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Aiding and Abetting: Is donor Official Development Assistance competition greatest in sectors key to Chinese interest?

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Abstract

The rise in Chinese Official Development Assistance (ODA) in the last twenty years has rattled and affected the allocation of traditional donors of the international development community likely leading to insufficiently targeted support, a lack of donor coordination, and suboptimal ODA effectiveness. A dearth of research considering the relationship between donors' ODA allocations evades development theory and any hope for future donor coordination and tripartite cooperation. Accordingly, this paper investigates traditional-Chinese donor competition between 2000-2017 in 144 recipient countries and whether this competition, if it exists, is stronger in sectors and regions where Chinese ODA projects are most prevalent.

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Acknowledgements

I. Introduction

Global flows of Official Development Assistance (ODA) are in upheaval: A dearth of donor collaboration, donor selfishness, and mutual suspicion is likely leading to ineffective outcomes for developing nations' development goals, inappropriately targeted support, and increased headaches for already-stretched recipient nations (Clist 2011; Swedlund 2017; Bobba and Powell 2006). The contemporaneous growth in Chinese ODA represents a generally positive, but also potentially further disrupting influence, offering recipient nations alternative sources of finance and bilateral understanding through non-traditional channels and threatening the long-established hegemony of Western, 'traditional' donors in global ODA flows (Bräutigam 2011; Steinwand 2015; Dreher and Fuchs 2015). Despite repeated and increasingly loud calls for greater donor collaboration and mutual understanding, donors' ODA allocations remain disorganized, vast, and conflicting (Nunnenkamp, Öhler, and Thiele 2013; Powell and Findley 2012; Fuchs, Nunnenkamp, and Öhler 2015). Thus, an empirical and rigorous understanding of how donors compete with ODA across recipient countries is a critical and timely first step in pursuing greater trilateral ODA cooperation and focusing international aid efforts on recipient needs (Winters and Martinez 2015). In asking whether competition between traditional donors and China significantly determines the former's ODA and, if said competition mechanism exists, whether it is strongest in sectors and regions where China's ODA is most prevalent, this paper seeks to better understand global ODA dynamics more broadly. For too long, ODA effectiveness debates have solely centered on recipient corruption and ignorance (Alesina and Dollar 2000), but not on the allocation of ODA which is potentially driven to ward off the influence of other donors. Should international development practitioners be aware of donor competition in ODA allocation, this can inspire greater donor coordination and ensuing aid effectiveness.

Despite fiery rhetoric and international condemnation, a dearth of research considering the interdependence of donors' ODA allocations, both theoretically and empirically, evades development theory and hope for future donor coordination and tripartite cooperation (Rosser and Tubilewicz 2016; Bobba and Powell 2006), mandating further research into this field of study. Though at first glance ODA could be deemed an international public good upon which to free-ride (Dudley 1979), donors can convene additional, private donor-recipient benefits from extending ODA, commercially, politically, and otherwise (Morgenthau 1962; Easterly 2007; Budjan and Fuchs 2021), suggesting instead a crowding-in effect of donor ODA (Mascarenhas and Sandler 2006; Rosser and Tubilewicz 2016). Fewer papers still have investigated such conjectures quantitatively (Nunnenkamp, Öhler, and Thiele 2013), but among those that have, the consensus is that donor competition is rife, significant, and large (Kilama 2016; Couharde et al. 2020; Barthel et al. 2014; Humphrey and Michaelowa 2019). As such, this paper provides a timely and important contribution to the study of donor competition and ODA effectiveness.

The fast growth of Chinese ODA, outside the realm of traditional donorship, provokes greater ODA competition and interest in better understanding this academic field. China sees little interest in engaging within frameworks it perceives to be Western-driven and funding decades of archaic and doomed-to-fail traditional donor development projects (Li et al. 2018). Critics argue that such an outcome is inevitable given the fundamentally opposing founding principles of Chinese and traditional donor ODA, evincing any future attempts to collaborate on ODA futile (Gu and Carey 2019). A lack of cooperation between China and traditional donors despite an apparent multitude of benefits for both developing and developed nation highlights the pertinence of donor competition and mandates a better understanding of this phenomenon. This is surprising given the dedicated efforts to better Chinese-OECD tripartite development cooperation and the potential complementarity of

Chinese and traditional donor ODA, not least in reducing resource duplication and recipient burden (Kilama 2016). As such, this paper hypothesizes that traditional-Chinese donor competition is significant in determining traditional donor ODA and that this competition is strongest in sectors and regions where Chinese ODA is most prevalent. In convening political and economic benefits, donors vie to be the predominant provider in recipient nations, directly and consciously responding to the ODA allocation of others. As Chinese ODA continues to challenge the Western hegemony in international development donorship, it is likely that the voracity and intensity of donor competition will continue to intensify.

Analyzing the determinants of ODA projects extended by traditional donors and China respectively to 144 recipient countries between 2000 and 2017, we find statistically significant elasticities of average traditional donor ODA to Chinese ODA at the 5% level. Repeating this analysis for each of the three broad sector and region groups respectively results in significant traditional-Chinese ODA elasticities for infrastructure projects and social projects, key foci of Chinese ODA activities, but no discernible regional pattern. These results suggest Chinese ODA is impacting traditional donors' decision making, thus highlighting the pertinence of donor competition in contemporary ODA allocation.

This paper contributes to the bourgeoning literature on China as an 'emerging' donor and ODA competition more widely in several distinct ways. Firstly, in investigating the relationship of traditional donor ODA in response to that of China, this research contributes empirically to an understanding of the motivations and determinants of ODA allocation, which can contribute to debates on aid effectiveness. Secondly, in utilizing a global sample, rather than being regionally specific, this paper allows for a more holistic comparison of Chinese and 'traditional' donor ODA and for cross-regional analysis. Finally, in disaggregating ODA allocations by sector and region, this paper allows for a more nuanced understanding of ODA competition by sectors and regions key to Chinese interest.

This paper proceeds as follows. Section 2 presents the literature review and key hypotheses. Section 3 introduces the data and methodology employed in this analysis and Section 4 presents the results of such analysis. Section 5 concludes.

II. Literature review

A. ODA and donor competition

Though it has long been understood that donors do not allocate aid merely according to principles of altruism and recipient need (Morgenthau 1962; Winters and Martinez 2015), there has been a systemic absence of literature considering the allocation of other donors in determining donors' ODA allocations, both theoretically and empirically (Bobba and Powell 2006; Steinwand 2015; Rosser and Tubilewicz 2016), and less so still in consideration of the rise of emerging donors (Kilama 2016; Humphrey and Michaelowa 2019). As such, a timely understanding of the determinants of ODA allocation, particularly with reference to understudied donor competition, is critical in better understanding ODA and its effectiveness (Steinwand 2015). Though some early literature proxied for donor competition by controlling for the sum of all donor contributions (Berthélemy & Tichit, 2004; Hoeffler & Outram, 2011) or the number of donors extending ODA to a given nation (Bobba and Powell 2006), this was never extended to allow for heterogeneity among donors and likely introduced simultaneity and inconsistency into any estimation (Barthel et al. 2014). This absence has been particularly noticeable in the last ten years, given the evolution of econometric methods, more data transparency, and the increasing number of development actors (Barthel et al. 2014).

One difficulty implicit in investigating donor coordination is the challenge surrounding the definition and quantitative identification of donor competition (Fuchs, Nunnenkamp, and Öhler 2015; Nunnenkamp, Öhler, and Thiele 2013).

Two donors clustering ODA in the same locale may both be responding to recipient need rather than necessarily one another, and careful discernment is thus required (Powell and Findley 2012). This could in part explain why so little systematic consideration of donor competition in ODA allocation has yet been undertaken empirically. To tackle this, many papers consider the coincidence of donor pairs' portfolios as a proxy for ODA competition (Fuchs, Nunnenkamp, and Öhler 2015), either through the inclusion of a variable proxying for donor portfolio coincidence (e.g. Couharde et al., (2020)), or by the inclusion of other donors as an independent variable in determining ODA allocation (e.g. Humphrey & Michaelowa (2019)).

