Geopolitics and Subnational Aid Allocation

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Competition between China and the West

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Abstract: Geopolitical competition has re-emerged as a central driver of development aid. This article examines whether and how Western donors react to Chinese aid projects in developing countries. Using geocoded aid data for 157 recipient countries from 2000 to 2020, I analyze the allocation behavior of four key Western donors, the United States, Germany, France, and the United Kingdom, at the subnational level. The analysis shows that Western aid is significantly more likely to be allocated to regions where China has previously initiated aid projects. These patterns are primarily driven by Sub-Saharan Africa, whereas resource endowments do not significantly increase competition for influence. Additionally, the findings reveal donor-specific differences: the United States and Germany appear most responsive to Chinese aid, particularly in Sub-Saharan Africa. The results are robust when applying the two-stage least squares estimator, allowing for causal interpretation. Overall, the study provides systematic evidence of subnational geopolitical competition in development cooperation and contributes to the broader debate on whether aid is driven by strategic interests or recipient needs.

Keywords: Geopolitics, Aid, ODA, Competition, Development.

JEL classification: F35, F50, O22.

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1 Introduction

Geopolitics is back - at least in the public and scientific discourse (Mead, 2014). Great powers are once again competing for economic, political, and military influence across key geographical areas. In addition to military deterrence or even intervention, foreign aid and development cooperation are often seen as less aggressive tools for expanding a country's influence (Nickel, 2024).

Traditionally, development cooperation has been framed by donor organizations as being driven by recipient countries' needs, out of altruism, and to pursue globally agreed goals, e.g., the 2030 Agenda for Sustainable Development.[3] Yet, the veil of altruism is slipping. Donor organizations are now increasingly open about the fact that aid is also driven by a country's interest and its geopolitical goals as well. Recently, Kaja Kallas, the EU's top diplomat, stated in an interview that "European aid is also to be used in future to expand geopolitical power" (dpa, 2025). Similarly, the executive order issued by US President Trump, which eventually led to the dissolution of the US Agency for International Development (USAID), sought to reevaluate and realign US development programs with American interests (The White House, 2025). This raises an important question about whether geopolitical motives are a new element in development policy or whether they have always been inherent to it.

Indeed, foreign aid has long been used for geopolitical purposes, for example, to influence other countries' governments or populations to get support on the international stage, such as during UN votes, to gain access for broader strategic goals, to open trade and investment opportunities, and to establish security alliances (e.g. Dreher, Lang, & Reinsberg, 2024; Dreher, Nunnenkamp, & Thiele, 2008; Wellner, Dreher, Fuchs, Parks, & Strange, 2025).

Additionally, as recent examples highlight, great powers are increasingly competing for influence over recipient countries. The critical minerals agreement between the US and the Democratic Republic of the Congo (DRC), for example, primarily aims to secure ac-

[3]See for example the German Federal Ministry for Economic Cooperation and Development (https://www.bmz.de/en/issues), the US Agency for International Development (https://www.usaid.gov/what-we-do), or the China International Development Cooperation Agency (http://en.cidca.gov.cn/2018-08/01/c_259525.htm).

cess to resources while also seeking to counter Chinese influence in the country (Wallis, Hook, & Hodgson, 2025). In the Solomon Islands and Nepal, US aid appears to directly follow Chinese investments, especially regarding infrastructure projects trying to counter Chinese Belt and Road Initiative (BRI) projects (Gupta, 2023; Wasuka & Bahmani, 2020; Wasuka & Xiao, 2019). Officially, however, the United States Agency for International Development (USAID) has claimed that its aid does not reflect any geopolitical considerations and is purely provided to improve the welfare of the people (Koirala, 2023).

Despite such anecdotal evidence, we lack a systematic understanding of how Western donors respond to Chinese aid allocation. In particular, little is known about how this competition plays out at the subnational level, where aid might serve as a direct counterweight to foreign influence on local governments, populations, or access to resources. This article addresses this gap by answering the following research question: Do Western donors respond strategically to Chinese aid projects?

Building on the work by Asmus-Bluhm, Eichenauer, Fuchs, and Parks (2024) and Zeitz (2021), who show strategic aid siting by India and the World Bank in response to Chinese projects, this study is the first to analyze whether major Western donors, namely the US, Germany, France, and the UK, respond to Chinese projects by siting their aid projects in the same subnational regions. To study this question empirically, I use newly available geocoded aid data across 157 aid recipient countries between 2000 and 2020 on the first administrative (ADM1) level.

This study makes three main contributions. First, it examines the subnational dynamics of geopolitical competition in development cooperation. While previous research has largely focused on national-level trends, analyzing aid at the subnational level captures greater heterogeneity and may reveal a more precise pattern of strategic behavior. Second, by disaggregating the analysis by sector, region, and resource endowments, I examine whether geopolitical competition is stronger in areas with high strategic values. Different patterns may emerge across sectors, such as infrastructure and production, or across continents, especially in Sub-Saharan Africa and Oceania, due to their growing economic and military importance. Third, rather than treating the West as a block, the analysis distinguishes between individual donor countries. This allows for the identification of

donor-specific heterogeneities, revealing which Western countries are most responsive to Chinese aid projects and under what conditions.

The empirical analysis reveals that Western countries base their allocation decisions on Chinese aid projects. This effect is observed across different sectors and appears to be primarily driven by Sub-Saharan Africa. However, resource endowments do not seem to systematically drive these reactions. Among Western donors, the US and Germany show the most consistent patterns of strategic response in Sub-Saharan Africa. The results are robust when applying the two-stage least squares estimator, allowing for causal interpretation. Overall, these findings provide evidence of geopolitical competition, as great powers compete for influence in specific regions of the world.

The course of this paper is the following: Section 2 reviews key concepts and the relevant literature. Section 3 outlines the empirical approach and data. Section 4 presents the main results and several robustness tests. Section 5 summarises the results and concludes.

2 Geopolitics and Foreign Aid

The scholarly debate regarding the impact of geopolitics on development aid largely focuses on donors' motives and whether aid allocation is driven by donors' interests or recipients' needs. Rhetorically, donor countries claim to base their allocation decisions mainly on the recipients' needs, such as hunger or poverty. In practice, however, geopolitical aspects and strategic interests seem to be inherent in development cooperation. Donor countries are often powerful, rich countries, while recipients are those who are potentially dependent on them. In this setting, foreign aid is an often convenient instrument for exerting influence.

In a geopoliticized world, foreign aid can be used to exert influence on two levels: the multilateral and the bilateral level. At the multilateral level, countries try to influence multilateral institutions or the institutional setup behind the development cooperation system, e.g., multilateral agreements like the Sustainable Development Goals. These ongoing or resulting power shifts are extensively discussed in the political science literature (e.g. Baumann, Haug, & Weinlich, 2024). At the bilateral level, donor countries can

influence other countries by allocating their bilateral aid flows based on geopolitical considerations. This article will focus on the latter, building on the recent literature review by Dreher et al. (2024). In the following, I will discuss a small selection of the relevant literature focusing on empirical analyses.

The empirical literature largely suggests that aid is allocated based on both the donor's interests and the recipient's needs. For instance Alesina and Dollar (2000), provide arguments in favor of a donor-oriented provision. They show that political motives, former colonial ties, or UN voting patterns are the main drivers of aid allocation among donors. Hoeffler and Outram (2011) find similar evidence of donor self-interest, but also demonstrate that recipient needs, such as GDP per capita, play a significant role in aid allocation. These mixed results are confirmed by studies examining more recent data. Aid from the United States, Germany, Japan, and the United Kingdom appears to be more strongly driven by recipient needs, whereas aid from China and France tends to reflect commercial and foreign policy interests to a greater extent (Dreher, Fuchs, Parks, Strange, & Tierney, 2018; Hoeffler & Sterck, 2022). Dreher, Nunnenkamp, and Thiele (2011) differentiate and compare DAC and non-DAC donor countries. They find that emerging donors at that time, for example, Brazil or Saudi Arabia, cared less for recipient needs compared to traditional Western donors. Yoo (2021), for example, demonstrates that for China, instead, the recognition of Taiwan seems to be a dominant factor. Baydag and Klingebiel (2023) argue in their qualitative study that France and Germany are more self-interested, while the UK and the USA are rather development-oriented. This is again contrasted by Wencker (2022) who finds no strong self-interested motives for the allocation of German aid and Fleck and Kilby (2010) who shows that starting with the War on Terror in the early 2000s, the importance of recipient needs declined.

