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China in Africa: Competition for Traditional Development Finance Institutions?

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Abstract

Official development finance from China has risen tremendously in the past two decades across the globe, including in the world's poorest continent, Africa. How has this sudden increase in development resources affected the two major multilateral development banks (MDBs) in the region, the World Bank and the African Development Bank (AfDB)? One might expect that the MDBs—often described as tools to exert the influence of wealthy western countries—might compete with China to maintain their relevance and influence in Africa. This study undertakes a combination of statistical tests and in-depth interviews with government officials in three recipient countries to see if this is the case, both in terms of overall finance levels as well as in the sectoral distribution of projects. The results indicate that total MDB finance levels by country change little over time regardless of Chinese activity. The same is true for funding levels of traditional bilateral donors. The sectoral allocation of concessional lending does not show any responsiveness either. In contrast, shifts in funding levels overall and in sector allocation can be observed for non-concessional countries; the latter, however, represent only a small minority among the recipients of Chinese finance. Overall, the study suggests that while China's role in African development finance is indeed substantial and growing, it has not had the "game changing" impact on traditional development finance as popular perception might lead one to believe. Things may change, however, once more recipient countries develop economically and move into the non-concessional category.

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1. Introduction

Understanding the role played by China in international development finance is a topic of increasing interest among policy makers and academics alike. The issue has become even more acute as many OECD countries face foreign aid budget retrenchments and the U.S. steps back from global engagement under the Trump administration. In parallel, China has become more confident of its role, not only continuing to expand its bilateral overseas finance through its policy banks like China Ex-Im and China Development Bank, but now setting up brand new multilateral institutions like the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB). In this context, it is unsurprising that some commentators see China replacing the U.S. as a global financial leader (Gallagher, 2017).

Nowhere is the rise of China's global influence in development finance more controversial than in Africa. The volumes of Chinese money pouring into Africa are extremely impressive, an estimated $97 billion in real terms[1] between 2000 and 2014 according to AidData (2017)[2] and about $12 billion per year since 2010. The China Ex-Im Bank alone intends to have invested a total of over $1 trillion to Africa by 2025 (Sun, 2014). Official Chinese development finance has rapidly grown in recent years, and is now one of the most important sources of finance in Africa (Figure 1). Chinese finance now rivals the resources provided by multilateral development banks (MDBs) like the World Bank and the African Development Bank (AfDB), as well as major traditional donor countries, namely the members of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD). Chinese yearly finance commitments are now on a par with—and in some recent years substantially exceeded—finance by the U.S., formerly the largest bilateral donor in Africa.

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[1] This paper takes AidData's nominal figures for China financing to Africa, and adjusts them (along with all other financing data used, including from DAC and the MDBs) for inflation with the U.S. Consumer Price Index for 2013. Thus, the numbers differ somewhat from AidData's aggregate numbers, which are adjusted with the GDP deflator. AidData reports total Chinese official flows to Africa at US$121 billion for the 2000-2014 period.
[2] US$86.3 billion, according to Bräutigam and Hwang (2016), based on the SAIS-CARI database.

Figure 1. Cumulative development finance commitments to Africa, 2000-2014
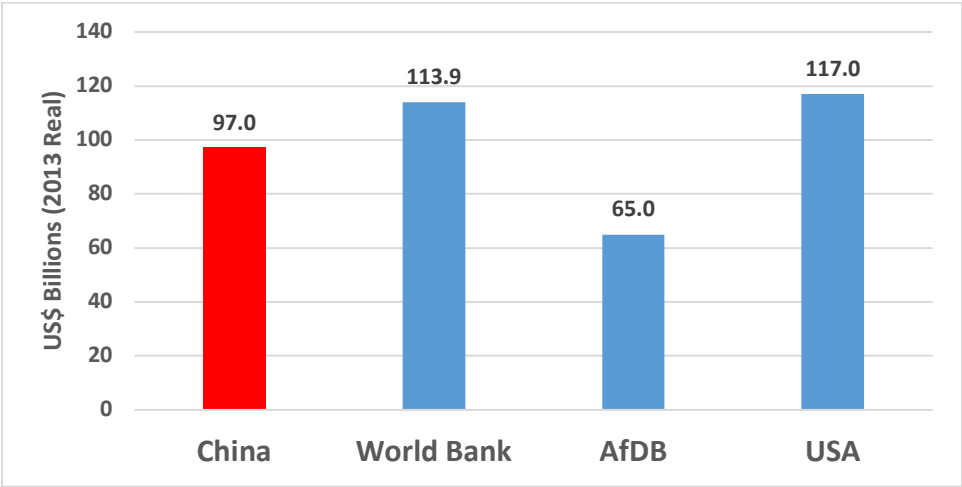
Sources: China from AidData (Dreher et al., 2017), USA from OECD (2017a); AfDB and World Bank from respective annual reports.
Note: Real 2013 US$. Includes all official finance regardless of financial terms for all African countries.

For the world's poorest region, with huge developmental needs and woefully limited access to investment finance compared to Latin America and Asia, this shift has quickly established China as a major player to be reckoned with. This is particularly the case since the bulk of Chinese official finance has been directed toward lower-income African countries—that is, those classified as "concessional" by the World Bank and the AfDB. Concessional countries received 89% of total Chinese finance in Africa between 2000 and 2014 (Figure 2), and the average amount per country/year is more than double that of non-concessional countries (US$146 million vs. US$62 million over the period). What is more, a large share of the resources provided by China has been directed to economic infrastructure (transport, energy, water and telecoms), which many African countries have been clamoring for but which traditional aid providers—often focused instead on social and institutional issues like healthcare, primary education or governmental reform—have been less inclined to supply.

Figure 2. Chinese official finance to Africa, by country classification (2000-2014)
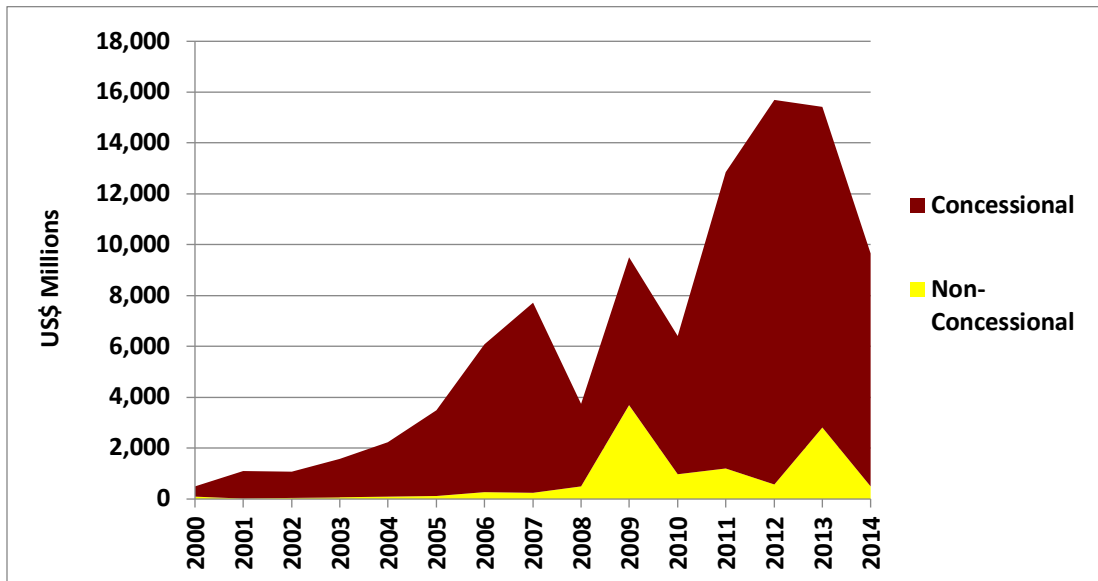
Source: AidData (Dreher et al., 2017).
Notes: Real 2013 US$. The dominance of Chinese lending to concessional countries is driven by both the greater number of concessional countries as well as substantially greater amount lending to the individual countries within this group.

China's rapidly rising role in African development finance has come with considerable controversy. Some observers consider it a new form of colonialism, noting frequent links between Chinese finance and commodity extraction as well as the use of Chinese labor and companies to build African infrastructure projects (Sanusi, 2013). Others have suggested that Chinese finance has negative political and social impacts, including links to corruption (Dreher et al., 2014, Isaksson and Kotsadam, 2018 and Brazys et al., 2017), dictatorial regimes (Kleine-Ahlbrandt and Small, 2008) and weakened social and environmental standards (Bosshard, 2008). In short, China's rising involvement in development finance is perceived by many as "rogue aid", to use Naim's oft-cited phrase (Naim 2009): undermining the activities of western-controlled development institutions and the rules for efficient development assistance jointly developed over many years.

Despite the heated rhetoric, relatively little systematic academic work exists investigating whether and how China's influence has changed the way traditional development financiers operate in Africa. Two notable exceptions are Kilama (2016) and Swedlund (2017), both of which are discussed in more detail below. In contrast to these studies, we focus specifically on MDBs, and additionally compare these results to results for DAC donors as a whole. Are these traditional development finance institutions

changing their allocation patterns in reaction to China–either ramping up their lending to compete with China for influence, or taking a more needs-based approach to reduce lending where China is more active and use resources elsewhere? Are borrower countries making use of this huge new player to gain leverage against existing donors, choosing one source of finance over another depending on their circumstances?

This paper addresses these questions by focusing on how flows from the World Bank and the AfDB, and secondarily OECD DAC donors, change over time as Chinese finance increases, in terms of both overall volumes as well as the sectoral breakdown of finance. The focus is not on the drivers of China's activities, but rather takes Chinese finance as an independent variable that might change the activities of other development financiers. The study uses a mixed methods approach, first examining development finance patterns in Africa from 2000 to 2014 using descriptive and multivariate statistical techniques and second undertaking a series of interviews with government officials responsible for negotiations with external development financiers in Ethiopia, Tanzania and Malawi, mainly at ministries of finance but also line ministries and agencies responsible for infrastructure projects.

2. Existing Literature and Theoretical Underpinnings

A growing body of academic literature as well as policy research considers the motivations and practices of China's official overseas development finance, both broadly around the world and more specifically in Africa (among others see Bader, 2015; Bräutigam, 2011; Bräutigam and Gallagher, 2014; Dreher et al., 2014, 2015 and forthcoming; and Greenhill et al., 2013).

However, considerably fewer studies have considered how Chinese finance is impacting other development actors or socio-economic developments in recipient countries. Wako (2017) finds that Chinese finance has a greater impact on economic growth than that of traditional donors, but that it has a negative institutional effect. Addressing concerns that rising Chinese debt may unbalance fiscal policies in recipient countries, Kilama (2015) finds no evidence of fiscal "disaster" linked to Chinese involvement. The same paper also discusses in some detail the possibility that Chinese finance gives recipients more options and greater leverage against traditional donors, following similar points raised by Greenhill et. al. (2013). In a policy article oriented toward how DAC donors should respond to

Chinese finance, Lindemann (2013) speculates that China may undermine policy conditionality: "In the future, conditionalities will be even more difficult to enforce in Africa, as China largely provides its assistance without imposing conditions, thus giving the recipient countries greater freedom of choice. As a result, it is now easier to reject development aid that is tied to conditions." (p. 3). Statistical analysis of World Bank loan conditions in Africa by Hernandez (2016) supports this position.

Two papers closely aligned with the interests of the present study are Kilama (2016) and Swedlund (2017). Kilama (2016) takes a statistical approach to consider how selected DAC donors have reacted to Chinese finance in Africa between 2000 and 2011. The paper finds a positive relationship between Chinese official finance and the development operations of these donors in recipient countries of strategic interest, notably for trade, suggesting that DAC donors are inclined to compete for influence with China through their development aid activities. Further, the study's findings suggest that major DAC donors shift resources from social sector support into infrastructure in strategically important recipient countries when China is more active. This result is interpreted as additional evidence for increased competition.

