

# CHINA'S FOREIGN AID: POLITICAL DETERMINANTS AND ECONOMIC EFFECTS\*

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**ABSTRACT:** This study jointly examines causal determinants and effects of Chinese foreign aid. Using novel micro data, I first document that the Chinese state's paramount goal of domestic political stability significantly influences its aid allocation decisions. In response to labor unrest in China, infrastructure aid contracts are allocated to state-owned firms in the affected areas, resulting in increased employment. Domestic unrest also affects the allocation of Chinese aid to recipient countries through connections with these firms. Finally, I exploit this granular variation to develop a novel instrument for identifying the causal effects of Chinese aid on recipients. Results show large positive short-term but small long-term effects on GDP, consumption and employment. The findings highlight the importance of domestic political considerations in shaping aid allocation and the spillover effects on recipients.

**Keywords:** foreign aid, political stability, unrest, China

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## 1. Introduction

Governments have provided over 3.5 trillion USD in foreign aid to developing countries since 1960, yet the goals and benefits of aid remain highly debated ([Easterly, 2003](#); [Sachs, 2006](#); [Qian, 2015](#)). One set of influential cross-country studies suggests that the U.S. and other OECD donors allocate foreign aid based on political goals (e.g., [Alesina and Dollar, 2000](#); [Kuziemko and Werker, 2006](#)). A second set of studies finds strong negative effects of such aid on recipients (e.g., [Crost, Felter and Johnston, 2014](#); [Nunn and Qian, 2014](#)). Since political goals may affect aid allocation and efficacy, it is essential to examine donors' interests and consequences for recipients together. Amidst this debate, China has recently emerged as the largest and arguably most controversial bilateral donor.<sup>1</sup> Much of the controversy arises from a lack of understanding of the political processes and motives behind China's aid. Since selfless aid is politically unrealistic, many suspect ulterior motives that may not align with recipients' interests. The broad involvement of Chinese state-owned enterprises (SOEs) fuels suspicions that aid is being wielded as a political tool. Many worry that Chinese infrastructure aid, which brings goods and labor from China, crowds out local jobs and businesses in recipient countries ([Naim, 2007](#)). In contrast, others argue that Chinese aid mainly benefits recipients by providing essential infrastructure ([Moyo, 2011](#)). There is currently little empirical evidence on both determinants of China's aid and consequences for the donor and recipients.

This paper addresses this research gap by presenting novel and rigorous empirical evidence on both determinants and effects of Chinese aid. It addresses two empirical challenges. The first is the lack of official data on Chinese aid and the lack of transparency about the political process behind its allocation. The second is causal identification of determinants of aid and effects on recipients. Donors may allocate aid based on recipient outcomes, such as income levels or future growth potential, which would result in reverse causality. Additionally, unobserved factors such as the recipient's institutional quality could jointly

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<sup>1</sup>The term aid includes grants and loans by Chinese government entities to government entities of low- and middle-income countries. This includes both official development assistance (ODA) and other official finance (OOF). The main findings in the paper hold when restricting the sample to ODA-like finance. See also Section 2 and Online Appendix A.1.

determine aid and outcomes. Understanding the motives and processes behind aid allocation is not only important by itself but also essential for developing credible and transparent identification strategies.

To address these challenges, I first construct a novel dataset at the aid-project and contractor level. I leverage the data's granularity to document drivers and consequences of China's aid allocation process both domestically and abroad. I then use the resulting variation to identify the causal economic effects of Chinese aid on recipients in both the short and long term.

The firm panel dataset includes the quasi-universe of potential Chinese aid contractors at the subsidiary level in 2005–2015 according to previously unused administrative records. To the best of my knowledge, this is the first comprehensive firm-level dataset that allows for systematically studying the Chinese aid allocation process at a micro level. It links 1,265 firms to unofficial data on hundreds of Chinese aid projects from multiple sources as well as administrative data from China, including firm-level customs and tax records. The aid projects contracted by Chinese firms constitute the vast majority of Chinese aid in terms of financial value and are primarily in the form of infrastructure.<sup>2</sup>

I identify an important driver of Chinese aid using this dataset. Domestic political stability is the paramount policy goal of the Chinese state ([Shirk, 2008](#); [Wen, 2023](#)). Qualitative evidence suggests that a key goal of China's foreign aid is to help secure stable employment for Chinese workers by generating acyclical demand for Chinese goods and labor, which the state sees as crucial for maintaining social stability ([State Council, 2021](#)).<sup>3</sup> Consistent with this motive, China typically provides aid in the form of loans to recipient countries that pay Chinese firms to deliver goods and services ([Brautigam and Hwang, 2020](#)).

To investigate whether the Chinese government uses foreign aid projects to help secure social stability in China,<sup>4</sup> I regress the number and financial value

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<sup>2</sup>Other aid does not involve contractors (e.g., stipends) or is supplied by foreign firms.

<sup>3</sup>China likely also pursues other economic and foreign policy goals with its foreign aid. These other goals are complementary to the motive I study. See Section 2 for discussion.

<sup>4</sup>The Chinese government also uses other, and perhaps more direct measures to secure social stability, such as repression and domestic infrastructure investment to stimulate the economy. Foreign aid allocation may substitute or complement such other measures. See Section 2 for discussion and Section 3 for corresponding empirical evidence.

of aid contracts allocated to a Chinese contractor in a year on the intensity of labor unrest in the contractor's home prefecture, controlling for firm and year fixed effects.<sup>5</sup> I use a sample of firms that are under the control of the Chinese central government. The central government allegedly uses these firms to implement national policy goals, including securing social stability through job provision (Bai, Lu and Tao, 2006; Wen, 2023). It is easier for the state to manipulate employment for these firms than others.

An additional labor unrest event per million inhabitants in a Chinese prefecture is associated with 0.08 additional aid contracts allocated to each central state-owned firm in the prefecture and an increase in the number of workers employed by these firms by 2.7% in the following year. The cumulative effect is sizeable. A one standard deviation increase in unrest intensity in Beijing on average leads to the additional allocation of 5.1 aid contracts with a total value of 1.5 billion USD to firms in the prefecture, as much as around 35% of Beijing's yearly public security spending (CEIC, 2021).

Additional evidence is consistent with the Chinese state using foreign aid as a policy tool to help address domestic unrest. First, I conduct a systematic text analysis of aid contractors' annual reports. It reveals that central state-owned firms, but not other aid contractors internalize the state's goal of moderating unrest. Second, I document that the effect of local unrest on aid contracts is more pronounced in prefectures where the local government is constrained in its ability to increase public spending, helping to explain why the state uses foreign aid to address unrest in addition to domestic stimulus programs. These results shed light on the political-economic process behind China's aid allocation and on active policy debates about the drivers and benefits of aid from China's perspective (Sun, 2015; Tan, Steinberg and McDowell, 2022).

I address several potential concerns regarding the interpretation of these results. A placebo exercise shows that unrest has no effect on contract allocation in the previous year and that the results are robust to accounting for multiple leads and lags of unrest, mitigating the concerns of spurious trends and reverse causality. The results are robust to excluding unrest taking place in state-owned

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<sup>5</sup>A prefecture is roughly equivalent to a city. Note that the firm fixed effects absorb prefecture fixed effects since I observe firms at the subsidiary level.

enterprises. Moreover, the results are robust to controlling for third covariates of unrest that could explain the increases in aid contracts and employment in central state-owned firms, such as firm-specific or local economic shocks and provincial government policies. Finally, a placebo exercise addresses the possible concern that aid contracts are explained by unobservable economic shocks.

Having shown that the Chinese government's objective of securing domestic stability influences its internal aid project allocation, I next explore the causal economic impact of such aid on recipient countries. For this analysis, I use a panel of 144 low- and middle-income countries. To address the main empirical challenges of reverse causality and joint determination, I predict the amount of Chinese aid received by a country in a given year using a novel instrument.

The instrument for the amount of aid received by a country in a given year is the sum, across all Chinese prefectures, of lagged local unrest shocks in a prefecture interacted with the cross-sectional probability that the country receives aid projects contracted by central state-owned firms in that prefecture. Local unrest shocks are calculated as unrest intensity in a prefecture relative to mean unrest intensity across prefecture in a given year. The IV baseline specification controls for recipient country and region-specific year fixed effects as well as recipient country population and lagged outcome.

The instrument leverages two sources of variation. First, it exploits the finding that local unrest shocks in Chinese prefectures predict the allocation of aid contracts to central state-owned firms based in those prefectures. Second, it relies on the fact that different aid-recipient countries tend to receive aid projects to different degrees and by different sets of Chinese firms. The intuition for the IV first stage is as follows. When there is unrest in a Chinese prefecture, more aid contracts are allocated to central state-owned firms in that prefecture. This aid is then more likely to be directed to countries that have connections with firms in these prefectures. Spatial and time variation in the distribution of local unrest across prefectures, together with the connections between countries and prefectures, predicts the amount of aid received by a country in a given year.

Causal identification of the IV estimates assumes that the instrument affects outcomes of the recipient countries only through the provision of Chinese aid, conditional on the baseline controls. Identification comes from the assumption

that shocks to local unrest in Chinese prefectures, relative to overall unrest, are conditionally orthogonal to shocks to future outcomes of other countries (Borusyak and Hull, 2020).<sup>6</sup> The cross-sectional variation in the connections between countries and Chinese prefectures could be correlated with those countries' outcomes and the amount of aid received. However, the country fixed effects control for the cross-sectional sources of this variation, and the connections need not be exogenous for the instrument to be valid. The demeaning of local unrest addresses confounders that could be correlated with aid and aggregate variation that differentially affects more frequent aid recipients. Several robustness and falsification tests support the exclusion restriction.

The IV first stage shows that China's response to domestic unrest strongly influences the allocation of its foreign aid to recipients. A one standard deviation increase in the instrument cumulatively implies a reallocation of 32% of yearly Chinese aid on average. The strength of the first stage is not only important for IV estimation, but also provides insight into the direct impact of China's domestic politics on other countries through aid. The first stage is driven by large-scale transportation and energy infrastructure projects.

The 2SLS estimates show that an additional aid project on average increases GDP per capita by 118 USD (2.5% of the sample mean) and GDP growth by 0.9 percentage points three years after commitment.<sup>7</sup> The estimates imply that the economic returns to China's aid exceed its cost. The estimates also show positive effects on government consumption, capital formation and trade.

To be sure, the increases in GDP may not translate into economic benefits for the recipient country population. One may be concerned that the returns are captured by political elites (Werker, Ahmed and Cohen, 2009; Andersen, Johannessen and Rijkers, 2022) or that Chinese firms crowd out local labor, especially since the aid is driven by the interests of the Chinese government and without policy conditions attached (Burnside and Dollar, 2000; Svensson, 2000). In contrast, I find that an additional infrastructure aid project increases

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<sup>6</sup>The interaction of endogenous and exogenous variables is exogenous, controlling for the uninteracted endogenous variables. Hence, the IV is exogenous if the unrest shocks are conditionally exogenous (following Borusyak and Hull, 2020).

<sup>7</sup>The average time for completion of a Chinese aid project is 2.4 years in the data (85% are completed in < 3 years). I show results for other leads and lags in the paper.

household consumption by 72 USD per capita (2.5% of the mean) and decreases the local unemployment rate by 0.43 percentage points on average.

The results are robust to controlling for potential confounders that could be correlated with the instrument and outcomes through channels other than aid, such as local trade shocks. I also conduct a number of falsification tests. Reassuringly, the instrument does not predict unrelated exports, FDI, aid by OECD donors or lagged outcomes. Finally, I address concerns related to statistical inference ([Adão, Kolesár and Morales, 2019](#); [Borusyak and Hull, 2020](#)).

The results show that a significant fraction of China's aid is driven by the state's need to maintain domestic stability, highlighting the importance of domestic political considerations in shaping aid allocation. Yet, Chinese aid on average has large short-term benefits for both governments and households. These findings challenge the view held by policymakers and several studies that foreign aid allocated according to political needs of the donor and without policy conditions is mainly deleterious to recipients. This is important for policymakers since selfless aid is politically unrealistic. However, I find small and statistically insignificant growth effects on GDP and household consumption six years after aid commitment, raising questions about the sustainability of such aid.

This paper contributes to the large literature on foreign aid, which has mostly focused on the U.S. and other OECD donors (see the reviews by [Easterly, 2003](#); [Qian, 2015](#)). Earlier studies documented that foreign aid was allocated according to the strategic needs of the donor government rather than the economic needs of the recipients ([Alesina and Dollar, 2000](#); [Kuziemko and Werker, 2006](#)). More recent studies have shown that such aid has strong negative effects for recipient countries ([Crost, Felter and Johnston, 2014](#); [Nunn and Qian, 2014](#)). A growing set of recent work studies determinants and impacts of Chinese aid largely separately.<sup>8</sup> My paper provides systematic causal evidence for an

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<sup>8</sup>[Bluhm et al. \(2018\)](#); [Martorano, Metzger and Sanfilippo \(2020\)](#); [Dreher et al. \(2021a\)](#); [Guo and Jiang \(2021\)](#) focus on economic impacts of Chinese aid on recipients; [Isaksson and Kotsadam \(2018\)](#); [Eichenauer, Fuchs and Brückner \(2021\)](#); [Wellner et al. \(2022\)](#); [Gehring, Kaplan and Wong \(2022\)](#); [Baehr, BenYishay and Parks \(2022\)](#) study impacts of Chinese aid on corruption, China's image, the stability of African states, and deforestation in Cambodia; [Dreher et al. \(2019, 2021b\)](#); [Isaksson \(2020\)](#) study the role of ethnic identity in Chinese aid to Africa; and [Dreher et al. \(2018\)](#) examine aggregate determinants of Chinese aid to Africa.

important political-economic determinant of Chinese bilateral aid and how the resulting variation affects recipients in one framework. Moreover, my study is the first to link the domestic political economy of China to its aid allocation by providing causal firm-level evidence. The finding that Chinese aid has a positive short-term impact on recipients corroborates a recent cross-country study by Dreher et al. (2021a), which instruments Chinese aid with the interaction of a country's probability of receiving any aid and changes in China's annual construction materials production or foreign exchange reserves. My paper uses granular firm data to examine the mechanisms of Chinese aid allocation in the first stage, which also increases the credibility of the instrument for examining the impact of aid on recipients in the second stage.<sup>9</sup>

This paper more generally contributes to research on how governments use economic policy to address political needs. A vast literature in economics speaks to governments' responses to domestic instability, including monetary policy (e.g., Blanchard and Galí, 2010), fiscal policy (e.g., Michaillat and Saez, 2019), trade policy (e.g., Melitz and Redding, 2014) and lending to other countries (Horn, Reinhart and Trebesch, 2020).<sup>10</sup> Recent studies find that government employment policies contribute to social stability by moderating domestic political conflict (Blattman and Annan, 2016; Fetzer, 2019; Wen, 2023). This paper shows that foreign aid constitutes a further tool for governments to secure domestic social stability, and that this motive affects aid allocation. Finally, this paper contributes to the recent literature on the political economy of civil participation in China (e.g., Cantoni et al., 2019; Bursztyn et al., 2021; Buntaine et al., 2022; Tan, Steinberg and McDowell, 2022; Campante, Chor and Li, 2023).

The paper proceeds as follows. Section 2 provides background on Chinese foreign aid and its allocation process. Section 3 introduces the micro data and shows how China uses foreign aid projects to help address domestic unrest.

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<sup>9</sup>For example, interpreting Dreher et al. (2021a)'s estimates as causal requires the strong assumption that foreign exchange reserves only affect regular aid recipients of China through foreign aid, and not through other trade channels (which are presumably affected by foreign exchange rates). See Section 4 for more discussion.

<sup>10</sup>For China specifically, several recent studies show that the Chinese government responds to domestic economic and social instability by increasing domestic infrastructure investment and credit (e.g., Cong et al., 2019), public employment and welfare payments (Wen, 2023), and fiscal transfers and public security spending (Campante, Chor and Li, 2023).

Section 4 examines how the Chinese government’s political need to address domestic unrest influences its foreign aid allocation to other countries and quantifies the impact of Chinese aid on recipients. Section 5 concludes.

## 2. Background

### 2.1. *Characteristics and Controversy of Chinese Foreign Aid*

China has provided record amounts of development finance to low- and middle-income countries over the last two decades.<sup>11</sup> With 843 billion USD spent across 165 countries between 2000 and 2021, China’s yearly spending has started exceeding the United States’ foreign aid ([AidData, 2021](#)). In addition, there were over 400,000 Chinese overseas workers in low- and middle-income countries by the end of 2015 according to the Chinese National Bureau of Statistics. China has further intensified its financial engagement in developing countries with the Belt and Road Initiative launched in 2013.

The majority of Chinese foreign aid in terms of financial value is in the form of bilateral loans for large-scale infrastructure projects such as ports, pipelines, and roads.<sup>12</sup> In contrast to Western foreign aid (which also includes loans), Chinese aid famously does not attach policy conditions ([State Council, 2011](#)). However, it typically requires that at least 50%, usually more, of goods and labor used in the projects are supplied by Chinese firms ([Gelpern et al., 2021](#)).