Another part of the literature focuses on the use of aid for geopolitical influence and distinguishes two kinds of power that are exerted in this context: hard power and soft power (Blair, Marty, & Roessler, 2022). Following Nye (1990, 2004, 2017), power is not merely about having the resources but about the ability to shape the behavior of other countries. He defines hard power as ordering others to do what the exerting country wants through coercion, threats, or payments. In contrast, soft power can be understood

as "one country gets other countries to want what it wants" (Nye, 1990, p.166). This can be achieved by attraction and persuasion. Both forms of power are important means to achieve geopolitical influence.

Aid can be used as leverage to increase a country's hard power. An illustrative case frequently analyzed in the literature is the influence of foreign aid on recipients' voting patterns in the United Nations General Assembly. Dreher et al. (2008), for example, find that US aid increases voting compliance in the UN General Assembly. In a similar article, Dreher, Eichenauer, and Gehring (2018) examine the effect of UNSC membership on aid effectiveness. They show that aid given for geopolitical reasons decreases its usual effect on economic growth. In other international organizations, aid is dependent on voting as well. Dippel (2015) finds that Japan increases its aid flows when countries are voting with them in the International Whaling Commission, while France, the UK, and the US do not reward but punish if a country votes against them.

Soft power is often proxied by a foreign country's image among the population. Goldsmith and Horiuchi (2012) show that public opinion about a country's foreign policy matters in the decision-making of foreign policy concerning this country. Another example testing the relationship between foreign aid and soft power is the recent paper by Blair et al. (2022). They find that Chinese aid to African countries does not increase the people's support for China. In contrast, the effect is positive for US aid, and Chinese aid even increases support for the UK and France. However, the results by Wellner et al. (2025) indicate that Chinese aid can indeed buy foreign public support. Furthermore, Goldsmith, Horiuchi, and Wood (2014) and Dietrich, Mahmud, and Winters (2018) find positive effects of US aid on the public reception of the US.

A small fraction of studies focuses directly on the competition for (geopolitical) influence between donors, especially between China and the West. Traditional and Western donors either seem to change their allocation patterns or directly respond to specific Chinese projects. According to (Zeitz, 2021), such competition for influence, using either soft or hard power, takes place if access to the recipient government is zero-sum. Aid might be used to gain or keep access to the government at the national level, but also at the local level. Similarly, Steinwand (2015) argues that donors compete with other donors if

there is a specific kind of private benefit from providing aid that is not shared with other donors. Manzano and Gutiérrez (2019) point out that it is often the responsibility of the subnational governments that have the authority to issue permits, enforce regulations, or invest. Omiunu and Nganje (2024) discuss the concept of "Paradiplomacy" which refers to the international relations of subnational governments, e.g., attracting foreign direct investment. Thus, countries might compete for local influence to get access to bureaucratic resources or create a higher visibility of their aid projects. In a global comparison of China and the World Bank at the subnational level, Zeitz (2021) shows that the World Bank emulates Chinese aid, in response to China's increasing influence. This suggests that when China funds an infrastructure project in a specific region of a country, the World Bank will likely provide an infrastructure project in the same region as well. Similarly, the World Bank has been found to ease its loan conditionality in countries where China is already playing an active role (Hernandez, 2017). Vadlamannati, Brazys, Dukalskis, and Li (2023) demonstrate that the US is more likely to support countries through multilateral development banks that have recently joined China's Belt and Road Initiative. In contrast, Humphrey and Michaelowa (2019) examine China's increasing influence in Africa and its effect on two traditional donors, the African Development Bank and the World Bank. Their results reveal that Chinese influence on traditional donors has not yet been too large. Asmus-Bluhm et al. (2024) examine if a Chinese aid project in a subnational region in a year increases the probability of an Indian project being implemented in the same region in the following year. They find no significant effect in general. However, in countries strategically important to India - its neighbors in this case - Chinese aid projects significantly increase the probability of an Indian aid project in the following year. This indicates that countries do compete for influence on a subnational level in geopolitically important countries.

Despite growing interest in understanding donor reactions, few studies explore why such competition varies across sectors, regions, or resource-rich areas. Kilama (2016) shows that Western donors use aid to respond to the growing Chinese influence in Africa. Their results indicate that more aid is delivered to countries with higher natural resource endowments or countries that are of strategic political interest. Additionally, in countries

of strategic interest, donors are more likely to substitute social sector aid for economic infrastructure aid. The study by Gulley, Nassar, and Xun (2018) argues that the US and China will no longer compete for oil but rather for resources that are critical for emerging technologies, such as smartphones. They identify eleven minerals where competition between the two countries is expected to be the highest, as both rely heavily on imports. The largest producers of these minerals are mainly located in Central and South Africa, as well as in Brazil and Chile. Therefore, competition for these resources is likely to be most intense in these countries.

3 Empirical Framework

In this article, I investigate whether Western donors initiate development projects in the year following the commitment of a project by their geopolitical competitor, China, in the same region. Figure 1 provides illustrative evidence of a potential USA response to a Chinese aid initiative in the Haut-Katanga region of the DRC. Before 2006, neither the USA nor China had established aid projects in this region. However, in 2006, China started implementing an aid project there, and in 2007, the U.S. appeared to respond by launching three aid projects in the same area. By 2020, a total of 52 aid projects by either the USA or China had been established in Haut-Katanga.[4] This illustrative case brings me back to my central research question: Do Western donors respond strategically to Chinese aid projects?

To answer this question, I analyze the aid allocation behavior of four out of the five largest Western donors, namely the United States, Germany, France, and the United Kingdom, as well as China, using the recent Geocoded Official Development Assistance Dataset (GODAD) by Bomprezzi et al. (2025).[5] Specifically, I test whether Western donors are more likely to site a project in a region where China has recently begun one. Anecdotal evidence indicates that Western donors and China pursue strategic objectives through

[4]Several aid projects are located at the same coordinates, which is why the map displays fewer than 52 individual points.

[5]Japan will be excluded from my analysis since geocoded data for Japanese aid projects is not yet available.

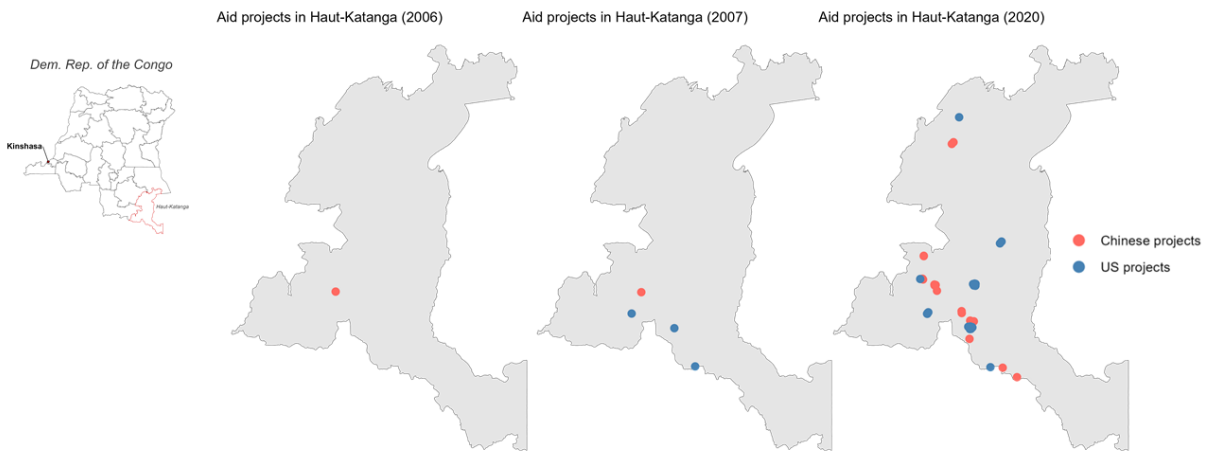

Figure 1: Chinese and US Aid Projects in Haut-Katanga, DRC (2000-2020)

foreign aid. For example, US foreign policy has long emphasized the pursuit of national interest. This has been stated by US national security advisor and Secretary of State Condoleezza Rice (2000) already in 2000. More recently, the US specifically described its pursuit of national interest in its strategy for the Indo-Pacific. In the strategy, the US authorizes 1.5 billion dollars to the Department of State and USAID to "countering China's influence to undermine the international system", among others (115th Congress, 2018).