Swedlund (2017) uses a survey of donor officials in combination with case studies for selected African countries to investigate how the rise of Chinese financing impacts the bargaining power of recipient countries vis-à-vis traditional donors (including both bilateral and multilateral organizations). She finds only limited evidence that China is shifting the relationship between traditional donors and recipient countries. However, the study suggests that i) when really faced with a choice, countries in some cases do prefer Chinese financing to traditional donors and ii) that as countries become less aid-dependent, the influence of China may be rising.

In contrast to both previous papers, our paper specifically focuses on the two major MDBs operating in Africa: the World Bank and the AfDB. These funding agencies are of particular interest for three reasons. First, they are providers of substantial development finance to governments in Africa. On average for 2000-2014, each MDB provided over US$7.5 billion per year in development finance to African governments—well above the amount provided by any other DAC donor apart from the USA (which also supplied a bit over US$7.5 billion per year on average). Second, because they are multilateral agencies in which dozens of countries are members—including all recipient countries as well as most wealthy

industrialized nations—one may expect the factors shaping the allocation of their finances to be different to bilateral agencies, and therefore worth analyzing separately. And third, again in part due to their multilateral membership and hence legitimacy, as well as their perceived developmental expertise, both MDBs (especially the World Bank) play an important role in defining the developmental agenda and coordinating the activities of other donors. This is true both in individual country contexts as well as in development policy more broadly—including best practices in areas such as project preparation, environmental and social safeguards, etc.

To hypothesize how China's activities might affect these MDBs, it is first necessary to consider theoretical approaches attempting to explain the activities of MDBs. The theoretical traditions seeking to explain the actions of international organizations in general and MDBs in particular is vast, but one strand that has gained substantial traction and support is realism: the view that MDBs are driven mainly by the self-interested considerations of a one or a few powerful nations (mainly the United States) that are seen to control these organizations. Realist-oriented scholars have utilized quantitative methods to investigate statistical links between MDB lending patterns and alignment with US foreign policy priorities (among many others, Andersen et al., 2005; Dreher and Vreeland, 2014; Kilby and Kersting, 2016; and Kilby, 2011), while others have taken a more qualitative approach by analyzing the historical record for evidence of US influence shaping MDB activities (Ascher, 1990; Woods, 2006; Babb, 2009).

How would a realist approach suggest that MDBs would likely react to the rapidly rising incursions of China into development finance? If one supposes that i) MDBs are used as a means to exercise power by either punishing enemies or rewarding allies of the major powers, and ii) that China—a major geopolitical rival of the traditional western powers—is using its resources to do the same, then the logical conclusion would be that MDBs would tend to compete with China as a way of maintaining the influence of the traditional powers in recipient countries. As a consequence, they should try to keep the share of their funding at least at par with Chinese funding, implying an increase in absolute volumes. This is what Kilama's (2016) analysis suggests for G7 donors, and if the realist arguments are correct, the influence of these bilateral donors as shareholders within the MDBs should drive MDB finance allocation in the same direction.

The MDBs may also be trying to compete with China less directly from a purely realist perspective of what their major donors want, but rather through a more constructivist-oriented desire to remain relevant in their countries of operation as a go-to development agency. As well, financial considerations could play a role, since MDBs have a financial incentive to lend to non-concessional countries due to the revenue this lending generates, which covers MDB administrative expenses and also generates net income used by shareholders for various purposes (see Humphrey 2014 for more on this).

At the same time, there may be constraints on the demand side. If there is only a limited amount of funding desired by the recipient countries, competition through the inflow of Chinese finance could also mean that MDBs with all their unwanted safeguards, complex procedures and other characteristics typically disliked by the recipients are driven out of the market. From this perspective, one would expect MDB finance to go down. Especially for non-concessional lending, it is hard to imagine unlimited demand. This implies that overall, theory does not give us a clear indication of what to expect. The reaction of MDB lending to Chinese finance remains an empirical question.

Along with reactions in terms of overall lending volumes, there may also be changes in the sectoral allocation of funds. It is primarily the infrastructure sector that is the main area for MDB safeguards, e.g., to prevent negative consequences for people living in areas that are flooded in the context of major hydropower projects or the like. At the same time, Chinese lending primarily flows into this sector, and the sector is of high priority in the eyes of most recipient governments. The latter may again drive western stakeholders to push the MDBs into competition by increasing the share of infrastructure lending in MDB finance. In case there are demand-side constraints, the easy access to Chinese lending could, however, also drive the MDBs out of this sector into areas like budget support, in which governments feel less disturbed in their autonomy. Alternatively, it could incentivize MDBs to reduce bureaucratic "hassle factors" like environmental and social safeguards in order to keep their infrastructure lending at least at the same level as before.

MDBs themselves vary with respect to both the institutionalized influence of major western countries, and the complexity of their procedures as well as the emphasis on social and/or environmental safeguards. Rather than lumping together the World Bank and the major regional development banks, newer research has thus taken a more nuanced approach. Studies such as Lyne et al. (2009) note that it

may well be worth considering a broader view of MDB governance, and that the views of smaller countries may still play a role in shaping some policies. Copelovitch (2010) follows a conceptually similar approach in relation to the IMF.

Humphrey and Michaelowa (2013), Humphrey (2014) and Humphrey (2015a) go further, suggesting that in fact a continuum of governance arrangements characterizes MDBs. These studies focus on Latin America, and highlight that while the Inter-American Development Bank (IDB) is strongly influenced by the U.S. and other G7 powers, it in fact operates substantially differently than the World Bank, in a way that is more in line with the preferences of borrower countries. While the US retains veto voting power at the IDB and can (and does) insist on the implementation of policies very similar to the World Bank, the greater power of borrower countries in IDB governance compared to the World Bank as well as the higher proportion of IDB staff coming from borrower countries means the application of those policies is considerably more "borrower-friendly".

The AfDB, like the IDB, is also still majority controlled by borrower African countries (60% of total voting shares), but unlike the IDB, the U.S. does not have any formal veto voting power. At the same time, the AfDB is highly dependent on donations from wealthy shareholders to support its concessional African Development Fund (ADF) lending window, which lends to the majority of African countries. As a result, like the IDB, the AfDB has broadly similar overall policies as the World Bank related to environmental and social safeguards, loan processing times, policy conditionality and sectors of operation.

However, should the impact of greater borrower country voice at the AfDB parallel that of the IDB, one can expect that the AfDB would be "friendlier" to borrower countries, more flexible in how policies are applied and more inclined to follow borrower country lead on where to direct its resources. Hence, the AfDB would be less likely to react to Chinese activity compared to the World Bank, on the one hand because the bank is already acting closer to borrower demands, and on the other, because African countries are less likely to see China as a competitive threat. Hence, whether or not there is a difference between the reactions of the two major MDBs active in Africa to Chinese lending also remains an empirical question.

We use descriptive statistics and econometric analysis to present the empirical evidence. This analysis generates some initial evidence to suggest which of the above interpretations appear most plausible. In a second step, we complement our analysis with a series of in-depth interviews with borrower government officials in three African countries where China is active. Obviously, the results of these interviews are also far from definitive, as government officials may well have their own agendas and reasons for making certain statements. However, the combination of the two approaches should provide a good starting point for further analysis, and can also raise potential interpretations not considered so far.

3. Statistical Analysis of Development Finance in Africa, 2000-2014

The most straightforward way to examine how the World Bank, the AfDB and DAC donors are reacting to China's rising role in African development finance is to examine finance patterns over time. While one may dispute how the results should be interpreted, the numbers themselves reflect actual developments in a relatively objective way. We consider the period from 2000 onwards because it is only since the new millennium that Chinese development finance has increased so dramatically.

3.1 Data and Sources

The central variables for this study are development finance for Africa, provided by China on the one hand, and by the World Bank and the AfDB on the other hand. In addition, we include bilateral aid by DAC donors for comparison. We use project information in total amounts and broken down by sector, always aggregated by year and recipient country. Following a consensus in the aid allocation literature, we focus on commitments–the amount agreed at the start to be supplied by the financier for the totality of each project–rather than disbursements–the amount transferred each year from the financier to the borrower. The former provide a better basis for understanding the motivations of both the financiers and the borrowers when a project is agreed upon even if, eventually, the project may not always be carried out. We only include finance provided directly to or guaranteed by sovereign governments, as opposed to finance directly to private sector borrowers in Africa–thus excluding lending by the AfDB's private sector lending window and the World Bank's International Finance Corporation (IFC). All finance commitments were converted into real (2013) US dollars, using the U.S. Consumer Price Index.

As far as available, data for World Bank and AfDB commitments come from the respective annual reports of each MDB (World Bank, 2000-2014; AfDB, 2000-2009). The AfDB has not included project-by-project descriptions of annual commitments in their annual report since 2010, but provided the complementary data directly to the authors (AfDB, 2010-2014). The OECD DAC database (OECD, 2017a) includes the relevant information for all bilateral DAC donors, and AidData's Global Chinese Official Finance Dataset, 2000-2014, Version 1.0 provides the information for Chinese resources (Dreher et al., 2017). The latter includes Chinese funding from diverse sources, most notably from two major state-owned banks: Chinese Ex-Im Bank and China Development Bank. Further resources are also provided directly by the Chinese government (see Zhang and Smith 2017 for a breakdown of Chinese aid institutions). However, direct project-level information on Chinese finance from these sources is limited and unreliable. Therefore AidData relies on a compilation of information from news reports and public statements by Chinese and recipient country governments, along with official statistics. Despite remaining deficiencies regarding the accuracy of the data—notably a risk of overstatement by public officials and the media as noted by Bräutigam and Hwang (2016)—this is the only realistic technique to build such a database in the absence of comprehensive data from Chinese authorities.[3] It should also be noted that the most recent data available from AidData (2017) that we use here have been significantly revised from earlier versions and partially take into account earlier criticism.

As mentioned above we distinguish between development finance to recipients classified as concessional and non-concessional by MDBs. Because most Chinese finance is directed to concessional countries (see Figure 2 above), the impact of Chinese activity on MDB lending in these countries is the main focus of interest in this study. Countries accessing concessional MDB finance are generally very poor, and receive financing in the form of mainly zero interest, long maturity loans from the MDBs, along with some grants. Non-concessional countries, on the other hand, receive loans at terms closer to market rates, although still more attractive than the governments would be able to obtain on their own. African countries also receive DAC resources at varying terms—Official Development Assistance (ODA), which is mostly grant resources, and Other Official Flows (OOF), which are loans closer in financial terms to MDB non-concessional loans. However, DAC donors allocate ODA vs. OOF as they see fit on a project-by-project basis, and do not necessarily follow the MDB division between concessional and non-

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[3] Bräutigam and Hwang (2016) present different numbers from AidData for the 2000-2014 period, based on the database of the SAIS-CARI project, but this data unfortunately cannot be broken down by country-year-sector, as AidData's can, and thus was not usable for this project.

concessional countries. It should be noted, however, that OOF funding is a very small portion of DAC resource flows—only 1.6% of DAC flows to Africa in 2000-2014. Chinese finance comes at financial terms that vary by project, and are usually a bit above MDB non-concessional rates but still below what private markets would offer the borrowers. While we need to consider the MDBs' differentiation between concessional and non-concessional at recipient level because it relates to donors' strategic interests as well as to possible differences in demand for funding as highlighted above, the rather fuzzy project-by-project distinction of financial terms by the bilateral donors is less relevant for our analysis. For each recipient and donor or lending agency, we will hence simply consider all development funding combined, independently of financial terms.

In terms of sectoral categories, we distinguish between infrastructure, social, and budget support. When MDB projects had more than one component—for example building rural roads, promoting good crop management, and supporting village councils—we allocated resources to different sectors based on the project description. The infrastructure category includes physical infrastructure in areas such as transport, water, housing, urban renewal, and energy. However, it does not include loans intended to support infrastructure-related institutions. For example, a loan to reform a country's transport ministry or to privatize a railway would not be included. "Social" includes health, education, gender, youth and social protection. "Budget support" is all resources put directly in a government's budget, without earmarked spending purposes. As mentioned above, we expect competitive pressures to become visible mostly in the infrastructure sector, but balancing effects may be reflected in the other two sectors. The fact that donors may have a preference for social projects (as they are publicly perceived as "pro-poor" and hence more popular), and recipients may prefer budget support (since it gives them greater freedom to spend resources), make it appropriate to check for secondary effects in these categories.