Kilama (2016) investigates the impact of the number of Chinese ODA projects on G7 donors' ODA allocations among African nations between 2000 and 2011. The results paint an interesting picture. Though there is no significant relationship between traditional donors' and Chinese ODA allocations in aggregate, upon controlling for heterogeneity in the strategic importance of different recipient nations by interacting Chinese ODA with natural resource rents, a significant and positive competition elasticity is obtained (Kilama 2016). Thus, Kilama (2016) concludes that traditional donors do not extend more ODA to recipients where China is a present donor, but only where these locations coincide with the donors' political and commercial interests. Similarly, Couharde et al. (2020) investigate the role of oil in determining ODA allocation and competition among G7 donors. Using a PPML estimator with spatial and temporal fixed effects, the paper's findings suggest that not only is oil a robust and highly significant determinant of G7 donors' ODA allocations but should one G7 donor increase its oil import share from a given country by 1%, this induces a 0.23% increase in ODA from all other donors in response.

Fewer papers still have considered sectoral ODA competition empirically. Barthel et al. (2014) conjecture that ODA competition will be closely related to export competition, as donors seek to protect trade interests which could be diverted

by conditional ODA funding. This suggests further that ODA competition will be greater among projects concentrated in physical infrastructure sectors, which in turn consume foreign capital goods and improve donor-recipient trade capacities (Barthel et al. 2014). Employing a two-stage, 'Cragg Model' estimator, with other donors' ODA allocations introduced as independent variables weighted by export market coincidence, the authors find that the selection of ODA recipients by traditional donors and competition in ODA allocation is statistically significantly determined by export competition, and moreover, this significance is only retained for projects in the physical infrastructure sector (Barthel et al. 2014). Humphrey and Michaelowa (2019) use PPML estimators to investigate whether donors in Africa, namely China, the African Development Bank (AfDB) and the World Bank, compete for influence through their respective ODA allocations. At national level the elasticities of multilateral ODA with respect to that of China are estimated at 0.20-0.38; however upon disaggregating by sector a more nuanced picture appears with no single sector retaining significance and large magnitudes observed among social sector spending, parenthetically where traditional donors are most focused today (Humphrey and Michaelowa 2019). Thus, this paper highlights not only that ODA competition could be subjective to the data sample employed, but that subnational analysis is important to understand causal pattern more fully.

Finally, several papers have employed grounded, qualitative methods to investigate the impacts of such donor competition from the perspective of recipient nations and emerging donors. Seminally, Swedlund (2017) investigates the views of development policymakers in select African nations concerning the bargaining power of traditional donors amid the rise of Chinese ODA extended to these countries. Recipient governments were found to suggest that Chinese ODA, in being more quickly administered, more closely adhering to developing country requests for support, and freer of strong political conditions, was preferred to ODA extended by traditional donors (Swedlund 2017). Recipient countries can leverage

this diversity in international support to state their demands for ODA more clearly and negotiate which political conditions they would like to adhere to (Swedlund 2017), demonstrating a tangible and empirically-grounded theoretical model of donor competition. Using a similar methodology, Olivié & Pérez (2016) interviewed development policymakers in Morocco to better understand the practicalities of on-the-ground donor coordination. The study participants referred to the differential administrative requirements of donors and the compounding pressures these confer upon an already constrained public administration in the recipient country (Olivié and Pérez 2016). These papers highlight that more grounded research is required to distinguish between donor competition and the hyperbole surrounding it, and that empirical evidence in donor competition would be illuminating in quantifying and better understanding ODA competition.

In sum, very few papers investigate the impact of other donors' behavior on donor ODA allocation decision making, despite its prevalence and impact on ODA effectiveness. Though theoretical conjectures abound, a global and rigorous empirical framework is noticeably absent from this field of research to date. In response, this paper seeks to investigate the impact of Chinese ODA on the allocations of traditional donors' ODA allocations on a global study of recipient nations between 2000 and 2017, as detailed in the proceeding sections.

B. China and ODA

Despite the rise in the number of actors in the ODA space, the overwhelming majority of ODA remains bilateral and is extended by members of the OECD Development Assistance Committee (DAC), hereafter referred to as 'traditional' donors. This stands in direct contrast to the ODA extended by an increasing number of non-OECD and newly industrialized nations, the 'emerging' donors, of which China, is the greatest, both with respect to ODA budget and scrutiny (Bräutigam

2011). Chinese ODA dwarfs the next largest emerging donor, the United Arab Emirates, whose ODA amounts to less than a third of that of China (Cochrane 2021). Though emerging donors are themselves wildly heterogeneous, as a collective they are challenging the established Western hegemony in international development, prompting greater attention and warranting further research into ODA allocation, collaboration, and effectiveness (Rosser and Tubilewicz 2016).

Labelling China as an emerging donor dismisses a long and rich history of Chinese ODA donorship, however. Indeed, Chinese ODA is only 'emerging' with respect to the attention and criticism it has recently endured from Western policymakers (Dreher and Fuchs 2015). Following its 'Eight Principles for Economic Aid and Technical Assistance' designed in 1964, China seeks to employ ODA to support the 'material and cultural' life of the most vulnerable citizens globally, benefiting projects emphasizing economic development, domestic security, and global peace, cognizant of national sovereignty, equality and international collaboration (Information Office of the Chinese State Council 2014). In doing so, Chinese ODA hopes to paint China as an altruistic, generous, and alternative source of bilateral financial support in the international development community (Woods 2008; Bräutigam 2010). China also takes advantage of and draws experience from its own recent economic development, to provide an alternative source of support and understanding to Western donors on the international development stage (Woods 2008; Dreher et al. 2021).

Chinese ODA has expanded dramatically since 1979 with respect to not only the number of projects, but also project type, recipient, and ODA product. Amid the slow decline of traditional ODA at the turn of the millennium, Chinese ODA has expanded with renewed vigor, increasing international pertinence, attention, and critique (Tseng and Krog 2017). Directed by the Chinese Ministry of Commerce and principally channeled through the national Export-Import Bank, contemporary Chinese ODA has a more explicit commercial element, highlighting the overlap of

aid, trade, and foreign investment in Chinese foreign policy (Bräutigam 2011; Pehnelt 2007).

Chinese ODA principally differs from that of traditional donors in three key aspects. Firstly, Chinese ODA appears more concentrated in 'prestige' projects that are very visible and inspire national pride, typically associated with large infrastructure projects, compared to traditional donors' preference for projects tackling more social issues (Zeitz 2020; Pehnelt 2007; Kilama 2016). Secondly, Chinese ODA projects are typically associated with greater speed of delivery and less political conditionality than traditional donor counterparts (Dreher and Fuchs 2015). Qualitative findings suggest Chinese ODA appeals to developing nations' policymakers on the grounds of greater flexibility with respect to ODA sector, project type, and evaluation standards (Humphrey and Michaelowa 2019), and that China, in demanding less strict administration, design, and safeguarding standards than their traditional counterparts, are delivering ODA more quickly and with less hassle to recipient nations (Swedlund 2017). Finally, in operating outside the remit of the OECD Development Assistance Committee (DAC), Chinese ODA does not pay attention to coordinating projects with traditional donors (Zeitz 2020; Sun 2014; Rosser and Tubilewicz 2016). Reflecting a more commercially oriented and holistic foreign policy, China is, in fact, extending ODA to many recipient nations where traditional donors have been retreating (Swedlund 2017). This is not to say that Chinese ODA lacks commonality with traditional donor norms, but rather that it is selective in its uptake of these standards, both rhetorically and in practice (Rosser and Tubilewicz 2016).

Table 1 demonstrates the growth of the number of Chinese ODA projects by sector and region, compared to its average traditional donor counterparts between 2000 and 2018. Figure 1 supplements this by showing the year-on-year comparison of Chinese ODA to average traditional donor ODA. As supported by the literature, the growth of Chinese ODA projects far outstrips that of the average traditional

donor, however in level terms the number of average traditional donor ODA projects remains significantly larger, highlighting that the potential disruptive influence of China in the international development space is more limited (Bräutigam 2011).

[Insert Table 1 Here]

[Insert Figure 1 Here]

Contemporaneous with the rise of Chinese ODA and the concerns of traditional donor policymakers of the impacts this has upon their own ODA efforts, greater calls for trilateral ODA collaboration have been proposed by bilateral donors and multilateral organizations alike (Han 2017). Discussions of aid effectiveness through donor coordination and working collaboratively with China and other emerging donors have been high on the agenda of many key donor conferences in the past two decades (Gore 2013). Despite strong rhetoric, a scarcity of research pays attention to the form this trilateral cooperation takes, and no papers have suggested methods by which to monitor the existence of any such trilateral collaboration or to test the claims made by international organizations about the future of Sino-Western ODA competition. Indeed, in practice, only seven of the more than thirteen thousand ODA and other development projects undertaken by China between 2000 and 2017 were examples of collaboration with other OECD DAC donors (Han 2017). This highlights a more limited role for China-traditional donor collaboration beyond political posturing (Gore 2013; Kilama 2016); such absence in practice rather suggests that donor interaction is more likely dominated by competition than collaboration.