China, in turn, has criticized U.S. aid as geopolitically motivated. The Chinese Ministry of Foreign Affairs has published an article with the title "The Hypocrisy and Facts of the United States Foreign Aid". The ministry claims that "the U.S. has seen Africa as a battleground for competition with China" and that the "U.S. regards foreign aid as a tool to maintain its hegemonic position and to engage in geopolitical games" (Ministry of Foreign Affairs of the People's Republic of China, 2024).

In contrast, European donors appear more cautious. Germany's strategy for development policy with Asia and the German China Strategy, for instance, describe China as a "systemic rival" and competitor but emphasize cooperation over confrontation (German Development Ministry, 2023; The Federal Government, 2023). Nonetheless, the European Union launched the Global Gateway initiative to promote large-scale infrastructure projects not only in Africa but also across other continents European Commission (2021). This initiative can be seen as a response to China's Belt and Road Initiative Barbero

(2023).

Taken together, this contextual evidence suggests that Western donors may respond to Chinese aid projects for geopolitical reasons. Accordingly, this study examines whether the initiation of a Chinese aid project in a region increases the likelihood of a subsequent Western project in the same area.

One emerging strand of the literature on development aid uses geocoded project-level data to analyze donor behavior and its effect within countries (e.g. Bomprezzi et al., 2025; Cruzatti, Dreher, & Matzat, 2023; Dreher et al., 2019; Durevall & Isaksson, 2024; Heinzel & Reinsberg, 2024). These subnational analyses offer several advantages over country-level approaches. They allow researchers to account for greater heterogeneities and potentially yield more precise results. Since aid projects are often directed toward particular regions, rather than entire countries, subnational data better reflects the strategic and localized nature of aid allocation. Moreover, the sub-national level facilitates a clear attribution of effects.

This article follows the empirical approach developed in recent studies that analyze development aid at the subnational level (Asmus-Bluhm et al., 2024; Bomprezzi et al., 2025). To examine Western reactions to Chinese aid projects, I estimate whether the initiation of a Chinese project in a region leads to a project by the United States, Germany, France, or the UK in the following year. The sample includes 157 countries from the OECD's list of aid recipients from 2000 to 2020. The following equation is the starting point of the analysis:

$$LogWesternAid_{ict} = \beta ChineseAid_{ict-\tau} + \gamma X_{ict-1} + \mu_i + \eta_{ct} + \epsilon_{ict} \tag{1}$$

$LogWesternAid_{ict}$ is the logged volume of aid committed to region i of country c at time t by the US, Germany, France, and the UK. $ChineseAid_{ict}$ is an indicator variable that takes the value one if at least one ODA- or OOF-like development project by China is present in the region in the given year, where τ denotes the number of lags. μ_i denotes the region fixed effect, η_{ct} the country-year fixed effect and ϵ_{ict} the idiosyncratic error term. These fixed effects already capture a large fraction of the total variation. Region

fixed effects account for all time-invariant factors within a subnational region, including geographical and institutional characteristics such as access to the sea or the political system. Country-year fixed effects capture country-specific shocks in a given year, eliminating variation at the country level. X is the vector of logged control variables, including proxies for economic development, population size, precipitation, and conflict within the respective region. Economic development is measured using the nighttime light data by Li, Zhou, Zhao, and Zhao (2020), which combines and harmonizes the Defense Meteorological Satellite Program (DMSP)/Operational Linescan System (OLS) and the Visible Infrared Imaging Radiometer Suite (VIIRS). Population size data is sourced from CIESIN (2018), published every five years (2000, 2005, 2010, 2015, 2020), with missing years interpolated. Precipitation data is taken from Harris, Osborn, Jones, and Lister (2020), and conflict-related deaths are drawn from Sundberg and Melander (2013) and Davies, Engström, Pettersson, and Öberg (2024). These control variables are typically used in sub-national studies (e.g. Asmus-Bluhm et al., 2024; Bomprezzi et al., 2025). Additionally, I include indicator variables controlling for the presence of other major donors, namely the World Bank, India, the Netherlands, and Italy, and a combined variable for other EU donors, using data from the GODAD dataset (Bomprezzi et al., 2025).[6]

One of the main concerns with the empirical specification is the potential endogeneity of the Chinese aid variable, which may arise from reverse causality or omitted variable bias. To address this, I implement a two-stage least squares (2SLS) approach, instrumenting for the volume of Chinese aid using a strategy commonly employed in the literature. The instrument was originally introduced by Dreher, Fuchs, Hodler, et al. (2021) and later extended by Bluhm et al. (2025). It was constructed as an interaction between the logged annual volume of Chinese steel production and the probability of a region receiving a Chinese aid project. First, I calculate the probability as the share of years between 2000 and 2021 in which a region received at least one Chinese aid project. Formally, this is calculated as $p_{ic} = \Sigma_{t=1}^{T} n_{ict}/T$, where n_{ict} equals one if there has been at least one project within this specific region in that year. Second, Dreher, Fuchs, Hodler, et al.

[6]The dummy for other EU donors takes the value of one if a project is implemented by any of the following EU countries Austria, Belgium, Denmark, Finland, Greece, Ireland, Luxembourg, Portugal, Spain, Sweden, and the non-EU countries Iceland, Norway, and Switzerland.

(2021) argue that China has a long-standing pattern of overproduction, particularly in sectors like steel, and tends to offload surplus supplies overseas. Since many Chinese aid projects require substantial physical inputs, especially construction materials like steel, these fluctuations can be considered exogenous predictors of aid disbursement. Building on this logic, I follow Dreher, Fuchs, Parks, Strange, and Tierney (2021) and Bluhm et al. (2025) by broadening the instrument, including further physical inputs commonly used by aid projects: aluminum, cement, glass, iron, steel, and timber. The data is taken from the National Bureau of Statistics of China (2025). I extract the first common factor F_t from the detrended logs of these six materials using factor analysis, which captures the shared variation in China's supply of construction-related inputs over time. The resulting first-stage regression is specified as follows:

$$ChineseAid_{ict-2} = \alpha(F_{t-3} * p_{ic}) + \gamma X_{ict-1} + \mu_i + \eta_{ct} + \epsilon_{ict} \tag{2}$$

One obvious concern is that the instrument may violate the exclusion restriction, as regions with a higher probability of receiving Chinese aid might also attract more aid projects from other countries. As discussed above, this could occur if other donors strategically respond to Chinese aid initiatives. One way to address this concern is to control for both the probability of receiving a Chinese aid project and the production of relevant materials in China. However, I already account for these factors, resolving the issue by including regional and country-year fixed effects (Dreher, Fuchs, Parks, et al., 2021).
The next section presents the results and discusses the implications for understanding geopolitical competition in aid allocation.

4 Results

4.1 Main results

The baseline results corresponding to equation 1 are shown in Table 1. Columns (1) to (3) include region (ADM1) and year fixed effects, while columns (4) to (6) replace the year fixed effects with country-year fixed effects. All regressions include the full set of

control variables described above. However, they are omitted from the Table to maintain readability.