Generally, for both MDBs and for Chinese finance, sector coding requires examining the relevant commitments on a loan-by-loan basis, while the DAC database provides the sector categories directly. Due to the lack of detailed project descriptions, the relevant sector was in some cases not entirely obvious for Chinese official development finance, and the authors used judgment based on available information from AidData. As to be expected, the vast majority of finance was for physical infrastructure, and Chinese sources provided almost no budget support.

3.2 Descriptive Statistics

As a first step, a series of descriptive statistics were generated comparing commitments from the AfDB, the World Bank and DAC donors against those from China. These were plotted visually to capture any obvious trends and patterns, regardless of the potential impact of control variables to be added in the multivariate framework.

When considered in aggregate, for all countries and not separating concessional vs. non-concessional countries, all three traditional financiers show a relatively similar trend: rising steadily (more steeply in the case of DAC) up to the mid-2000s, followed by a spike clearly in response to the global financial crisis of 2008, and then a subsequent plateau (Figure 3). Chinese finance, on the other hand, shows a strong positive growth trend throughout the period, although with more variation compared to the MDBs. This is likely due to the fact that China tends to commit very large sums of money at once in some countries, sometimes preceded or followed by no lending at all. By contrast the MDBs tend to commit a certain level of resources each year.

**Figure 3. Total lending commitments, all countries, 2000-2014**
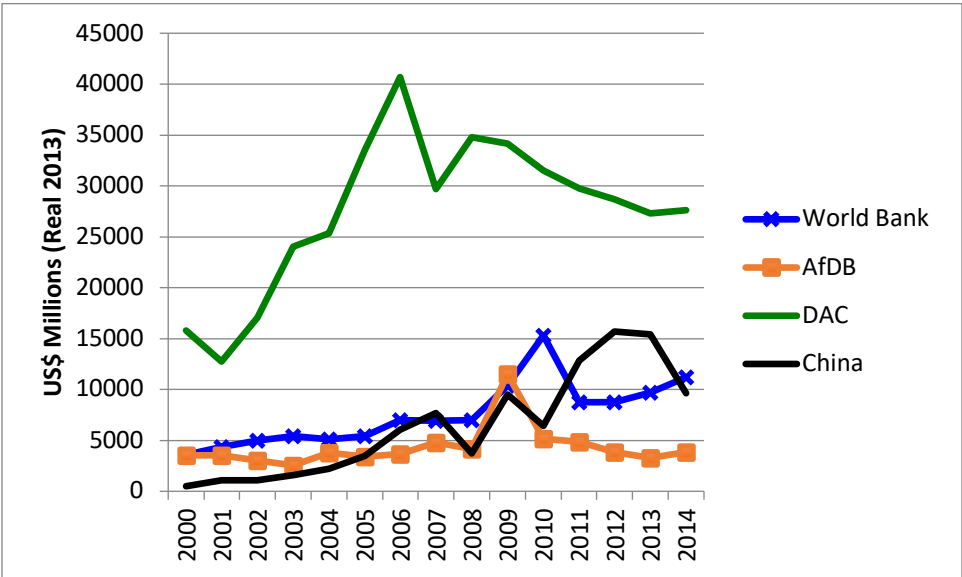
Sources: AidData (Dreher et al., 2017), OECD (2017b), World Bank (2000-2014), AfDB (2000-2009; 2010-2014).

While the above data is interesting in and of itself, it does not directly suggest any effect Chinese lending may have on other development financiers. In an attempt to get closer to that question, we build a sub-set of data of the countries in which China is most active. Between 2000 and 2014, 12 countries have received at least US$3 billion Chinese finance, and these account for nearly 80% of all Chinese finance in the period.[4] However, because two countries (Sudan and Zimbabwe) have received no finance from either the World Bank or the AfDB during the period, they were excluded (an issue to which we will return later), leaving 10 countries. We then compare 2000-2014 lending trends by the World Bank, the AfDB and DAC to those 10 countries, versus lending by the same organizations to all other African countries. Should patterns be divergent, that may indicate that the traditional financiers are reacting to Chinese finance flows.

Looking first at overall finance commitments, some slightly divergent patterns are apparent, but without any clear trend that can be usefully interpreted (Figure 4). Note that the spike in DAC lending to China-favored countries in the mid-2000s is the result of two years of exceptionally lending to Nigeria, which did not continue. Excluding that spike DAC lending seems to follow a roughly similar pattern in both sets of countries, as does that of the two MDBs. Discerning any further reaction of DAC or MDBs to China in terms of total lending volumes requires a more fine-grained multivariate approach.

Figure 4. Total finance, China-favored countries (left) and all others (right)
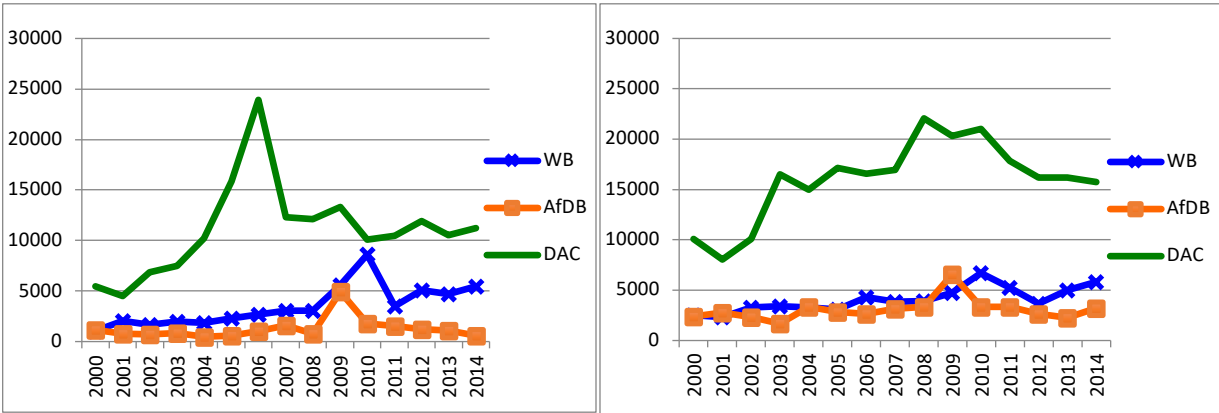
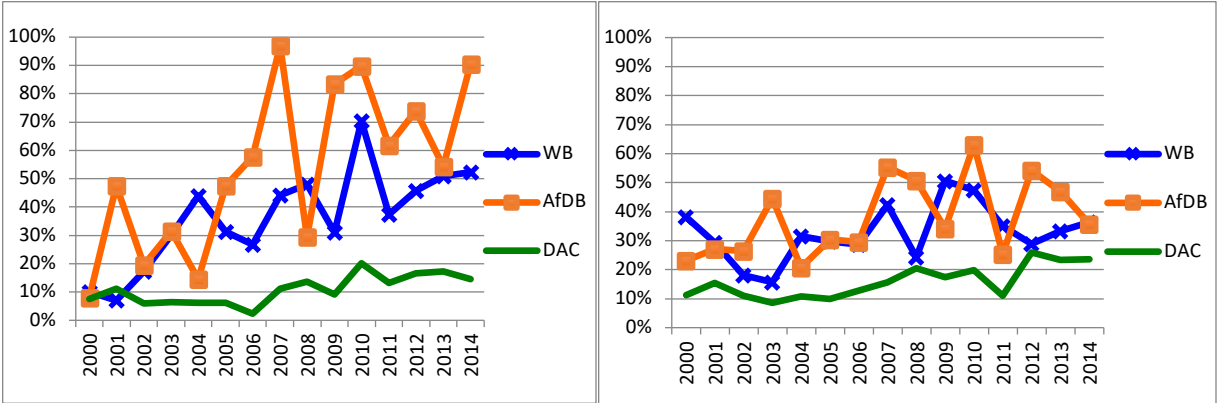Sources: OECD (2017a), World Bank (2000-2014), AfDB (2000-2009; 2010-2014).

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[4] These countries are: Angola ($13.2 billion), Ethiopia ($13.5 billion), Sudan ($7.5 billion), Nigeria ($5.6 billion), Kenya ($5.2 billion), Cameroon ($4.7 billion), Zimbabwe ($4.6 billion), Cote d'Ivoire ($4.2 billion), South Africa ($4 billion), Ghana ($3.9 billion), Zambia ($3.4 billion), Tanzania ($3.3 billion).

One can undertake a similar analysis looking at sectoral lending. Infrastructure lending is of particular interest, as China has overwhelmingly lent for infrastructure projects and the traditional development financiers have been perceived as falling short in this area in recent decades (Humphrey, 2015b). Here again, the patterns are not easily interpreted, but a tendency can nonetheless be detected for both the World Bank and (especially) the AfDB to commit more infrastructure finance in countries favored by the Chinese, as opposed to other African countries (Figure 5). Interestingly, DAC donors show no similar reaction, which may be the result of a much stronger interest in supporting social programs by traditional bilateral donors, whereas MDBs had in the past a major role in infrastructure, which Chinese activity may have helped re-start.

Figure 5. Infrastructure finance, China-favored countries (left) and all others (right)

Sources: OECD (2017a), World Bank (2000-2014), AfDB (2000-2009; 2010-2014).

Overall, descriptive statistics do not provide much evidence regarding the reaction of traditional development financiers to Chinese activity in Africa, in terms of overall lending amounts. Both MDBs do appear to have shifted some of their resources more toward infrastructure in countries favored by Chinese finance, while DAC donors did not react in a similar fashion. However, it is clearly possible that other factors could be causing this difference in trends, and hence we now turn to a multivariate statistical framework.

3.3 Multivariate Statistical Analysis

We now examine whether any significant reaction by the MDBs to Chinese finance can be observed in a multivariate panel analysis. We follow the traditional aid allocation literature and include a series of indicators for recipient need, recipient merit, and donor interest: GDP per capita, under 5 child mortality, population, the ratio of hard currency reserves to external debt (as a proxy for short-term country financial needs), resource rents in % of GDP, voting alignment with United States in the United Nations, and the Political Freedom Index (as an indicator of good governance and hence recipient merit). For the exact definitions of all variables and data sources, see Appendix, Table A3.

The time structure of the panel regressions poses some interesting choices. Some type of time lag is necessary, as it is not likely that the MDBs or DAC donors would be able to react immediately to the activities of Chinese financiers in a given country. Preparing projects takes time, particularly in the case of the traditional donors–this is in fact often a complaint leveled against them by recipient countries. According to data from the MDBs themselves, average time from the start of project preparation to the commitment stage at the World Bank was 16 months in 2008 (the earliest year for which data is available), declining slightly to 14 months in 2013 (World Bank, 2008 and 2013). In the case of the AfDB, lead time for commitments has averaged around seven months from 2012 (the earliest available data) to 2014. In the case of investment projects (particularly infrastructure), lead times are often much longer due to required environmental assessments, procurement processes and technical preparation, while budget support loans are often quicker. As well, one can logically assume that the MDBs may not react sharply to each year's changes in Chinese finance, but rather to the pattern of ongoing activity over more than one year. To address both of these issues, our main specification is based on two-year period averages for our main explanatory variable, i.e., Chinese finance, and for all control variables, while the finance of MDBs (and similarly, DAC finance), i.e., the variables to be explained, are measured for one year ahead of the latest of the two years.

We select a simple, but robust linear fixed effects model (with recipient and period fixed effects) as our main specification, with standard clustered at the recipient level. Table 1 presents the results in terms of overall finance volumes. Alternative specifications taking into the censored nature of the lending data (tobit or ppml) show substantially very similar results (see Appendix, Table A1, regression blocks e and f).