Despite research corroborating that donors' competition with China and other donors negatively impacts aid efficiency, recipient institutions, and economic growth, as well as increasingly loud calls for donor coordination, donor competition

has been strengthening, not weakening, in recent years (Steinwand 2015; Nunnenkamp, Öhler, and Thiele 2013; Mascarenhas and Sandler 2006). As such, understanding and rationalizing the private benefits enjoyed by donors is integral to an understanding of donor competition, non-cooperation, and ultimately aid ineffectiveness, as well as preventing the misappropriation of funds away from their main purpose of supporting development efforts (Morgenthau 1962; Olivié and Pérez 2016; Budjan and Fuchs 2021).

C. Hypotheses

At first glance, an insistent focus on donor benevolence and the public good qualities of ODA suggests a prima facie relationship between donors that implies ODA specialization and donor crowding-out effects (Fuchs, Dreher, and Nunnenkamp 2014). In practice, however, to ensure this flow of resources and private benefits can be sustainable, it is likely that donors are conscious and reactive to the ODA allocations of other donors, such that donors' efforts are correctly attributed to themselves (Couharde et al. 2020; Fuchs, Dreher, and Nunnenkamp 2014; Fuchs, Nunnenkamp, and Öhler 2015; Bobba and Powell 2006; Easterly 2007; Winters and Martinez 2015). Thus, donors can be hypothesized to allocate ODA projects in response to other donors with which they are competing with, vying to secure future access to resources, reciprocation, and goodwill at the expense of their rivals. ODA competition will likely be even stronger in response to the rise of emerging donors, namely China (Nunnenkamp, Öhler, and Thiele 2013; Swedlund 2017; Steinwand 2015; Rosser and Tubilewicz 2016). China presents a new threat to traditional donors which leads to even more competitive pressure from international development actors (Nunnenkamp, Öhler, and Thiele 2013; Steinwand 2015). This leads to Hypothesis 1:

(i) Traditional donors consider the allocation of Chinese ODA projects in their own ODA allocations.

As such, Hypothesis 1 highlights the pertinence of private donor benefits and donor competition in ODA allocations globally, bringing to light the interdependence of donor ODA allocation decisions, as well as suggesting why donor coordination has failed despite repeated calls for progress.

Donor competition may not merely exist on a recipient-level but on a sectoral and regional level too, and considering both is thus imperative for any empirical study of donor competition (Nunnenkamp, Öhler, and Thiele 2013; Powell and Findley 2012; Barthel et al. 2014). Sectoral competition could even be of greater magnitude and damage than recipient-level competition as reorienting ODA projects between sectors need not reduce total ODA commitments of a given donor, attracting less scrutiny (Frot and Santiso 2011; Winters and Martinez 2015). It follows that:

(ii) The extent of donor competition between traditional donors and China differs between different regions and sectors.

Hypothesis 2 would suggest that traditional donors would most strongly respond to Chinese ODA projects in sectors and regions preferred by Chinese ODA in seeking to constrain the disruptive role of Chinese ODA on their donor private benefits. Hypothesis 2 thus highlights the pertinence of private donor benefits and donor competition in ODA project allocations disaggregated by sector and region, which can contribute to a more nuanced understanding of donor competition.

A detailed literature has emerged focusing on the determinants of ODA allocation beyond those of merely altruism and the pursuit of global developmental outcomes, to include a broad range of private benefits extending across political, social, economic, and historical dimensions (Rosser and Tubilewicz 2016). Hypothesis 3

suggests that GDP per capita, population and foreign reserves will be insignificant determinants of traditional donor ODA. In contrast, FDI, exports, and natural resource rents, representing economic interests; temporary membership of the United Nations Security Council (UNSC), political rights, civil liberties, United Nations General Assembly (UNGA) voting patterns and migrant group lobbies, representing political concerns; and distance, colonial history, and whether donors and recipients share a common religion, conferring socio-historic relationships, will instead instigate greater ODA to specific recipient countries. This leads to Hypothesis 3:

> (iii) Traditional donors do not only consider recipient need in their ODA allocations, but also consider recipient economic, political, and cultural factors.

III. Data and Methodology

A. Empirical Identification Strategy

For traditional-Chinese ODA competition to be evidenced, the ODA allocation of traditional donors must be statistically significantly determined by that of China, robust to other temporal and spatial controls, as well as temporal and spatial fixed effects (Kilama 2016; Humphrey and Michaelowa 2019). Due to the large concentration of small or zero values likely present in a dataset concerning international flows between countries of different sizes and political prowess, linear estimators are likely misleading and error terms cannot be assumed to be normally distributed (Silva and Tenreyro 2006). Though many methods have been proposed to circumnavigate this issue, typically through logarithmic transformation or dropping zero observations, this likely constrains sample size and introduces

selection bias, as the error term will no longer be strictly unrelated to the covariates (Tyazhelnikov and Zhou 2020; Silva and Tenreyro 2006). Furthermore, existing literature, in relying on two-stage estimators have to make normative assumptions concerning whether the selection and allocation stages of ODA are determined independently (Clist 2011). Thus, this paper joins more recent literature in employing PPML estimators, which are unbiased amid heteroskedastic samples and can simultaneously consider zero censorship and fixed effects consistently (Couharde et al. 2020; Shepherd 2016; Humphrey and Michaelowa 2019).

Following Arvis & Shepherd (2013), the number of average traditional donor ODA projects is modelled with a Poisson distribution and then transformed into a log-likelihood estimator, according to equations (1) and (2) respectively:

(1) $$P(TD_{it+2} = k \mid \mathbf{X_{it}}'\delta) = (1/k!) \, e^{-\mathbf{X_{it}}'\delta} \, (\mathbf{X_{it}}'\delta)^k, \; k=[0,\infty]$$

(2) $$\ln L(\delta) = \sum\nolimits_{it} \ln P(TD_{it+2} = k \mid \mathbf{X_{it}}'\delta) = \sum\nolimits_{it} -\mathbf{X_{it}}'\delta + TD_{it+2}(\mathbf{X_{it}}'\delta) - \ln(TD_{it+2}!)$$

where TD_{it} represents the number of traditional donor ODA projects to country i in year t and the vector $\mathbf{X_{it}}$ contains both Chinese ODA projects and all other country-year variant regressors. The coefficient of interest δ, in representing the elasticity of average traditional donor-Chinese ODA allocation, thus captures ODA competition; that is the responsiveness of the number of average traditional donor ODA projects across all recipients, to a one percent change in the average number of Chinese ODA projects to the same recipients[12]. Additionally, the specification controls for country-year fixed effects to account for any exogenous variation in ODA allocations on the part of traditional donors and China to specific country-

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[1] This differs from the interpretation of a standard OLS estimator, which in representing the average of all competition elasticities, is distinct from the elasticity of the average recipient presented here, explaining in part why the estimators often provide significantly different coefficients (Tyazhelnikov and Zhou 2020).

[2] The choice to use project counts rather than the value of ODA projects reflects greater data availability, and also takes into account that not all ODA projects are assigned to a value or can be quantified monetarily, for example knowledge transfers or advice; moreover, it is more likely that donors respond to the existence of ODA projects rather than increasing their ODA value in response to the rise in other donor projects' value, especially given the lack of transparency surrounding Chinese ODA value (Dreher et al. 2021; Bräutigam 2010). Notwithstanding, the elasticity of traditional donor-Chinese ODA competition by project value is included in the robustness checks.

years. Lagging the independent and control variables by two years[3], as undertaken in this paper, is imperative in analyzing ODA competition as it is unlikely that traditional donors can react immediately to Chinese ODA, rather they must first observe Chinese ODA commitments and then plan, finance, and commit their own projects (Humphrey and Michaelowa 2019). This has the ancillary benefit of reducing concerns of simultaneity, as Chinese ODA cannot competitively respond to traditional donor ODA commitments that have yet to be made (Dreher and Fuchs 2015).