Columns (1) and (4) show the baseline estimation results. Column (1) reports a positive and statistically significant association between Chinese aid in the previous year and the presence of Western aid in a region, suggesting that Western donors may respond to recent Chinese activity. However, this effect is no longer statistically significant in column (4), where country-year fixed effects are introduced. This change implies that the initial effect may, at least in part, reflect shared country-level dynamics rather than region-specific strategic responses. Thus, as indicated in equation 1, the following specifications will include country-year fixed effects.

Table 1: Western and Chinese Aid (2000-2020)

	(1) Baseline	(2) Timing	(3) Placebo	(4) Baseline	(5) Timing	(6) Placebo
Chinese Aid (t+1)			0.1479			-0.0353
			(0.1067)			(0.1011)
Chinese Aid (t)		0.3460***	0.3632***		0.1714	0.1780
		(0.1015)	(0.1061)		(0.1088)	(0.1130)
Chinese Aid (t-1)	0.3017***	0.2236*	0.2059	0.0801	0.0255	0.0210
	(0.1141)	(0.1181)	(0.1250)	(0.0986)	(0.1039)	(0.1102)
Chinese Aid (t-2)		0.5183***	0.5377***		0.2277**	0.2312**
		(0.1062)	(0.1138)		(0.1071)	(0.1145)
Chinese Aid (t-3)		0.3545***	0.3139**		0.0830	0.0849
		(0.1228)	(0.1319)		(0.1161)	(0.1243)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	No	No	No
Country-Year FE	No	No	No	Yes	Yes	Yes
Number of observations	55,120	49,608	46,852	55,120	49,608	46,852
Number of countries	157	157	157	157	157	157
Adj. R-squared	0.506	0.525	0.521	0.576	0.587	0.582

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Columns (2) and (5) include additional lags of Chinese aid to test for delayed responses, allowing for the possibility that donor reactions may take more than a year. Furthermore, columns (3) and (6) introduce forward lags (leads) which serve as a falsification test to assess the potential violation of the parallel trends assumption or reverse causality. Once further lags and leads are included and country-year fixed effects are controlled for, only

the second lag of Chinese aid remains significant across all specifications. This pattern suggests that strategic reactions by Western donors, if present, are more likely to occur with a delay of two years rather than immediately following a Chinese intervention.

The coefficient of the two-year lag in column (6) indicates that, compared to regions without a Chinese project, the volume of Western aid increases by roughly 23% once a Chinese aid project is committed to the same region two years earlier. In terms of size, this effect is not only statistically significant but also economically meaningful.

The absence of significant effects for the lead variables reinforces the interpretation that Western responses are reactive rather than anticipatory, helping to alleviate concerns about non-random treatment assignment or endogeneity. Taken together, these findings offer initial evidence consistent with the hypothesis that Western donors engage in strategic competition with China in their aid allocation decisions, though such responses may emerge with a temporal lag of two years. As a consequence, the following specifications will control for the first and second lag of Chinese aid.

Table 2: Western and Chinese Aid in different sectors (2000-2020)

	(1) Economic Infrastructure	(2) Production Sectors	(3) Social Infrastructure	(4) Economic Infrastructure	(5) Production Sectors	(6) Social Infrastructure
Chinese Aid (t-1)	0.1374	0.1366**	0.0912	0.1133	0.1250*	0.0754
	(0.1042)	(0.0672)	(0.1073)	(0.1111)	(0.0707)	(0.1124)
Chinese Aid (t-2)	0.1731*	0.2134***	0.3677***	0.1203	0.2237***	0.3351***
	(0.0886)	(0.0785)	(0.0956)	(0.0957)	(0.0833)	(0.0985)
Chinese Aid (t-3)				0.1150	0.0820	0.1109
				(0.1058)	(0.0870)	(0.1068)
Chinese Aid (t-4)				0.2960**	0.0986	0.1935*
				(0.1195)	(0.0956)	(0.1111)
Chinese Aid (t-5)				0.3636***	0.1861**	0.1536
				(0.1151)	(0.0839)	(0.1335)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	52,364	52,364	44,096	44,096	44,096	52,364
Number of countries	157	157	157	157	157	157
Adj. R-squared	0.363	0.410	0.551	0.380	0.435	0.530

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to sector j in region i of country c at time t. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table 2 disaggregates the baseline results by sector to examine whether the observed response of Western donors to Chinese aid varies across different types of development

assistance. Western aid can be divided into three main sectors: Social Infrastructure and Services, Economic Infrastructure and Services, and the Production Sector. Social Infrastructure and Services includes, for example, education, health, and water-related projects; Economic Infrastructure and Services covers, for example, transport and storage, communications, and energy; while the production sector encompasses projects on agriculture, industry, mining, and construction (Bomprezzi et al., 2025).

Columns (1) to (3) present the baseline specification for each of the three sectors. Western aid to a specific sector is regressed on the indicator variable for a Chinese aid project lagged by one and two years. Across all three sectors, Chinese aid lagged by two years is significantly and positively associated with Western aid. The effect is strongest for Social Infrastructure and Services, followed by the Production Sector. In contrast, the effect for Economic Infrastructure and Services is weaker in magnitude and only marginally significant at the 10%-level.

To account for the possibility that donor reactions differ in timing across sectors, columns (4) to (6) extend the analysis by including up to five annual lags of Chinese aid. For Social Infrastructure and Production, the pattern remains consistent with the baseline results. However, for Economic Infrastructure, significance emerges only at the fourth and fifth lags, suggesting a longer delay in donor response in this sector. This could be explained by the more complex nature of large projects, which typically involve extended planning and coordination before official commitment. Overall, the results from Table 2 indicate that the baseline effect of donor responses to Chinese aid is driven by all three sectors. These findings add to the results of Kilama (2016), who shows that Western donors primarily respond to Chinese influence by increasing aid to the economic infrastructure sector.

Table 3 presents the results of estimating the effect of Chinese aid on Western aid across eight different regions: Central America, South America, Sub-Saharan Africa, Europe, Middle East and North Africa (MENA), Western Asia, Eastern Asia, and Oceania. To account for potential regional differences in the determinants of Western aid allocation, the sample is split into eight separate sub-samples. While this approach leads to a more precise estimation of region-specific dynamics, it also limits comparability with the baseline results.

Table 3: Western and Chinese Aid in different regions (2000-2020)

	(1) Central America	(2) South America	(3) Sub-Saharan Africa	(4) Europe	(5) Middle East North Africa	(6) Western Asia	(7) Eastern Asia	(8) Oceania
Chinese Aid (t-1)	0.2465	-0.2156	0.3238**	0.2508	-0.7690*	0.1259	-0.1399	0.8743**
	(0.8205)	(0.1910)	(0.1362)	(0.4793)	(0.3584)	(0.2591)	(0.2369)	(0.3513)
Chinese Aid (t-2)	-0.0913	0.1899	0.0607	0.3186	1.0098*	0.0289	0.3732	0.6139
	(0.2616)	(0.2850)	(0.1748)	(0.3419)	(0.5105)	(0.2075)	(0.2741)	(0.4166)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5,548	4,560	13,262	10,545	4,560	4,199	7,239	1,729
Number of countries	22	12	49	22	13	14	12	10
R-squared (within)	0.00178	0.00209	0.00239	0.00912	0.0185	0.00465	0.00416	0.0190

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

The results reveal considerable variation in Western donor responses across regions. In Central America, South America, Western and Eastern Asia, the estimated coefficients are insignificant, suggesting no systematic donor reactions to Chinese projects. In the MENA region, the results are ambiguous, with a negative effect for the first lag and a positive effect for the second lag. By contrast, the results for Sub-Saharan Africa and Oceania indicate donor responsiveness. In both regions, there is a positive and significant effect for the first lag of Chinese aid, that are both large in magnitude. The presence of a Chinese aid project in the same subnational region leads to an increase in Western aid by roughly 32% in Sub-Saharan Africa and 87% in Oceania. These findings suggest that strategic donor competition with China is not globally uniform, but is instead concentrated in two key regions, Sub-Saharan Africa and Oceania, where geopolitical or developmental considerations may make Western donors particularly sensitive to Chinese engagement.