It appears that for concessional countries, there is no systematic relationship between Chinese funding and the finance volumes of either the World Bank (column 1), the AfDB (column 2) or MDBs taken together (column 3). As opposed to what prior analysis may lead us to believe, based on the revised AidData information on Chinese finance that we use, such a relationship is not observable for DAC donors either. The lack of any kind of relationship is remarkably robust across different alternative specifications. In the Appendix, Table A1 shows alternative estimation models. In addition to the alternative models already mentioned above, they include specifications (a) without period fixed effects, (b) with recipient random effects rather than fixed effects, (c) using the natural logarithm of all finance variables, and (d) using single-year rather than two-year periods, i.e., an annual panel with the dependent variable measured always one year ahead of time. Only in one out of 28 regressions is the coefficient of Chinese finance for concessional countries significant (at the 10% level) for any of the MDBs or for DAC donors.

The situation for MDBs is different for non-concessional countries. The interaction of a non-concessional country dummy and Chinese finance is significantly positive in almost all regressions for the World Bank and for both MDBs jointly. The model with logged aid variables (Appendix Table A1, blocks c and e) suggests that this may also be the case for AfDB finance individually, albeit to a smaller extent. The reaction of the MDBs to Chinese lending is hence significantly different for these two country groups. For the World Bank, the result is very robust and not driven by any single country. We test this by repeating the computation of Table 1 while leaving out, one by one, each of the nine non-concessional African countries in our sample. The interaction term remains significant in each case, and the World Bank consistently shows an increase of its lending when Chinese finance increases.

This is in strong contrast to DAC aid. In Tables 1 and A1 taken together, there is only a single positively significant coefficient in all seven DAC-related regressions. This suggests that for DAC donors, in non-concessional just as in concessional countries, there is no systematic link to Chinese lending.

Table 1: Response to Chinese lending in funding volumes

	(1) WB finance	(2) AfDB finance	(3) MDB finance	(4) DAC finance
Chinese finance	0.018	0.086	0.104	-0.079
	(0.76)	(0.21)	(0.19)	(0.82)
Non-concessional*Chinese finance	0.678***	-0.005	0.672***	0.203
	(0.00)	(0.96)	(0.00)	(0.59)
GDP per capita	0.019	0.046*	0.065	0.048
	(0.41)	(0.09)	(0.13)	(0.55)
Under 5 mortality	1.019	-0.730	0.289	-2.939
	(0.55)	(0.18)	(0.88)	(0.40)
Population	15.565	4.814	20.377	73.549*
	(0.21)	(0.59)	(0.21)	(0.07)
Population squared	0.039	0.004	0.043	-0.417***
	(0.32)	(0.89)	(0.42)	(0.00)
Reserves	-0.057**	-0.033	-0.090**	-0.121
	(0.01)	(0.25)	(0.02)	(0.23)
Resource rents	-1.344	0.558	-0.786	1.109
	(0.60)	(0.89)	(0.89)	(0.91)
UN voting with US	-219.331	-106.025	-325.396	-1,050.166
	(0.21)	(0.76)	(0.47)	(0.38)
Political freedom index	-27.982	26.978	-1.011	-65.310
	(0.36)	(0.27)	(0.98)	(0.24)
Recipient FE	YES	YES	YES	YES
Period FE	YES	YES	YES	YES
Observations	268	268	268	268
Number of recipients	46	46	46	46
R-squared (within)	0.193	0.054	0.140	0.085

Notes: Dependent variables always refer to the year preceding the two-year period considered for the explanatory variables and controls. *,**,and *** show significance at the 10, 5, and 1% level respectively; p-values in parentheses. Standard errors are clustered by recipients.

Table 2 presents the results regarding potential shifts in sector allocations. The upper panel presents the relationship between the Chinese share in overall development finance in a given recipient country and period, and the share of funding the MDBs and DAC donors allocated to physical infrastructure as a share of their total resources spent in the country in the year following this period. The second and third panel show the same results, but for social sector finance and budget finance respectively. Controls are not shown here, but the full model for infrastructure is presented in the Appendix, Table A2. At the exception of the changes in the variables, model specifications are as discussed above.

Again, there is no evidence that Chinese finance is associated with any change in the allocation of MDB or DAC funding to concessional countries. All coefficients related to the share of Chinese aid remain insignificant, both in the main table and in Table A2 in the Appendix. The latter includes the same changes in model specifications as explained above for models a-d in Table A1, with the exception of the log-log specification, which does not appear useful here as funding variables are already expressed as percentages.

However, we again observe a different situation for non-concessional countries. There is some evidence that in these countries, AfDB lending to infrastructure is somehow crowded out by Chinese finance. This is also observable for DAC donors, but only in the annual panel, suggesting that their sectoral reallocation may happen faster than at the AfDB. Generally, these results appear less robust, however, than those on non-concessional finance volumes discussed in the context of Table 1. They depend notably on the inclusion of recipient fixed effects (see Table A2, regression 2c). Leave-one-out validation also shows that the AfDB result in Table 2 loses significance when omitting Mauritius (results not shown).

Table 2: Response to Chinese lending in sector allocation

	(1)	(2)	(3)	(4)
	WB	AfDB	MDBs	DAC
	Infrastructure finance			
% Chinese	-0.170	-0.210	-0.157	0.024
	(0.34)	(0.24)	(0.46)	(0.67)
Non-concessional*% Chinese	0.454	-1.445***	-0.518	0.213
	(0.21)	(0.01)	(0.31)	(0.31)
	Social sector finance			
% Chinese	-0.241	0.264	-0.228	0.029
	(0.15)	(0.36)	(0.2)	(0.7)
Non-concessional*% Chinese	0.209	-0.122	-0.124	-0.294
	(0.29)	(0.72)	(0.75)	(0.22)
	Budget finance			
% Chinese	0.088	-0.132	0.064	0.004
	(0.64)	(0.76)	(0.68)	(0.87)
Non-concessional*% Chinese	-0.685	1.033	0.007	0.176
	(0.12)	(0.10)	(0.99)	(0.23)
Recipient FE	YES	YES	YES	YES
Period FE	YES	YES	YES	YES

Notes: Controls as in Table 1. For a full presentation of the model on infrastructure finance, see Appendix, Table A2. Dependent variables always refer to the year preceding the two-year period considered for the explanatory variables and controls. *,**,and *** show significance at the 10, 5, and 1% level respectively; p-values in parentheses. Standard errors are clustered by recipients.

Overall, these findings reveal that in concessional countries, both finance amounts and sector shares are not associated (either positively or negatively) with Chinese lending. Hence, based on the data we employ here, it does not appear that MDBs and bilateral donors have reacted in any systematic way to the influx of Chinese finance to concessional countries in Africa. By contrast, evidence suggests that this is different for the economically more advanced non-concessional recipient countries. Here, especially the World Bank appears to adjust lending volumes upward in response to Chinese finance, and the AfDB and possibly the DAC donors reduce infrastructure lending.

We now turn to qualitative evidence from interviews in three African countries. The findings of both the descriptive and multivariate statistics, along with the qualitative evidence, are discussed jointly in a subsequent section.

4. Qualitative Evidence from Interviews: Ethiopia, Tanzania and Malawi

To get a better sense of how increasing Chinese finance might be influencing traditional development financiers, we undertook 17 interviews with government officials in three African countries: Ethiopia, Tanzania and Malawi. The intention is to better understand the factors that might cause recipient countries to favor one source of finance over another, if any; and the perception of recipient countries on the motivations of traditional development financiers. Because of the preponderance of Chinese official finance to concessional African countries and the relevance of poorer countries to international development policy—particularly in Africa—the interviews were conducted in three countries eligible for concessional financing by the MDBs. Hence, the interview material is mainly relevant to concessional countries, and can only speak indirectly to higher-income non-concessional countries.

4.1 Background and Justification of Interview Strategy

The choice of focusing on recipient government officials was driven by three main considerations. First, the literature has heretofore overly focused on the "supply side" of development finance: the internal factors shaping the supply of finance, such as development needs as perceived by external actors, geopolitical considerations, internal bureaucratic factors, etc. While these factors are clearly relevant, it

is important not to neglect the agency of recipient governments, particularly in an era of increasing financial options (Greenhill et al., 2013; Humphrey and Michaelowa, 2013). Second, while recipient government officials clearly have their own agendas and interviews must be interpreted with caution, in our experience they are quite open—and in fact enjoy—discussing the relative merits and motivations of external development financiers with whom they engage regularly. As opposed to officials within bilateral and multilateral agencies, who are less likely to be open about factors driving their lending that do not match their stated mandates of reducing poverty, government officials have no official mandates to defend in this respect and hence no direct incentive to polish up their statements. Third, Swedlund (2017) already undertook a survey of development agency officials in Africa, with the results generally showing little impact of Chinese aid on their decision-making and negotiating power with recipient countries. Rather than replicate that work, our study chose to focus instead on recipient officials to generate fresh evidence from the "demand" side of the development finance relationship.

The three countries chosen are similar in having remained generally political stable and peaceful in recent years, and have all actively engaged with external traditional and new development finance providers during the period of observation. At the same time, they provide significant variation in the inflows of Chinese finance of relevance to the research questions, to ascertain if this generates variation in the response of traditional development financiers. Ethiopia has received a huge amount of Chinese resources—nearly $11 billion between 2000 and 2014—the second highest of any country in Africa (after Angola, at $14.6 billion). Tanzania has received substantial amounts as well, but considerably less—$4 billion over the period—while Malawi has received only about $500 million.

The majority of the interviews (11) were with officials currently (or in two cases, formerly) in the ministries of finance, while the remainder were in line ministries heavily engaged with external development finance, including electric power, transportation and agriculture. All officials had regular interactions with a variety of development finance providers, including traditional sources as well as (in most but not all cases) the Chinese. All interviews were undertaken on the understanding that respondents could be listed (see reference section), but would not be individually identified in relation to specific statements or opinions. With one exception (done by telephone), each interview was conducted face-to-face in government offices.

4.2 Main Findings

We focus on two main themes from the interviews of particular relevance to the research questions posed in this paper and on which there was a very high degree of correspondence (and in some cases unanimity) among respondents:

- Overall available development finance envelope
- Sectoral allocation of resources

4.3 Overall Development Finance Envelope

A critical finding which helps explain the insignificant results from the statistical analysis above, particularly in relation to the MDBs, is that all three countries took every available dollar of concessional and ODA resources on offer, for purely financial reasons. First, and most obviously, concessional resources offer the best financial terms available, with usually zero interest rate and very long repayment periods. DAC ODA resources are even better, often in the form of grants–that is, entirely free money. Second, all three countries have limits imposed by the IMF on the level of non-concessional resources their governments are allowed to borrow each year, due to their participation in either the Highly Indebted Poor Country (HIPC) or the Multilateral Debt Relief Initiative (MDRI) (or both, for Ethiopia and Malawi).

Hence, the countries are generally happy to take all concessional/ODA resources available, regardless of the type of project attached or the characteristics of the lending source. "We take every penny [of IDA], and we push for more," said a Finance Ministry official from one country. "We might not always like them [the World Bank and the AfDB], but we need them for the money. We can't not use them," said an official from another country. A third official from an infrastructure line ministry explained in more detail why he could not borrow more from export credit agencies (ECA) like the China Ex-Im: "The problem is that the Ministry of Finance is mostly refusing. Every time we bring these ECA proposals, which are still cheaper than commercial finance, they will look at the IMF debt ceiling. And that's an inhibitor. It's only about $800 million per year, which is not very much, and everybody is fighting for that small window. And there isn't enough concessional money."

In addition, because of the nature of their own refinancing, MDB concessional windows cannot react in a meaningful way to Chinese finance increases. These windows (for both the World Bank and the AfDB) are replenished every three years through laborious rounds of negotiations, and the willingness of governments to donate has been on the wane (Figure 6), due in large measure to budgetary restrictions. Nor can the allocations be easily shifted among borrower countries to react to Chinese inflows: both the World Bank's IDA and the AfDB's ADF have relatively transparent "performance-based" criteria defining each country's allocation (Kanbur, 2005; World Bank, 2017b, World Bank, 2014; AfDB, 2018).[5] Thus, if an MDB were to perceive China's rising activity in a concessional country as a threat for some reason, it would not easily be able to increase the amount of resources it provides to that country to retain its influence, even if it wanted to.