The scope and characteristics of China’s aid have attracted much controversy and speculation about its goals and benefits. China is generally thought to embody many negative features of major donors that undermine foreign aid efficacy. China regularly provides aid to countries with poor institutions, such as Angola and Sudan. Its bilateral nature and lack of policy conditions have raised

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<sup>11</sup>Chinese development finance, meaning all bilateral official finance by Chinese government entities to government entities of low- and middle-income countries, can be categorized as Official Development Assistance (ODA) and Other Official Finance (OOF). I use the term “foreign aid” to include both in this paper. The main findings in the paper hold when restricting the sample to aid that meets the OECD criteria for foreign aid (ODA). See Online Appendix A.1 for more discussion.

<sup>12</sup>There are several Chinese government entities that extend aid to other countries. Online Appendix A.2 gives an overview on the most important entities and provides further details.

concerns about Chinese aid being captured by elites and undermining Western donors' efforts. Many worry that China's use of own goods and labor may crowd out local firms and labor in recipient countries. Chinese loans are also said to lead to unsustainable debt levels that may hamper economic development by curtailing public funds, deterring foreign investment or leading to foreign exchange shortages ([Dreher et al., 2021a](#)).

On the other hand, countries with poor institutions may have the most urgent need for aid since they are underdeveloped and have difficulty financing themselves on international markets. Developing countries have trillions of dollars in unmet demand for infrastructure ([G20, 2021](#)). Supporters argue that Chinese aid relieves critical financing bottlenecks for infrastructure that is crucial for economic development (e.g., [Moyo, 2011](#)). Chinese SOEs have the scale and expertise to build large-scale infrastructure, and a large supply of workers at low cost compared to contractors from developed countries, which makes them very competitive ([Huang and Chen, 2016](#)).

Much of the debate arises from a lack of understanding of the political processes and motives behind China's aid. Selfless aid is politically unrealistic for any donor. Chinese netizens have openly criticized the state for providing aid to other countries in light of millions of China's own citizens living in poverty. The Chinese state has therefore to its own citizens emphasized the political and economic benefits of its aid for China, such as promoting Chinese exports by helping recipient countries develop economically ([Sun, 2015](#)). Foreign critics have argued that Chinese aid is mostly intended to serve the needs of the Chinese government rather than to alleviate poverty or build capacity in recipient countries (e.g., [Naim, 2007](#)). Moreover, the broad involvement of Chinese SOEs fuels suspicions that aid is being wielded as a political tool.

Since the potential benefits of China's aid for recipients are intertwined with its domestic goals, it is important to examine them jointly. However, given the secrecy surrounding China's aid, there is currently little empirical evidence on the actual domestic goals behind China's aid and their consequences for both recipients and China itself. In what follows, I argue that domestic political stability is an important driver of China's aid allocation, both internally and to other countries. I then provide empirical support for this hypothesis.

## ***2.2. Domestic Stability and Chinese Foreign Aid***

Political stability is the overarching domestic policy goal of the Chinese government (Shirk, 2008; State Council, 2021). Labor unrest, which is common across China, signals potential threats to social and political stability (see Online Appendix A.3 for background and a review of causes of labor unrest in China).

Qualitative and recent empirical evidence shows that the Chinese state uses public employment as an important tool to help address domestic unrest.<sup>13</sup> Public employment as a pacification policy has several advantages over other tools at the disposal of the government, including direct transfers, censorship, and repression (for an excellent discussion, see Wen, 2023).<sup>14</sup>

However, domestic public employment may be an inefficient tool to address unrest, especially since demand is typically low during times of unrest. Infrastructure foreign aid projects offer a potential solution. First, aid projects can generate counter- or acyclical demand for Chinese goods, thereby creating jobs in Chinese factories and allowing for sending Chinese workers overseas. Second, providing foreign aid to other countries likely benefits China in other ways (e.g., by promoting trade and political alliances (Dreher et al., 2018)), and is typically repayable by recipients. Hence, from the Chinese government's perspective, the net return to providing foreign aid may equal or even exceed the long-term net return to domestic, perhaps more direct measures aimed at securing domestic stability. Allocating foreign aid projects may thus be a viable tool to complement other measures aimed at securing domestic stability.<sup>15</sup>

Qualitative evidence supports the idea that domestic political stability is an important goal behind China's aid. For example, Copper (2016) comments on the Chinese government's reaction to the 2008/2009 financial crisis:

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<sup>13</sup>Wen (2023) shows that Chinese SOEs increase employment in response to ethnic unrest.

<sup>14</sup>By providing a wage income, workers' opportunity cost of protesting increases, decreasing protest participation (Becker, 1968). Direct transfers may be susceptible to fraud, seen as unfair, and create moral hazard. Domestic infrastructure investment to stimulate employment may lead to high government debt levels and decreasing returns, especially given China's vast domestic spending in reaction to the 2008/2009 financial crisis (Cong et al., 2019). Violent repression of unrest increases the risk of uprising (Acemoglu, Ticchi and Vindigni, 2010).

<sup>15</sup>Conceptually, it makes sense for the Chinese government to employ different measures to address unrest at the same time until their marginal returns are equalized.

*The unemployment rate went up and China experienced greater economic and social instability. Cutting wages helped China adjust, but it also caused further worker unrest. [...] The government approved more infrastructure projects (roads, railroads, etc.) but that still wasn't enough. One remedy was giving still more foreign assistance in the form of aid.*

The Chinese aid allocation process is consistent with this motive. The Ministry of Commerce (MOFCOM), rather than the Ministry of Foreign Affairs, manages China's aid program. MOFCOM's mandate includes formulating policy to foster domestic economic growth and employment stability (Zhang and Smith, 2017). It reports to the State Council, the highest organ of the Chinese central government, which provides the general aid strategy. Chinese government entities do not disburse loans and other aid directly to recipient countries, but instead pay the (usually Chinese) contractors to deliver goods and services to the recipient countries. The government contractually ensures that the majority of goods and labor are sourced from China, as financing agreements between the Chinese and recipient governments show (Gelpern et al., 2021).

The Chinese central state-owned firms play a dual role: they are profit-oriented but are also designated to help the government implement its policy goals. They should thus help secure social and political stability in China by providing employment during times of unrest, not the least through promoting foreign aid projects. In Subsection 3.4, I use systematic text analysis to demonstrate that these firms indeed internalize this policy goal.

Qualitative evidence based on interviews suggests that the state-owned foreign aid contractors play a substantial role in the allocation of aid projects. MOFCOM's Department of Foreign Aid often relies on the subsidiaries of Chinese firms in recipient countries to select projects (Zhang and Smith, 2017). Central state-owned firms have become highly influential in developing countries since China's launch of the "Go Out" policy in the early 2000s, building expertise and relationships in countries in which they regularly implement aid projects. Their relationships allow Chinese firms to create and shape aid projects in recipient countries they typically operate in (Zhang and Smith, 2017). Hence, when firms see the need to contract aid projects, they can direct public funds to projects in countries they typically work with. This process allows the

Chinese state to allocate aid projects, through the firms under its direct control, relatively fast and unbureaucratic in response to its needs (Brautigam and Hwang, 2020). Figure A.2 in the Online Appendix summarizes this process.

### 3. Unrest and Aid Contract Allocation to Chinese Firms

In this section, I test the hypothesis that the Chinese state uses foreign aid it provides to other countries to help address local unrest in China. In Section 4, I then examine how this political motive influences China's aid allocation to other countries and how such aid affects the recipients.

#### 3.1. Empirical Strategy

The main threats to identification are reverse causality and joint determination of aid and unrest. For example, an increase in China's aid budget may increase the demand for Chinese labor, raising workers' opportunity cost of engaging in future unrest. Alternatively, aid and unrest could be jointly determined by a third factor, such as a global recession that simultaneously increases the levels of unrest across China and the amount of aid given by China in a year.

To address these challenges, I exploit variation over space and time in local unrest within China and in the allocation of contracts for foreign aid projects to Chinese firms. Specifically, I test whether the Chinese central government allocates contracts for foreign aid projects to firms under its direct control that are based in Chinese prefectures experiencing local labor unrest.<sup>16</sup> I estimate the following specification at the firm-year level:

$$\text{aid}_{f,t} = \sum_{s=-2}^{S=4} (\text{unrest}_{p(f),t-s} \beta_s + X'_{f,t-s} \Gamma_s) + \alpha_f + \delta_t + \epsilon_{f,t}, \quad (1)$$

where  $\text{aid}_{f,t}$  is the total number or financial value of aid contracts allocated to firm  $f$  in year  $t$ , and  $\text{unrest}_{p(f),t}$  is the number of labor unrest events per million inhabitants in firm  $f$ 's home prefecture  $p$  in year  $t$ .  $X'_{f,t}$  denotes a vector of control variables at the firm-year or prefecture-year level, which I introduce in

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<sup>16</sup>Firms may be part of larger conglomerates that have subsidiaries in multiple prefectures. The unit of observation is the subsidiary domiciled in a distinct prefecture (see Subsection 3.2).

Subsection 3.4.  $\alpha_f$  and  $\delta_t$  denote the vectors of firm and year fixed effects (note that firm fixed effects absorb prefecture fixed effects).  $\epsilon_{f,t}$  denotes standard errors, which are clustered at the prefecture level.

The year fixed effects control for changes over time that affect all firms and prefectures similarly. Their inclusion prevents omitted variable bias from unobserved potential joint determinants of the yearly levels of overall Chinese aid and unrest, including macroeconomic variables such as Chinese reserves (Dreher et al., 2021a). The firm fixed effects control for time-invariant differences across firms and prefectures. Omitted variables correlated with both the average amount of aid contracts allocated to a firm and unrest intensity in its home prefecture would bias the estimates of  $\beta_s$ . For example, firms in manufacturing hubs may tend to experience more unrest but also contract more aid projects on average, biasing  $\beta_s$  upwards. The firm fixed effects prevent such bias.

The coefficient of interest is  $\beta_{-1}$ . It captures the effect of local unrest on the amount of aid contracts allocated to central state-owned firms in the prefecture in the next calendar year. I hypothesize that  $\beta_{-1} > 0$  and  $\beta_s = 0$  (or  $\beta_s < \beta_{-1}$ ) for all other  $s$ , i.e., that local unrest lagged by one year, but less so at other leads and lags, affects aid contract allocation to local firms.<sup>17</sup>

To mitigate potential concerns related to reverse causality and spurious co-movement of local unrest and aid over time (e.g., because aid contract allocation may influence future unrest), I also control for other leads and lags of local unrest. Conditional on firm and year fixed effects, as well as other leads and lags of local unrest, the amount of foreign aid contracts committed to Chinese firms in a prefecture should not influence local unrest in the previous year. In addition, note that the vast majority of unrest in my sample does not involve aid contractors and is unrelated to the conditions in aid-recipient countries (see Subsection 3.2), further mitigating reverse causality concerns.<sup>18</sup>

I interpret  $\beta_{-1} > 0$  as evidence for the Chinese government using foreign aid to help address domestic labor unrest. The remaining threats to this

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<sup>17</sup>As explained in Section 2, the Chinese aid allocation process can react to local unrest relatively rapidly. However, unrest may have little effect on aid allocation in the same calendar year since aid budget and allocation are typically determined in the previous calendar year.

<sup>18</sup>Results hold for unrest in private firms only (firms not in main sample). See Section 3.4.

interpretation are firm- or prefecture-specific, time-varying variables that are spuriously correlated with both lagged local labor unrest and the amount of aid contracts allocated to local firms. For example, a negative economic shock to a prefecture (relative to the fixed effects) may decrease local marginal wages in the short term, potentially leading to local labor unrest. At the same time, lower wages decrease local firms' labor costs, allowing them to bid more aggressively on aid contracts. Although the allocation of aid contracts to local firms would also have a stabilizing effect on the Chinese economy through this channel, in this case a positive  $\beta_{-1}$  coefficient would have a different interpretation than aid contracts being allocated specifically to address local unrest.

I address such alternative interpretations in several ways. First, I control for potential time-varying covariates of unrest and aid contracts at the prefecture and firm level. Second, I show that the results are robust to controlling for province-year fixed effects and prefecture-specific time trends. Third, I use systematic text analysis on firms' annual reports to show that central state-owned firms, but not other aid contractors internalize the state's goal of maintaining social stability. This motivates an important placebo check. In response to an increase in local unrest, firms not under the control of the central government should only bid on aid contracts differentially if there are unobserved local shocks that are correlated with both unrest and aid allocation. If, as hypothesized, political motives drive aid contract allocation to central state-owned firms, we should see no such effect for other aid contractors.<sup>19</sup> Finally, I show corroborating evidence for my interpretation by examining the effects of local unrest on employment, and investigating the role of local government spending. See Subsection 3.3.

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<sup>19</sup>A remaining potential omitted variable is a change in local government policy; for such a change to be a serious confounder given the specification and checks mentioned above, it would simultaneously have to be a policy at the prefectural- rather than provincial or central government level, be correlated with unrest in private firms but aid allocation only to central state-owned firms, and not already be captured by local economic conditions. Note that labor unrest is typically triggered by domestic *local* issues, whereas aid project allocation is in the hands of the *central* government, which mitigates the threat of local policies as confounders.

### ***3.2. Data and Descriptive Statistics***

**Project-level aid data.** I first build a project-level dataset on China’s outward foreign aid in 2005–2015 by combining information from AidData and multiple other sources. See Online Appendix [B.1](#) for details. The dataset includes Chinese aid projects known to involve a Chinese contractor.<sup>20</sup> This includes ODA-like finance (Official Development Assistance), such as grants, in-kind donations, and concessional loans, as well as OOF-like finance (Other Official Finance), such as loans at commercial rates, buyer credits, and export credits.

The data include the year of commitment,<sup>21</sup> financial value, recipient country, type of finance, sector, funding agency, and a short description for each project. I identify the names of the Chinese contractors implementing each project by searching the documents provided by the original sources underlying the dataset. The majority of projects in terms of financial value are supplied by contractors based in China. I exclude contractors based abroad. The resulting dataset includes 887 projects in 99 countries committed between 2005 and 2015. The average project is worth 244 million USD (in constant 2014 USD). Nearly all aid projects implemented by Chinese firms are in the form of hard infrastructure, such as railroads and power plants (Table [A.3](#) in the Online Appendix lists the largest projects; Online Appendix [B.1](#) provides descriptive statistics).<sup>22</sup>

**Firm-level data.** There exist no comprehensive data on which firms implement which Chinese aid projects. The names of the contractors listed in some of the existing databases are not harmonized and typically only identify the firm group (conglomerate) rather than the specific contractor that implements the project. This has so far prevented researchers from linking data on aid projects to administrative firm data and from conducting analysis at the firm level. To analyze the impact of local unrest on the allocation of aid projects at

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<sup>20</sup>I exclude FDI and projects financed exclusively by firms themselves.

<sup>21</sup>This is standard in the literature (e.g., [Dreher et al., 2021a](#)). Information about the year of disbursement is unavailable for a large share of projects in the data.

<sup>22</sup>While I do not collect information about projects without Chinese contractors, a comparison using [Dreher et al. \(2021a\)](#) shows that Chinese firms implement around 80% of the financial value of Chinese aid projects. The aid projects not included in the sample are typically small and do not involve a contractor (e.g., in-kind donations and stipends) or are supplied by foreign firms (e.g., SOEs of the recipient country).

the firm level, identifying the firm is important. In addition, not only the actual contractors of projects but also the pool of potential contractors are needed.

I construct a firm-year level dataset by 1) identifying the set of potential aid contractors at the firm level from official records by the Chinese Ministry of Commerce, 2) linking the contractors to administrative firm-level datasets from China, including detailed customs and tax records, and 3) linking the contractors to the aid projects described above (Online Appendix B.2 provides details). The result is an unbalanced panel of the quasi-universe of Chinese firms licensed by the government to contract overseas infrastructure projects.

The main outcome variable is the number of aid contracts allocated to a firm in a year. I also calculate the financial value of contracts. However, this is not my preferred measure since it is more likely to suffer from measurement error than the number of contracts and is missing for 10% of all projects.<sup>23</sup> In addition, I use data from the Chinese tax survey data to calculate firm employment as an additional outcome variable as well as firm-level control variables.

The panel includes 1,265 firms of which 498 are owned by the central government.<sup>24</sup> 100 central state-owned firms and 71 other firms supply Chinese aid projects at least once during my sample period. Table A.4 in the Online Appendix provides descriptive statistics. The average central state-owned (other) firm is awarded 0.14 (0.05) aid contracts worth 37 million USD (3.6 million USD) per year.<sup>25</sup> On average, central state-owned (other) firms have 1,480 (925) employees, 103 million USD (53 million USD) in assets, 605 million USD (288 million USD) in operating income, and 110 million USD (66 million USD) in exports. The firms are located in 148 different prefectures across China.

**Unrest data.** I measure local unrest intensity as the number of labor unrest

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<sup>23</sup>I calculate the financial value of a contract as the financial value of the entire project divided by the number of Chinese firms involved in the project. I do not observe the details of the contracts underlying the projects such as the exact payment made to each firm.

<sup>24</sup>Other firms include private firms and (former) local SOEs. I exclude joint ventures, collective firms and foreign firms, which constitute only a small fraction of aid contractors.