Table 4 examines whether Western donors respond differently to Chinese aid in regions that are rich in natural resources. As highlighted by Gulley et al. (2018), global powers compete for access to natural resources. In response to such concerns, the European Commission published several lists of so-called "Critical Raw Materials" and "Strategic Raw

Table 4: Western and Chinese Aid in resource-rich regions (2000-2020)

	(1) Baseline	(2) Critical Raw Materials	(3) Strategic Raw Materials	(4) Rare Earths
Chinese Aid (t-1)	0.5389***	0.0162	0.0688	0.0607
	(0.1237)	(0.1414)	(0.1288)	(0.1018)
Chinese Aid (t-2)	0.8058***	0.2140	0.1783	0.2213**
	(0.1160)	(0.1485)	(0.1365)	(0.1092)
Critical Raw Materials	0.4173**			
	(0.2105)			
Strategic Raw Materials	-0.1851			
	(0.1960)			
Rare Earths	0.2533			
	(0.2674)			
Chinese Aid (t-1) * Resource Dummy		0.0971	-0.0166	0.1088
		(0.1778)	(0.1822)	(0.5398)
Chinese Aid (t-2) * Resource Dummy		0.0088	0.1023	-0.1360
		(0.2222)	(0.2223)	(0.6456)
Controls	Yes	Yes	Yes	Yes
ADM1 FE	No	Yes	Yes	Yes
Country-Year FE	No	Yes	Yes	Yes
Country FE	Yes	No	No	No
Year FE	Yes	No	No	No
Number of observations	52,364	52,364	52,364	52,364
Number of countries	157	157	157	157
Adj. R-squared	0.424	0.582	0.582	0.582

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Materials".[7] The European Union and many other countries rely on these materials since they are essential for emerging technologies and clean energy production, rendering them a potential driver of geopolitical competition (European Commission, 2024). To investigate their effect on the siting of aid projects, I create dummies for Critical and Strategic Raw Materials, which take the value of one whenever a deposit of one of these materials in the respective subnational regions exists. Additionally, I create a dummy for deposits of Rare Earth Elements. The resource list provided by the European Commission, which forms the basis for the three dummies used in the analysis, is suitable, as all Western countries, except the USA, were members of the EU when the list was first published.

[7]According to European Commission (2024), critical raw materials include: Bauxite, Coking Coal, Lithium, Phosphorus, Antimony, Feldspar, Light rare earth elements, Scandium, Arsenic, Fluorspar, Magnesium, Silicon metal, Baryte, Gallium, Manganese, Strontium, Beryllium, Germanium, Natural Graphite, Tantalum, Bismuth, Hafnium, Niobium, Titanium metal, Boron/Borate, Helium, Platinum group metals, Tungsten, Cobalt, Heavy rare earth elements, Phosphate Rock, Vanadium, Copper, Nickel. Strategic Raw Materials are a subset, consisting of Arsenic, Coking Coal, Feldspar, Helium, Lithium, Manganese, Copper, Phosphorus, and Nickel.

Additionally, the resources identified as important for the USA by Gulley et al. (2018) largely overlap those listed by the European Commission.

In the first column (1) of Table 4, I regress Western aid on two lags of Chinese aid and the resource dummies. In this specification, I exclude region and country-year fixed effects to identify the influence of resource variables on aid allocation directly. The results indicate that Western donors allocate significantly more aid to regions with deposits of critical raw materials, suggesting a degree of strategic interest. However, the dummies for strategic raw materials and rare earths are not significant. To examine whether Western donors are more likely to react to Chinese projects in resource-rich regions, columns (2) to (4) include an interaction term between lagged Chinese aid and each of the three resource dummies. In these specifications, region and country-year fixed effects are included. Across all specifications, the interaction terms are statistically insignificant, indicating that Western donors do not compete with China in resource-rich regions.

Until now, I have treated Western aid as a homogeneous category, assuming that all donor countries follow the same allocation pattern and respond similarly to Chinese aid initiatives. However, it is plausible that there are differences in donor behavior, in particular between the EU and non-EU countries (e.g., Hoeffler & Sterck, 2022). To account for this potential heterogeneity, I disaggregate Western aid and examine the individual responses of the four Western donors: the United States, Germany, France, and the United Kingdom.

Table 5 presents the baseline results of the disaggregated analysis. The findings reveal that Chinese aid is associated with a statistically significant increase in subsequent aid allocations by the United States and France, whereas no such effect is observed for Germany or the United Kingdom. Among the four, the response is strongest in the case of France. These results suggest that Western countries do not uniformly respond to Chinese aid activity.

Table 6 reports the country-specific results across different sectors. The findings suggest that France is one of the Western drivers of reactions to Chinese aid projects, particularly through increased aid to the Economic Infrastructure and Services sector. This aligns with the evidence presented by Kilama (2016), who argues that Western donors increase

Table 5: Country Heterogeneity - Western and Chinese Aid (2000-2020)

	(1) USA	(2) GER	(3) FRA	(4) UK
Chinese Aid (t-1)	0.2020*	0.1074	-0.0245	0.0590
	(0.1025)	(0.0861)	(0.0725)	(0.0735)
Chinese Aid (t-2)	0.2351**	0.1290	0.3398***	0.0695
	(0.1011)	(0.0902)	(0.0991)	(0.0661)
Controls	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes
Number of observations	52,364	52,364	52,364	52,362
Number of countries	157	157	157	157
Adj. R-squared	0.517	0.453	0.416	0.407

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

infrastructure aid in response to Chinese aid. The United States and Germany both exhibit significant responses to Chinese aid in two out of the three sectors. By contrast, no significant effect is observed for the United Kingdom in any sector, reinforcing the earlier finding that UK aid is less responsive to Chinese project activity.

Table 7 confirms the previous results on region-specific effects. The US, Germany, and France all react to Chinese aid projects in Sub-Saharan Africa. In Oceania, the US, France, and the UK also show a positive response, although these effects are only significant at the 10%-level. Notably, I also find a positive and significant effect for the UK in the MENA region.

Table 8 further explores donor heterogeneity by focusing on resource-rich regions. Consistent with the earlier aggregate findings, most Western donors do not appear to respond more strongly to Chinese activity in these areas. However, the United Kingdom stands out as the only donor to significantly increase aid in regions containing Strategic or Critical Raw Materials.

Table 6: Country Heterogeneity - Western and Chinese Aid in different sectors

	(1) Econ. Infrastructure	(2) Production	(3) Soc. Infrastructure
Dependent variable: US Aid			
Chinese Aid (t-1)	0.0748	0.0851*	0.1753
	(0.0752)	(0.0459)	(0.1070)
Chinese Aid (t-2)	-0.0529	0.1637***	0.1951**
	(0.0727)	(0.0598)	(0.0806)
Dependent variable: German Aid			
Chinese Aid (t-1)	0.0967	0.0977	0.0386
	(0.0832)	(0.0631)	(0.0821)
Chinese Aid (t-2)	0.1384**	0.0397	0.1663*
	(0.0653)	(0.0587)	(0.0898)
Dependent variable: French Aid			
Chinese Aid (t-1)	0.0560	0.0202	0.0203
	(0.0467)	(0.0342)	(0.0597)
Chinese Aid (t-2)	0.2886***	0.0957**	0.1735**
	(0.0676)	(0.0435)	(0.0767)
Dependent variable: UK Aid			
Chinese Aid (t-1)	0.0231	0.0314	-0.0022
	(0.0394)	(0.0353)	(0.0560)
Chinese Aid (t-2)	-0.0355	-0.0302	0.0521
	(0.0383)	(0.0383)	(0.0578)
Controls	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Number of observations	52,364	52,364	52,364
Number of countries	157	157	157

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to sector j in region i of country c at time t, and represents either US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