Figure 6. Country donations, IDA replenishment rounds
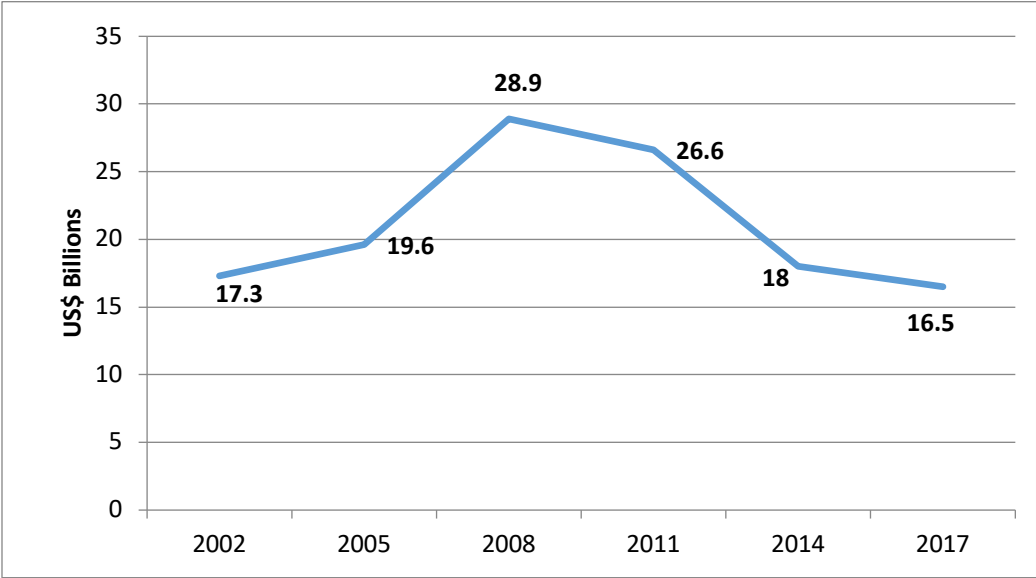
Source: World Bank IDA (2002, 2005, 2008, 2011, 2014 and 2017).

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[5] The World Bank's criteria for IDA allocation have changed over the years, but have during the entire period of this study followed a relatively similar and transparent formula. The most recent formula involves giving each country a "base" allocation of US$4.5-6 million, with further amounts depending on a formula that includes: GNI per capita, population, and the country performance rating. The latter is, in turn, derived from four sets of Country Policy and Institutional Assessment (CPIA) ratings and and the IDA Portfolio Performance Rating (PPR), as follows: CPR = (.24 * CPIA [A-C] + .68 * CPIA [D] + .08 * PPR). For details, see World Bank 2014, Annex 2. Since 1999, ADF has used a similar allocation formula, with minor differences. For details, see AfDB 2018.

4.4 Sector Allocation

In terms of sectoral allocation, all officials in each of the three countries expressed a clear priority order for receiving resources: best is budget support finance not earmarked to any sector, second is physical infrastructure (transportation, energy and water, mainly), third is social spending like health and education, and least favored is capacity building and institutional reform. However, recipient country ability to achieve these priorities varied substantially both by recipient country and by financing source. The AfDB is perceived by borrower governments as quite responsive to their requests, and gives a markedly higher share of its resources in infrastructure than the World Bank or DAC donors in two of the three recipient countries (Figure 7), as well as generally in all African countries. "They are Africans too," said one official. "It's true that the rich countries have a big influence on their policies, but the staff understand what we need and try to help. Because they are a regional bank, maybe they sympathize with us more." Officials in all countries maintained that the AfDB's activities were not in reaction to the increase in Chinese finance, but rather an honest desire to help the country achieve its development goals. The main problems recipients have with the AfDB is that the size of available resources is simply too small to undertake many of the major infrastructure projects they would like, as well as procedural issues (discussed in more detail below).

Figure 7. Share of infrastructure in total lending, 2000-2014 average
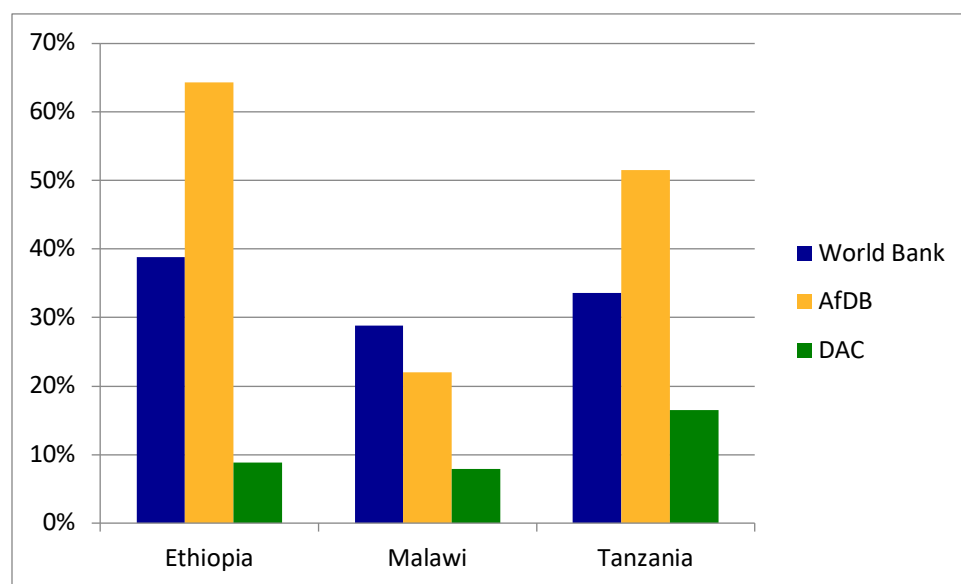
Sources: OECD (2017a), World Bank (2000-2014), AfDB (2000-2009; 2010-2014).

DAC donors, on the other hand, showed very little flexibility in relation to sectoral allocation, with the vast majority going to social projects and institutional support. While Ethiopian officials suggested overall DAC amounts may have increased in response to Chinese activity, they were clear that it had little influence on project sectors. "These bilaterals, they have very strong ideas on where their money should go, and we can't do much about it," said one Ethiopian official. "But most of it is grant money anyway. Some [bilaterals] have said they might start giving less grants, and offering more as loans, and if they do we might have to think a bit more on what we take." Another official pointed out that since most DAC money is in relatively small grants, the amounts are only sufficient for social projects and are not useful for infrastructure anyway. Tanzanian and Malawian officials agreed that DAC donors are by far the most rigid in defining project sectors.

The World Bank showed some tendency to adapt to government demands in recent years. This was most obvious in the case of Ethiopia (with by far the highest amounts of Chinese finance of the three countries). Ethiopian officials noted their influence in shaping World Bank project allocations had grown. "We have been aggressively working with the World Bank, saying 'Please invest in roads.' And they say, 'What about capacity building, or something else?' and we say, 'No, roads.' And they have responded." Tanzanian officials also noted greater willingness of the World Bank to offer infrastructure support, but not as much as they desired. Asked if the influx of Chinese investment had improved his negotiating leverage with the World Bank, a Finance Ministry official said, "Yes of course. That's the direction we are moving in now, because we have more options. If you can't get the World Bank to fund it, you can find someone else." Malawian officials, in contrast, felt they had essentially no ability to shape World Bank sector allocation, but could only passively accept what was offered. "The World Bank should invest more in the productive sectors to help this country boost its economic activity […] But we still find that the Bank will still want to invest in HIV/AIDS, even though the bilaterals mostly want to spend there too."

One issue which officials in all three countries noted as limiting their own demand for infrastructure lending from the World Bank and to a lesser degree the AfDB is the "hassle factor" implicit in these types of projects from project design rules and environmental and social safeguards. Officials from all governments concurred that the World Bank in particular was frequently not worth the difficulty. "For hydroelectric and railroads, we don't even talk to them, we just go straight to the Chinese," said an Ethiopian official. Discussing a major gas pipeline project, a Tanzanian official said, "The Chinese are a

bit more expensive, but they are a lot easier and a lot faster for this kind of project. We didn't even send a request to the World Bank for support, we went straight to the Chinese." Even in Malawi, with only small amounts of Chinese finance, officials were experiencing these dynamics with a planned new coal-fired power plant, to be funded by the Chinese at market-based interest rates. "The World Bank and AfDB wouldn't fund it because the powerful shareholders would not agree to that kind of thing for environmental reasons. So we went with the Chinese." Hence, even though World Bank project staff showed some desire to accommodate borrower country desire for infrastructure, higher-level policies mandated by shareholders limited their ability to do so effectively.

While all officials noted that the AfDB and the World Bank had similar policies on these matters, due to the influence of major wealthy-country shareholders, a majority of interviewees (but not all) felt that the AfDB was more flexible in the application of these policies, and is more willing to work with countries to find a workable solution, while the World Bank was more rigid and process-focused. This finding parallels that found in another study comparing the World Bank with the IDB in Latin America (Humphrey 2015a).

By comparison, Chinese finance involved minimal safeguard reviews, limited only to the approval of the relevant recipient government ministry. Procurement is also substantially easier, since it is often arranged ahead of time with the Chinese Ex-Im Bank as financier, saving considerable paperwork (although also leading to some complaints on value for money, according to several officials). And while some officials noted that the quality of Chinese infrastructure–particularly roads–was sometimes sub-par, they all lauded how fast the Chinese worked, an important factor for governments wanting to show quick results to their population.

The World Bank has also shown substantial flexibility in Ethiopia and Tanzania in supplying budget support finance, which governments are strongly in favor of since it gives them freedom to allocate spending as they see fit. In the case of Ethiopia, officials stated that they have refused traditional budget support lending due to disagreements with the World Bank on policy conditionality, but that they have made substantial use of the new Program for Results (P4R) instrument. This commits governments to achieve certain results through their own spending, which is then reimbursed by the World Bank post hoc (for more on P4R, see Cormier, 2016). Due to the very strong centralized planning and control of

the Ministry of Finance in Ethiopia, this has been very successful. "It's basically just like budget support for us, it pays for our current spending," said one official. Tanzania has also received substantial budget support, both in traditional policy-based loans (fully one-third of all lending between 2000 and 2014) as well as several P4R loans. Malawi, by contrast, has had no P4R loans, and overall the least support of the three countries in this flexible lending category (budget support+P4R).

5. Discussion of Findings

How can these different interview-based and statistical findings shed light on the research question of how traditional development financiers are responding to the influx of Chinese finance in Africa? We first consider the evidence in relation to the total amount of finance from the World Bank and the AfDB as well as DAC donors, and subsequently to the question of how those resources are allocated to different project sectors. In both cases, we start by discussing the results for the majority of poorer, concessional countries (37 in our sample) that receive the bulk of Chinese development finance overall and also much higher volumes per country, and that therefore better represent the general dynamics we observe in Africa today. We then discuss the apparent differences for non-concessional countries (nine countries in our sample), which may provide an indication of how things may evolve once more African countries benefit from sustainable economic development and grow out of their concessional status.

5.1 Total Financing Levels: Concessional Countries

Multivariate analysis finds no statistically significant association between the financing commitments of the World Bank and the AfDB, and also the DAC donors to Chinese financing in concessional African countries between 2000 and 2014. This finding is robust to a number of different test specifications, including random and fixed country effects, period fixed effects, different time lag set-ups, and the use of tobit or ppml models to account for the censored nature of financing data. This is at first glance a rather surprising finding: despite the influx of over $70 billion in new Chinese resources to these countries in only 15 years, the main traditional development financiers appear to have not reacted by adjusting their funding levels. The finding also seems to contradict Kilama's (2016) prior evidence with respect to DAC bilateral aid.

Qualitative interview evidence helps clarify why this is the case. Officials in all three countries clearly stated that they took all concessional resources available, because of the highly attractive financial terms, making these overall amounts essentially a supply-driven phenomenon. For the MDBs, the amounts each country receives, in turn, are determined by lengthy donation rounds and relatively rigid formulas. Hence, even if MDB staff or shareholders wanted to increase funding levels to respond to the increase in Chinese activity, doing so would be an extremely difficult and lengthy process.

