analysis of China's aid allocation. *Canadian Journal of Economics*, 48(3), 988-1023.
- Dreher, A., Fuchs, A., Hodler, R., Parks, B., Raschky, P., & Tierney, M. (2016). *Aid on demand: African leaders and the geography of China's foreign assistance*. (AidData Working Paper #3 Revised). Williamsburg, VA: AidData. Retrieved from: <http://aiddata.org/working-papers>.
- Dreher, A., Fuchs, A., Parks, B., Strange, A. M., & Tierney, M. J. (2018). Apples and dragon fruits: the determinants of aid and other forms of state financing from China to Africa. *International Studies Quarterly*, 62(1), 182-194.
- Dreher, A., Nunnenkamp, P., & Thiele, R. (2011). Are 'new' donors different? Comparing the allocation of bilateral aid between non-DAC and DAC donor countries. *World Development*, 39(11), 1950-1968.
- FOCAC (2009). *Forum on China-Africa Cooperation Sharm El Sheikh Action Plan (2010-2012)*. Retrieved from: <http://www.focac.org/eng>
- Fu, X. (2012). *Promoting Manufacturing Foreign Direct Investment from China to Ethiopia*. Retrieved from: <http://www.hks.harvard.edu>
- Gilmore, E., Gleditsch, N. P., Lujala, P. & Rød, J. K. (2005). Conflict Diamonds: A New Dataset. *Conflict Management and Peace Science* 22(3): 257–292
- Government of China (1964). *China's Eight Principles for Economic Aid and Technical Assistance to Other Countries*. Retrieved from: <http://www.china.org.cn>
- Goodman, S., BenYishay, A., & Runfola, D. (2016). *Overview of the geo Framework*. AidData. Retrieved from: <http://geo.aiddata.org/>
- Gu, J., Zhang, C., Vaz, A., & Mukwereza, L. (2016). Chinese state capitalism? Rethinking the role of the state and business in Chinese development cooperation in Africa. *World Development*, 81(24-34).

- Hackenesch, C. (2011). *Competing for development: the European Union and China in Ethiopia*. (CCS Discussion Paper No. 2011-03). Stellenbosch University, Centre for Chinese Studies.
- Hernandez, D. (2016). *Are "New" Donors Challenging World Bank Conditionality?* (AidData Working Paper #19). Williamsburg, VA: AidData. Retrieved from: <http://aiddata.org/working-papers>.
- Hodler, R., & Raschky, P. A. (2014). Regional favoritism. *The Quarterly Journal of Economics*, 129(2), 995-1033.
- Jablonski, R. S. (2014). How aid targets votes: the impact of electoral incentives on foreign aid distribution. *World Politics*, 66(2), 293-330.
- Jenkins, G. P. (1997). Project analysis and the World Bank. *The American Economic Review*, 87(2), 38-42.
- Kilama, E. G. (2016). Evidences on Donors Competition in Africa: Traditional Donors versus China. *Journal of International Development*, 28(4), 528-551.
- Kramon, E., & Posner, D. N. (2013). Who benefits from distributive politics? How the outcome one studies affects the answer one gets. *Perspectives on Politics*, 11(2), 461-474.
- Lujala, P. (2009). Deadly Combat over Natural Resources: Gems, Petroleum, Drugs, and the Severity of Armed Civil Conflict. *Journal of Conflict Resolution* 53(1): 50-71.
- Lujala, P; Rfød, J. K. & Thieme, N. (2007). Fighting over Oil: Introducing A New Dataset. *Conflict Management and Peace Science* 24(3), 239-256.
- Masaki, T. (2018). The Political Economy of Aid Allocation in Africa: Evidence from Zambia. *African Studies Review*, 1-28.
- OECD (2005). *The Paris Declaration on Aid Effectiveness*. Retrieved from: <http://www.oecd.org/dac/>
- OECD (2018). *Official Development Assistance (ODA)*. Retrieved from: <https://data.oecd.org/>
- Reuters (2018, March 13th). *China says new agency will improve foreign aid coordination*. Retrieved from: <https://www.reuters.com/article>
- Shambaugh, D. L. (2013). *China goes global: The partial power*. Oxford: Oxford University Press.
- State Council (2011). *China's Foreign Aid (2011)*. Information Office of the State Council, People's Republic of China, Beijing.
- State Council (2014). *China's Foreign Aid (2014)*. Information Office of the State Council, People's Republic of China, Beijing.



- Strange, A., Cheng, M., Russell, B., Ghose, S., & Parks, B. (2017). *Tracking Underreported Financial Flows (TUFF) Methodology, Version 1.3*. Williamsburg, VA: AidData.
- Strange, A. M., Park, B., Tierney, M. J., Fuchs, A., Dreher, A., & Ramachandran, V. (2013). *China's development finance to Africa: A media-based approach to data collection*. (CGDev Working Paper 323) Washington, DC: Centre for Global Development.
- Sundberg, R., & Melander, E. (2013). Introducing the UCDP Georeferenced Event Dataset. *Journal of Peace Research*, vol.50, no.4, 523-532
- Tan-Mullins, M., Mohan, G., & Power, M. (2010). Redefining 'aid' in the China-Africa context. *Development and Change*, 41(5), 857-881.
- Tull, D. M. (2006). China's engagement in Africa: scope, significance and consequences. *The Journal of Modern African Studies*, 44(3), 459-479.
- Varrall, V. (2016). Domestic actors and agendas in Chinese aid policy. *The Pacific Review*, 29(1), 21-44.
- Weaver, C. (2008). Introduction: hypocrisy and change in the World Bank. In *Hypocrisy trap: The World Bank and the poverty of reform*. Princeton University Press.
- Winters, M. S., & Martinez, G. (2015). The role of governance in determining foreign aid flow composition. *World Development*, 66, 516-531.
- Woods, N. (2006). Mission unaccomplished in Africa. In *The globalizers: the IMF, the World Bank, and their borrowers*. Cornell University Press.
- Woods, N. (2008). Whose aid? Whose influence? China, emerging donors and the silent revolution in development assistance. *International Affairs*, 84(6), 1205-1221.
- Xu, X., Li, X., Qi, G., Tang, L., & Mukwereza, L. (2016). Science, technology and the politics of knowledge: The case of China's agricultural technology demonstration centres in Africa. *World Development*, 81, 82-91.
- Zhang, D. & Smith, G. (2017). China's foreign aid system: structure, agencies, and identities. *Third World Quarterly*, 38(10), 2330-2346.