<sup>25</sup>Note that since many firms get no contracts in some years or no contracts ever, conditional on getting at least one contract, the average value of yearly contracts awarded to a central state-owned (other) firm is 535 million USD (127 million USD).

events per million inhabitants in a prefecture and year.<sup>26</sup> I combine data on strikes and worker protests across China from two unofficial sources: *China Strikes* (Elfstrom, 2017), covering 2004 to 2011, and *China Labour Bulletin* (CLB) (China Labour Bulletin, 2019), covering 2012 to 2014.<sup>27</sup> These data are crowd-sourced from worker reports as well as traditional media and online sources. The data have been used to study trends in worker actions by foreign media and economists (e.g., Campante, Chor and Li, 2023; Qin, Strömborg and Wu, 2019). For each unrest event, the data include its date, prefecture, sector, and a short description (Online Appendix B.5 provides details on the unrest data; Online Appendix A.3 provides background).

There are 1,687 reported unrest events during the period and in the prefectures I study.<sup>28</sup> Unrest takes place in all of China's densely populated regions, with most in the manufacturing (33%), public transport (25%), construction (18%), and education (7%) sectors. Most unrest events take place at aid-unrelated firms since aid contractors in my sample make up only a small subset of all Chinese firms. The majority of unrest events are related to wage arrears in private firms. For example, in 2012 over 500 construction workers protested against a real estate developer in Xi'An who had not paid wages in two years. Online Appendix Table A.6 shows that unrest is weakly negatively correlated with local economic conditions, conditional on prefecture and year fixed effects.

The Chinese government tolerated reporting on labor unrest events during the study period, presumably to serve as signal for where it needs to allocate resources to secure political stability (Lorentzen, 2014; Campante, Chor and Li, 2023). Nevertheless, selective reporting is a potential concern. *China Strikes* and *CLB* acknowledge that they cannot record all unrest events. In addition, the increasing availability of the internet may have led to more reporting of unrest events over time. For the purposes of this paper, such concerns are likely not major: First, I include firm (prefecture) and year fixed effects in the

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<sup>26</sup>I use population from the 2010 census in the denominator (Yuen, 2020). Information on the number of unrest participants is not available for most unrest events in the data.

<sup>27</sup>I thank Manfred Elfstrom for providing the *China Strikes* data. CLB is an NGO based in Hong Kong. The CLB data generally follow the same scope and method as *China Strikes*.

<sup>28</sup>Figure A.4 in the Online Appendix shows a map of the average yearly unrest intensity for each prefecture in 2004–2014.

analysis to deal with classical measurement error. Second, the results are robust to controlling for prefecture-specific trends and province-year fixed effects to capture local trends in reporting over time (see Subsection 3.4). Third, selective reporting might only lead to bias if it were systematically correlated with the allocation of aid contracts specifically to central state-owned firms, which is implausible.<sup>29</sup> Fourth, as [Campante, Chor and Li \(2023\)](#) show, trends in the *CLB* data are highly correlated with official records on the number of labor dispute cases submitted to the government for mediation or arbitration.

**Other micro data.** I collect a set of socioeconomic variables at the prefecture-year level from the *China City Statistical Yearbooks* for complementary analyses. See Online Appendix Table A.7 for descriptive statistics.

### 3.3. Results: Unrest and Aid Contract Allocation to Chinese Firms

Figure 1 shows the estimated coefficients from Equation (1). One additional unrest event per million inhabitants in a Chinese prefecture is associated with the allocation of 0.08 more aid contracts to each central state-owned firm in the prefecture in the following year, controlling for firm and year fixed effects as well as other leads and lags of unrest. The coefficient is statistically significant at the 5% level. As expected, the coefficients on other leads and lags of unrest are small and statistically insignificant.

The specification in Equation (1) with several leads and lags of unrest is restrictive because it limits the sample to a subset of years in the data. To exploit the full data for all years and to maximize statistical power, I keep only unrest lagged by one year for the analyses that follow. The point estimate of the effect of lagged unrest on aid contract allocation is qualitatively unaffected by whether other leads and lags are included in the specification or not.

Table 1 shows the effect of lagged unrest on aid contract allocation for different measures of aid. Column (1) is consistent with Figure 1. To interpret the magnitude of the estimated effect, note that a one standard deviation increase in unrest increases the number of contracts allocated to central state-owned firms

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<sup>29</sup>The state may be more likely to allocate aid contracts to firms in response to unrest events that are reported more prominently as such events may be more politically salient. I am not concerned about this since it would be consistent with my interpretation of the results.

by 23% of its mean.<sup>30</sup> This effect is cumulatively large. A back-of-the-envelope calculation shows that, for example, a one standard deviation increase in yearly unrest in Beijing (around 7 unrest events) is associated with the allocation of 5.1 additional aid contracts with a value of 1.5 billion USD to central state-owned firms in the prefecture, as much as around 35% of Beijing's yearly public security spending according to the Chinese Ministry of Finance (CEIC, 2021).<sup>31</sup>

Columns (2) and (3) show the results for ODA-like (more concessional) and OOF-like (less concessional) aid only. The coefficient is slightly larger for OOF-like aid. Column (4) uses the log of one plus the financial value of contracts allocated to a firm in a year as outcome. A one standard deviation increase in unrest on average increases the value of contracts allocated to central state-owned firms by 0.25 log points (22%). The estimates for ODA-like and OOF-like projects are statistically indistinguishable. The coefficients in Table 1 are significant at the 1% or 5% level, except Column (5) at the 10% level.

### ***3.4. Corroborating Evidence and Robustness***

**Robustness to controls.** I control for a host of variables to address the concern that local economic shocks may explain the relationship between local labor unrest and aid allocation to central state-owned firms. Online Appendix Table A.8 controls for prefecture-year level variables, including lagged local GDP, exports, employment, average wages, and population. Online Appendix Table A.9 controls for firm-year level variables, including the lagged number of employees, fixed assets, operating income, exports, and materials inventory. Online Appendix Table A.10 and Table A.11 control for province-year fixed effects and prefecture-specific trends. The interpretation of the main coefficient is robust to these controls. Online Appendix C.1 provides details.

**Text analysis of firm reports.** I use natural language processing of listed firms' annual reports to show that central state-owned firms, but not other aid contractors, internalize the state's goal of moderating unrest. For each

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<sup>30</sup>One SD in unrest is 0.381 events per million inhabitants. The mean number of contracts allocated to a central state-owned firm in a year is 0.137.  $0.381 \cdot 0.081 \div 0.137 = 0.225$ .

<sup>31</sup>The average aid contract by a central state-owned firm in Beijing is worth 294 million USD. There are 164 central state-owned firms in Beijing.  $0.381 \cdot 0.081 \cdot 164 \cdot 0.294 \approx 1.5$ .

firm and year, I count how frequently firms' annual reports mention each of several keywords related to maintaining social stability relative to the total word count. I then re-estimate the baseline specification using the keyword count as the outcome variable. I use the first principal component of all key words as an additional outcome.<sup>32</sup> Figure 2 shows the results. Each black dot is the standardized coefficient from a regression of the frequency of the keywords listed on the left-hand side of the figure on lagged local unrest, controlling for firm and year fixed effects, for central state-owned firms. The gray dots are the standardized coefficients for other firms. The figure shows that central state-owned firms, but not other firms, mention keywords related to maintaining social stability significantly more frequently in response to local unrest.

**Placebo check.** The text analysis motivates a placebo check. Since aid contractors not owned by the central government are mainly profit-oriented and do not internalize the social stability motive, they should only bid on aid projects when there is local unrest if there are local economic shocks or policies correlated with both local unrest and aid allocation. Figure A.5 in the Online Appendix shows the results of this placebo check, which is analogous to Figure 1 but uses only firms not owned by the central government.<sup>33</sup> Reassuringly, the relationship between unrest and aid allocation to these firms is small and insignificant.<sup>34</sup> This placebo check provides further evidence that the state's need to address local unrest, rather than other factors, explains the relationship between unrest and aid contract allocation for central state-owned firms.

**Effects by source of unrest.** Table A.13 in the Online Appendix shows that the effect of unrest on aid contract allocation to central state-owned firms is similar to the main coefficient for unrest originating in private firms only. Table A.14 shows that only labor unrest in industrial sectors (construction,

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<sup>32</sup>For unlisted firms, I use the reports of listed firms in their conglomerate and prefecture. Since this may lead to correlation across firms within conglomerates, I two-way cluster standard errors at the prefecture and conglomerate level. I exclude firms with subsidiaries in multiple prefectures and other unlisted firms. I use keywords similar to [Campante, Chor and Li \(2023\)](#). I exclude keywords that appear less than 10 times over all firms and years.

<sup>33</sup>I include all firms that are licensed by the government to contract foreign aid projects but not central government owned. These firms together implement 35% of all aid projects.

<sup>34</sup>Online Appendix Table A.12 shows the analog of Table 1 for these firms.

manufacturing, mining), in contrast to unrest in service sectors (mainly strikes by school teachers and taxi drivers), has a large and significant effect on aid.

**Effects on employment.** Table 2 examines the effect of local unrest on firm employment. Columns (1) and (2) for comparison replicate the main specification for the observations with information on employment from the tax survey data. As in Table 1 and Online Appendix Table A.12, central state-owned firms, but not other firms, contract more aid projects in response to local unrest. Columns (3) and (4) show that central state-owned firms also increase employment (in logs) in response to local unrest. One additional lagged labor unrest event per million inhabitants increases employment by central state-owned firms by 2.7% (p-value = 0.06). In contrast, employment by other firms decreases (statistically insignificant). The results are consistent with a stabilizing role of central state-owned firms.

**The role of local government spending.** The allocation of foreign aid contracts is not the only policy tool for governments to respond to unrest. The Chinese central government may also encourage local governments to increase domestic spending to shore up public support and address unrest. Local governments in China are responsible for 85% of government budgetary spending and responsible for most domestic infrastructure investment (Wingender, 2018). However, domestic spending is costly and has decreasing returns (Brandt et al., 2020), and high existing spending may prevent local governments from stimulating demand further.<sup>35</sup> This helps explain why the government uses foreign aid to address domestic unrest in addition to or instead of domestic public spending (see also Section 2). To test this channel, I construct a dummy variable that equals 1 (0) if the prefecture government's lagged public income/expenditure ratio is below (above) the sample mean.<sup>36</sup> I interpret this dummy as a proxy for constraints on the local government to stimulate domestic demand using public spending. I then interact this dummy with local unrest to estimate heterogeneous effects of unrest on aid allocation to firms in the prefecture.

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<sup>35</sup>The central government in response to the 2008 Great Recession encouraged local governments to expand their balance sheets to encourage domestic infrastructure construction. Local governments consequently indebted themselves to record levels, impairing their ability to stimulate demand using fiscal spending in the future (Copper, 2016; Cong et al., 2019).

<sup>36</sup>Alternatively, I use the continuous income/expenditure ratio. The results are similar.

Table A.15 in the Online Appendix shows the results. As expected, unrest has a significantly higher effect on aid contract allocation if the local government is constrained in its ability to stimulate demand using local public spending.

## 4. The Effects of Chinese Aid on Recipient Countries

Section 3 showed that the Chinese state's political need to address domestic unrest influences the allocation of contracts for foreign aid projects to Chinese firms. I now examine the consequences for recipient countries.

### 4.1. Empirical Strategy

The main challenges for estimating the causal effects of foreign aid on recipients are the issues of reverse causality and joint determination. To help understand the identification challenges, first consider the simple case where country  $i$ 's outcome is regressed on the level of aid received by China  $s$  years prior:

$$Y_{i,t} = \beta \text{aid}_{i,t-s} + \mathbf{X}_{i,t-s}\Gamma + \alpha_i + \delta_{rt} + \epsilon_{i,t}, \quad (2)$$

where  $Y_{i,t}$  is an outcome of country  $i$  in year  $t$  (e.g., GDP per capita) and  $\text{aid}_{i,t-s}$  is the number of Chinese aid projects received by country  $i$  in year  $t-s$ .  $\mathbf{X}_{i,t-s}$  denotes a vector of controls.  $\alpha_i$  and  $\delta_{rt}$  denote country and region-year fixed effects. The sample includes 144 low- and middle-income countries.<sup>37</sup>

$\beta$  is the effect of an additional Chinese aid project on the recipient country outcome  $s$  years later. However, the coefficient captures reverse causal effects if China allocates aid based on recipient outcomes. For example, if China allocated more aid to poorer countries, then the estimate  $\hat{\beta}$  of this OLS regression would be biased downwards. Alternatively, aid and the outcome in the recipient

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<sup>37</sup>The sample includes non-high income countries as classified by the World Bank in 2005. I exclude from the sample the Democratic Republic of the Congo and Republic of Congo as well as Guinea and Equatorial Guinea, as they are often confused in the original aid data and therefore unreliable. I also exclude Libya from the sample since it has extreme outliers in the GDP growth data. There are 81 countries in the sample that ever receive aid contracted by central state-owned firms. The others include countries that never receive aid or only by other Chinese firms. See Table A.17 in the Online Appendix for a list of countries included in the sample. I include all countries in the sample to maximize statistical power.

country could be jointly determined by a third factor, such as a change in the political regime of the recipient country, which could bias  $\hat{\beta}$  in either direction.

To address these endogeneity issues, I rely on the fact that each central state-owned firm is connected to a set of aid-recipient countries (i.e., there are countries which a given firm usually works with). I exploit the temporal and spatial variation in local unrest in Chinese prefectures, interacted with these connections between recipient countries and Chinese firms, to construct an instrumental variable for the amount of aid a country receives in a given year. The logic is as follows. When there is more labor unrest in a prefecture (relative to other prefectures), the Chinese central government allocates more aid contracts to firms in that prefecture. As explained in Section 2, central state-owned firms are then more likely to direct the aid to countries they typically work with than to other countries. Hence, variation in local unrest in China predicts the amount and timing of Chinese aid that other countries receive.

Causal identification assumes that the state's decision to allocate aid contracts to firms in a given Chinese prefecture is driven by the desire to address local unrest and to direct aid to countries more connected to the prefecture specifically in response to unrest in the prefecture. Similarly, I assume that shocks to local unrest in a prefecture are orthogonal to shocks to future economic outcomes in connected countries (relative to unrest in other prefectures, and conditional on country and region-year fixed effects and controls). Note that I take the connections as given and fixed over time, i.e., it is immaterial why certain countries are more connected to certain firms. The second and first stages of the 2SLS specification are, respectively:

$$Y_{i,t} = \beta \widehat{\text{aid}}_{i,t-s} + \mathbf{X}_{i,t-s}\Gamma + \alpha_i + \delta_{rt} + \epsilon_{i,t}, \quad (3)$$

$$\text{aid}_{i,t} = \gamma Z_{i,t-1} + \mathbf{X}_{i,t}\Theta + \alpha_i + \delta_{rt} + \mu_{i,t}, \quad (4)$$

where the instrument, which I call “weighted unrest”, is the sum of lagged local unrest shocks in Chinese prefectures multiplied by country  $i$ 's connections to central state-owned firms in each of the prefectures:

$$Z_{i,t-1} = \sum_p (\text{unrest}_{p,t-1}^* \cdot \omega_{i,p}). \quad (5)$$

I calculate the local unrest shocks,  $\text{unrest}_{p,t-1}^*$ , as the lagged number of unrest events per million inhabitants in prefecture  $p$ , residualized on yearly mean unrest across the prefectures in the sample. I calculate connections between country  $i$  and firms in prefecture  $p$ ,  $\omega_{i,p}$ , as the fraction of years between 2005 and 2015 that country  $i$  received any aid by central state-owned firms in prefecture  $p$ .<sup>38</sup>  $\mathbf{X}_{i,t}$  is a vector of country-year level controls, which includes recipient country population and the outcome variable at  $t - 1$  in the baseline, and other variables introduced in Subsection 4.5.<sup>39</sup> All other variables are as before. The baseline specification clusters standard errors at the country level. I discuss statistical inference and related tests in Subsection 4.5.

The empirical strategy exploits the country and time variation in the receipt of Chinese aid caused by the temporal and spatial variation in local unrest shocks in Chinese prefectures. The specification controls for region-specific year fixed effects capturing changes over time that affect countries within a region similarly, as well as country fixed effects capturing time-invariant differences across countries, including the cross-sectional variation in connections between recipient countries and Chinese firms. The cross-sectional variation in connections could be correlated with countries' outcomes. However, the country fixed effects control for this variation, and the connections need not be exogenous for the instrument to be valid. Conditional on country and region-year fixed effects, the timing of the lagged, re-centered prefecture-level unrest shocks in China is plausibly exogenous to shocks to future recipient country outcomes. Hence, the interaction of shocks to local unrest in China and recipients' exposure to

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<sup>38</sup>Formally,  $\omega_{i,p} = \sum_{t=2005}^{T=2015} \frac{\mathbb{1}[\text{aid}_{i,p,t} > 0]}{11}$ . Although not strictly necessary for identification, one may want to calculate the connections based on a baseline year instead of over all years. However, this is not possible in this setting since most countries did not receive any aid in the baseline year. As a robustness check, I use the fraction of years in which country  $i$  received any aid by central state-owned firms in prefecture  $p$  prior to  $t$ , i.e.,  $\omega_{i,p,t} = \sum_{s=2005}^{t-1} \frac{\mathbb{1}[\text{aid}_{i,p,s} > 0]}{s+1-2005}$ .