Furthermore, based on our results, there is little evidence that major shareholders would even want to put up pressure in this respect. Typically, their interest in balancing the Chinese influence should also be reflected in their own bilateral financing. While much of the extant literature on DAC development assistance led us to believe that this may be the case, the non-result we obtain for DAC donors questions the very basics of this argument. A more in-depth reading of Kilama (2016) reveals that his emphasis on the competitive behavior of DAC donors relies merely on the specific cases of strategically important recipients, rather than the average recipient of Chinese funding, for which he does not find any significantly positive effect on DAC development finance either. In essence, despite numerous differences in the econometric set-up and the dataset used, his results are hence in line with ours and do not generally suggest a competitive reaction of DAC donors to Chinese lending.

As DAC donors face less bureaucratic obstacles to changing aid allocation than MDBs, nothing would stop them if they really wanted to react. The only plausible explanation is hence that their concerns about the effect of Chinese finance on the goals of their own funding (be they geopolitical or developmental) are rather limited and do not challenge earlier priorities determined by domestic interests and recipient need. A demand-side explanation is even more unlikely than for the MDBs, as DAC resources are almost entirely grants (i.e., completely free resources), and hence one can safely assume limitless demand on the part of poor African nations.

A final point worth noting here in relation to MDBs is that two African countries—Sudan and Zimbabwe—did not receive any financing from either the World Bank or the AfDB over the period, due to a combination of unresolved arrears on past MDB loans and political considerations.[6] However, China lent

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[6] Both countries would almost certainly be classified as concessional if lending were to restart now, due to their economic conditions, although Zimbabwe was prior to the halt of lending in 2000 a non-concessional borrower from both the World Bank

very heavily to both countries over the 2000-2014 period–$7.4 billion to Sudan (the third most of any African country) and $4.6 billion to Zimbabwe (the seventh highest amount in Africa). These two examples in themselves point to the limits of MDB reaction to China: major geopolitical considerations and MDB rules on arrears clearance prior to further lending are clear red lines that MDBs will not cross, even if one finds other instances where MDBs may be acting competitively in response to China.

5.2 Total Financing Levels: Non-concessional Countries

The multivariate statistical tests show markedly different results for non-concessional as compared to concessional countries. For the World Bank, the interaction term between the dummy for non-concessional countries and Chinese lending is significant at the 1% level and positive in almost all regressions.[7] As the coefficient for concessional countries is never distinguishable from zero, we can interpret this directly as evidence for a reaction of the World Bank to Chinese lending in non-concessional countries (significantly different from zero).[8] In the models estimating elasticities (log-linear model and ppml model), the AfDB regressions also show a positive and strongly significant interaction term (though with lower coefficients than for the World Bank), and the interaction term for both MDBs jointly is positive and significant in all regressions without any exception. Only for DAC lending, we continue to find a null result (except for a single case in which the interaction term is significant, but very small). This is surprising given that being concessional and hence economically more advanced could be interpreted as a proxy for Kilama's strategic importance related to natural resources and trade. In any case, our finding for MDBs is much more robust and further shows a quantitatively much more substantial effect.

What could explain the differential result between non-concessional and concessional countries for MDBs? Since the reaction by DAC donors is null (or very small), it is again implausible that the reaction by MDBs is driven by pressure from its major shareholders. The answer should therefore lay within the MDBs if the increase is driven by the supply side, or with recipient governments. Intuitively, supply-side dynamics make more sense here, as it is difficult to imagine why a country's demand for MDB resources

and the AfDB. (As MDB funding is zero throughout the period of observation, these countries are not included in the econometric analysis.)

[7] The only exception is the annual panel, which does not properly reflect the reaction period of MDBs (see the explanations of the lag structure at the beginning of the section on the multivariate statistical analysis).

[8] This is corroborated in additional specifications reformulated in a way to measure this effect directly (not shown).

would increase at the same time that it accesses greater Chinese financing. Rather, in the context of non-concessional as opposed to concessional countries, one would expect a reduction of demand, since lending is more expensive for these borrowers, so that overall demand should be limited, and Chinese funding that comes without additional "hassle factors" could simply provide an attractive substitute for MDB finance. This suggests a supply-driven explanation.

In this context, the MDBs' own financial considerations could play a role. As opposed to lending for concessional countries, their budget for non-concessional countries is not restricted by complex negotiations about replenishments. The revenue generated by non-concessional lending is very important to the overall functioning of MDBs, paying for administrative costs and generating net income that is used for various purposes of interest to shareholders (see Humphrey 2014 for more on this point). Hence, MDBs have at least some financial interest in holding onto non-concessional borrowers. Since this incentive is present at all times and in all non-concessional countries, whether China is active or not, an additional assumption required is that the MDBs fear to lose these countries completely if China starts dominating and building up a stronger relationship with the relevant governments. An alternative (and not mutually exclusive) explanation is that MDBs are driven internally by the desire of staff and management to maintain relevance as go-to sources of development expertise in recipient countries. While this same motivation may be present in concessional countries, the fact that concessional resources are more limited for reasons discussed previously implies, however, that the banks' actual reaction is restricted to non-concessional countries.

If the above argument is correct, it may surprise to see that the statistical results are stronger for the World Bank than for the AfDB. In fact, financial considerations are substantially more pressing for the AfDB in the Africa region, since it has so few non-concessional borrowers to work with (see Humphrey 2015c), whereas the World Bank has a large array of non-concessional borrowers in Latin America, Asia and Europe. However, our statistical result may be at least partly driven by the simple fact that the AfDB has generally much lower lending volumes to allocate. This interpretation is consistent with the finding that the result for the AfDB comes out much more clearly when looking at relative change in financing. As mentioned above, in the models estimating elasticities the coefficient for the AfDB is highly significant, and also substantially important. The ppml model—arguably the model with the least risk of

bias—suggests that an increase of Chinese funding by 1% is associated with an increase of AfDB lending by 0.21% (0.006+0.204, see Table A1, regression 2e).

As well, the more constructivist interpretation of MDBs competing for relevance in borrowers for internal reasons may be more pressing at the World Bank, due to the World Bank's self-perception as the preeminent global finance institution. As a result, World Bank staff and management may be much less inclined to give up their relevance in a given country, compared to AfDB staff.

Given the contrast between findings for concessional and non-concessional countries, and the likely rise of countries graduating from concessional windows as they develop, further research in this area may be relevant, including further interviews with both recipient governments and MDB officials to investigate causal channels.

5.3 Sectoral Allocation: Concessional Countries

As with the overall level of financing, the allocation to different sectors in concessional countries showed no systematic reaction by MDBs or DAC to Chinese financing in the multivariate statistical tests, despite descriptive statistics suggesting a possible increase in infrastructure lending by the MDBs where Chinese resource inflows are high. In the multivariate analysis, this general result seems to be absorbed by recipient fixed effects and/or other control variables that simultaneously influence Chinese and MDB lending. In other words, it does not reflect a specific link between Chinese and MDB development finance. Again, the results are extremely robust across different specifications.

The initially most expected result of a huge increase in aid from China—most of which is in infrastructure— would have been a decline in infrastructure lending by the MDBs and DAC. Yet in concessional countries, the unlimited demand for development finance as a whole also holds for infrastructure finance. Unless recipients see the opportunity to convince bilateral donors and MDBs to shift their resources into the even more preferred area of budget support, they will not oppose the funding of infrastructure. To the contrary, our qualitative evidence suggests that governments try to push the MDBs into shifting further funds from other, rather disliked areas such as capacity building and institutional reform, into even more infrastructure financing, but with only limited success. Given unlimited demand,

MDBs do not even need to weaken their environmental and social safeguard policies or other "hassle factors" like procurement rules in response to Chinese competition. This is in fact a much-voiced concern in the broader development community (see, e.g., Buntaine, 2016: 104, 222). In concessional countries, this concern seem to be without much foundation. Rather, traditional lenders can simply continue with business as usual. This also holds for DAC donors whose strong supply-side preference for supporting social projects as opposed to infrastructure has not been affected by Chinese lending so far.

5.4 Sectoral Allocation: Non-concessional Countries

Statistical tests on the sectoral allocation of MDB resources to non-concessional countries again reveal some differences as compared to concessional countries. In particular, AfDB infrastructure lending tends to be negatively associated with higher Chinese lending. The same is true for DAC aid if we consider the regressions based on a quicker, annual reaction period. By contrast, infrastructure lending by the World Bank is generally not affected in a statistically significant way. The interaction term between Chinese lending and non-concessional countries is even positive, and marginally significant in one regression.

Apart from infrastructure, no further statistical significance was found in any other sector for any of the traditional development financiers, although AfDB budget support lending is right on the edge of the 10% significance level, with a positive coefficient. This could indicate that budget support may take up at least a share of the declining infrastructure lending by the AfDB, with the remainder falling into the "other" category (not included in our tests).

This finding is consistent with the interpretation that the AfDB is a more client-led, responsive MDB, particularly in non-concessional countries that may be pickier about their financing sources (due to higher MDB loan costs and greater options). As such, the AfDB may shift resources to other non-infrastructure sectors in countries receiving more Chinese finance, which is overwhelmingly directed to infrastructure. As mentioned above, an increase in budget support is a positive outcome for the borrowers, as they tend to prefer non-earmarked resources that give them more freedom to make their own allocation decisions. And because the AfDB already has a markedly higher share of infrastructure lending than the World Bank—and far above DAC donors—a slight reduction in response to Chinese lending is all the more plausible.

It should be noted that shifting the allocation of funding from one sector to the other as in the case of the AfDB does not necessarily imply any loss of political influence. A competitive reaction to Chinese funding with respect to overall financing volumes and an accommodating reaction in terms of sector choice are thus by no means contradictory.

The result for the DAC may be interpreted in similar ways. If we consider that the negatively significant coefficient we find in the annual panel reflects the actual dynamics, a plausible interpretation could be that traditional bilateral donors switch from infrastructure finance into their anyway preferred social sector finance when they see that the most obvious infrastructure needs are covered by the Chinese. Indeed in the annual panel, DAC social sector support can be shown to increase as a response to Chinese lending—and to do so in fact independently of whether the recipient country is concessional or non-concessional (results not shown).

The null-result (or perhaps even positive result) for the World Bank is more difficult to explain. It would be consistent with the interpretation that the World Bank attempts to extend its competitive reaction to Chinese lending in non-concessional countries overall, to the specific area of infrastructure lending—possibly because this is the sector in which it sees the prospects for long-term lending at large scale. However, given the much disliked "hassle factors" and the opportunity of the wealthier non-concessional countries to be selective the World Bank may not be able to lend more. In this case, for non-concessional countries, the concern that China's lack of interest in safeguards will drag down global development standards in the long run, may be of some relevance. [9] It is certainly true that in recent years the World Bank and other major regional MDBs—the AfDB included—have already worked to reduce the perceived "hassle factor" on their operations. However, the most important and frequently-voiced obstacle—environmental and social safeguards—have not substantially changed during the period of this study. A reform of World Bank safeguards is currently underway, but will not be fully implemented for several years, and is a relatively minor set of changes compared to the country systems approach used by the Chinese. This could indeed have been a limiting factor for the further expansion of the World Bank's infrastructure lending in non-concessional countries.

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[9] In non-concessional countries, MDBs also have more freedom of action in this respect than in concessional countries where they depend on the replenishment procedures, which in turn often serve as a platform for discussions about these safeguards (Buntaine, 2016: 122).

6. Conclusions

The principle purpose of this study has been to determine if the finance activities of traditional development financiers in Africa–in particular, the World Bank and the African Development Bank (AfDB), as well as secondarily DAC bilateral donors–have been directly affected by the influx of Chinese development finance in the past two decades. This possible effect is examined in two ways: i) whether total finance levels to a given country change depending on the level of Chinese finance, and ii) whether the sector allocation of project resources changes depending on Chinese activity. To investigate this question, the study undertakes a series of statistical tests utilizing data from the MDBs, the OECD / DAC's creditor reporting system, and the AidData database for Chinese finance. We further undertake a series of expert interviews with government officials in three African countries who deal directly with external development financiers to "ground truth" our statistical findings and to help better understand causal factors that are not easily determined purely by statistical tests.