B. Data

This paper matches data drawn from eight sources of bilateral, global data to robustly investigate to what extent Chinese ODA is a significant determinant of traditional donor ODA. The data covers the period 2000-2017, allowing for significant temporal variation and corresponding closely to the fast expansion of Chinese ODA (Dreher and Fuchs 2015). For inclusion in this analysis, a recipient country must either i) have had at least one Chinese ODA project committed between 2000 and 2017, or ii) had an average of $50million ODA committed annually by the nineteen largest traditional donors between 2001 and 2019, of which there are 144 such countries.[4] Sampled donors are selected based on size, with all traditional donors both members of the OECD DAC and committing at

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[3] The choice of a two year lag reflects the understood length of time it takes Western donors from project planning to offering ODA commitments (Humphrey and Michaelowa 2019).

[4] Not all countries receive ODA from China for two reasons – either they are very small (in which case they don't warrant inclusion in our study e.g., Niue) or they are large but there is a diplomatic reason China does not give aid (e.g., Panama prior to signing diplomatic relations). This condition helps to differentiate.

least 1,000 ODA projects on average annually between 2001 and 2019 to the sampled recipient nations[5].

China, in operating outside the remit of the OECD Development Assistance Committee (DAC) is not subjected to the same reporting standards as traditional donors, both increasing the challenge of empirically investigating donor competition with China, but also likely further perpetuating mistrust surrounding Chinese ODA. Rather, many papers make use of the AidData Global Chinese Official Finance (hereafter AidData), widely understood to be the most reliable and comparable source of Chinese ODA allocation (Custer et al. 2021). Retaining AidData projects defined as "ODA-like" and committed to a single recipient country, 9,149 such projects are identified between 2000 and 2017, corresponding to Chinese ODA efforts worth $239.4bn. Matching these projects to recipient countries, years and sectors represent the independent variables for this paper. Similarly, the OECD Creditor Reporting System (CRS) collates project-level ODA commitments[6] on the part of OECD DAC Members (OECD 2019). Retaining projects undertaken by the nineteen sampled traditional donors, committed bilaterally, and identified as ODA flows for 2001-2019, leads to 1.05 million unique ODA projects, across 158 countries, worth $947bn. In keeping with the independent variables, each project is matched to its corresponding recipient-year-sector cell and aggregated across sectors and donors to generate average traditional donor project value.

The motivations of donors in extending ODA are complex, ever-changing, and interdependent (Bermeo 2017); as such, this paper controls for a vector of economic, political, and culture-historic variables which may otherwise distort the

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[5] These donors comprise: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, Norway, Spain, Sweden, Switzerland, UK, and USA.

[6] In keeping with the established literature, this paper retains solely ODA commitments, referencing the notion that disbursements are a noisier measure of ODA allocation due to unforeseen and unpreventable exogenous shocks which may prevent ODA from being realised (Berthélemy & Tichit, 2004; Mascarenhas & Sandler, 2006).

causality between Chinese and traditional ODA. Using data made available in the World Bank World Development Indicators (WDI), GDP per capita, population and foreign reserves proxying for recipient need, and FDI, exports, and natural resource rents representing donors' economic interests in recipient countries are matched to the dataset (World Bank 2021). To control for measures of political proximity, freedom, and foreign policy attitude, a dichotomous variable for recipient UNSC membership using data from Dreher et al. (2018); Freedom in the World indicators, namely the political rights and civil liberties indices respectively (FreedomHouse 2021); and a weighted average of UNGA voting coincidence across donor-recipient dyads for each recipient-year cell, as obtained from Voeten et al. (2017), complete the vector of political variables matched to the dataset. Finally, it is important to consider geographic, cultural, and historical reasons why certain donors may be disproportionately likely to extend ODA to recipients. Donor-recipient migrant stocks, as collated from the OECD International Migration Database (OECD 2021) are accordingly matched to the dataset.

C. Summary Statistics

Table 2 presents summary statistics of the data. In keeping with the literature, all variables except for traditional donor ODA and UNSC membership are lagged by two years.

[Insert Table 2 Here]

IV. Empirical Findings and Sensitivity Analysis

A. Aggregated Data

Table 3 reports regression results for the baseline data. The first column represents the aggregated data. Donor competition is theorized to exist not just on

an aggregate level, but at a sectoral and regional level too (Barthel et al. 2014; Frot and Santiso 2011; Annen and Moers 2017). As such, it is interesting to investigate not just whether traditional donor-Chinese ODA competition exists, but whether this is strongest in sectors and regions where Chinese ODA is most prevalent. Accordingly, columns (2) to (4) represent total ODA extended in the social, infrastructure, and budget sectors respectively; these broad sectors are aggregated based on careful consideration of the OECD DAC Purpose Codes and their respective projects[7]. Columns (5) to (7) restrict recipients by region to Africa, Latin America, and Asia respectively.

Upon controlling for the regressors described in the previous section and country- and year-fixed effects, the elasticities of average traditional donor-Chinese ODA commitments are statistically significant at the 5% level with the expected positive sign. A one percent increase in the number of Chinese ODA projects committed to a given recipient country each year leads to, ceteris paribus, 0.02% more average traditional donor ODA projects in the subsequent year. Such findings are consistent with Hypothesis 1 and the work of Kilama (2016) and Humphrey & Michaelowa (2019) who find small, positive, and significant coefficients on measures of Chinese ODA as determinants of that of traditional donors. Though such effect sizes are small, due to the large increase in Chinese ODA extended to recipient countries in recent years, these could represent significant ODA inflows from competing, traditional donors. As such, traditional donor-Chinese ODA competition appears pertinent, rife, and robust, as traditional donors vie to retain influence in developing countries.

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[7] Infrastructure comprises "Transport & Storage"; "Communications"; "Energy"; "Agriculture, Forestry, Fishing"; "Industry, Mining, Construction"; "Trade Policies & Regulations"; "General Environmental Protection"; and "Reconstruction Relief and Rehabilitation". Social comprises "Education"; "Health"; "Population Policies & Reproductive Health"; "Water Supply & Sanitation"; "Government & Civil Society"; "Other Social Infrastructure & Services"; and "Banking & Financial Services". Budget comprises "General Budget Support"; "Developmental Food Aid/Food Security Assistance"; "Other Commodity Assistance"; "Business & Other Services"; and "Action Relating to Debt".

Consistent with both the existing literature and Hypothesis 2, statistically significant competition elasticities with China are only retained in the infrastructure and social sectors, parenthetically where Chinese ODA projects are most prevalent. The coefficients are approximately the same as the baseline results. This shows that traditional donors most readily respond to Chinese ODA projects in sectors most greatly associated with Chinese development efforts, providing further evidence for the pertienence of ODA competition in development efforts. Turning to regions, ODA competition between China and the average traditional donor is not significant in any one region, however. This is interesting as it stands in contrast to existing literature which highlight stronger donor competition in Africa, which also attracts disproportionate media and academic attention. This lack of finding could reflect a function of the smaller regional sample sizes or method selected, but also could indicate that the disruptive influence of Sino-African relations are overemphasized and empirically unfounded (Swedlund 2013; Bräutigam 2011). Thus, the results on hypothesis two are mixed.

Turning next to hypothesis 3, the most consistent and statistically significant control regressors are measures of political rights, UN voting alignment, and migration stocks. A one unit increase in each of these variables leads to -0.02, 1.31 and 0.05% more projects from the average traditional donor two years later respectively. Contrastingly, the regressors proxying for recipient needs, GDP per capita, population and foreign reserves, do not enter significantly into the majority of specifications, nor in a consistent way. All other control variables do not statistically determine traditional donor ODA allocations in the majority of specifications given that country- and year-fixed effects have been controlled for. This analysis highlights not only support for Hypothesis 3, but also stands opposed to the determinants of traditional donor ODA allocation understood in much of the literature relying on OLS estimators, which may in fact be a function of the selected specification, rather than causal.

Taken together the baseline results confirm the hypotheses argued in this paper. Following a 1% increase in Chinese ODA projects to the average recipient, traditional donors increase ODA two years later. Though there is no regional pattern of note, this competition is felt most strongly in the social and infrastructure sectors, parenthetically where Chinese ODA projects are most strongly concentrated. Recipient need is eschewed by traditional donors in their ODA allocations in favour of political determinants of ODA in the form of political rights, UN voting alignment and migrant stocks.