<sup>39</sup>Controlling for the lagged dependent variable may introduce a correlation between the regressors and the error term and bias the coefficient of interest toward 0 (Nickell, 1981). The results are similar without the inclusion of this control (see Subsection 4.5).

this variation generates an exogenous instrument for the amount of Chinese aid received by a country in a year (following [Borusyak and Hull, 2020](#)).

The IV exclusion restriction requires that the instrument only affects recipient country outcomes through the provision of aid, conditional on controls. The main threat is that local unrest in specific Chinese prefectures is correlated with other factors that differentially affect countries connected to these prefectures. A first concern is that an increase in local unrest in a prefecture, relative to average unrest across China and controlling for country and region-year fixed effects, is correlated with future economic conditions of countries connected to that prefecture. To address the possibility that the instrument at  $t - 1$  is correlated with the contemporary economic conditions of the recipient country, I control for the recipient country outcome at  $t - 1$ . A related concern is common trade shocks. If a prefecture-specific, negative export demand shock is associated with an increase in unrest in a prefecture and simultaneously with a decrease in future GDP of countries connected to that prefecture,  $\hat{\beta}$  is biased downwards. In this case, I would underestimate the true effect of Chinese aid on recipient country GDP. To address this concern, I control for lagged weighted exports per capita in Chinese prefectures connected to a country in robustness tests.

A second concern is that local unrest in a prefecture leads not only to the allocation of aid projects to countries connected to the prefecture but also to an increase (or decrease) in aid-unrelated Chinese exports or FDI to the same countries. If Chinese exports or FDI affect recipient outcomes independently of aid, the exclusion restriction is violated. I address such concerns by controlling for Chinese exports and FDI to each country. In addition, as placebo checks, I test whether the instrument spuriously predicts Chinese exports or FDI to other countries, and aid received by OECD-DAC donors. See Section [4.5](#).

Finally, note that a conceptually different approach to construct an IV for the amount of aid received by a country in a given year would be to interact aggregate shifters of total aid in a year (e.g., total unrest across China in this case) with the cross-sectional probability of a country to receive aid (as in [Nunn and Qian, 2014](#); [Dreher et al., 2021a](#)). Rather than using aggregate variation to predict total aid given by China in a given year (total unrest is residualized out), I exploit variation in the internal re-allocation of Chinese aid projects

across prefectures in a given year, resulting in more credible identification.<sup>40</sup>

#### 4.2. Country-Level Data and Descriptive Statistics

Table A.16 in the Online Appendix lists the country-year level variables used in this section and provides descriptive statistics. I describe these variables here.

**Outcomes.** I use data from the World Development Indicators ([World Bank, 2022](#)) to measure various recipient outcomes in levels and growth rates, including GDP and its components (capital formation, government consumption, household consumption, exports and imports). As an additional outcome, I use the unemployment rate of a country in a given year from the ILOSTAT database ([International Labour Organization, 2020](#)). I winsorize the outcome variables at the 5th and 95th percentiles to limit the influence of extreme outliers. Results without winsorizing are qualitatively similar (available on request).

**Controls.** I use data on population and OECD-DAC aid receipt from the World Development Indicators, data on Chinese FDI from the Global Investment Tracker ([American Enterprise Institute, 2019](#)), and Chinese customs data at the country-prefecture-year level to construct the weighted amount of exports in Chinese prefectures connected to a country in a given year.<sup>41</sup>

**Weighted unrest.** I calculate the instrument,  $Z_{i,t-1}$ , as described in Section 4. I standardize the instrument to have a mean of 0 and a standard

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<sup>40</sup>Nunn and Qian ([2014](#)) exploit variation in yearly US wheat production (driven by exogenous weather shocks) to predict US food aid. Dreher et al. ([2021a](#)) exploit changes in China's yearly construction materials production and foreign exchange reserves to predict Chinese aid. This approach relies on the assumption that the aggregate changes only differentially affect more frequent aid recipients through aid. This assumption is particularly strong in the case of Dreher et al. ([2021a](#)), who interact aggregate variables that are jointly determined by strategic decisions of the Chinese central government and its SOEs. For example, the Chinese government or its SOEs could decide to increase construction materials production (a state-dominated sector in China) in anticipation of providing more foreign aid to regular aid recipients. Alternatively, country-wide policies may affect both foreign exchange reserves and regular aid recipients through other trade channels (which are presumably affected by foreign exchange rates). In contrast, my approach exploits variation in unrest driven by local issues in China that is plausibly exogenous to recipients (relative to aggregate unrest across China which I residualize out). Moreover, I find that an IV based on total unrest in a year would be a weaker first-stage predictor of aid than my IV.

<sup>41</sup>I construct a variable analogous to weighted unrest, but replacing the number of unrest events with the value of exports per million inhabitants in a prefecture.

deviation of 1 to facilitate interpretation of the results. Each aid recipient country is on average connected to two prefectures. Each central state-owned firm that ever contracts aid projects on average does so in three countries.

**Aid.** My preferred measure of Chinese aid is the total number of aid projects, implemented by Chinese central state-owned firms, received by a country in a given year. I also calculate the total financial value of Chinese aid projects as an alternative measure. As explained in Subsection 3.2, the number of aid projects is my preferred measure as it has fewer missing observations and is less likely to suffer from measurement error than the financial value. I construct the variables by aggregating the project-level data described in Subsection 3.2 to the country-year level. Each country in the sample on average receives 0.31 such aid projects per year, each worth 300 million USD on average (in constant 2014 USD). Pakistan and Angola are the largest recipients of Chinese aid projects implemented by central state-owned firms.

In Online Appendix D.1, I follow Dreher et al. (2021a) and investigate recipient country characteristics that have been said to be associated with Chinese aid. These correlations show that China provides more aid to countries that are poorer, more politically aligned with China, have deeper trade relationships with China, and whose official language is English. However, there is no positive association between Chinese aid and whether a country is a petroleum exporter or less democratic. The cross-sectional correlations are consistent with the notion that China chooses the countries it gives aid to based on economic and foreign policy goals. While these goals deserve further investigation in future research, I focus on domestic unrest to predict the timing of Chinese aid.

### 4.3. First Stage Estimates

Figure 3 shows the relationship between the instrument, lagged weighted unrest, and the number of aid projects (implemented by central state-owned firms) received by a country in a given year, where both measures are residualized on country and region-year fixed effects. The slope of the regression line is equivalent to the coefficient  $\hat{\gamma}$  from the first stage Equation (4). A one standard deviation increase in the IV is associated with a 0.194 increase in the number of

aid projects received by a country (21% of a standard deviation). The effect is statistically significant at the 1% level. The Kleibergen-Paap F-statistic is 18.

In other words, a country receives significantly more aid following years during which the Chinese prefectures it is connected to experience more local unrest, conditional on country and region-year fixed effects. Multiplied by the number of aid-recipient countries, the estimates mean that a one standard deviation increase in the instrument leads to an allocation of 15.5 aid projects worth 4.6 billion USD in total, or around 32% of China's total yearly aid on average.<sup>42</sup> These results imply that the state's political need to address domestic unrest drives a significant part of China's global aid allocation.

Table A.18 in the Online Appendix shows the first stage for other measures of aid. The relationship between the instrument and aid is large and statistically significant at the 1% level for most measures of aid, although the F-statistic is smaller for other measures of aid than for the total number of projects. As explained above, the results for the financial value are likely noisier due to measurement error and missing data. I use the total number of projects as the baseline measure of aid for the results I describe below. Table A.19 in the Online Appendix shows the first stage by the sector of the aid project. The IV strongly predicts aid projects in the transport and energy sectors, but not in communications, services, health, and other sectors.

#### 4.4. Results: Short-Term Effects of Chinese Aid on Recipients

The first stage is consistent with China's domestic political goals driving a significant share of its infrastructure foreign aid to other countries. However, using plausibly exogenous variation, I find that such aid has sizeable economic benefits for both recipient governments and households in the short term. This subsection describes these results. Subsection 4.5 discusses robustness checks. Subsection 4.6 discusses more long-term effects.

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<sup>42</sup>There are 81 countries in the sample that ever receive aid contracted by central state-owned firms.  $1 \cdot 0.194 \cdot 81 \approx 15.5$ . A project in this sample is worth 300 million USD on average.  $15.5 \cdot 300mn \approx 4.6bn$ .

Table 3 shows the main results.<sup>43</sup> Panel A shows the 2SLS estimates of the causal effect of an additional Chinese aid project on the outcome variable indicated in the column header three years after commitment, where aid is instrumented by lagged weighted unrest (coefficient  $\hat{\beta}$  in Equation (3)). Most Chinese infrastructure aid projects take less than 3 years to be completed (for the subsample of projects in my data with this information). Online Appendix Table A.21 shows the 2SLS estimates for other leads and lags.<sup>44</sup>

Columns (1) and (8) of Panel A in Table 3 show the 2SLS estimates of the effect of Chinese aid on GDP per capita in levels and growth, conditional on country and region-year fixed effects and baseline controls. One additional Chinese aid project on average increases recipient country GDP per capita in levels by 118 USD (2.5% of the sample mean) and GDP growth by 0.9 percentage points three years after commitment. The coefficients are statistically significant at the 5% and 10% levels respectively. Figure 4 illustrates the 2SLS estimates of the effect of an additional aid project on GDP per capita at other leads and lags. The estimates imply that the aggregate economic returns to China's aid exceed its cost after three years.<sup>45</sup>

These estimates are large, but similar in magnitude to case studies such as, e.g., Ochieng (2016) and consistent with the returns to infrastructure investment found in other contexts (e.g., Gertler et al., 2022). Recall that the first stage is driven by large-scale infrastructure projects in the transport and energy sectors. These projects tend to be sizeable relative to recipient countries' economies and potentially have large economic returns given the infrastructure gap in many developing countries (G20, 2021). Many countries in the sample have low levels of existing infrastructure and thus large potential returns on investment.<sup>46</sup> Consistent with large-scale infrastructure construction driving the results, I find

<sup>43</sup>The number of observations differs across columns due to missings in the outcomes.

<sup>44</sup>I use only countries that have non-missings for all leads and lags for this analysis.

<sup>45</sup>A back-of-the-envelope calculation implies that every dollar spent on China's aid increases recipient country GDP by around 4 dollars after three years. However, this number is likely an upper bound since the total cost of an aid project after completion is in practice typically higher than the originally budgeted value of the aid contract to the Chinese firm.

<sup>46</sup>Consistent with this, in unreported results I find larger economic effects of Chinese aid to countries that receive less aid from OECD-DAC donors, and that the returns to infrastructure aid are decreasing in the number of existing aid projects.

sizeable effects on capital formation and government consumption as well, as Table 3 Columns (2) and (3) show. Table 3 Columns (5) and (6) show positive effects on recipient country trade, although the estimates are imprecise.

Panel B shows reduced form estimates, which equal the 2SLS estimates multiplied by the first stage. Panel C shows OLS estimates, which I do not interpret as causal. The OLS estimates of the effect of aid on GDP are considerably smaller than the 2SLS estimates. This difference could be explained by China allocating more aid to countries on a lower growth path (e.g., because such countries have a higher demand for aid, consistent with the evidence presented in Online Appendix D.1), or because aid projects allocated in response to domestic unrest are larger and have a higher impact on recipient country income than other projects, or because the returns to infrastructure are larger in the countries that comply with the instrument.

To be sure, the increases in GDP, capital formation and government consumption may not translate into an improvement for the economic well-being of the recipient country population. Part of the increases may reflect the direct value of the infrastructure projects. One may also be concerned that the economic benefits of the projects are captured by political elites (Werker, Ahmed and Cohen, 2009; Dreher et al., 2019; Andersen, Johannessen and Rijkers, 2022) or hurt the local population via negative spillovers on local labor markets, especially since the aid is driven by the interests of the Chinese state and without policy conditions. However, such evidence for Chinese aid is largely anecdotal. To investigate this possibility, I examine variables more closely related to household income. I find large, positive and statistically significant effects on household consumption. As Table 3 Column (4) shows, an additional aid project increases household consumption by 72 dollars per capita on average (2.5% of the sample mean) three years after commitment.

One channel is employment. As Table 3 Column (7) shows, an additional aid project decreases the recipient country's unemployment rate by 0.43 percentage points within three years.<sup>47</sup> Other potential channels include positive spillovers on local firms, e.g., through skill transfers, through positive externalities on up-

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<sup>47</sup>This finding is consistent with a recent study that shows positive short- and medium-term effects of Chinese infrastructure projects on local employment in Africa (Guo and Jiang, 2021).

and down-stream sectors ([Crescenzi and Limodio, 2021](#)), or by providing local firms with market access. The results are also consistent with a recent study by [Marchesi, Masi and Paul \(2021\)](#), which shows that Chinese aid, in contrast to World Bank development aid, increases firm sales in recipient countries by releasing their infrastructure constraints. Future research should examine these potential channels in more detail at a subnational level.

In sum, the results imply that the Chinese government's goal to secure domestic political stability does not undermine the short-term benefits of its aid to recipient populations. This finding is remarkable since the positive economic effects are also present in countries with poor institutions, despite Chinese aid coming without policy conditions attached. One explanation is that the fact that Chinese aid is aimed at creating jobs for Chinese workers leads to an alignment of the incentives of the donor and recipient countries. Chinese contractors also benefit from improved infrastructure and economic growth of countries they operate in in the form of new business opportunities, which gives them the incentive to deliver economically productive projects. These projects in turn have positive spillovers on citizens, for example by providing transport along project sites. In addition, aid in the form of non-fungible goods and labor is less prone to elite capture than cash. Future research should examine these directions in more detail. In any case, these findings highlight the importance of examining the goals and effects of foreign aid jointly.

#### ***4.5. Robustness and Falsification Tests***

**First-stage falsification tests.** Table [A.20](#) in the Online Appendix presents the results of falsification tests for the first stage. Column (2) replicates the baseline first stage for comparison. Columns (1), (3) and (4) replicate the first stage for different leads and lags of the instrument. Consistent with the results in Section [3](#), weighted unrest in China only strongly predicts the number of aid projects received by a country in the next calendar year. In columns (5) to (7), I regress imports from China, Chinese FDI, and OECD-DAC aid received by a country on the instrument. Reassuringly, lagged weighted unrest does not strongly predict any of these variables in the next year. These results provide

support for the validity of the instrument.

**Other leads and lags.** The main 2SLS specification estimates the effect of Chinese aid on outcomes after three years. Table A.21 in the Online Appendix shows the results for other leads and lags. As expected, the effect of aid on GDP per capita and other outcomes continuously increases over time as the projects get completed and start operating. Reassuringly, future aid has no effect.

**Alternative controls.** The exclusion restriction is violated if local unrest in Chinese prefectures is spuriously correlated with other variables that differentially affect recipient outcomes. As explained in Subsection 4.1, the main confounders are trade and FDI. To address such concerns, Table A.22 in the Online Appendix controls for lagged weighted exports in Chinese prefectures, as well as total Chinese exports and FDI to the recipient country per capita. The results are robust. Furthermore, Online Appendix Table A.23 shows the results without controlling for the lagged dependent variable. The results are similar, albeit the effect on household consumption is less precisely estimated.

**Instrument using lagged connections.** Online Appendix Table A.24 replicates Table 3 but using only aid up to  $t - 1$  to construct the vector  $\omega$ , a country's connections to Chinese prefectures. The estimates are qualitatively similar to the baseline specification, albeit less powered.<sup>48</sup>

**Different types of aid.** Table A.25 in the Online Appendix shows the effect of instrumented Chinese aid on GDP for different measures of aid (financial value instead of the number of contracts and ODA-like / OOF-like aid only). I find large effects on GDP for all measures, although the estimates are less precisely estimated due to a weaker first stage compared to the baseline. Hence, the type of financing does not appear to greatly influence aid efficacy.

**Randomization test and inference.** In Online Appendix D.2, I address concerns related to statistical inference highlighted in the recent literature (Adão, Kolesár and Morales, 2019; Borusyak and Hull, 2020). The results go against the possibility that the estimated effects of aid are driven by noise.

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<sup>48</sup>Formally,  $\omega_{i,p,t} = \sum_{s=2005}^{t-1} \frac{\mathbb{1}[aid_{i,p,s} > 0]}{t-2005}$ . In this specification, the uninteracted term  $\sum_p \omega_{i,p,t}$  is not absorbed by the country fixed effects, so I control for it separately.

#### ***4.6. Results: Long-Term Effects of Chinese Aid on Recipients***

The short-run economic benefits documented above do not necessarily translate into persistent effects on economic growth and population welfare. Table 4 shows IV estimates of the effects of Chinese aid on the growth of GDP and its components six years after commitment.<sup>49</sup> These results suggest that the long-run effects on GDP growth (0.3 p.p.) are smaller than the short-run effects (0.9 p.p.), and that household consumption growth is close to 0 or even negative after six years. Capital formation, government consumption, and export growth are positive but statistically insignificant after six years. Consistent with the earlier results, the effects are largest two to three years after commitment but decline in the longer run (Online Appendix Table A.26 shows the effects of aid on growth at various leads and lags). Unemployment remains at a lower level six years after aid commitment but does not continue to further decline after three years, offering a potential explanation for the positive short-run but null long-run effects on household consumption growth.