4.2 Robustness

The results section may have raised questions about the choice of variables and the identification strategy. In what follows, I address these concerns in greater detail. In section 3, I have already described the potential endogeneity issues posed by the Chinese aid variable. Table A1 shows the results of the instrumental variable approach using Chinese materials as an instrument. Column (1) shows the 2SLS and the First-stage estimates for the West, while columns (2) - (5) display the same results for the single countries. The results confirm the previous significant findings for the USA. Additionally, the results for Germany, which were previously significant only for specific sectors and in Sub-Saharan Africa, are now significant in the general sample as well. Similarly, the results for the UK

Table 7: Country Heterogeneity - Western and Chinese Aid in different regions

	(1) Central America	(2) South America	(3) Sub-Saharan Africa	(4) Europe	(5) Middle East North Africa	(6) Western Asia	(7) Eastern Asia	(8) Oceania
Dependent variable: US Aid								
Chinese Aid (t-1)	0.9968	-0.4574	0.5365***	-0.2758	-0.2846	0.2938	0.1094	0.3215*
	(0.7201)	(0.4508)	(0.1470)	(0.3225)	(0.3459)	(0.2438)	(0.1775)	(0.1617)
Chinese Aid (t-2)	0.4109	0.2436	0.2656*	0.0490	0.5714	-0.2045	0.4032*	0.2511
	(0.3223)	(0.4174)	(0.1506)	(0.2309)	(0.4147)	(0.2459)	(0.2238)	(0.2564)
Dependent variable: German Aid								
Chinese Aid (t-1)	-0.3394	0.0628	0.4266***	0.3786	0.0667	-0.1089	-0.3756**	0.1616
	(0.4048)	(0.2474)	(0.1365)	(0.4665)	(0.3923)	(0.2121)	(0.1326)	(0.1348)
Chinese Aid (t-2)	-0.2584	0.2188	-0.1341	0.2895	0.9343	0.3369	0.1052	-0.2230
	(0.2074)	(0.3040)	(0.1258)	(0.3531)	(0.5920)	(0.3041)	(0.1375)	(0.2120)
Dependent variable: French Aid								
Chinese Aid (t-1)	0.4769	0.3882	-0.1697	-0.2236	-0.3893	0.3568	-0.0069	-0.1768
	(0.4379)	(0.3471)	(0.1075)	(0.1995)	(0.2194)	(0.2049)	(0.1420)	(0.1938)
Chinese Aid (t-2)	0.3342	0.2380	0.4895**	-0.0748	0.5250	0.2653	0.1376	0.5097*
	(0.3220)	(0.2934)	(0.1860)	(0.3046)	(0.3180)	(0.2610)	(0.2031)	(0.2431)
Dependent variable: UK Aid								
Chinese Aid (t-1)	0.1628	0.2776	-0.0404	-0.3384	-0.1008	0.2723	0.2536	0.2486*
	(0.2437)	(0.1761)	(0.1157)	(0.2593)	(0.2686)	(0.2547)	(0.1705)	(0.1268)
Chinese Aid (t-2)	0.1596	0.1168	0.0043	0.0124	0.5755**	-0.1979	0.1753	0.1583
	(0.3342)	(0.2299)	(0.0943)	(0.1936)	(0.2231)	(0.2297)	(0.1688)	(0.1927)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5,548	4,560	13,262	10,545	4,560	4,199	7,239	1,729
Number of countries	22	12	49	22	13	14	12	10

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

turn significant and positive. In contrast, the results for France are insignificant.

Table A2 reports the 2SLS estimates disaggregated by sector. Overall, the results are broadly consistent with the main analysis, and no single sector appears to be driving the observed effects. However, as for the previous results, the coefficients for France become statistically insignificant, while some coefficients for the UK become significant. This reinforces the finding that the results for these two countries were biased in the main analysis.

Table A3 presents the 2SLS estimates disaggregated by region. Notably, only Sub-Saharan Africa achieves a First-stage F-statistic above the conventional threshold of 10 (Staiger & Stock, 1997) This indicates that the instrument performs most reliably and is statistically valid only for the Sub-Saharan Africa subset. Thus, I will limit the regional analysis to Sub-Saharan Africa. Table A4 applies the instrument to Sub-Saharan Africa when disaggregating Western aid. Columns (1) and (2) present the results for the USA and

Table 8: Country Heterogeneity - Western and Chinese Aid in resource-rich regions (2000-2020)

	(1) Critical Raw Materials	(2) Strategic Raw Materials	(3) Rare Earths
Dependent variable: US Aid			
Chinese Aid (t-1)	0.2909**	0.2804**	0.2175**
	(0.1304)	(0.1138)	(0.1010)
Chinese Aid (t-2)	0.3018**	0.2775**	0.2712***
	(0.1467)	(0.1247)	(0.1022)
Chinese Aid (t-1) * Resource Dummy	-0.1841	-0.1964	-0.4076
	(0.2017)	(0.2086)	(0.5263)
Chinese Aid (t-2) * Resource Dummy	-0.1394	-0.1068	-1.3470*
	(0.2132)	(0.1739)	(0.7822)
Dependent variable: German Aid			
Chinese Aid (t-1)	0.0740	0.0922	0.1007
	(0.1132)	(0.1105)	(0.0899)
Chinese Aid (t-2)	-0.0028	0.0315	0.1244
	(0.1469)	(0.1309)	(0.0905)
Chinese Aid (t-1) * Resource Dummy	0.0687	0.0341	0.2408
	(0.1610)	(0.1655)	(0.5898)
Chinese Aid (t-2) * Resource Dummy	0.2756	0.2490	0.1437
	(0.2249)	(0.2308)	(0.4794)
Dependent variable: French Aid			
Chinese Aid (t-1)	-0.0765	-0.0340	-0.0260
	(0.0947)	(0.0869)	(0.0745)
Chinese Aid (t-2)	0.3874***	0.3543***	0.3335***
	(0.1366)	(0.1312)	(0.1004)
Chinese Aid (t-1) * Resource Dummy	0.1079	0.0245	0.0242
	(0.1426)	(0.1561)	(0.2649)
Chinese Aid (t-2) * Resource Dummy	-0.0997	-0.0375	0.2390
	(0.1670)	(0.1773)	(0.4358)
Dependent variable: UK Aid			
Chinese Aid (t-1)	-0.0940	-0.0853	0.0452
	(0.1120)	(0.1023)	(0.0740)
Chinese Aid (t-2)	0.0535	0.0436	0.0668
	(0.0951)	(0.0857)	(0.0668)
Chinese Aid (t-1) * Resource Dummy	0.3171**	0.3637***	0.5326
	(0.1285)	(0.1329)	(0.9415)
Chinese Aid (t-2) * Resource Dummy	0.0332	0.0632	0.0302
	(0.1491)	(0.1508)	(0.5495)
Controls	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Number of observations	52,364	52,364	52,364
Number of countries	157	157	157

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Germany. Both are significant and positive, supporting the previous findings. The effects for France and the UK in columns (3) and (4) are insignificant.

Eventually, A5 reports the 2SLS results for the effect of Chinese aid in resource-rich regions. The results are similar to the previous findings, except for the UK. While no significant effect can be found for regions rich in Critical and Strategic Raw Materials, the UK does appear to respond to Chinese aid projects in regions with Rare Earths.

The previous analysis involved regressing the volume of Western aid on a binary indicator capturing the presence of Chinese aid. The positive and significant results indicate that Western donors respond with a higher volume of aid projects in a given region when Chinese aid projects are present. To test the robustness of this result and examine whether Western donors react mainly by volume rather than by introducing a project themselves, I regress a dummy variable for Western aid on a dummy variable for Chinese aid. The results are presented in Table A6. Columns (1)-(3) display the baseline effects, while columns (4)-(7) show the country-specific heterogeneity. Interestingly, the effect of Chinese aid on the composite dummy for the West becomes insignificant. However, Chinese aid still has a significant and positive impact on project siting by the USA and France. Overall, the results remain similar and robust. The insignificant effect on the West is likely due to the loss of variation when transitioning from a continuous variable to a dummy variable.