B. Robustness Checks

To investigate the robustness of the baseline results, five robustness checks are undertaken. Firstly, the heterogeneity of ODA projects by size may reflect how any ODA competition is practiced. Rather than responding to the number of Chinese ODA projects, traditional donors may respond instead on a dollar-for-dollar basis with respect to increasing Chinese ODA. Table 4 thus repeats the baseline results proxying ODA projects with the value of projects committed to a given recipient country each year, for both traditional donors and China. In the case of ODA value the coefficient on Chinese ODA loses statistical significance in the baseline results. This highlights that the demonstration of competition can be subject to the way it is measured; that is to say, traditional donors may respond competitively by increasing the number of ODA projects extended to a recipient country in response to an increase in Chinese ODA projects, but not increase the total value of ODA nor respond to a rise in the value of Chinese ODA. This could highlight that traditional donors respond tokenistically to the rise of China by extending small projects to courted recipient countries, or simply that traditional donors are not aparty to the values of Chinese ODA projects. This pattern holds true for the

sectoral disaggregation too. Interestingly, the coefficient on Africa ODA is statistically significant at the 1% level; a one percent increase in Chinese ODA extended to the average African recipient country leads to a 0.048% increase in average traditional donor ODA two years subsequent. This finding may help to reconcile the emphasis on Sino-Western competition in Africa but the lack of significance found in Table 3; rather than competing on a project level, it would appear that donor competition in Africa is more dollar-for-dollar. Turning to the control variables, political rights are no longer statistically significant in the majority of specifciations, but GDP per capita and exports now become statistically significant, with traditional donors extending more ODA to rich nations who they export little too. This highlights that donors may offer ODA projects for political reasons but scale these projects on the basis of economic ones, which is consistent with the earlier two-stage estimator literature (Clist 2011). Thus, the results are not robust to controlling for the value of ODA extended by traditional donors and China. This adds pertinence to both analyzing ODA competition with alternate proxies, as the choice of how to measure ODA can alter the conclusions dramatically. While traditional donors respond to increases in the number of Chinese ODA projects, i.e., the visibility of China in their preeminent ODA strongholds, this is not done in a dollar-for-dollar way. As such, recipient nations may not be able to leverage more ODA following a rise in Chinese interest.

Secondly, it could be argued that the positive response of traditional donors to lagged Chinese ODA projects does not reflect competition but rather recipient need and development trends, as all donors respond to the same crises, motives, and allocation criteria. Though this has been refuted qualitatively, it is difficult to discern from the baseline specification. As such, Table 5 repeats the baseline analysis but replaces Chinese ODA projects with that of the World Bank, as collated by the OECD CRS. We hypothesize that if traditional donors are crowding

in ODA projects in response to China but not the World Bank[8] this is evidence of ODA competition at work. Accordingly, Table 5 confirms this hypothesis by highlighting that traditional donors ODA project allocations are not statistically significantly determined by lagged World Bank ODA projects. This holds true when the dataset is disaggregated by region and sector too. Thus, the results are robust to testing the placebo case that all donors respond positively to one another's allocations for reasons of simply allocating ODA to the same nations for the same reasons.

Thirdly, traditional donors may not simply respond to a given year of enhanced Chinese ODA, but rather to longer-term patterns of Chinese ODA more generally (Humphrey and Michaelowa 2019; Budjan and Fuchs 2021). As such, it is pertinent to repeat the baseline analysis using multiple periods moving averages, as presented in Table 6 for three-year moving averages. The coefficients suggests that a 1% increase in Chinese ODA to the mean recipient over three-years will lead to 0.04% more ODA from the average traditional donor in the three subsequent years, which compared to an elasticity of 0.02 in the baseline results is robust, but of greater magnitude. This suggests that donor competition is rife over longer time horizons, which can be less easily attributed to conflating specific recipient-year needs. From a sectoral perspective, all sectors are now statistically significant with budgetary donor competition of a greater magnitude than that of social and infrastructure spending; this suggests that longer term donor competition in the budgetary sector can be an important element to donor competition too. Regionally, the coefficient on the African region is now statistically significant at the 5% level and of similar magntidue to the baseline results; this confirms Hypothesis 2 which suggests that Chinese ODA competition will be strongest in the regions most closely associated

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[8] There would be little incentive for traditional donors to compete with the World Bank as these same donors fund World Bank projects with similar objectives and purposes.

with Chinese ODA, namely Africa. The control regressors are for the most part qualitatively unchanged by the period averaging, with the exception of exports which is now statistically significant in many of the specifications with a negative sign which could suggest traditional donors extend ODA to countries they hope to develop trading relations with in the future. Thus, the results are robust to changing the temporal dynamics of the specification to include three year moving averages, highlighting a persistent and significant effect of donor competition on international ODA allocation across multiple periods.

Fourthly, while donor ODA competition is a justifiably important phenomenon to study and analyze, only considering Chinese ODA takes too narrow a view of Chinese international development efforts, to which traditional donors likely holistically respond. The prevalence of Other Official Flows (OOF) in Chinese aid efforts has been long stressed (Bräutigam 2011), and given that less grant-based and more tied aid would be motivated by different concerns to that of more concessional ODA (Bräutigam 2011; Dreher et al. 2021), it is plausible that different magnitudes of competition would also exist, adding nuance to an understanding of donor competition, especially with China. Accordingly, the baseline results are repeated using donor-recipient OOF, rather than ODA, in Table 7. Due to a lack of observations for OECD donors extending OOF projects in the budgetary sectors, this regression was omitted.

The results appear robust to OOF competition, with average traditional donors' OOF responding positively and statistically significantly to that of the number of Chinese OOF projects. A 1% increase in Chinese OOF projects to the mean recipient leads to 0.09% more OOF projects from the mean traditional donor two years later. Thus, as with ODA, OOF competition between donors is important in determining the flow of OOF projects. This is most strongly exhibited in the infrastructure sector, where the elasticity of traditional donors projects to that of China is 0.095, significant at the 5% significance level. Interestingly, rather than

Africa, it is Asia where this competition is most keenly fought, with a 1% increase in Chinese OOF projects leading to 0.12% more average traditional donor projects two years later. This could reflect a greater number of OOF projects in Asia, especially given the rapid pace of development of many recipients in this region or less scrutiny regarding the extension of loans and other official flows in this region. Regardless, further research would be required to investigate this phenomenon further as it has yet to be studied. Turning to Hypothesis 3, it would be expected that OOF projects are determined by more economic rather than political factors compared to ODA projects (Dreher et al. 2021). This finding is confirmed in Table 7 with the political factors significantly determining traditional donors' ODA projects losing significance but GDP, population, reserves, and exports playing a larger role in their place. Though the sign on the population coefficient changes in each specification, traditional donors offer more OOF projects to poorer nations, reflecting stronger recipient need in their allocations. Meanwhile, traditional donors reward trading partners with more OOF projects, or to encourage more trade in the future. Thus, Table 7 demonstrates not only that the results of this paper are robust to alternative forms of development financing, but also that it is important to consider a more holistic view when considering international donor competition, especially in the case of China.

Finally, the paper considers robustness through a pre-trends analysis, by repeating the baseline results but proxying the independent variables with a 10-year lead. If future Chinese ODA projects determine that of traditional donors today, then it would cast doubt on the causal identification described in the paper. Table 8 highlights accordingly that the number of future Chinese ODA projects do not determine traditional donor efforts today, robust to sectoral and regional disaggregation as well.

[Insert Table 4 Here]

[Insert Table 5 Here]

[Insert Table 6 Here]

[Insert Table 7 Here]

[Insert Table 8 Here]

V. Concluding Remarks

This paper has employed project-level ODA data for traditional donors and China respectively between 2000 and 2017 to analyse how donors allocate ODA with respect to the allocations of other, competing donors. The results show that for the 144 sampled recipient countries, ceteris paribus, a one percent increase in the number of Chinese ODA projects committed to the average recipient country generates 0.02% more ODA projects extended to the mean recipient from the mean traditional donor two years later. These results were found to hold for the sectors, namely infrastructure projects and social spending, where Chinese ODA projects are most present. Though there is no regional pattern, the robustness checks highlight that donor competition in Africa exists on a dollar-for-dollar not project-for-project basis. Chinese ODA, alongside measures of political rights, exports, UN voting alignment and migrant stocks, significantly determine the ODA allocations of traditional donors. These results are robust to applying moving averages, considering OOF competition, and pre-trends analysis, but not when ODA is measured with projects' value. The robustness checks additionally highlight that traditional donors do not compete with World Bank ODA projects, adding greater certainty to the hypothesis that this crowding-in effect is driven by donor competition. As such, this paper concludes that donor competition is pertinent, impactful, and highly nuanced.