Contrary to the heated rhetoric in the development community about the potential impact of Chinese official finance in Africa on traditional development activities, our statistical tests find no evidence that MDBs or DAC donors are shifting their overall level of finance, nor its allocation among different sectors, in response to Chinese finance in the majority of poorer (concessional) African countries. This result is robust across a large number of different statistical specifications. Qualitative interview evidence suggests that this is due in good part because i) recipient countries generally take all concessional resources available to them due to the very attractive financial terms (limiting potential demand-side impacts), and ii) concessional financing from MDBs is not easily shifted, due to the nature of concessional funds (limiting potential supply-side impacts). Hence, for a large majority of African countries–including several of the most populous ones–the rise of Chinese finance in recent years has had little apparent impact on flows of traditional development finance. Instead, it would seem that Chinese finance is simply additional to what is already being supplied by MDBs and traditional bilateral donors–a potentially positive result for poorer African countries badly in need of investments, particularly in infrastructure.

In the few more developed non-concessional countries considered in the study, however, Chinese financing does appear to be influencing the activities of traditional donors. In particular, overall lending volumes by the MDBs shows a strongly significant positive statistical association with Chinese finance

levels in these countries—a result that is also extremely robust across a variety of econometric specifications. This suggests that in non-concessional countries, the MDBs may be willing to increase lending in a competitive fashion. For DAC donors, by contrast, there is no compelling evidence for such a competitive behavior. Their limited interest suggests that the MDB reaction should not be driven by major stakeholders either. Rather, the MDBs' own interests in maintaining political influence in these countries, which may in turn be instrumental to maintaining their role as important lenders to these countries in the medium and long run may be driving this reaction. This could be due to the financial incentive MDBs have in lending to non-concessional countries (through the net income generated), or because MDB staff and management have an incentive to maintain their own relevance with borrower countries, or both.

Overall, it appears that the notion that the huge increase in Chinese finance to Africa is going to re-order the development landscape is somewhat overblown, at least on our evidence and in the time period we examine (2000-2014). Evidence does suggest that the World Bank and, to a lesser degree, the AfDB, do compete with the Chinese in a few non-concessional countries, but this does not seem to be happening in the majority of African countries. Furthermore—in contrast to the existing literature—for traditional bilateral donors, our evidence for competitive behavior is even less.

It may be the case that MDBs would act similarly in concessional countries, but are unable to do so because of the difficulties of concessional resource gathering and allocation. Should concessional funding mechanisms change—as has begun to occur at the World Bank with IDA's new ability to issue bonds, and which is being considered at the AfDB—MDBs could become more reactive to Chinese activities in concessional countries as well. Furthermore, our evidence suggests that if China becomes more active in non-concessional countries, and/or as countries graduate into non-concessional status, competition may increase further. Hence, while our findings do not indicate a substantial effect of Chinese finance on traditional development actors in Africa up to 2014, the future may be quite different. This would thus be an appropriate time for policy makers to consider how they would like traditional development agencies to respond to China's increasing role in global development finance. Competition is not necessarily a bad thing—certainly it gives recipient countries more leverage and more control over their own development trajectories, which is beneficial for development when governments themselves are development oriented and sufficiently well organized. At the same time, competition

could lead to inefficient gamesmanship among development financiers in a given countries to "win" certain projects, when better results could be achieved through greater coordination and a clear division of roles.

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Appendix

Table A1: Robustness tests for Table 1

	(1a) WB finance	(2a) AfDB finance	(3a) MDB finance	(4a) DAC finance	(1b) WB finance	(2b) AfDB finance	(3b) MDB finance	(4b) DAC finance
Chinese finance	-0.021	0.053	0.032	-0.124	0.104	0.080	0.173	0.145
	(0.86)	(0.67)	(0.88)	(0.71)	(0.19)	(0.46)	(0.25)	(0.54)
Non-concessional					31.390	325.148*	397.607*	-330.164
					(0.71)	(0.06)	(0.06)	(0.37)
Non-concessional*Chinese finance	0.820***	0.076	0.896*	0.120	0.697***	-0.018	0.619**	-0.261
	(0.00)	(0.79)	(0.06)	(0.87)	(0.00)	(0.90)	(0.01)	(0.41)
GDP per capita	0.026	0.038	0.064	0.029	-0.010	-0.015	-0.030**	0.006
	(0.42)	(0.27)	(0.26)	(0.75)	(0.17)	(0.18)	(0.04)	(0.84)
Under 5 mortality	0.316	-0.370	-0.053	-2.071	-1.315**	-0.893	-2.383**	-3.877**
	(0.83)	(0.81)	(0.98)	(0.62)	(0.02)	(0.15)	(0.02)	(0.01)
Population	17.380	2.915	20.292	68.070	6.135**	7.561*	13.816**	24.154***
	(0.30)	(0.87)	(0.50)	(0.15)	(0.02)	(0.08)	(0.02)	(0.00)
Population squared	0.035	0.013	0.047	-0.394**	0.001	-0.029	-0.028	-0.065
	(0.59)	(0.85)	(0.67)	(0.03)	(0.93)	(0.16)	(0.35)	(0.13)
Reserves	-0.049	-0.034	-0.083	-0.149	-0.090***	-0.103**	-0.224**	-0.199**
	(0.54)	(0.69)	(0.56)	(0.50)	(0.00)	(0.05)	(0.01)	(0.03)
Resource rents	-1.196	0.927	-0.268	2.871	0.557	-1.002	-0.081	3.695
	(0.79)	(0.84)	(0.97)	(0.82)	(0.83)	(0.49)	(0.98)	(0.59)
UN voting with US	-199.650	-219.723	-419.400	-1,138.357*	25.063	-164.939	-172.513	168.101
	(0.40)	(0.38)	(0.32)	(0.09)	(0.84)	(0.60)	(0.65)	(0.78)
Political freedom index	-34.160	10.914	-23.252	-104.969	1.410	37.850	38.493	-7.568
	(0.44)	(0.82)	(0.77)	(0.40)	(0.89)	(0.10)	(0.20)	(0.85)
Recipient FE	YES	YES	YES	YES	NO	NO	NO	NO
Period FE	NO	NO	NO	NO	YES	YES	YES	YES
Observations	268	268	268	268	268	268	268	268
Number of recipients	46	46	46	46	46	46	46	46
R-squared	0.149	0.027	0.095	0.055	0.364	0.259	0.350	0.277
Changes as compared to Table1		a.	No period FE			b.	RE-model (with period FE)	

Table A1: Robustness tests for Table 1 (continued)

	(1c) lnWB finance	(2c) lnAfDB finance	(3c) lnMDB finance	(4c) lnDAC finance	(1d) WB finance	(2d) AfDB finance	(3d) MDB finance	(4d) DAC finance
Chinese finance	0.019	-0.122*	-0.080	-0.017	0.027	-0.039	-0.013	-0.026
	(0.77)	(0.05)	(0.14)	(0.59)	(0.50)	(0.48)	(0.86)	(0.89)
Non-concessional*Chinese finance	0.432***	0.292**	0.529***	0.083**	1.175	0.134	1.309*	0.105
	(0.00)	(0.05)	(0.00)	(0.04)	(0.11)	(0.54)	(0.10)	(0.63)
GDP per capita	-0.000	0.000*	0.000**	0.000	0.014	0.063	0.076	0.072
	(0.90)	(0.08)	(0.04)	(0.37)	(0.48)	(0.12)	(0.14)	(0.32)
Under 5 mortality	-0.013	-0.037***	-0.035***	-0.009*	0.965	1.981	2.947	-3.214
	(0.27)	(0.00)	(0.00)	(0.07)	(0.21)	(0.20)	(0.13)	(0.22)
Population	-0.034	-0.064	-0.085	-0.062	22.838*	23.036	45.873	80.581**
	(0.58)	(0.42)	(0.22)	(0.14)	(0.05)	(0.29)	(0.12)	(0.01)
Population squared	0.000	0.000	0.000	0.000	-0.007	-0.032	-0.040	-0.409***
	(0.84)	(0.31)	(0.31)	(0.22)	(0.85)	(0.59)	(0.65)	(0.00)
Reserves	-0.000*	-0.000	-0.000	-0.000	-0.008	-0.006	-0.014	-0.115
	(0.09)	(0.61)	(0.72)	(0.99)	(0.88)	(0.95)	(0.92)	(0.13)
Resource rents	-0.069***	0.000	-0.041***	-0.005	-3.672**	0.540	-3.132	-1.352
	(0.00)	(0.98)	(0.01)	(0.48)	(0.03)	(0.82)	(0.31)	(0.86)
UN voting with US	-0.683	-0.894	-1.184	0.241	101.149	-23.050	78.066	-672.333
	(0.70)	(0.52)	(0.41)	(0.72)	(0.48)	(0.94)	(0.85)	(0.22)
Political freedom index	-0.308	-0.433	-0.310	-0.110	-39.938***	-2.172	-42.107	-87.065*
	(0.21)	(0.18)	(0.14)	(0.19)	(0.01)	(0.92)	(0.17)	(0.09)
Recipient FE	YES	YES	YES	YES	YES	YES	YES	YES
Period FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	268	268	268	268	489	489	489	489
Number of recipients	46	46	46	46	46	46	46	46
R-squared	0.208	0.104	0.209	0.243	0.323	0.107	0.224	0.084

Changes as compared to Table1   c. All funding variables in logs (including Chinese finance)   d. Periods are years rather than bi-annual.

Table A1: Robustness tests for Table 1 (continued)

	(1e) WB finance	(2e) AfDB finance	(3e) MDB finance	(4e) DAC finance	(1f) WB finance	(2f) AfDB finance	(3f) MDB finance	(4f) DAC finance
Chinese finance	-0.022	0.006	-0.010	0.042	0.058	0.091	0.092	0.065
	(0.45)	(0.87)	(0.66)	(0.39)	(0.62)	(0.50)	(0.64)	(0.81)
					-132.869	299.498	160.280	-408.345
					(0.44)	(0.19)	(0.60)	(0.27)
Non-concessional*Chinese finance	0.378***	0.204**	0.263***	-0.006	0.962***	0.088	0.959**	-0.128
	(0.00)	(0.01)	(0.00)	(0.94)	(0.00)	(0.80)	(0.05)	(0.85)
GDP per capita	-0.000	0.001**	0.000	0.000	-0.009	-0.027	-0.021	0.013
	(0.66)	(0.02)	(0.39)	(0.65)	(0.59)	(0.25)	(0.51)	(0.73)
Under 5 mortality	-0.000	-0.039***	-0.015	-0.006	-1.722**	-1.613	-2.408	-3.525*
	(0.97)	(0.00)	(0.11)	(0.37)	(0.04)	(0.14)	(0.11)	(0.06)
Population	-0.008	-0.111	-0.047	0.017	7.225***	9.104**	13.073***	25.553***
	(0.91)	(0.16)	(0.50)	(0.66)	(0.01)	(0.01)	(0.01)	(0.00)
Population squared	0.000	0.000	0.000	-0.000	0.002	-0.034	-0.015	-0.079*
	(0.56)	(0.22)	(0.39)	(0.21)	(0.93)	(0.22)	(0.69)	(0.09)
Reserves	-0.001	-0.001	-0.001	-0.000	-0.364**	-0.205*	-0.365**	-0.181
	(0.30)	(0.40)	(0.28)	(0.44)	(0.03)	(0.09)	(0.03)	(0.26)
Resource rents	-0.013	-0.021	-0.017	0.002	-0.688	0.550	-1.431	3.397
	(0.40)	(0.58)	(0.38)	(0.91)	(0.79)	(0.87)	(0.75)	(0.55)
UN voting with US	-1.117	0.769	-0.526	-1.519	-105.303	-301.787	-365.068	3.793
	(0.20)	(0.53)	(0.60)	(0.26)	(0.72)	(0.42)	(0.48)	(1.00)
Political freedom index	-0.134	0.323	0.056	-0.104	1.360	30.881	32.423	-8.543
	(0.39)	(0.11)	(0.64)	(0.19)	(0.95)	(0.28)	(0.39)	(0.85)
Recipient FE	YES	YES	YES	YES	NO	NO	NO	NO
Period FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	260	266	267	268	268	268	268	268
Number of recipients	44	44	45	46	46	46	46	46
R-squared (e) / Chi-squared (f)	0.671	0.880	0.790	0.636	111.3	39.15	80.55	76.87

Changes as compared to Table1	e. PPML-model, Chinese finance transformed in logs so that relevant coefficients can be interpreted as elasticities (comparable to c.)	f. Tobit RE-model (with period FE); left censored observations: WB 62, AfDB 71, MDB 35, DAC 0.