Another way to examine Western donors' reactions to Chinese aid would be to use the volume of Chinese projects instead of a dummy variable. In Table A7, I regress Western aid on the volume of Chinese aid to a given region. Columns (1)-(3) display the baseline effects, while columns (4)-(7) show the country-specific heterogeneity. The results are consistent with the main findings. Chinese aid impacts the volume of Western aid overall, as well as US aid and French aid.

Another potential concern is that the regression analysis may inadvertently capture the path dependency of aid projects. Commitments to aid projects in a specific region often follow one another, as projects are extended or relationships with the local or state governments are established (Faust & Ziaja, 2012). If a Chinese project were initiated in such a region, the effect could be falsely attributed due to the extension of an existing

project. To address this, in Table A8, I regress a dummy variable for the first Western project in a given region on a dummy variable for the first Chinese project in the same region. This approach eliminates concerns regarding path dependency. I include up to five lags, as it might take some time for countries to react to the very first project. The results again confirm the previous findings, with positive and significant effects for the USA, Germany, and France.

Since my specification is similar to the classical two-way fixed effects with staggered treatment, I also test for negative weights. Based on de Chaisemartin and D'Haultfœuille (2020), I estimate the share of negative weights. For all specifications, I find zero negative weights. This may be explained by the fact that the treatments usually last for only one or a few periods before reversing.

To demonstrate the absence of reversed causality, I regress Chinese aid on Western aid. The results are shown in Table A9. Columns (1) to (3) correspond to the reversed baseline estimates shown in Table 1. In column (4), Western aid is measured by volume instead of a dummy variable, and in column (5), Chinese aid is coded as a dummy rather than by volume. Finally, column (6) disaggregates the Western aid variable and presents the coefficients for the four donors separately. In all specifications, I do not find any significant effect of Western aid on Chinese aid.

5 Conclusion

Geopolitics has returned to the core of development policy. Donor countries have long claimed that foreign aid is driven by recipient countries' needs and global development goals, such as the fight against hunger and poverty. Recently, it has become increasingly acknowledged that strategic and geopolitical interests, such as access to the national and local government and resources, shape aid allocation decisions as well. At the same time, competition for global influence between traditional Western powers and China has intensified, particularly in the Global South.

This article examines the extent to which such geopolitical considerations, specifically strategic competition with China, affect the allocation of Western development aid. Fol-

lowing recent literature, I conceptualize geopolitical competition as a reaction by Western donors to the presence of Chinese aid projects in the same subnational region in the following years. A reaction is defined as an increase in the volume of Western aid in response to a Chinese aid project. In this context, Western aid refers to a composite measure comprising aid flows from the US, Germany, France, and the UK. These countries have been among the largest donor countries throughout the sample period.

To empirically assess whether Western donors respond strategically to Chinese aid, I draw on newly geocoded, project-level data covering 157 recipient countries from 2000 to 2020. I estimate the effect of Chinese project initiation on the volume of Western aid allocation at the first administrative level (ADM1). This subnational approach enables a more granular analysis of aid siting and allows for the identification of localized strategic competition.

The results show that Chinese aid does influence Western donor behavior, though not homogeneously. Western reactions are most evident in Sub-Saharan Africa, while resource endowments do not appear to be a major driver of donor competition. Among Western donors, the United States and Germany exhibit the most consistent patterns of strategic response, particularly in Sub-Saharan Africa. In contrast, the UK and France show a more limited or region-specific responsiveness.

These findings offer new evidence that aid has also in the past been used as a geopolitical tool, with some Western donors strategically responding to Chinese aid projects. The heterogeneity across donors, sectors, and regions also highlights that geopolitical competition through aid is not monolithic, but varies depending on national interests.

The empirical framework addresses endogeneity concerns by introducing country-year fixed effects, region-specific fixed effects, a broad set of control variables, and lagged treatment variables. These measures help mitigate bias from unobserved confounders and reduce the risk of reverse causality. However, causal interpretation should still be made with caution. Unobserved factors and potential misreporting in donor-provided CRS data remain limitations. Nevertheless, the consistency of the findings across several specifications and sub-samples provides credible evidence of strategic donor behavior at the subnational level.

This study contributes to a growing body of literature that reconsiders the role of development aid in international relations. It highlights the need to move beyond the aggregate country level and examine aid flows where geopolitical strategies often unfold, in specific regions, sectors, and resource-rich regions. Future research may further investigate how recipient governments respond to this competition and whether such strategic engagement ultimately benefits or undermines long-term development outcomes.

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6 Appendix

Table A1: Robustness - 2SLS estimation of Chinese Aid

	(1) West	(2) USA	(3) GER	(4) FRA	(5) UK
Panel A: 2SLS Estimates					
Chinese Aid (t-2)	0.0540	0.2898***	0.4832***	0.0070	0.1914**
	(0.1228)	(0.0996)	(0.1314)	(0.0795)	(0.0906)
Panel B: First-stage Estimates					
$F_{t-3} * p_{ic}$	2.913***	2.909***	2.894***	2.900***	2.899***
	(0.559)	(0.556)	(0.559)	(0.557)	(0.557)
Controls	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes
First-stage F-Stat	27.18	27.40	26.82	27.08	27.08
Number of observations	49,608	49,608	49,608	49,608	49,606
Number of countries	157	157	157	157	157

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either Western, US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A2: Robustness - 2SLS estimation of Chinese Aid in different sectors

	(1) Econ. Infrastructure	(2) Production	(3) Soc. Infrastructure
Dependent variable: Western Aid			
Chinese Aid (t-2)	0.2073**	0.0682	0.2881**
	(0.0998)	(0.0888)	(0.1163)
First-stage F-Stat	27.18	27.18	27.18
Dependent variable: US Aid			
Chinese Aid (t-2)	0.2026***	0.1169	0.3279***
	(0.0768)	(0.0718)	(0.1181)
First-stage F-Stat	27.30	27.30	27.30
Dependent variable: German Aid			
Chinese Aid (t-2)	0.0816	0.1137	0.4264***
	(0.0677)	(0.0852)	(0.1067)
First-stage F-Stat	27.25	27.25	27.25
Dependent variable: French Aid			
Chinese Aid (t-2)	-0.0404	-0.0467	-0.0855
	(0.0551)	(0.0309)	(0.0821)
First-stage F-Stat	27.11	27.11	27.11
Dependent variable: UK Aid			
Chinese Aid (t-2)	-0.0057	-0.1095**	0.2601***
	(0.0343)	(0.0496)	(0.0692)
First-stage F-Stat	27.16	27.16	27.16
Controls	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Number of observations	49,608	49,608	49,608
Number of countries	157	157	157

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either Western, US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A3: Robustness - 2SLS estimation of Chinese aid in different regions

	(1) Central America	(2) South America	(3) Sub-Saharan Africa	(4) Europe	(5) Middle East North Africa	(6) Western Asia	(7) Eastern Asia	(8) Oceania
Panel A: 2SLS								
Chinese Aid (t-2)	2.6572	0.0248	-0.1122	-4.7328	-0.3434	-1.3709	0.9753*	0.1745
	(4.0849)	(0.1711)	(0.1242)	(22.1965)	(0.7825)	(3.1591)	(0.5110)	(0.3356)
Panel B: First-stage								
$F_{t-3} * p_{ic}$	2.128	4.865**	4.222***	0.468	-2.492*	0.900	2.525***	2.568**
	(3.909)	(1.898)	(0.761)	(2.091)	(1.480)	(1.883)	(0.973)	(1.158)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First-stage F-Stat	0.296	6.571	30.80	0.0502	2.836	0.228	6.734	4.924
Number of observations	5,256	4,320	12,564	9,990	4,320	3,978	6,858	1638
Number of countries	22	12	49	22	13	14	12	10

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A4: Robustness - 2SLS estimation of Chinese aid in Sub-Saharan Africa