Though the field is nascent, this paper has demonstrated the pertinence of empirically investigating donor competition, and thus suggests several promising avenues for future research. Taking advantage of the rich, project-level data concerning ODA from both traditional donors and China, one could investigate competition among donors across several novel and theoretically compelling dimensions. Firstly, the results likely disguise significant donor heterogeneity. As such, it is likely and of notable policy relevance to investigate which donors exhibit the strongest ODA competition with China. Secondly, in aggregating ODA projects across recipient country, important sub-national variation may be lost, which could prove critical in a more nuanced understanding of ODA competition. Making use of geo-coded project data, it would be interesting to better understand the locales of competition between donors at a more disaggregated, spatial level (Powell and Findley 2012).

Moreover, though this analysis has highlighted the pertinence of donor competition in ODA allocation, it has not commented on the impact of donor competition upon developmental outcomes. Indeed, ODA competition could reduce ODA effectiveness by duplicating already scarce development efforts on the part of donors (Olivié and Pérez 2016); increasing recipient burden (Steinwand 2015); and reducing donor accountability in ensuring development outcomes as they scapegoat other donors competing in the same space (Nunnenkamp, Öhler, and Thiele 2013). Alternatively, donor competition may have positive effects on recipient nations who are better able to leverage more ODA, and for projects they most strongly desire, while competing donors seek to improve the quality of their output to appeal to more discerning recipients (Kilama 2016). Further empirically grounded, mixed methods research design could illuminate the motives and impacts of donor competition upon the international development landscape, both on the part of donors and recipients. Additionally, such grounded research can comment on the causal mechanisms which determine such relationships.

The findings of this paper are thus important for policymakers operating in the international development space. Rather than dismissing a lack of ODA effectiveness as the fault of corrupt and inept recipient governments, donor competition instead could be leading to a more inefficient and burdensome distribution of ODA resources across the developing world. Greater tripartite cooperation between traditional donors, emerging donors, and the recipients of these ODA efforts will inspire greater ODA effectiveness and lead to lasting and significant development progress. The role of Chinese ODA in disrupting the hegemony of traditional donors in international development efforts is more nuanced than the existing literature and media portray; traditional donors crowd in ODA in response to rising Chinese ODA in their traditional strongholds, especially in areas where Chinese ODA projects are most pertinent. Analyses seeking to quantify and underscore donor competition in ODA allocation are a necessary first step to ensuring more reflexive donor practices going forward and improving future ODA effectiveness.

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TABLES

TABLE 1 - TRADITIONAL DONORS' AND CHINESE ODA GROWTH RATES

	Panel A: Average Traditional Donor			Panel B: China		
	2000	2017	CAGR	2000	2017	CAGR
Total	1,800	5,398	17.6%	141	500	20.9%
Infrastructure	137	261	11.2%	35	84	14.1%
Social	287	492	10.1%	40	136	20.0%
Budgetary	54	56	6.1%	13	54	24.4%
Africa	790	2,188	16.3%	79	248	18.5%
Asia	515	1,984	22.7%	50	171	20.1%
Americas	363	916	14.8%	9	62	40.5%

Notes: All data has been taken from the data used in this paper, detailed in the data section, CAGR - Compounded annual growth rate of the ODA. Totals do not add to the sum of sectors and regions respectively due to unclassified, multi-sector/regional ODA or ODA pertaining to other sectors and regions.
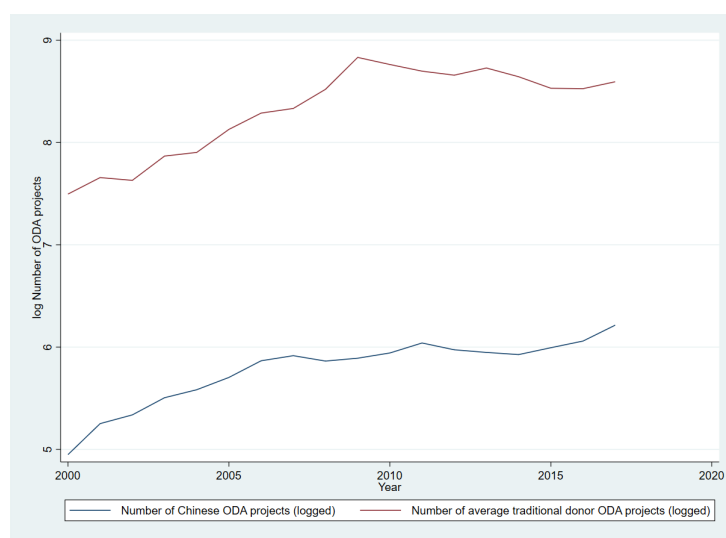
FIGURE 1. CHINESE VS AVERAGE TRADTIONAL ODA 2000-2017

NOTES: ALL DATA HAS BEEN TAKEN FROM THE DATA USED IN THIS PAPER, DETAILED IN THE DATA SECTION.

TABLE 2 — SUMMARY STATISTICS AND DATA DESCRIPTION

Variable	Definition	Obs.	Mean	SD	Min	Max
trad_count	# Avg.TD ODA projects in RC	2565	32.7	30.0	0.0	191.1
china_count	# Chinese ODA projects in RC	2566	2.4	2.3	0.0	11.0
trad_donor	Avg.TD ODA value to RC (US$m)	2565	47.7	96.7	0.0	2119
china_oda	Chinese ODA value to RC (US$m)	2566	93.2	791.	0.0	26540
trad_oof	#Avg.TD OOF projects in RC	2565	0.1	0.4	0.0	16.5
china_oof	# Chinese OOF projects in RC	2566	0.8	2.4	0.0	52.0
wb_count	# World Bank ODA projects in RC	2566	1.6	2.0	0.0	6.6
gdp_per_capita	GDP per capita (000s)	2404	3.9	6.5	0.1	154.9
population	Population of RC (millions)	2460	30.6	108.	0.0	1339
reserves	Total RC reseves incl. gold (bn)	2094	15.1	41.6	0.0	412.6

fdi	FDI net inflows to RC (BOP, bn)	2101	-1.7	5.6	-90.5	10.4
exports	Exports to RC (BOP, bn)	2106	23.7	56.6	0.0	489.4
resource_rent	RC key resources profit (%GDP)	2368	8.4	11.6	0.0	87.5
unsc	RC temporary UNSC member dummy	2340	0.1	0.2	0.0	1.0
political_rights	RC indicator of political rights	2434	4.0	2.0	1.0	7.0
civil_liberties	RC indicator of civil liberties	2434	3.9	1.6	1.0	7.0
un_agree	TD-RC voting aligment in UNGA	2390	0.7	0.1	0.3	1.0
migrants	#Citizens born in RC living in all TDs	2484	0.3	1.0	0.0	11.9

Notes: Avg.TD – Average Traditional Donor; RC – Recipient Country; BOP – Balance of Payments;
FOREX – Foreign Exchange; FDI – Foreign Direct Investment; OOF – Other Official Flows; # – Number

TABLE 3— BASELINE RESULTS FOR TRADITIONAL DONOR-CHINESE ODA COMPETITION

	ALL	SOCIAL	INFRA.	BUDGET	AFRICA	LATAM	ASIA
Chinese ODA	0.023**	0.025***	0.023**	0.040	0.016	0.014	0.010
	(0.011)	(0.008)	(0.010)	(0.031)	(0.014)	(0.022)	(0.018)
GDP per capita	-0.000	-0.001	-0.002	0.004***	-0.022	-0.019**	0.000
	(0.002)	(0.001)	(0.003)	(0.001)	(0.018)	(0.008)	(0.002)
Population	0.001*	-0.000	0.001**	-0.000	0.016***	-0.007	0.000
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.011)	(0.001)
Reserves	-0.000*	0.000	-0.001***	0.002	0.004***	-0.001*	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
FDI	0.002	0.001	-0.001	0.013***	-0.005	-0.001	0.007***
	(0.001)	(0.001)	(0.001)	(0.005)	(0.004)	(0.002)	(0.003)
Exports	-0.000	-0.000	-0.000*	-0.002	-0.004***	0.003***	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Resource Rents	0.004**	0.001	0.002	-0.005	0.006**	0.001	0.010***
	(0.002)	(0.001)	(0.001)	(0.004)	(0.003)	(0.003)	(0.002)
UNSC Member	-0.010	-0.009	-0.001	0.018	-0.035	-0.045**	-0.008
	(0.018)	(0.012)	(0.013)	(0.044)	(0.022)	(0.022)	(0.028)
Political Rights	-0.022**	-0.015***	-0.030***	0.021	-0.048***	-0.091***	-0.008
	(0.009)	(0.006)	(0.007)	(0.017)	(0.010)	(0.019)	(0.015)
Civil Liberties	-0.039**	-0.008	-0.011	-0.063**	0.009	-0.008	-0.094***
	(0.019)	(0.012)	(0.017)	(0.031)	(0.017)	(0.030)	(0.035)
UN Agreement	1.311***	0.376***	0.634***	1.648***	0.320*	1.436***	1.042***
	(0.199)	(0.132)	(0.167)	(0.349)	(0.189)	(0.313)	(0.380)
Migrants	0.051**	0.020	0.032*	0.366***	0.202***	-0.022	-0.006
	(0.023)	(0.014)	(0.019)	(0.085)	(0.047)	(0.042)	(0.042)
Constant	1.951***	0.842***	-0.019	-1.690	0.889***	4.828**	3.348***
	(0.271)	(0.184)	(0.231)	(1.947)	(0.297)	(2.002)	(0.829)
Observations	1,629	1,629	1,629	1,629	552	443	523
R-squared	0.948	0.953	0.946	0.807	0.970	0.974	0.954