## **5. Conclusion**

Foreign aid is one of the most important policy tools with which countries can transfer resources to poorer countries. Yet, what drives aid and how it benefits both recipients and donors themselves remain highly debated questions. In particular, we have surprisingly little empirical evidence on the political processes and donor motives that influence aid allocation and efficacy. China's recent rise as the largest provider of bilateral development finance has fueled new debates and much speculation, but little rigorous evidence about the goals and impacts of aid. This paper makes progress on these questions by using novel micro data to dive deep into the processes underlying China's aid allocation.

I show that a significant fraction of China's foreign aid is driven by the Chinese government's political need to secure domestic stability. The finding highlights the importance of domestic political considerations in shaping aid al-

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<sup>49</sup>I calculate growth rates as first differences of the logarithm of the outcome variables (as in Dreher et al., 2021a). I focus on six years after commitment since the data covers Chinese aid up to 2015 and GDP data is available until 2021.

location. However, the Chinese' government's political goal does not undermine the benefits of its aid to recipients in the short term. This implies that foreign aid allocated according to the domestic needs of the donor country need not have mainly deleterious effects on recipient households as previously suggested by several influential studies and policymakers.

These findings have important policy implications. Selfless aid is politically unrealistic, as demonstrated by domestic critics who openly question the goals and benefits of its aid for China itself. However, as this paper shows, the fact that aid also benefits donors themselves is by itself not necessarily a cause for concern. Policymakers and donor governments should therefore not dismiss the Chinese aid model prematurely. The aspects of Chinese aid which make it particularly effective in certain contexts deserve further scrutiny.

The economic benefits of Chinese aid found in this paper must be weighed against potential unaccounted costs, such as conflict, environmental degradation, and sovereign debt. In addition, the average effects may mask substantial heterogeneity in who benefits and loses from Chinese aid. It also remains to be seen how sustainable the gains from Chinese aid projects are in the long term. The fact that projects are allocated in response to domestic short-term shocks in China suggests that aid flows are unpredictable from the recipients' perspective and are likely not optimally allocated to foster long-term growth.

Understanding the causes and consequences of China's overseas finance will remain a first-order issue for decades to come. In 2013, China announced the *Belt and Road Initiative* (BRI), a massive bid to enhance regional connectivity around the developing world. China plans to spend over a trillion dollars on infrastructure projects abroad in the coming years. Some observers have estimated that the BRI will boost world GDP by *7.1 trillion USD per annum* by 2040 ([Cebr, 2019](#)). However, the BRI's goals and impacts are currently poorly understood. While much of the BRI falls under the category of commercial investment rather than foreign aid, many BRI projects are similar in nature to the projects studied in this paper. The findings of this paper may thus help inform policy responses to China's global expansion in a broad sense.

The results of this study suggest several important avenues for future research. The first is to examine other donor goals and their implications for aid

allocation. The second is to examine the distributional consequences of Chinese aid both domestically and abroad. Finally, more work needs to be done to better understand the channels through which Chinese aid shapes economic development in practice. As this paper demonstrates, the use of fine-grained micro data to dive deep into the political processes behind foreign aid allocation is a promising approach to make progress on this pressing research agenda.

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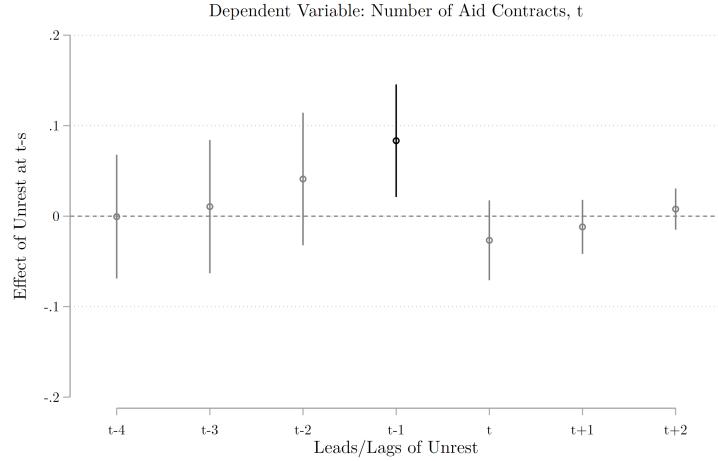
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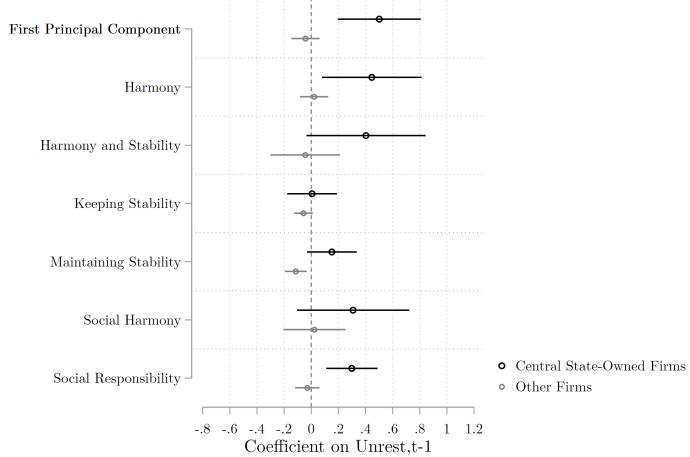
## Figures and Tables

Figure 1: The Effects of Leads and Lags of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms



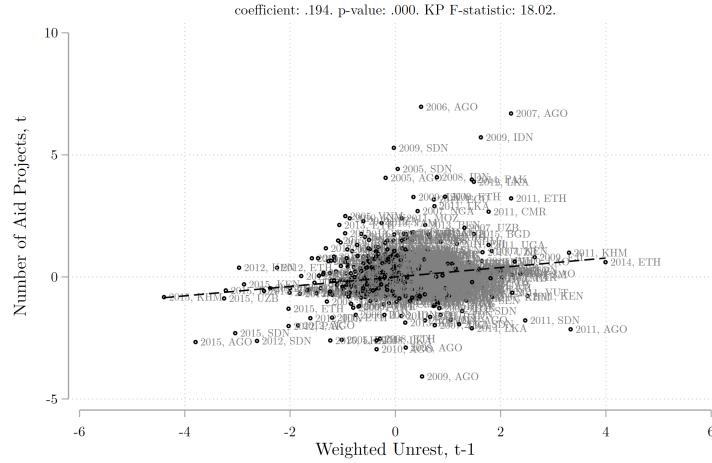
*Note:* Each dot shows the coefficients from a regression of the number of Chinese foreign aid contracts allocated to a central state-owned firm in year  $t$  on the number of labor unrest events per million inhabitants in the firm's prefecture at all leads and lags shown on the x-axis, controlling for firm and year fixed effects. The vertical lines show 90% confidence intervals. The mean of the dependent variable is 0.137. Standard errors are clustered at the prefecture level. Source: author's illustration based on data described in Subsection 3.2.

Figure 2: The Effect of Local Unrest in China on the Frequency of Social Stability Keywords in Firms' Annual Reports



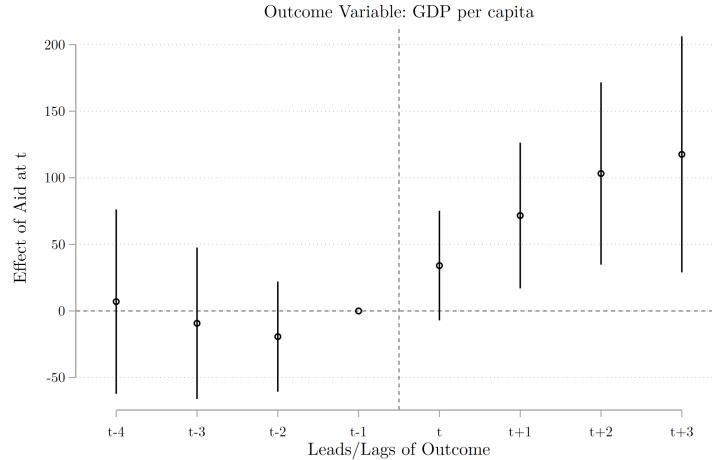
*Note:* Each dot shows the coefficients from regressions of the frequency of the phrase labeled on the y-axis in a firm's annual report in year  $t$  on the number of labor unrest events per million inhabitants in the firm's prefecture in year  $t - 1$ , controlling for firm and year fixed effects. The horizontal bars show 90% confidence intervals. All variables are standardized to have a mean of 0 and a standard deviation of 1. The standard errors are two-way clustered at the conglomerate and prefecture-level. The sample includes Chinese listed firms and their subsidiaries. Source: author's illustration. See Subsection 3.2 for details on the data.

Figure 3: First Stage Residual Plot



*Note:* The dashed line shows the line of fit from a regression of the number of Chinese foreign aid projects received by a country in year  $t$  on weighted unrest in China in year  $t - 1$ , residualized on country and region-year fixed effects. Weighted unrest is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. The dots show the residuals, labeled by year and country. Source: author's illustration based on data described in Subsection 4.2.

Figure 4: The Effect of an Additional Chinese Foreign Aid Project on Recipient Country GDP per capita (2SLS Estimates)



*Note:* Each dot shows the coefficient estimate of a separate 2SLS regression of recipient country GDP per capita at the lead or lag indicated on the x-axis on the number of Chinese foreign aid projects, implemented by central state-owned firms and received by a country in year  $t$ , where the number of aid projects is instrumented by weighted unrest in China in year  $t - 1$ . All regressions control for country and region-year fixed effects, as well as population, and the outcome in year  $t - 1$ . The vertical bars indicate 90% confidence intervals. The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. The outcome variable is winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level. Source: author's illustration based on data described in Subsection 4.2.

Table 1: Effect of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All	ODA	OOF	All	ODA	OOF
	(1)	(2)	(3)	(4)	(5)	(6)
Unrest,t-1	0.081 (0.030)	0.027 (0.012)	0.040 (0.015)	0.657 (0.259)	0.279 (0.147)	0.536 (0.194)
Firm and Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,801	3,706	3,706	3,769	3,688	3,701
Adjusted R <sup>2</sup>	0.554	0.256	0.175	0.388	0.223	0.152
Dependent Variable Mean	0.137	0.041	0.036	1.307	0.514	0.494
Dependent Variable SD	0.624	0.250	0.258	4.850	3.028	3.071
Unrest Mean	0.303	0.301	0.301	0.303	0.302	0.301
Unrest SD	0.381	0.383	0.383	0.382	0.383	0.383

Note: The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses. See Subsection 3.2 for sources and details on the data.

Table 2: Effect of Local Unrest in China on Firm Employment

Dependent Variable: Sample:	Number of Aid Contracts		Number of Employees	
	Central State- Owned Firms	Other Firms	Central State- Owned Firms	Other Firms
	(1)	(2)	(3)	(4)
Unrest,t-1	0.083 (0.042)	0.008 (0.007)	0.027 (0.014)	-0.031 (0.037)
Firm and Year FEs	Yes	Yes	Yes	Yes
Observations	1,568	1,739	1,568	1,739
Adjusted R <sup>2</sup>	0.606	0.387	0.958	0.935
Dependent Variable Mean	0.186	0.032	6.161	5.871
Dependent Variable SD	0.719	0.220	1.640	1.512
Unrest Mean	0.310	0.292	0.310	0.292
Unrest SD	0.370	0.493	0.370	0.493

Note: The unit of observation is a firm-year. The sample includes firms selected to participate in the 2007–2015 tax surveys by the State Tax Administration. Further sample restrictions are described in Online Appendix B.4. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Number of employees:  $\log(\text{average number of workers employed by a firm in year } t)$ . Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses. See Subsection 3.2 for sources and details on the data.

**Table 3: Effects of Chinese Foreign Aid on Recipient Countries**

Dependent Variable at t+3:	GDP per capita (1)	Capital Formation per capita (2)	Govt. Con- sumption per capita (3)	HH Con- sumption per capita (4)	Imports per capita (5)	Exports per capita (6)	Unemploy- ment Rate (%) (7)	GDP Growth per capita (%) (8)
Panel A: IV Estimates								
Instrumented Number of Aid Projects,t	117.800 (53.508)	102.087 (52.477)	37.109 (12.704)	72.150 (34.483)	31.899 (41.147)	32.431 (70.548)	-0.434 (0.233)	0.917 (0.490)
Panel B: Reduced Form Estimates								
Weighted Unrest,t-1	22.997 (9.084)	18.561 (8.029)	6.834 (2.236)	13.195 (5.284)	6.541 (8.575)	6.652 (14.916)	-0.085 (0.039)	0.180 (0.089)
Panel C: OLS Estimates								
Number of Aid Projects,t	11.614 (10.409)	39.326 (27.154)	3.081 (1.897)	3.192 (5.889)	6.755 (7.805)	3.629 (8.722)	-0.061 (0.044)	0.109 (0.060)
Country and Region-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,526	1,170	1,167	1,166	1,413	1,413	1,474	1,529
Kleibergen-Paap F-Statistic	17.51	13.15	13.76	13.58	17.78	17.83	17.38	17.63
Dependent Variable Mean	4,718	1,049	783	2,901	1,872	1,386	8.023	2.209
Dependent Variable SD	4,121	906	736	2,289	1,821	1,676	5.963	3.229
Number of Aid Projects Mean	0.315	0.349	0.347	0.346	0.326	0.326	0.326	0.315
Number of Aid Projects SD	0.930	1.003	1.001	1.001	0.957	0.957	0.945	0.929

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects, as well as population, and outcome in year  $t - 1$ . Panel A shows the coefficient estimates from 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 3$  on the number of Chinese foreign aid projects, implemented by central state-owned firms, received by a country in year  $t$ , where the number of aid projects is instrumented by weighted unrest in China in year  $t - 1$ . Panel B shows the coefficient estimates from reduced form regressions of the outcome variable indicated in the column heading in year  $t + 3$  on weighted unrest in China in year  $t - 1$ . Panel C shows the coefficient estimates from OLS regressions of the outcome variable indicated in the column heading in year  $t + 3$  on the number of Chinese foreign aid projects, implemented by central state-owned firms, received by a country in year  $t$ . The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses. See Subsection 4.2 for sources and details on the data.

**Table 4: Effects of Chinese Foreign Aid on Recipient Long-Term Growth**

Dependent Variable at $t+6$ :	GDP per capita Growth	Capital Formation per capita Growth	Govt. Consumption per capita Growth	HH Consumption per capita Growth	Imports per capita Growth	Exports per capita Growth	Unemployment Rate (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: IV Estimates							
Instrumented Number of Aid Projects, $t$	0.003 (0.007)	0.012 (0.036)	0.029 (0.027)	-0.004 (0.011)	-0.021 (0.031)	0.029 (0.052)	-0.381 (0.279)
Panel B: Reduced Form Estimates							
Weighted Unrest, $t-1$	0.001 (0.001)	0.002 (0.006)	0.005 (0.005)	-0.001 (0.002)	-0.004 (0.006)	0.006 (0.010)	-0.075 (0.050)
Panel C: OLS Estimates							
Number of Aid Projects, $t$	0.001 (0.001)	-0.004 (0.005)	0.007 (0.005)	0.000 (0.001)	0.001 (0.006)	-0.001 (0.006)	-0.075 (0.033)
Country and Region-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,512	1,136	1,132	1,129	1,349	1,349	1,474
Kleibergen-Paap F-Statistic	17.67	12.88	13.20	13.10	18.16	17.94	17.40
Dependent Variable Mean	0.019	0.025	0.020	0.020	0.016	0.017	8.023
Dependent Variable SD	0.038	0.139	0.077	0.054	0.173	0.242	5.963
Number of Aid Projects Mean	0.317	0.347	0.343	0.341	0.334	0.334	0.326
Number of Aid Projects SD	0.934	1.010	1.006	1.007	0.975	0.975	0.945

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects, as well as population, and outcome in year  $t - 1$ . Panel A shows the coefficient estimates from 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 6$  on the number of Chinese foreign aid projects, implemented by central state-owned firms, received by a country in year  $t$ , where the number of aid projects is instrumented by weighted unrest in China in year  $t - 1$ . Panel B shows the coefficient estimates from reduced form regressions of the outcome variable indicated in the column heading in year  $t + 6$  on weighted unrest in China in year  $t - 1$ . Panel C shows the coefficient estimates from OLS regressions of the outcome variable indicated in the column heading in year  $t + 6$  on the number of Chinese foreign aid projects, implemented by central state-owned firms, received by a country in year  $t$ . The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses. See Subsection 4.2 for sources and details on the data.

# ONLINE APPENDIX (not for publication)

## Appendix A. Additional Background

### A.1. Definitions and Types of Foreign Aid

This paper uses the term *foreign aid* to include any bilateral official finance between government entities of China and other low- and middle-income countries for development purposes (in line with other scholars such as [Copper, 2016](#)). This definition does not include FDI (equity) or international trade.

Aid can be categorized into two categories: ODA (Official Development Assistance), and OOF (Other Official Finance). The former is concessional and meets the conventional notion of Western foreign aid (including grants and concessional loans). The latter is less concessional (e.g., loans at commercial rates and export credit) ([Bräutigam, 2011](#)) and is more often employed by China than by traditional donors such as the US ([AidData, 2021](#)).