Notes: Dependent variables always refer to the year preceding the period considered for the explanatory variables and controls. *,**,and *** show significance at the 10, 5, and 1% level respectively; p-values in parentheses. Standard errors are clustered by recipients. R-squared refers to the within R-squared except for the RE-model (b) where it refers to the overall R-squared.

Table A2: Full equations and robustness tests for sector allocation to infrastructure (main results of Table 2)

	(1a) WB infra	(2a) AfDB infra	(3a) MDB infra	(4a) DAC infra	(1b) WB infra	(2b) AfDB infra	(3b) MDB infra	(4b) DAC infra
% Chinese	-0.170	-0.210	-0.157	0.024	-0.279	-0.126	-0.170	0.048
Non-concessional	(0.34)	(0.24)	(0.46)	(0.67)	(0.19)	(0.48)	(0.46)	(0.35)
Non-concessional*% Chinese	0.454	-1.445***	-0.518	0.213	0.592*	-1.310**	-0.335	0.225
	(0.21)	(0.01)	(0.31)	(0.31)	(0.09)	(0.01)	(0.53)	(0.36)
GDP per capita	-0.000	-0.008**	-0.003	0.004	0.006	-0.004	0.000	0.005**
	(0.94)	(0.03)	(0.35)	(0.11)	(0.14)	(0.16)	(0.98)	(0.03)
Under 5 mortality	0.064	0.182	-0.071	0.057	-0.247*	-0.106	-0.311***	0.000
	(0.78)	(0.48)	(0.72)	(0.37)	(0.08)	(0.59)	(0.01)	(0.99)
Population	-1.414	2.342	0.077	-0.113	-0.812	2.785	0.278	-0.016
	(0.35)	(0.24)	(0.95)	(0.82)	(0.56)	(0.17)	(0.80)	(0.97)
Population squared	0.005	-0.007	0.001	0.001	0.003	-0.008	0.000	0.000
	(0.28)	(0.27)	(0.81)	(0.70)	(0.54)	(0.18)	(0.99)	(0.86)
Reserves	0.014	-0.030**	-0.029**	-0.011***	0.002	-0.022**	-0.024**	-0.010***
	(0.48)	(0.02)	(0.01)	(0.00)	(0.93)	(0.04)	(0.03)	(0.00)
Resource rents	0.418	0.030	0.669	-0.126	0.584*	0.425	0.889**	-0.090
	(0.21)	(0.95)	(0.11)	(0.34)	(0.06)	(0.44)	(0.04)	(0.54)
UN voting with US	-24.733	87.727**	14.611	15.793	-28.973	54.724*	-11.931	17.597***
	(0.52)	(0.01)	(0.61)	(0.24)	(0.23)	(0.07)	(0.62)	(0.00)
Political freedom index	1.888	-3.032	2.585	-4.432***	1.578	-5.179	1.064	-4.321***
	(0.70)	(0.50)	(0.54)	(0.00)	(0.75)	(0.26)	(0.80)	(0.00)
Observations	225	232	248	268	225	232	248	268
Number of recipients	44	45	45	46	44	45	45	46
R-squared	0.182	0.179	0.147	0.258	0.066	0.122	0.100	0.244
Changes as compared to Table 2	a. No change, full regression for infrastructure finance				b. No period FE			

Table A2: Full equations and robustness tests for sector allocation to infrastructure (Table A2 continued)

	(1c) WB infra	(2c) AfDB infra	(3c) MDB infra	(4c) DAC infra	(1d) WB infra	(2d) AfDB infra	(3d) MDB infra	(4d) DAC infra
% Chinese	-0.233	-0.203	-0.177	-0.004	-0.038	-0.125	-0.170	-0.011
	(0.20)	(0.33)	(0.36)	(0.95)	(0.82)	(0.44)	(0.18)	(0.80)
Non-concessional	-11.243	-4.746	7.866	2.233				
	(0.49)	(0.70)	(0.62)	(0.84)				
Non-concessional*% Chinese	0.455	-0.239	-0.153	0.060	0.383	-0.467	0.162	-0.423***
	(0.24)	(0.68)	(0.73)	(0.78)	(0.42)	(0.14)	(0.49)	(0.00)
GDP per capita	-0.000	0.001	-0.000	0.001	0.002	-0.011**	-0.003	0.001
	(0.97)	(0.55)	(0.91)	(0.26)	(0.67)	(0.02)	(0.39)	(0.57)
Under 5 mortality	-0.037	-0.121*	-0.047	-0.029	-0.022	0.006	-0.113	0.041
	(0.61)	(0.08)	(0.51)	(0.42)	(0.93)	(0.98)	(0.55)	(0.50)
Population	0.312	0.339	0.142	0.139	-0.170	1.549	0.782	0.422
	(0.26)	(0.16)	(0.51)	(0.27)	(0.92)	(0.46)	(0.63)	(0.48)
Population squared	-0.002	-0.002	-0.001	-0.001	-0.000	-0.004	-0.002	-0.001
	(0.36)	(0.19)	(0.68)	(0.32)	(0.96)	(0.52)	(0.73)	(0.50)
Reserves	0.036***	0.003	0.002	-0.011***	0.012	-0.016*	-0.012**	-0.012***
	(0.00)	(0.84)	(0.88)	(0.00)	(0.49)	(0.07)	(0.04)	(0.00)
Resource rents	0.117	-0.026	0.119	-0.049	-0.043	0.647	0.801***	0.083
	(0.69)	(0.90)	(0.65)	(0.62)	(0.89)	(0.12)	(0.00)	(0.47)
UN voting with US	-7.348	39.122	16.940	4.443	-0.277	-5.264	-10.085	4.796
	(0.82)	(0.26)	(0.57)	(0.67)	(0.99)	(0.87)	(0.63)	(0.42)
Political freedom index	3.876**	1.087	1.728	-1.086		-5.364	0.178	-4.357***
	(0.04)	(0.64)	(0.42)	(0.28)		(0.19)	(0.97)	(0.00)
Observations	225	232	248	268	367	364	421	489
Number of recipients	44	45	45	46	0.106	0.136	0.103	0.198
R-squared	0.215	0.117	0.124	0.315	42	44	44	46
Changes as compared to Table 2		c.	RE-model (with period FE)			d.	Periods are years rather than bi-annual.	

Notes: Dependent variables always refer to the year preceding the period considered for the explanatory variables and controls. *,**,and *** show significance at the 10, 5, and 1% level respectively; p-values in parentheses. Standard errors are clustered by recipients. R-squared refers to the within R-squared except for the RE-model (c) where it refers to the overall R-squared.

Table A3: Variable description and sources

Variable	Observations	Mean	Std. Dev.	Min	Max	Description	Sources
WB finance	735	155.07	289.95	0	4008	World Bank concessional and non-concessional combined	World Bank (2000-2014)
AfDB finance	735	108.81	314.33	0	5437.2	AfDB concessional and non-concessional	AfDB (2000-2009, 2010-2014)
MDB finance	735	263.88	512.82	0	7740.5	World Bank and African DB, concessional and non-concessional combined	
DAC finance	735	530.02	812.63	3.3	13374.1	DAC bilateral donors, ODA and OOF combined	OECD (2017a)
Chinese finance	735	115.63	367.17	0	3779.8	Chinese official finance, no information on ODA vs. OOF, nominal figures adjusted for inflation with 2013 US Consumer Price Index.	AidData (Dreher et al., 2017)
% Chinese	735	9.29	18.47	0	94.67	% of Chinese lending in total (MDBs + DAC + Chinese)	
WB infra	526	29.89	33.51	0	100	% of infrastructure lending in total WB lending	
AfDB infra	527	39.94	41.33	0	100	% of infrastructure lending in total AFDB lending	
MDB infra	606	34.48	32.38	0	100	% of infrastructure lending in total MDB lending	
DAC infra	735	11.15	14.60	0	90.36	% of infrastructure lending in total DAC ODA	
WB social	526	18.27	28.15	0	100	% of social lending in total WB lending	
AfDB social	527	12.89	28.72	0	176.92	% of social lending in total AFDB lending	
MDB social	606	16.47	24.89	0	107.89	% of social lending in total MDB lending	
DAC social	735	34.17	19.54	1.22	93.47	% of social lending in total DAC finance	
WB budget	526	27.11	33.30	0	100	% of budget lending in total WB lending	
AfDB budget	527	25.05	36.05	0	100	% of budget lending in total AFDB lending	
MDB budget	606	26.17	30.67	0	100	% of budget lending in total MDB lending	
DAC budget	735	4.43	9.15	0	73.14	% of budget lending in total DAC finance	
Non-concessional	735	0.24	0.43	0	1	Recipient not eligible for concessional funding by IDA and AfDF	

Table A3: Variable description and sources (continued)

Variable	Observations	Mean	Std. Dev.	Min	Max	Description	Sources
GDP per capita	732	4674.551	5939.911	503.8321	40015.82	GDP per capita, PPP, 2011 intl. $	World Bank (2017a)
Under 5 mortality	735	98.08	47.68	13.8	235.8	Probability per 1000 that a newborn baby will die before reaching age five	World Bank (2017a)
Population	732	18.53	26.96	0.08	176.46	Population in millions	World Bank (2017a)
Reserves	559	118.82	402.15	0.01	3840.12	Ratio of hard currency reserves to external debt, in %	World Bank (2017a)
Resource_rents	727	13.29	13.71	0.001	89.17	Resource rents in % of GDP	World Bank (2017a)
UN voting with US	637	0.34	0.13	0	0.7	Alignment on important votes	Kilby (2011, updated)
Political Freedom Index	735	4.23	1.52	1	7	Political freedom, 1=best,…,7=worst	Freedom House (2017)

Notes: Descriptive statistics refer to the annual data. No sources are mentioned for composed variables computed from data for which the sources have already been provided.

Table A4: List of interviews

Ethiopia (October 12-14, 2016)

Fisseha Aberra, Director, International Financial Institutions Cooperation Directorate, Ministry of Finance

Dr. Tesfaye Alemu, Director, Debt Management Directorate, Ministry of Finance

Tilahun Tadesse, Head, Ethio-Chinese Development Cooperation Office, Ministry of Finance

Tesfaye Berhanu, Coordinator, Regional Trade Programs, Ministry of Finance

Daniel Mengestie, Director, Planning and Program Management Directorate, Ethiopian Roads Authority

Seifu Feyissa, External Funds Coordinator, Ethiopian Electric Power Corporation

Tanzania (October 17-21, 2016)

Adrian Njau, Assistant Commissioner, Aid Coordination, External Finance Commission, Ministry of Finance

John Mavura, Desk Officer, World Bank, External Finance Commission, Ministry of Finance

Ngosha Magonya, Commissioner, Ministry of Foreign Affairs (former Commissioner for External Finance, Ministry of Finance)

Deckland Mhaiki, Deputy Managing Director (Investments), Tanzania Electric Supply Company (TANESCO)

Aunyisa Boniface Meena, Assistant Director, Monitoring and Evaluation, Ministry of Works, Transport and Communication

Malawi (October 24-27, 2016)

Dr. Ronald Mangani, Treasury Secretary, Ministry of Finance

Madalo Nyambose, Director for Debt and Aid Management, Ministry of Finance

Betty Ngoma, Assistant Director for Debt and Aid Management, Ministry of Finance

Naomi Ngwira, Deputy Governor, Malawi Central Bank (former Director of Debt and Aid Management, Ministry of Finance)

Allan Kaziputa, Project Planning, National Roads Authority