Notes: Column 1 presents all the data, Columns 2-4 detail project flows pertaining to the social, infrastructure, and budgetary sectors respectively. Columns 5-7 detail project flows to the regions Africa, Latin America, and Asia respectively. All specifications include country- and year-fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 4—RESULTS FOR TRADITIONAL DONOR-CHINESE ODA COMPETITION BY PROJECT VALUE

	ALL	SOCIAL	INFRA.	BUDGET	AFRICA	LATAM	ASIA
Chinese ODA	0.011	0.014	0.008	0.431	0.048***	0.014	-0.018
	(0.015)	(0.010)	(0.018)	(0.476)	(0.018)	(0.013)	(0.020)
GDP per capita	0.010*	-0.000	-0.003	0.033***	0.114*	0.069**	0.010**
	(0.005)	(0.005)	(0.006)	(0.006)	(0.060)	(0.034)	(0.005)
Population	0.001	0.003	0.007**	-0.023	-0.012	-0.053*	0.007*
	(0.003)	(0.002)	(0.003)	(0.018)	(0.009)	(0.031)	(0.004)
Reserves	0.002	-0.001	0.002	-0.016	-0.008	0.006*	0.002
	(0.001)	(0.002)	(0.001)	(0.013)	(0.006)	(0.003)	(0.002)
FDI	-0.003	0.001	-0.014**	0.061**	0.027*	0.011	-0.003
	(0.005)	(0.005)	(0.007)	(0.027)	(0.016)	(0.007)	(0.008)
Exports	-0.002*	-0.003**	-0.005***	0.003	-0.008**	0.001	-0.005***

	(0.001)	(0.001)	(0.002)	(0.006)	(0.004)	(0.003)	(0.002)
Resource Rents	0.006	0.011*	0.004	-0.013	-0.025**	-0.013	0.028**
	(0.013)	(0.006)	(0.017)	(0.021)	(0.010)	(0.014)	(0.012)
UNSC Member	-0.001	0.006	-0.071	0.169	0.033	-0.047	0.073
	(0.096)	(0.049)	(0.086)	(0.260)	(0.094)	(0.120)	(0.139)
Political Rights	0.072	-0.001	0.084	0.132	-0.000	-0.212**	0.248***
	(0.050)	(0.029)	(0.055)	(0.124)	(0.051)	(0.087)	(0.073)
Civil Liberties	-0.173*	-0.075	-0.127	-0.141	-0.007	-0.074	-0.376***
	(0.099)	(0.047)	(0.116)	(0.234)	(0.099)	(0.139)	(0.126)
UN Agreement	1.945**	1.624***	0.933	3.985*	0.429	1.327	2.757
	(0.798)	(0.546)	(1.141)	(2.244)	(0.851)	(1.106)	(1.788)
Migrants	0.287***	0.109	0.166	0.793*	0.341**	0.773***	0.107
	(0.108)	(0.076)	(0.156)	(0.408)	(0.137)	(0.216)	(0.142)
Constant	-0.353	0.493	-0.558	24.076	7.145***	11.817**	-2.550
	(1.271)	(0.837)	(1.733)	(19.579)	(1.876)	(5.821)	(3.544)
Observations	1,629	1,629	1,629	1,629	552	443	523
R-squared	0.697	0.848	0.804	0.522	0.721	0.783	0.800

Notes: The table presents results proxying the independent and dependent variables with project value. Column 1 presents all the data, Columns 2-4 detail project flows pertaining to the social, infrastructure, and budgetary sectors respectively. Columns 5-7 detail project flows to the regions Africa, Latin America, and Asia respectively. All specifications include country- and year-fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 5—RESULTS FOR TRADITIONAL DONOR-WORLD BANK ODA COMPETITION

	ALL	SOCIAL	INFRA.	BUDGE	AFRICA	LATAM	ASIA
W. Bank ODA	0.019	0.032	-0.046	0.095	0.011	0.021	0.018
	(0.016)	(0.030)	(0.052)	(0.134)	(0.030)	(0.021)	(0.019)
GDP per capita	0.010*	-0.000	-0.004	0.031**	0.100*	0.071**	0.011**
	(0.005)	(0.005)	(0.006)	(0.006)	(0.060)	(0.033)	(0.005)
Population	0.002	0.003	0.007**	-0.022	-0.012	-0.056*	0.006*
	(0.003)	(0.002)	(0.003)	(0.019)	(0.009)	(0.031)	(0.003)
Reserves	0.002	-0.001	0.002	-0.016	-0.009	0.006*	0.002
	(0.001)	(0.002)	(0.001)	(0.013)	(0.006)	(0.003)	(0.002)
FDI	-0.004	0.001	-0.014**	0.049	0.028*	0.012*	-0.005
	(0.005)	(0.005)	(0.007)	(0.033)	(0.015)	(0.007)	(0.009)
Exports	-0.002	-0.003**	-0.005***	0.003	-0.008*	0.002	-0.005***
	(0.001)	(0.001)	(0.002)	(0.006)	(0.004)	(0.003)	(0.002)
Resource Rents	0.006	0.011*	0.005	-0.015	-0.025**	-0.014	0.029**
	(0.013)	(0.006)	(0.017)	(0.022)	(0.010)	(0.014)	(0.013)
UNSC Member	-0.002	0.007	-0.072	0.198	0.038	-0.046	0.048
	(0.094)	(0.049)	(0.085)	(0.262)	(0.093)	(0.116)	(0.138)
Political Rights	0.071	-0.004	0.081	0.114	-0.004	-0.205**	0.254***
	(0.050)	(0.029)	(0.055)	(0.118)	(0.050)	(0.085)	(0.073)
Civil Liberties	-0.165*	-0.070	-0.129	-0.123	0.011	-0.062	-0.379***
	(0.100)	(0.048)	(0.116)	(0.233)	(0.097)	(0.141)	(0.128)
UN Agreement	1.918**	1.629***	0.927	3.555	0.541	1.226	2.823
	(0.808)	(0.543)	(1.135)	(2.305)	(0.797)	(1.107)	(1.725)
Migrants	0.275**	0.097	0.169	0.785*	0.281*	0.746***	0.104
	(0.110)	(0.076)	(0.155)	(0.432)	(0.149)	(0.222)	(0.143)
Constant	-0.232	0.594	-0.578	23.750	7.539***	12.058**	-2.101
	(1.274)	(0.836)	(1.727)	(20.489)	(1.857)	(5.759)	(3.535)
Observations	1,629	1,629	1,629	1,629	552	443	523
R-squared	0.695	0.847	0.805	0.501	0.705	0.785	0.797

Notes: The table presents results proxying the independent variables with World Bank projects. Column 1 presents all the data, Columns 2-4 detail project flows pertaining to the social, infrastructure, and budgetary sectors respectively. Columns 5-7 detail project flows to the regions Africa, Latin America, and Asia respectively. All specifications include country- and year-fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 6—RESULTS FOR TRADITIONAL DONOR-CHINESE ODA COMPETITION WITH 3 YEAR MOVING AVERAGES