In contrast to most Western donor countries, China is not in the OECD-Development Assistance Committee (OECD-DAC) and does not explicitly distinguish between ODA and OOF ([Bräutigam, 2011](#)). Even though OOF-like financing instruments such as export credits do not meet the strict definition of OECD-DAC aid, they constitute a subsidy from the recipient country's perspective since China guarantees the debt and recipients would typically not be able to access credit at the same conditions on international financial markets.

In this paper, I follow the procedures outlined in *AidData's Tracking Underreported Financial Flows (TUFF) Methodology, Version 1.3* ([Strange et al., 2017](#)), which adopts the OECD-DAC definitions, to classify Chinese aid into ODA-like and OOF-like. Table A.1 gives an overview of the different types of aid extended by Chinese government entities.

### A.2. Chinese Government Entities and the Aid Allocation Process

Figure A.1 provides a stylized overview of the most important Chinese government entities involved in China's foreign aid. The most important providers are the central government's two main policy banks: the China Export-Import

Bank (CEXIM), and the China Development Bank (CDB). They are supervised by the State Council, the chief administrative authority of the People's Republic of China (i.e., the central government). The central government guarantees the policy banks' debt, allowing them to raise capital on national and international financial markets at favorable conditions ([Zhang and Smith, 2017](#)).<sup>50</sup>

CEXIM issues concessional loans (see Table A.1). It cooperates with the Department of Foreign Aid of the Ministry of Commerce, which is the main entity responsible for ODA-like foreign aid projects (i.e., grants, interest-free loans, and concessional loans). CEXIM raises the principal of the loans on capital markets and the Ministry of Commerce subsidizes the interest rate. In addition, like CDB, CEXIM also extends commercial loans, for example for large-scale infrastructure projects and for the purposes of export promotion.

The large state-owned commercial banks have also started extending overseas finance to developing countries, even though on a much smaller scale than the policy banks. They include the Bank of China, the Agricultural Bank of China, the Industrial and Commercial Bank of China, and the China Construction Bank. Finally, some other central state-owned enterprises extend financing to developing countries. However, their share of overall Chinese aid was small before 2015 and I exclude them from my analysis.

### **A.3. Labor Unrest in China**

Despite the autocratic nature of China's regime, labor unrest (including collective worker action such as strikes) is common in China. [Lorentzen et al. \(2013\)](#) and others argue that the central government is primarily concerned about preserving political stability but not local strikes per se, insofar as they do not develop into larger, organized movements. Rather, local strikes serve as a signal to the central government for where it needs to allocate public resources to prevent local grievances from growing into broader organized movements that could threaten political stability. Furthermore, in contrast to firms and local governments, the central government has welcomed a certain degree of upward

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<sup>50</sup>Note that the political process described here corresponds to the period studied in this paper (2005 to 2015). The aid allocation process has changed in some aspects with the creation of China's International Development Cooperation Agency (CIDCA) in 2018.

pressure on wages since the 2000s to support the re-balancing of the Chinese economy from an investment- to a consumption-led growth model ([Zhang, 2019](#)). As a consequence, the central government has mostly tolerated local labor unrest and reporting on them in 2005 to 2015.

Whereas in the 1990s unrest was mainly caused by the restructuring of SOEs, since the 2000s it has shifted to the private sector ([Elfstrom and Kuruvilla, 2014](#)). The main reasons for labor unrest include local issues such as factory closures and relocations, withholding of wages, and runaway bosses, but also environmental and safety violations ([Li, Friedman and Ren, 2016](#)). The root causes for an increase in labor unrest since 2005 include several domestic factors. First, rising inequality and the re-balancing of the Chinese economy have fueled worker demands. At the same time, a growing migrant labor shortage in the low-skill sector due to China's birth control policy, rising education levels and the Hukou system have increased workers' bargaining position ([Friedman and Kuruvilla, 2015](#)). Second, the Chinese government has adopted various changes to its labor laws since 2008, which empowered workers to increasingly voice their demands ([Gallagher, 2012](#)). Local NGO engagement and domestic policy changes in agriculture have also contributed to unrest ([Friedman and Kuruvilla, 2015](#)). Finally, negative export shocks from developed countries have been shown to trigger some unrest ([Campante, Chor and Li, 2023](#)).

Responses by the Chinese state to local unrest have included repression, wage concessions, welfare payments, legal reform, stimulus through domestic public infrastructure construction ([Cong et al., 2019](#)), SOE employment ([Wen, 2023](#)), and increasing foreign aid ([Copper, 2016](#)). See [Li, Friedman and Ren \(2016\)](#) for in-depth case studies of labor unrest events in China. Subsection 3.2 and Online Appendix B.5 provide details on the unrest data used in this paper. Online Appendix Table A.5 provides examples of unrest events in the data.

## Appendix B. Details on the Micro Data

### B.1. Project-Level Aid Data

The Chinese government does not publish comprehensive, disaggregated data on the foreign aid projects it finances. Several academic initiatives have filled this gap recently by collecting unofficial project-level data, drawing on news reports, government publications by Chinese embassies and recipient country ministries, and case studies undertaken by scholars and NGOs. These datasets typically specialize on projects in one geographic area, sector or time period.

I combine data from several such sources to construct a project-level dataset encompassing the universe of publicly known Chinese aid projects involving Chinese contractors in 2005 to 2015. I restrict the sample to 2005 to 2015 because of the availability of data on foreign aid projects and other important data used in the paper, such as administrative firm-level data and long-run country-level outcomes. Table A.2 lists the public databases I use to construct my project-level dataset. An excellent overview of these sources and their methodologies is given by [Horn, Reinhart and Trebesch \(2019\)](#). In addition to these secondary sources, I also draw on a number of primary sources, including government and company websites and news articles.

The starting point of my dataset is AidData's *Geocoded Global Chinese Official Finance Database, Version 1.1.1* ([Dreher et al., 2021a](#)).<sup>51</sup> The project-level dataset systematically collects publicly available information on all known Chinese aid, based on the scraping of thousands of primary sources, in 2000 to 2014. The method underlying this data collection effort is described in detail in [Strange et al. \(2017\)](#). I follow the conventions of [Dreher et al. \(2021a\)](#) by excluding umbrella agreements, lines of credit, pure FDI, and unconfirmed projects from the sample. Importantly, for the purposes of this paper, the database also records information on the implementing contractors, albeit this information is only recorded at the conglomerate level for many projects. I identify all projects involving Chinese contractors from this database and collect

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<sup>51</sup> AidData's *Global Chinese Development Finance Dataset, Version 2.0*, which extends the scope and coverage of Version 1.1.1, was released at the end of 2021. The empirical analysis of this paper had already been concluded by that date.

further information on the contractors from the primary sources listed in the AidData database (see Subsection 3.2).

I use several other, more specialized databases to extend the temporal coverage, to find additional foreign aid projects involving Chinese contractors, and to verify the information provided by AidData. First, AidData's *China's Public Diplomacy in East Asia and Pacific Database 1.0* provides data on Chinese foreign aid projects in Asia and Oceania during 2000 to 2016 ([Custer et al., 2018](#)). It employs the same methodology as AidData's *Geocoded Global Chinese Official Finance Dataset, Version 1.1.1*. In addition to extending the temporal coverage, it helps fill in gaps with regard to the information on Chinese contractors. Second, the *China-Africa Loan Database* by the China-Africa Research Initiative (SAIS-CARI) ([Brautigam et al., 2019](#)) provides data on Chinese loans to 55 countries in Africa from 2000 to 2017.<sup>52</sup> There is considerable overlap with the AidData database. With the help of several Chinese-speaking research assistants, I check the data for potential duplicates and conduct further research using primary sources in the cases where the data are contradictory. When I find discrepancies between the original sources and AidData or other databases, I conduct additional research and adjust the data accordingly. Third, I use data on projects in the energy sector since 2000 from the *Global Energy Finance Database* at Boston University ([Gallagher, 2021](#)). Fourth, I draw on the *China-Latin America Finance Database* by the Inter-American Dialogue ([Gallagher and Myers, 2021](#)), which provides data on official loans by the Chinese government to governments in Latin America in 2005 to 2018.<sup>53</sup> Finally, I complement my dataset with data from the *Competitiveness Reports* by the US Export-Import Bank since 2013, which focuses on projects financed by the China Export-Import Bank ([Export-Import Bank of the United States, 2021](#)). Again, I verify the recorded data using the primary sources and make adjustments when necessary. I harmonize the variables across datasets, following the methodology by [Strange et al. \(2017\)](#). Further details and code are available on request.

The resulting dataset includes 887 projects in 99 countries committed between 2005 and 2015. The average project is worth 244 million USD (in constant

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<sup>52</sup>I use a version of the data shared with me by the authors dated July 22, 2020.

<sup>53</sup>For both datasets, I use data versions shared with me by the authors on July 13, 2019.

2014 USD). Figure A.3 shows that Chinese contractors supply aid projects all over the world. The largest share of aid goes to Africa (46%) and Asia (37%), with the remaining projects going to North and South America (9%), Europe (6%) and the Middle East (2%). Angola and Pakistan are the largest recipients.

Most aid projects implemented by Chinese firms are in the form of hard infrastructure, including pipelines, power plants, transmission lines, railroads, highways, ports, government buildings, sports stadiums, telecommunication networks, schools, and hospitals. The majority of projects are in the energy and transport sectors. The Export-Import Bank of China funds most aid projects (68% of financial value). 23% of all projects by financial value are classified as ODA-like (e.g., grants and concessional loans), 56% as OOF-like (e.g., loans at LIBOR rates), and 21% as vague (cannot be clearly classified using the available information). OOF-like projects are on average larger in terms of contract value (402 million USD) compared to ODA-like projects (116 million USD).

## B.2. Constructing and Linking the Firm Panel

To construct the firm-year panel, I first identify the set of potential Chinese aid contractors from archival administrative records by the Chinese Ministry of Commerce.<sup>54</sup> The records list the names and addresses of firms and subsidiaries licensed to supply overseas construction projects, in both Chinese and English. I first manually remove duplicates. I next determine during which years each firm was active (i.e., eligible to supply aid projects) by manually linking firms to the official transaction-level *Chinese Customs Trade Statistics* (CCTS) by the Chinese Customs Office, using firm names and addresses (see Online Appendix B.3 for details). For each firm, I keep all years between the first and last year with exports over 10,000 USD.<sup>55</sup> I exclude from the sample firms that cannot be linked to the customs data, which are typically faulty entries or old

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<sup>54</sup>URL: <http://xzsx.mofcom.gov.cn:80/xzsp/advSearch.jhtml>, accessed using the *Internet Archive Wayback Machine* in June 2020 (URL: <https://archive.org/web/>).

<sup>55</sup>Firms are not included in the panel in years before they entered or after they exited because they were not able to supply aid projects in those years. In addition, there may be duplicates in the MOFCOM list, for example, due to name changes of firms over time. The customs data provide a unique 10-digit firm identifier that is constant over time.

firm names. The result is an unbalanced firm-year panel of the quasi-universe of potential domestic Chinese aid contractors.

I link the panel to various other administrative datasets from China. First, I use the Chinese credit registry<sup>56</sup> to manually find each firm's ultimate controller to determine whether the firm is owned by the central government. I classify a firm as a central state-owned firm if it is majority-owned by the central SASAC, either directly or through its parent companies.<sup>57</sup> Second, to get firm characteristics such as the number of employees, assets, and revenue, I link my sample to firm-level data from the *National Tax Survey Database* (NTSD) using names and addresses. Since the tax survey data is a stratified random sample of all Chinese firms, I can only link a subset of my sample. I follow standard procedure in the literature and remove observations with non-positive employees, fixed assets, revenue, exports, or wages, as well as outliers. See, e.g., Liu and Mao (2019) for a detailed description of the data and Online Appendix B.4 for further details. Third, I use the public annual reports of firms listed on Chinese stock exchanges from WIND Financial Terminal.

Finally, I link the project-level data described in Subsection 3.2 to the firm-year panel. I expand on the existing literature by collecting and harmonizing information about the Chinese contractors involved in Chinese aid projects. While some of the existing unofficial databases (see Online Appendix B.1) provide names of contractors implementing a project, the names are not harmonized and typically only identify the firm group (conglomerate) rather than the subsidiary that implements the project. This has so far prevented researchers from linking data on projects to firms and conducting systematic micro-analysis of the role of firms in Chinese foreign aid. To address this challenge, whenever possible I identify the actual implementing contractor from original sources underlying the databases on Chinese aid.

I manually find the best match between the MOFCOM list of contractors, the customs data, and the firm names mentioned in the projects data, and,

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<sup>56</sup> Accessed in July 2020 through <https://aiqicha.baidu.com/>.

<sup>57</sup> Companies supervised by the SASAC have continuously been reduced through mergers and privatization since its foundation in 2003. However, virtually all SASAC-administered firms in my sample remained under the SASAC throughout 2003 to 2015.

when necessary, use firm export patterns in the customs data and additional sources, such as company websites, to improve the matching. Two Chinese-speaking research assistants independently verified the linking. Further details are available on request.

The resulting main variables are the number and financial value of aid contracts committed to a firm in a year. The number of contracts is the preferred outcome variable as it is less likely to suffer from measurement error than the financial value. In addition, information on the financial value is missing for 10% of all projects in the sample. I calculate the financial value of a contract assigned to a firm in a year as the financial value of the entire project committed in that year, divided by the number of Chinese firms involved in the project. I do not observe the confidential details of the actual contracts underlying the projects, such as the exact payment made to each firm or subcontracting.

### ***B.3. Customs Data***

The Chinese Customs Trade Statistics (CCTS) by the Chinese Customs Office provides information on Chinese export and import transactions during 2003 to 2015 (see, e.g., [Campante, Chor and Li \(2023\)](#)). The data are available through various government-authorized vendors. For each transaction, the database includes a unique firm identifier, firm name, firm address (including the firm's home prefecture), import/export value and quantity, the product code at the HS 8-digit level, and the country of origin/destination. I aggregate the data to the firm-year level. I use this data to determine during which years a firm was active and thus eligible to contract aid projects (see Online Appendix [B.2](#)). In addition, I use the data to help identify the aid contractor in cases where the sources on aid projects are ambiguous, for example because they only provide the name of the conglomerate implementing the aid project, using patterns in the data such as export destinations. Finally, I use the data to construct controls and other variables at the country-prefecture level for the analysis in Section [4](#).

#### *B.4. Tax Survey Data*

I complement my firm panel with data from the *National Tax Survey Database* (NTSD) from 2007 to 2015. The data are available through various government-authorized vendors. The firm-year level dataset contains information on firms' financials, tax payments, employment, and other characteristics. The survey is conducted annually by the State Administration of Taxation of China and the Ministry of Finance of China (SAT-MOF). It surveys all large firms as well as a stratified random sample of smaller firms. The database is used by the Chinese government to evaluate the impacts of tax policies such as the "Golden Tax Project". As [Liu and Mao \(2019\)](#) argue, various checks and balances make misreporting by firms unlikely and the data are verified by local tax agencies. The NTSD is unique in that it is the only firm-level database that contains information on Chinese firms' financial values and other variables such as employment, covers all sectors, and covers firms of all sizes.<sup>58</sup>

Despite the checks to ensure the accuracy of the tax data, several data cleaning steps are necessary to reduce noise in the data stemming from potential misentries. First, similarly to [Liu and Mao \(2019\)](#), I set as missing entries with non-positive values in the main variables used in the working sample (number of employees, fixed assets, operating income, exports, and wages). Second, I trim the top and bottom percentiles of all entries in the data. Third, for each variable, I set as missing entries that exceed one standard deviation from a firm's sample mean, affecting approximately the top and bottom decile of entries within each variable. This last step is necessary since some entries are implausibly different for some years compared to a firm's entries in other years, likely due to data entry errors. Finally, I drop firms that change their tax identification number over time to ensure comparability of the data over time. After imposing these restrictions, I link the NTSD data with my main sample using firm names and home prefectures. The resulting sample contains data from the tax survey for 332 central state-owned and 404 other firms.

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<sup>58</sup>The other firm-level dataset used by researchers is the Annual Survey of Industrial Firms conducted by the National Bureau of Statistics of China. In contrast to the NTSD, ASIF contains only large firms in the manufacturing sector and may suffer from reporting bias ([Brandt, Van Bieseboeck and Zhang, 2014](#)).

### ***B.5. Unrest Data***

I combine data on labor unrest in China from two sources, the *China Strikes Crowdmap* for 2004 to 2011 (<https://chinastrikes.crowdmap.com/feeds?page=1762&l=ps&l=fa>) and the *China Labour Bulletin* for 2012 to 2014 (<https://clb.org.hk/>). See [Campante, Chor and Li \(2023\)](#) and [Qin, Strömberg and Wu \(2019\)](#) for a description of the latter data source. The unrest events are geo-coded by the original authors. However, the location data in the CLB data provided to me sometimes lacked information or appeared to be coded incorrectly (e.g., the Chinese provinces Shanxi and Shaanxi were confused). I completed the missing location data using regular expressions and manual checks, which I shared and verified with the CLB team. In addition, I drop labor unrest events involving foreign companies. Table [A.5](#) provides several examples of unrest events.