	(1) USA	(2) GER	(3) FRA	(4) UK
Panel A: 2SLS Estimates				
Chinese Aid (t-2)	0.3755***	0.2731***	-0.0231	-0.0641
	(0.0922)	(0.0881)	(0.1079)	(0.0839)
Panel B: First-stage Estimates				
$F_{t-3} * p_{ic}$	4.174***	4.145***	4.158***	4.132***
	(0.762)	(0.767)	(0.754)	(0.760)
Controls	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes
First-stage F-Stat	30.03	29.22	30.38	29.56
Number of observations	12,564	12,564	12,564	12,562
Number of countries	49	49	49	49

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either Western, US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A5: Robustness - 2SLS estimation of Chinese Aid in resource-rich regions

	(1) Critical Raw Materials	(2) Strategic Raw Materials	(3) Rare Earths
Dependent variable: Western Aid			
Chinese Aid (t-2)	-0.0027	0.0339	0.0494
	(0.1320)	(0.1282)	(0.1266)
Chinese Aid (t-2) * Resource Dummy	0.1362	0.0579	0.0604
	(0.1213)	(0.1247)	(0.3112)
First-stage F-Stat	12.38	12.12	13.24
Dependent variable: US Aid			
Chinese Aid (t-2)	0.2569**	0.2576***	0.2902***
	(0.1015)	(0.0977)	(0.0978)
Chinese Aid (t-2) * Resource Dummy	0.0683	0.0797	-0.0678
	(0.1235)	(0.1366)	(0.2787)
First-stage F-Stat	12.39	12.13	13.27
Dependent variable: German Aid			
Chinese Aid (t-2)	0.4147***	0.4495***	0.4883***
	(0.1296)	(0.1279)	(0.1320)
Chinese Aid (t-2) * Resource Dummy	0.1329	0.0591	-0.2426
	(0.1512)	(0.1623)	(0.2522)
First-stage F-Stat	12.40	12.13	13.26
Dependent variable: French Aid			
Chinese Aid (t-2)	-0.0189	-0.0029	-0.0033
	(0.0801)	(0.0801)	(0.0840)
Chinese Aid (t-2) * Resource Dummy	0.0481	0.0113	0.0572
	(0.0842)	(0.0961)	(0.0925)
First-stage F-Stat	12.31	12.04	13.19
Dependent variable: UK Aid			
Chinese Aid (t-2)	0.1380	0.1320	0.1532*
	(0.0921)	(0.0897)	(0.0915)
Chinese Aid (t-2) * Resource Dummy	0.1226	0.1640	0.4711**
	(0.1087)	(0.1183)	(0.1862)
First-stage F-Stat	12.32	12.07	13.23
Controls	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Number of observations	49,608	49,608	49,608
Number of countries	157	157	157

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either Western, US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A6: Robustness - Dummy variable

	(1) West	(2) West	(3) West	(4) USA	(5) GER	(6) FRA	(7) UK
Chinese Aid (t+1)			-0.0075				
			(0.0078)				
Chinese Aid (t)		0.0066	0.0066				
		(0.0083)	(0.0086)				
Chinese Aid (t-1)	0.0006	-0.0034	-0.0032				
	(0.0077)	(0.0079)	(0.0083)				
Chinese Aid (t-2)		0.0086	0.0095	0.0163**	0.0061	0.0202***	0.0067
		(0.0081)	(0.0088)	(0.0079)	(0.0071)	(0.0071)	(0.0053)
Chinese Aid (t-3)		0.0011	0.0015				
		(0.0084)	(0.0089)				
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	55,120	49,608	46,852	52,364	52,364	52,364	52,364
Number of countries	157	157	157	157	157	157	157
Adj. R-squared	0.521	0.530	0.526	0.469	0.430	0.405	0.360

Notes: The dependent variable is a dummy indicating the commitment of Western aid (plus 1) to region i of country c at time t, and represents either Western, US, German, French, or UK aid. Chinese aid is a dummy indicating the commitment of a project to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A7: Robustness - Volume of Chinese aid

	(1) West	(2) West	(3) West	(4) USA	(5) GER	(6) FRA	(7) UK
Chinese Aid (t+1)			-0.0001				
			(0.0062)				
Chinese Aid (t)		0.0105*	0.0107*				
		(0.0063)	(0.0063)				
Chinese Aid (t-1)	0.0034	0.0005	0.0003				
	(0.0059)	(0.0062)	(0.0066)				
Chinese Aid (t-2)		0.0110*	0.0116*	0.0128**	0.0062	0.0191***	0.0035
		(0.0062)	(0.0067)	(0.0057)	(0.0053)	(0.0060)	(0.0038)
Chinese Aid (t-3)		0.0056	0.0056				
		(0.0066)	(0.0070)				
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	55,120	49,608	46,852	52,364	52,364	52,364	52,362
Number of countries	157	157	157	157	157	157	157
Adj. R-squared	0.576	0.587	0.582	0.517	0.453	0.416	0.407

Notes: The dependent variable is the logarithm of Western aid (plus 1) given to region i of country c at time t, and represents either US, German, French, or UK aid. Chinese aid is the logarithm of Chinese aid (plus 1) given to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A8: Robustness - Initial Projects Only

	(1) USA	(2) GER	(3) FRA	(4) UK
Chinese Aid (t-1)	0.0165**	0.0037	0.0045	0.0058
	(0.0075)	(0.0064)	(0.0056)	(0.0052)
Chinese Aid (t-2)	-0.0018	-0.0025	-0.0012	0.0055
	(0.0082)	(0.0065)	(0.0055)	(0.0044)
Chinese Aid (t-3)	-0.0065	0.0093	-0.0015	-0.0009
	(0.0063)	(0.0059)	(0.0057)	(0.0043)
Chinese Aid (t-4)	-0.0030	0.0107*	0.0058	0.0037
	(0.0062)	(0.0064)	(0.0055)	(0.0041)
Chinese Aid (t-5)	-0.0008	-0.0031	0.0125*	-0.0014
	(0.0060)	(0.0058)	(0.0064)	(0.0041)
Controls	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes
Number of observations	44,096	44,096	44,096	44,096
Number of countries	157	157	157	157
Adj. R-squared	0.0453	0.00556	0.0357	0.0679

Notes: The dependent variable is a dummy, indicating the first commitment of a Western country to region i of country c at time t, and represents either US, German, French, or UK aid. Chinese aid is a dummy indicating the first commitment to region i of country c at time t. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.

Table A9: Chinese and Western Aid (2000-2020)

	(1) Baseline	(2) Timing	(3) Placebo	(4) Volume	(5) Dummy	(6) Heterogeneity
Western Aid (t+1)			-0.0224			
			(0.0669)			
Western Aid (t)		0.0648	0.0649			
		(0.0675)	(0.0689)			
Western Aid (t-1)	-0.0451	-0.0486	-0.0366	-0.0021	-0.0047	
	(0.0611)	(0.0634)	(0.0671)	(0.0047)	(0.0036)	
Western Aid (t-2)		-0.0435	-0.0476	-0.0010	-0.0016	
		(0.0614)	(0.0633)	(0.0047)	(0.0037)	
Western Aid (t-3)		-0.0249	-0.0201			
		(0.0825)	(0.0838)			
US Aid (t-1)						-0.0075
						(0.0831)
US Aid (t-2)						0.0850
						(0.0748)
German Aid (t-1)						0.1329
						(0.0836)
German Aid (t-2)						-0.0183
						(0.0699)
French Aid (t-1)						0.0304
						(0.1620)
French Aid (t-2)						-0.1128
						(0.1440)
UK Aid (t-1)						0.0746
						(0.1269)
UK Aid (t-1)						-0.0164
						(0.1233)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
ADM1 FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	55,120	49,608	46,852	52,364	52,364	52,364
Number of countries	157	157	157	157	157	157
Adj. R-squared	0.348	0.354	0.355	0.350	0.343	0.350

Notes: The dependent variable is the logarithm of Chinese aid (plus 1) given to region i of country c at time t. Western, US, German, French, and UK aid are dummies indicating the commitment of a project to region i of country c at time t. In column (4), Western aid is coded as volume. In column (5), Chinese aid is a dummy variable. Standard errors are clustered at the country level and reported in parentheses. *, ** and *** denote significance at the 10%-, 5%-, and 1%-level.