	ALL	SOCIAL	INFRA.	BUDGET	AFRICA	LATAM	ASIA
Chinese ODA	0.043***	0.040***	0.059***	0.105**	0.048**	-0.009	0.017
	(0.016)	(0.013)	(0.015)	(0.046)	(0.020)	(0.027)	(0.026)
GDP per capita	-0.002	-0.001	-0.004*	0.004***	-0.024	-0.028***	-0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.016)	(0.007)	(0.002)
Population	0.001*	0.000	0.001	0.000	0.014***	0.003	0.000
	(0.001)	(0.000)	(0.000)	(0.002)	(0.002)	(0.008)	(0.001)
Reserves	-0.000	0.000	-0.001***	0.004***	0.004***	-0.002***	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
FDI	0.003**	0.001	-0.002**	0.017***	-0.013***	-0.004**	0.012***
	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)	(0.002)	(0.003)
Exports	-0.000	-0.000**	-0.000***	-0.003***	-0.004***	0.003***	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Resource Rents	0.004**	0.001	0.001	-0.010***	0.008***	0.004	0.009***
	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.002)
UNSC Member	0.034	0.009	-0.026	0.194***	-0.005	-0.081***	0.055
	(0.023)	(0.018)	(0.018)	(0.051)	(0.030)	(0.030)	(0.040)
Political Rights	-0.026***	-0.022***	-0.040***	0.031*	-0.053***	-0.093***	-0.003
	(0.009)	(0.006)	(0.007)	(0.017)	(0.011)	(0.021)	(0.015)
Civil Liberties	-0.038*	-0.006	-0.005	-0.089**	-0.003	-0.037	-0.121***
	(0.021)	(0.013)	(0.018)	(0.035)	(0.020)	(0.032)	(0.038)
UN Agreement	2.648***	0.883***	1.089***	2.948***	1.093***	2.346***	2.385***
	(0.220)	(0.148)	(0.169)	(0.394)	(0.245)	(0.273)	(0.526)
Migrants	0.027	0.020	0.052***	0.416***	0.193***	-0.039	-0.020
	(0.024)	(0.014)	(0.018)	(0.079)	(0.039)	(0.040)	(0.050)
Constant	1.267***	0.501***	-0.356	-7.239***	0.356	1.820	-0.034
	(0.280)	(0.186)	(0.221)	(0.838)	(0.281)	(1.505)	(0.382)
Observations	1,610	1,610	1,610	1,610	544	437	515
R-squared	0.963	0.966	0.963	0.876	0.980	0.986	0.966

Notes: The table presents results proxying the variables with three-year moving averages. Column 1 presents all the data, Columns 2-4 detail project flows pertaining to the social, infrastructure, and budgetary sectors respectively. Columns 5-7 detail project flows to the regions Africa, Latin America, and Asia respectively. All specifications include country- and year-fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 7—RESULTS FOR TRADITIONAL DONOR-CHINESE OOF COMPETITION

	ALL	SOCIAL	INFRA.	-	AFRICA	LATAM	ASIA
Chinese OOF	0.088**	0.111	0.095**	.	0.098	-0.011	0.115**
	(0.039)	(0.169)	(0.048)	.	(0.082)	(0.101)	(0.049)
GDP per	-0.006**	-0.013**	-0.004	.	-0.119*	-0.115**	-0.006**
	(0.002)	(0.005)	(0.005)	.	(0.067)	(0.059)	(0.003)
Population	-0.006***	0.006**	-0.008***	.	0.022**	0.154***	-0.018***
	(0.002)	(0.003)	(0.003)	.	(0.010)	(0.048)	(0.003)
Reserves	-0.005***	-0.002	-0.006***	.	-0.001	-0.014***	-0.001
	(0.002)	(0.002)	(0.002)	.	(0.007)	(0.004)	(0.002)
FDI	-0.010*	0.002	-0.012*	.	-0.019	-0.024**	-0.040***
	(0.005)	(0.007)	(0.007)	.	(0.017)	(0.010)	(0.008)
Exports	0.007***	0.005***	0.006***	.	0.008	0.002	0.009***
	(0.002)	(0.001)	(0.001)	.	(0.005)	(0.003)	(0.001)
Resource	-0.002	0.003	0.016	.	0.000	0.070**	-0.014
	(0.009)	(0.017)	(0.011)	.	(0.013)	(0.035)	(0.012)
UNSC	0.042	0.058	0.153	.	0.085	0.118	-0.035
	(0.075)	(0.098)	(0.113)	.	(0.144)	(0.157)	(0.112)
Political	0.060	0.034	0.103	.	0.124*	0.186	-0.026
	(0.042)	(0.101)	(0.066)	.	(0.072)	(0.226)	(0.060)
Civil	-0.070	-0.163	-0.175*	.	-0.436***	-0.103	0.077
	(0.074)	(0.153)	(0.104)	.	(0.141)	(0.191)	(0.101)
UN	1.141	-5.203***	2.490*	.	-2.684*	5.148*	0.728
	(1.006)	(1.533)	(1.448)	.	(1.450)	(3.055)	(1.208)
Migrants	0.023	-0.574***	0.114	.	0.032	-1.044***	0.195

	(0.107)	(0.148)	(0.184)	.	(0.159)	(0.278)	(0.169)
Constant	3.270	3.808**	-7.757***	.	-3.164	-	15.094***
	(2.442)	(1.779)	(2.234)	.	(2.060)	(8.880)	(3.718)
Observations	1,466	1,207	1,221	.	503	336	515
R-squared	0.932	0.597	0.971	.	0.826	0.920	0.969

Notes: The table presents results proxying the independent and dependent variables with OOF projects. Column 1 presents all the data, Columns 2-4 detail project flows pertaining to the social, infrastructure, and budgetary sectors respectively. Columns 5-7 detail project flows to the regions Africa, Latin America, and Asia respectively. All specifications include country- and year-fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 8—RESULTS FOR PRE-TREND ANALYSIS OF TRADITIONAL DONOR-CHINESE ODA COMPETITION

	ALL	SOCIAL	INFRA.	BUDGET	AFRICA	LATAM	ASIA
Chinese ODA	-0.025	-0.006	0.013	-0.077*	0.008	-0.027	0.037
	(0.018)	(0.011)	(0.017)	(0.042)	(0.029)	(0.021)	(0.029)
GDP per capita	0.003***	0.001	0.003*	0.005***	-0.011	-0.014	0.003***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.019)	(0.015)	(0.001)
Population	0.002	-0.003***	-0.000	-0.002	0.014***	-0.034	0.006**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.004)	(0.023)	(0.002)
Reserves	-0.001	0.000	-0.001	-0.001	0.003*	0.001	-0.004**
	(0.001)	(0.000)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
FDI	-0.004*	-0.001	-0.002	-0.015***	-0.017***	0.003	0.006
	(0.002)	(0.002)	(0.002)	(0.006)	(0.004)	(0.003)	(0.005)
Exports	0.001	-0.000	-0.000	0.000	-0.007***	0.003**	-0.000
	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)
Resource Rents	0.008	0.003**	0.004***	-0.003	0.003	0.001	0.025**
	(0.006)	(0.001)	(0.002)	(0.003)	(0.003)	(0.004)	(0.012)
UNSC Member	-0.003	-0.010	-0.016	0.057	0.039	0.048**	0.014
	(0.024)	(0.014)	(0.015)	(0.041)	(0.031)	(0.022)	(0.038)
Political Rights	-0.004	-0.005	-0.041***	-0.008	-0.028	-0.087**	0.003
	(0.018)	(0.007)	(0.010)	(0.021)	(0.024)	(0.035)	(0.028)
Civil Liberties	-0.032	-0.013	-0.034	0.011	0.076**	-0.100**	-0.061
	(0.031)	(0.019)	(0.022)	(0.034)	(0.037)	(0.046)	(0.065)
UN Agreement	0.198	0.209	0.169	0.154	-0.130	-0.011	-0.222
	(0.270)	(0.192)	(0.227)	(0.424)	(0.219)	(0.485)	(0.556)
Migrants	-0.032	-0.005	-0.035	-0.024	0.043	0.014	-0.099**
	(0.027)	(0.019)	(0.022)	(0.075)	(0.057)	(0.053)	(0.043)
Constant	2.015***	-0.314**	-0.241	1.839	3.528***	11.053**	-0.585
	(0.195)	(0.136)	(0.162)	(2.512)	(0.222)	(4.268)	(2.609)
Observations	985	985	985	985	327	285	313
R-squared	0.935	0.961	0.958	0.868	0.968	0.975	0.937

Notes: The table presents results proxying the independent variables with ten-year leads. Column 1 presents all the data, Columns 2-4 detail project flows pertaining to the social, infrastructure, and budgetary sectors respectively. Columns 5-7 detail project flows to the regions Africa, Latin America, and Asia respectively. All specifications include country- and year-fixed effects. *** p<0.01, ** p<0.05, * p<0.1.