## **Appendix C. Additional Results: Firm Level**

### ***C.1. Robustness to Additional Controls***

A threat to the causal interpretation of the observed effect of unrest on contract allocation is omitted variables that vary across both firms and time and are correlated with both local unrest and aid allocation. I address such concerns by controlling for a host of variables at the prefecture-year and firm-year levels.

Local economic factors such as local GDP, exports, employment, and wages may be negatively correlated with the occurrence of labor unrest, which is often caused by wage arrears. As Table [A.6](#) shows, this may indeed be the case, although the correlations are relatively small and statistically insignificant. At the same time, these factors may affect the marginal costs of aid contractors. For example, if wages in a prefecture decrease due to an economic shock, this may lead to collective action by the affected workers. Moreover, lower wages may in equilibrium also decrease the labor costs of firms, causing firms to bid on aid contracts more aggressively. If this channel were important, this could be a non-political explanation for the observed relationship between local unrest and aid contract allocation to central state-owned firms. To address this concern, Table [A.8](#), which is otherwise identical to Table [1](#), controls for local economic

factors (including lagged GDP per capita, exports per capita, average wages and employment at the prefecture-year level). The results are robust.

There may also be potential omitted variables at the firm-year level correlated with local unrest and contract allocation. Table A.9 addresses such concerns by replicating the baseline analysis for the subset of firms linked to the tax survey data, controlling for firms' lagged number of employees, fixed assets, operating income, exports, and materials inventory. Due to many missings in the data, I control for these variables in separate regressions. The coefficient of interest is qualitatively robust to the inclusion of these controls.

Tables A.10 and A.11 control for province-year fixed effects and prefecture-specific linear trends, respectively, to control for unobserved local macroeconomic and political factors that may be correlated with local unrest and aid allocation. The coefficient of interest is robust to these conservative specifications. Note that the main coefficient in Table A.10 is smaller (0.06) than the baseline estimate (0.08) because the province-year fixed effects absorb all variation from prefectures that are their own province and that tend to have many aid projects (such as Beijing). However, the interpretation of the coefficients relative to the mean and their statistical significance are qualitatively similar.

Finally, the results are robust to omitting specific prefectures and years, and robust to alternative ways of calculating standard errors. These results are not reported here due to space constraints but are available on request.

## Appendix D. Country-Level Data and Additional Results

### D.1. Correlates of Chinese Aid With Recipient Characteristics

In this Online Appendix, I analyze the factors associated with the global allocation of Chinese aid. Table A.27 shows correlations between other countries' characteristics (data from Dreher et al., 2021a) and the amount of Chinese aid received (aid implemented by Chinese central state-owned firms in my sample during 2005 to 2015). Each column in Table A.27 shows the coefficient of an OLS regression of the measure of Chinese aid indicated in the column heading

on the listed lagged country characteristics, controlling for year fixed effects. Standard errors are clustered at the country level.

Consistent with Dreher et al. (2021a), I observe that conditional on other characteristics, countries are more likely to receive Chinese aid if their voting in the UN General Assembly is more aligned with China and less likely to receive Chinese aid if they have diplomatic relations with Taiwan. This result is consistent with Alesina and Dollar (2000) who show that Western donors reward recipient countries for political alliances. Countries with deeper trade relationships with China, and countries whose official language is English, receive more aid. This is consistent with China using its aid to create commercial opportunities for the Chinese export economy. Poorer countries receive more concessional Chinese finance (ODA-like aid), perhaps due to a greater need for aid. Other country characteristics, including whether a country is more populous, more democratic or a petroleum exporter, have no large or statistically significant correlation with Chinese aid. The absence of a relationship with democracy and petroleum exports is especially interesting since it is inconsistent with conventional wisdom and claims in the press that China uses aid to prop up autocratic regimes or to secure access to natural resources.

### **D.2. Randomization Tests: Recipient Country Level**

Adão, Kolesár and Morales (2019) note that in the case of shift-share instruments, clustering at the country level may result in incorrect standard errors. Standard errors may be underestimated if a set of prefectures bears similar importance across multiple recipient countries, generating correlation at the prefecture level across multiple countries. Even though my case differs as the weights in my instrument do not represent exposure shares, a similar concern could apply here. To assess this concern, I run a placebo analysis, replacing the IV with interactions of countries' connections with random prefecture-year level shocks drawn from a normal distribution with mean 0 and variance 5 (as in Adão, Kolesár and Morales, 2019). I iterate this procedure 1,000 times and document the fraction of times the coefficient of regressions of GDP per capita at  $t + 3$  on the placebo IVs shows statistically significant effects. Figure A.6

illustrates the result. The coefficient is significant 13.8% of the time at the 10% level, which suggests that the clustered standard errors may warrant adjusting, but that the coefficient of interest would likely remain statistically significant at conventional levels given the current low p-value. Additionally, I conduct a randomization inference test in the spirit of [Borusyak and Hull \(2020\)](#). To generate counterfactual shocks, I draw random permutations from the distribution of unrest shocks in the data. The p-value from this test is 0.03. Hence, the coefficient of interest remains statistically significant at the 5% level.

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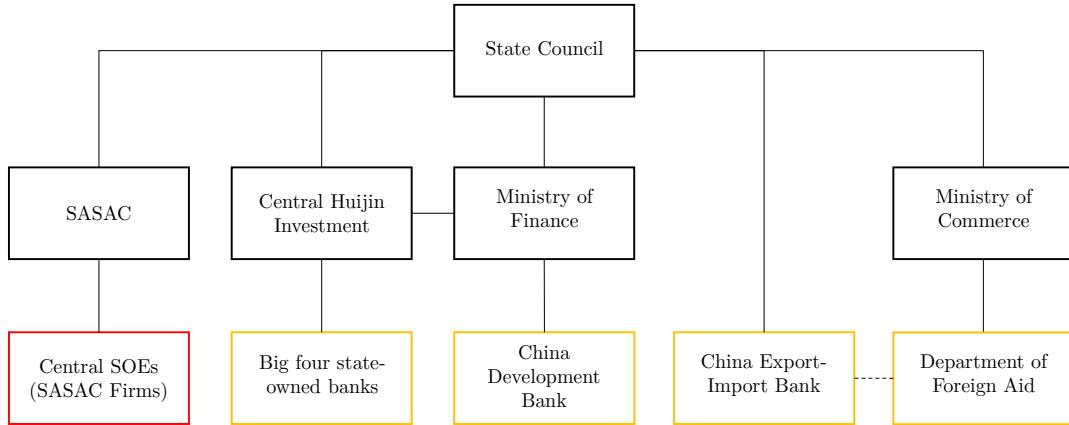
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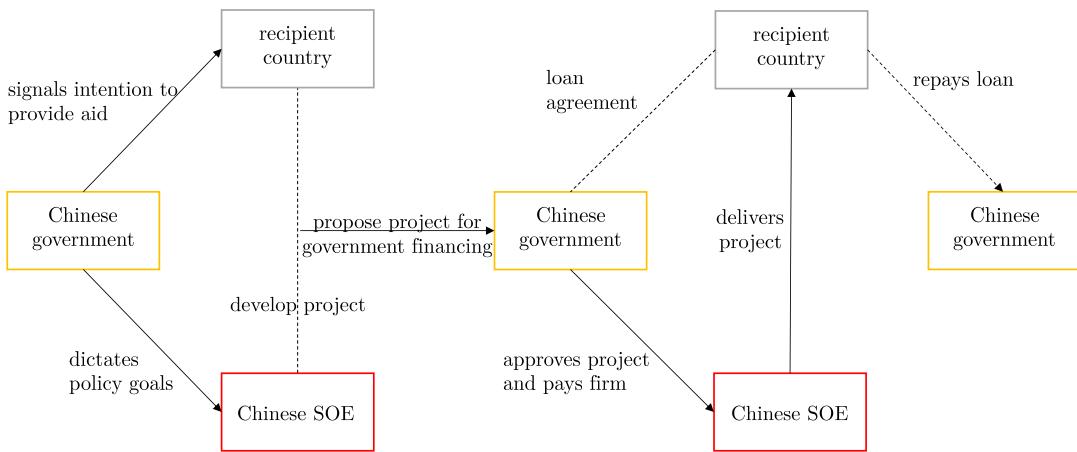
## Online Appendix Figures and Tables

Figure A.1: Organization Chart of Relevant Government Entities (Simplified)



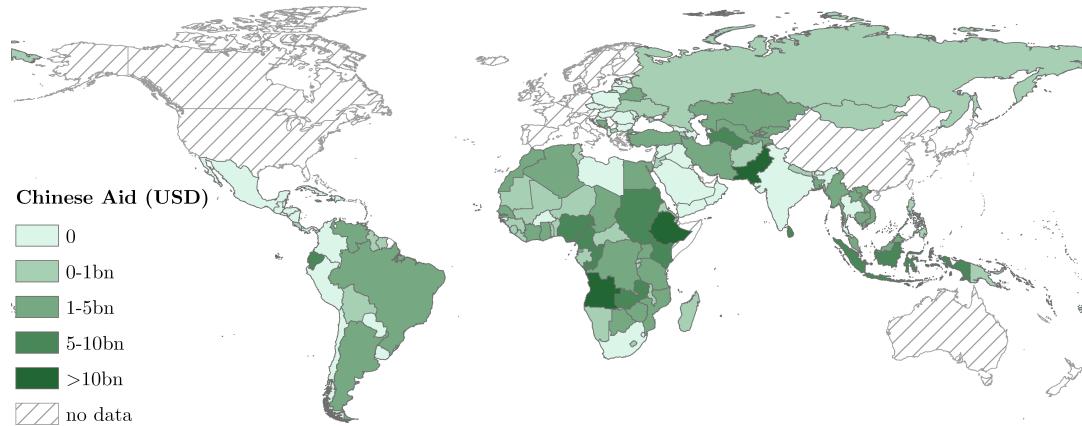
*Note:* This figure shows a simplified overview of China's aid agencies and other central government entities. The China Export-Import Bank and the China Development Bank are state-owned policy banks under the direct supervision of the State Council. The big four state-owned banks include the Bank of China, the Agricultural Bank of China, the Industrial and Commercial Bank of China, and the China Construction Bank. SASAC is short for State-owned Assets Supervision and Administration Commission of the State Council, the Chinese government entity responsible for the management of central SOEs. Black lines indicate ownership. Source: author's illustration based on [Zhang and Smith \(2017\)](#), [Horn, Reinhart and Trebesch \(2019\)](#), and [Brautigam and Hwang \(2020\)](#).

Figure A.2: The Chinese Foreign Aid Project Allocation Process (Simplified)



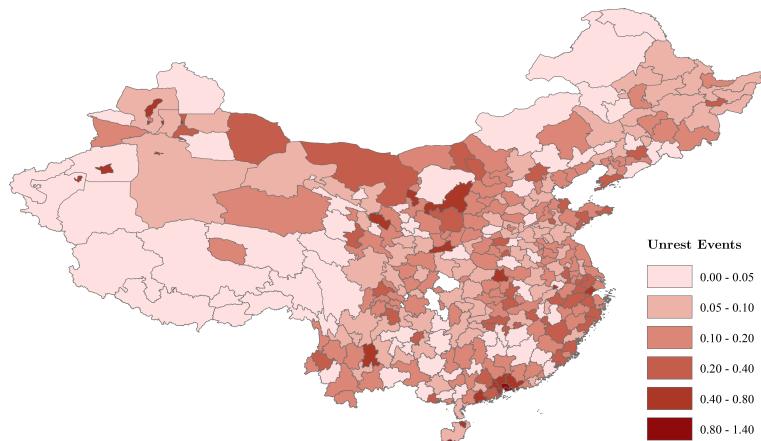
*Note:* Drawing on [Gu, Chen and Zhang \(2014\)](#), [Zhang and Smith \(2017\)](#), [Brautigam and Hwang \(2020\)](#).

Figure A.3: Map of Chinese Foreign Aid to Other Countries, 2005–2015



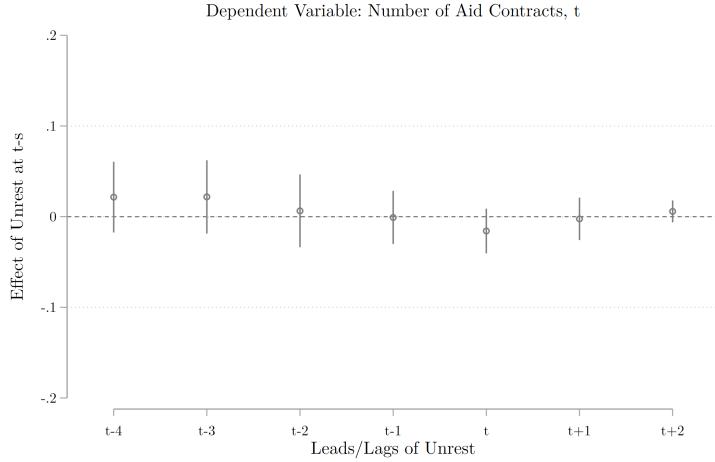
*Note:* This figure shows the total financial value of Chinese foreign aid projects committed to non-high income countries and contracted by Chinese firms in the sample during 2005 to 2015. Financial amounts are in constant 2014 USD. Source: author's illustration based on data described in Subsection 3.2.

Figure A.4: Yearly Unrest Events per Million Inhabitants by Prefecture



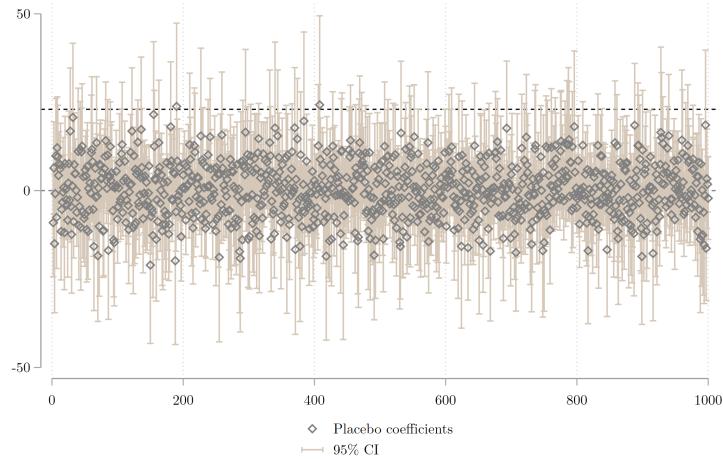
*Note:* This map shows the yearly average number of labor unrest events per million inhabitants by Chinese prefecture in 2004–2014. Source: author's illustration based on data from the China Strikes Crowdmap, China Labour Bulletin, and the 2010 Chinese population census. See Subsection 3.2 for data details.

Figure A.5: Effects of Leads and Lags of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Firms Other than Central State-Owned Firms



*Note:* Each dot shows the coefficients from a regression of the number of Chinese foreign aid contracts allocated to non central state-owned firms in year  $t$  on the number of labor unrest events per million inhabitants in the firm's prefecture at all leads and lags shown on the x-axis, controlling for firm and year fixed effects. The mean of the dependent variable is 0.052. Standard errors are clustered at the prefecture level. Source: author's illustration based on data described in Subsection 3.2.

Figure A.6: Randomization Test



*Note:* The squares show the coefficients from 1,000 regressions of GDP per capita three years after commitment on weighted unrest, where the unrest shocks are drawn from a normal distribution with mean 0 and variance 5 with exposure weights held constant (as in Adão, Kolesár and Morales, 2019). The vertical lines show 95% confidence intervals. Source: author's illustration based on data described in Subsection 4.2.

Table A.1: Types of Chinese Aid

Type	Creditor	Approximate Terms
Grants, in-kind donations, technical assistance	Ministry of Commerce, various government agencies	no repayment
Interest-free loans	Ministry of Commerce, various government agencies	0% interest rate, 20 years maturity, 5 years grace period
Concessional loans and export buyer's credits	China Export-Import Bank	2-3% interest rate, 20 years maturity, 5 years grace period
Commercial loans, export credits, other financing	China Development Bank, China Export-Import Bank, commercial banks and other govt. entities	LIBOR plus spread, 13 years maturity, 0-5 years grace period

Note: Drawing on Bräutigam (2011), Zhang and Smith (2017) and Horn, Reinhart and Trebesch (2019).

Table A.2: Data Sources on Chinese Foreign Aid, 2005–2015

Institution	Dataset / Source	Geography	Time	Type
AidData at William & Mary	Geocoded Global Chinese Official Finance Dataset Version 1.1.1	Global	2000–2014	Loans, grants
AidData at William & Mary	China's Public Diplomacy in East Asia and Pacific Version 1.0	East Asia & Oceania	2000–2016	Loans, grants
Johns Hopkins CARI	China-Africa Loan Database	Africa	2000–2017	Loans
Boston University GDPC	Global Energy Finance Database	Global	2000–2018	Loans
Inter-American Dialogue	China-Latin America Finance Database	Latin America	2005–2018	Loans
US Export-Import Bank	Competitiveness Reports	Global	2013–2018	Loans

Note: This table summarizes the data sources underlying the project-level dataset on Chinese foreign aid used in this paper. References: AidData's Geocoded Global Chinese Official Finance Dataset Version 1.1.1 (AidData Research and Evaluation Unit, 2017; Bluhm et al., 2018; Dreher et al., 2021a), AidData's China's Public Diplomacy in East Asia and Pacific Version 1.0 (Custer et al., 2018), SAIS CARI China-Africa Loan Database (Bräutigam et al., 2019), Boston University's Global Energy Finance Database (Gallagher, 2021), Inter-American Dialogue's China-Latin America Finance Database (Gallagher and Myers, 2021), and Export-Import Bank of the United States' Competitiveness Reports 2014–2016 (Export-Import Bank of the United States, 2021).

Table A.3: The Largest Chinese Foreign Aid Projects by Financial Value

Country	Year	Amount	Short Description	Contractor
<b>ODA-like</b>				
Kenya	2014	1600	Mombasa-Nairobi SG Railway	China Road and Bridge Co.
Cameroon	2009	1052	Water Distribution Project	China National Machinery Import and Export Co.
Tanzania	2012	973	Mnazi Bay to Dar Es Salaam Gas Pipeline	China Petroleum Technology and Development Co.
Nigeria	2006	920	Modernization of Nigeria Railway	China Civil Engineering Construction Co.
Ivory Coast	2013	890	Abidjan Port	China Harbor Engineering Co.
<b>OOF-like</b>				
Turkmenistan	2009	5428	South Yolotan Osman Field Development	Chuanqing Exploratory Drilling Engineering Co.
Turkmenistan	2009	4551	Ioujno-Elotenshoie Field Development	Chuanqing Exploratory Drilling Engineering Co.
Venezuela	2011	4440	Housing Projects	China CITIC Construction Co.
Myanmar	2009	3257	Sino-Myanmar Pipeline	China Petroleum Engineering and Construction Co.
Angola	2010	3144	Kilamba Kaxi New Town	China CITIC Construction Co.

Note: This table shows the largest ODA-like and OOF-like Chinese aid projects implemented by firms in the sample in 2005–2015. Financial amounts are in million constant 2014 USD. See Subsection 3.2 for details on the data.

Table A.4: Descriptive Statistics: Firm-Level Variables

	N	Mean	SD	Min	Max
<b>Panel A. Central State-Owned Firms</b>					
Number of Yearly Chinese Aid Contracts	3,801	0.14	0.62	0.00	13.00
Financial Value of Yearly Chinese Aid Contracts (mn)	3,770	36.99	245.66	0.00	5,418.77
Number of Employees*	1,568	1,480.35	2,499.28	7.00	20,468.00
Fixed Assets (mn)*	1,415	102.55	215.18	0.08	1,935.31
Operating Income (mn)*	1,495	605.34	834.01	0.44	4,812.76
Exports (mn)*	1,102	109.62	197.01	0.01	1,339.98
<b>Panel B. Other Firms</b>					
Number of Yearly Chinese Aid Contracts	5,045	0.05	0.33	0.00	7.00
Financial Value of Yearly Chinese Aid Contracts (mn)	5,002	3.57	40.17	0.00	1,226.56
Number of Employees*	1,739	924.75	1,684.43	5.00	21,463.00
Fixed Assets (mn)*	1,600	52.74	148.19	0.04	1,781.67
Operating Income (mn)*	1,714	287.78	510.79	0.44	4,176.86
Exports (mn)*	1,329	65.76	139.06	0.01	981.71

Note: This table shows descriptive statistics for firm-level variables for firms in the sample, 2005 to 2015. Financial amounts are in constant 2014 USD. \*Variables are from the firms in the 2007–2015 tax survey, which includes a subsample of firms. See Online Appendix B.4 for details on the tax survey. See Subsection 3.2 for other data details.

Table A.5: Examples of Unrest Events

Year	Prefecture, Province	Description
2005	Dongying, Shandong	Shengli oil field workers protest over restructuring
2008	Shanghai, Shanghai	Huanxin / Yixin electronics factory workers protest over wage arrears
2009	Zhengzhou, Henan	Linzhou Iron and Steel Company protest
2010	Jingzhou, Hubei	Teachers protest in front of the government building in Gong'an County
2011	Yongzhou, Hunan	Yuejin machinery factory workers strike
2011	Wenshan, Yunnan	Railway construction workers protest against violence
2012	Honghe, Yunnan	Miners march toward government buildings, protesting factory move
2013	Wuhan, Hebei	Gas company workers stage strikes against merger
2013	Yulin, Shaanxi	Taxi drivers strike, demanding the government to crack down
2014	Chifeng, Inner Mongolia	1000 steel workers demand six months of wages in arrears at local gov

Note: Data for 2004 to 2011 is from the *China Strikes Crowdmap* and data for 2012 to 2014 is from the *China Labour Bulletin* (CLB). Examples selected among unrest events estimated to involve > 1000 participants. Descriptions are abbreviated from the original data by the author for ease of exposition.

Table A.6: Prefecture-level Correlates with Unrest

	Dependent Variable: Unrest, t-1			
	Independent Variable (standardized):			
	GDP per capita (1)	Exports per capita (2)	Employment Rate (3)	Average Wage (4)
Variable in Column Header, t-2	-0.068 (0.292)	-0.111 (0.125)	-0.067 (0.063)	-0.194 (0.143)
Prefecture and Year FE	Yes	Yes	Yes	Yes
Observations	416	416	416	416
Adjusted R <sup>2</sup>	0.573	0.574	0.575	0.579
Unrest Mean	0.323	0.323	0.323	0.323
Unrest SD	0.544	0.544	0.544	0.544

Note: The unit of observation is a prefecture-year. All prefecture-year level regressions include prefecture and year fixed effects and control for prefecture population. Unrest: number of unrest events per 1mn inhabitants. GDP and exports are in logs. All independent variables are standardized to have a mean of 0 and a standard deviation of 1 to facilitate interpretation. Standard errors are clustered at the prefecture-level and reported in parentheses. See Subsection 3.2 for a description and sources of the data.

Table A.7: Descriptive Statistics: Prefecture-Level Variables

Variable	N	Mean	SD	Min	Max
Number of Labor Unrest Events per Million	1,340	0.20	0.46	0.00	5.19
Population (million)	1,340	5.57	4.09	0.23	28.85
Urban Labor Force Employment Rate, Total	1,247	0.97	0.02	0.59	1.00
Urban Labor Force Employment Rate, SOEs	1,247	0.54	0.12	0.14	0.94
Urban Labor Force Employment Rate, Private	1,247	0.43	0.12	0.05	0.86
Local Government Expenditures (billion USD)	1,268	60.56	92.75	1.14	1,007.83
Local Government Income (billion USD)	1,268	44.40	80.69	0.93	898.44
GDP per capita (USD)	1,267	8,144	4,983	1,034	35,515
Average Wage of Employees in Urban Areas (USD)	1,257	6,557	2,260	2,248	18,406
Exports per capita (USD)	1,340	2,098	3,921	3	29,357
Imports per capita (USD)	1,340	1,488	2,995	0	21,628

Note: This table shows descriptive statistics for prefecture-level variables for prefectures in the sample, 2004 to 2014. Labor unrest data for 2004 to 2011 is from the *China Strikes Crowdmap* and for 2012 to 2014 from the *China Labour Bulletin* (CLB). Data on exports and imports are from the *Chinese Customs Trade Statistics* (CCTS). Population data is from the 2010 census. All other variables are based on data from the *China City Statistical Yearbooks*. Financial values are in constant 2014 USD.

Table A.8: Effect of Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms, Controlling for Prefecture Variables

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All	ODA	OOF	All	ODA	OOF
	(1)	(2)	(3)	(4)	(5)	(6)
Unrest,t-1	0.076 (0.033)	0.027 (0.014)	0.040 (0.021)	0.633 (0.311)	0.304 (0.189)	0.477 (0.229)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,005	1,943	1,943	1,983	1,929	1,940
Adjusted R <sup>2</sup>	0.541	0.259	0.139	0.430	0.284	0.165
Dependent Variable Mean	0.160	0.051	0.039	1.540	0.636	0.532
Dependent Variable SD	0.623	0.265	0.252	5.253	3.360	3.212
Unrest Mean	0.369	0.367	0.367	0.369	0.368	0.367
Unrest SD	0.410	0.413	0.413	0.412	0.414	0.413

Note: The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . The prefecture-year level control variables include log GDP per capita, log exports per capita, urban employment rate, average wage, and log population (all in year  $t - 2$ ). Standard errors are clustered at the prefecture level and reported in parentheses.

Table A.9: Effect of Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms, Controlling for Firm Variables

Controlling for:	Dependent Variable: Number of Aid Contracts				
	Number of Employees, t-2	Fixed Assets, t-2	Operating Income, t-2	Exports, t-2	Inventory, t-2
		(1)	(2)	(3)	(4)
Unrest,t-1	0.085 (0.045)	0.096 (0.046)	0.058 (0.028)	0.104 (0.047)	0.127 (0.064)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,193	1,122	1,141	808	678
Adjusted R <sup>2</sup>	0.591	0.567	0.575	0.595	0.601
Dependent Variable Mean	0.197	0.156	0.182	0.194	0.195
Dependent Variable SD	0.730	0.613	0.702	0.708	0.707
Unrest Mean	0.387	0.381	0.382	0.391	0.243
Unrest SD	0.425	0.420	0.400	0.417	0.238

Note: The unit of observation is a firm-year. The sample includes central state-owned firms in the 2007–2015 tax surveys by the State Tax Administration. See Online Appendix B.4 for sample restrictions. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Controls are in logs. Standard errors are clustered at the prefecture level and reported in parentheses.

Table A.10: Effect of Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms, Province-Year Fixed Effects

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All	ODA	OOF	All	ODA	OOF
	(1)	(2)	(3)	(4)	(5)	(6)
Unrest,t-1	0.057 (0.021)	0.021 (0.011)	0.030 (0.014)	0.597 (0.270)	0.229 (0.168)	0.390 (0.172)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,773	3,678	3,678	3,741	3,660	3,673
Adjusted R <sup>2</sup>	0.534	0.223	0.134	0.367	0.196	0.122
Dependent Variable Mean	0.137	0.041	0.036	1.307	0.509	0.493
Dependent Variable SD	0.626	0.249	0.259	4.853	3.017	3.067
Unrest Mean	0.302	0.301	0.301	0.302	0.301	0.301
Unrest SD	0.377	0.379	0.379	0.378	0.379	0.379

Note: The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses.

Table A.11: Effect of Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms, Prefecture-Specific Trends

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All	ODA	OOF	All	ODA	OOF
	(1)	(2)	(3)	(4)	(5)	(6)
Unrest,t-1	0.086 (0.028)	0.031 (0.012)	0.039 (0.016)	0.698 (0.277)	0.332 (0.170)	0.526 (0.193)
Firm and Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture-specific Trends	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,801	3,706	3,706	3,769	3,688	3,701
Adjusted R <sup>2</sup>	0.548	0.244	0.166	0.386	0.216	0.155
Dependent Variable Mean	0.137	0.041	0.036	1.307	0.514	0.494
Dependent Variable SD	0.624	0.250	0.258	4.850	3.028	3.071
Unrest Mean	0.303	0.301	0.301	0.303	0.302	0.301
Unrest SD	0.381	0.383	0.383	0.382	0.383	0.383

Note: The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses.

Table A.12: Effect of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Other Firms (Placebo Check)

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All	ODA	OOF	All	ODA	OOF
	(1)	(2)	(3)	(4)	(5)	(6)
Unrest,t-1	-0.008 (0.010)	-0.004 (0.004)	-0.000 (0.003)	0.037 (0.054)	0.015 (0.042)	-0.015 (0.045)
Firm and Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,045	5,011	5,011	5,002	4,980	5,009
Adjusted R <sup>2</sup>	0.437	0.397	0.129	0.388	0.382	0.123
Dependent Variable Mean	0.052	0.031	0.008	0.473	0.289	0.128
Dependent Variable SD	0.331	0.241	0.101	2.857	2.213	1.530
Unrest Mean	0.279	0.278	0.278	0.279	0.278	0.278
Unrest SD	0.463	0.460	0.460	0.464	0.461	0.460

Note: The unit of observation is a firm-year. The sample includes firms other than central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses.

Table A.13: Effect of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms by Firm of Unrest

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All (1)	ODA (2)	OOF (3)	All (4)	ODA (5)	OOF (6)
Unrest in SOEs,t-1	0.085 (0.045)	0.033 (0.022)	0.017 (0.013)	0.737 (0.528)	0.360 (0.279)	0.246 (0.253)
Unrest in Other Firms,t-1	0.080 (0.034)	0.025 (0.012)	0.048 (0.022)	0.624 (0.301)	0.246 (0.164)	0.650 (0.277)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,801	3,706	3,706	3,769	3,688	3,701
Adjusted R <sup>2</sup>	0.554	0.256	0.175	0.388	0.223	0.152
Dependent Variable Mean	0.137	0.041	0.036	1.307	0.514	0.494
Dependent Variable SD	0.624	0.250	0.258	4.850	3.028	3.071
Unrest in SOEs Mean	0.081	0.080	0.080	0.081	0.080	0.080
Unrest in SOEs SD	0.134	0.134	0.134	0.134	0.134	0.134
Unrest in Other Firms Mean	0.222	0.222	0.222	0.222	0.222	0.221
Unrest in Other Firms SD	0.331	0.333	0.333	0.332	0.334	0.333

Note: The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses.

Table A.14: Effect of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms by Sector of Unrest

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All (1)	ODA (2)	OOF (3)	All (4)	ODA (5)	OOF (6)
Unrest in Industrial Sectors,t-1	0.098 (0.036)	0.035 (0.014)	0.048 (0.019)	0.809 (0.308)	0.403 (0.176)	0.587 (0.228)
Unrest in Service Sectors,t-1	0.004 (0.054)	-0.007 (0.030)	0.002 (0.022)	0.078 (0.527)	-0.147 (0.447)	0.362 (0.407)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,801	3,706	3,706	3,769	3,688	3,701
Adjusted R <sup>2</sup>	0.554	0.256	0.175	0.388	0.223	0.152
Dependent Variable Mean	0.137	0.041	0.036	1.307	0.514	0.494
Dependent Variable SD	0.624	0.250	0.258	4.850	3.028	3.071
Unrest in Industrial Sectors Mean	0.212	0.211	0.211	0.212	0.211	0.211
Unrest in Industrial Sectors SD	0.309	0.311	0.311	0.310	0.312	0.311
Unrest in Service Sectors Mean	0.081	0.080	0.080	0.081	0.080	0.080
Unrest in Service Sectors SD	0.124	0.124	0.124	0.124	0.124	0.124

Note: The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Industrial sectors include construction, mining, manufacturing. Service sectors include education, public transport, others. Standard errors are clustered at the prefecture level and reported in parentheses.

**Table A.15: Effect of Local Unrest in China on Chinese Foreign Aid Contract Allocation to Central State-Owned Firms by Fiscal Capacity of the Local Government**

Dependent Variable:	Number of Aid Contracts			Financial Value of Aid Contracts		
	All	ODA	OOF	All	ODA	OOF
	(1)	(2)	(3)	(4)	(5)	(6)
Local Gov. Constrained, t-1	-0.076 (0.027)	-0.017 (0.012)	-0.027 (0.017)	-0.556 (0.254)	-0.037 (0.176)	-0.306 (0.189)
Unrest, t-1	0.063 (0.025)	0.017 (0.009)	0.041 (0.018)	0.478 (0.258)	0.197 (0.139)	0.491 (0.217)
Unrest × Local Gov. Constrained, t-1	0.062 (0.034)	0.031 (0.016)	0.009 (0.016)	0.599 (0.297)	0.268 (0.208)	0.295 (0.252)
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,673	3,579	3,579	3,641	3,561	3,574
Adjusted R <sup>2</sup>	0.552	0.254	0.173	0.384	0.221	0.149
Dependent Variable Mean	0.141	0.043	0.037	1.347	0.532	0.512
Dependent Variable SD	0.634	0.254	0.263	4.917	3.080	3.124
Unrest Mean	0.294	0.293	0.293	0.294	0.293	0.292
Unrest SD	0.339	0.340	0.340	0.340	0.341	0.340

*Note:* The unit of observation is a firm-year. The sample includes central state-owned firms only. Number of aid contracts: number of Chinese foreign aid contracts allocated to a firm in year  $t$ . Financial value of aid contracts:  $\log(1 + \text{total financial value of Chinese foreign aid contracts allocated to a firm in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Unrest: number of unrest events per million inhabitants in firm's prefecture in year  $t - 1$ . Local Gov. Constrained is a dummy that equals 1 if the yearly prefecture public income / expenditure ratio is below 0.8 (sample mean) in year  $t - 1$ . Standard errors are clustered at the prefecture level and reported in parentheses. See Subsection 3.2 for sources and details on the data.

**Table A.16: Descriptive Statistics: Recipient Country-Level Variables**

Variable	N	Mean	SD	Min	Max
Number of Aid Projects	1,584	0.31	0.92	0.00	11.00
Number of ODA Projects	1,584	0.13	0.44	0.00	5.00
Number of OOF Projects	1,584	0.11	0.56	0.00	11.00
Financial Value of Aid Projects (log)	1,584	3.12	7.09	0.00	22.62
Financial Value of ODA Projects (log)	1,584	1.61	5.21	0.00	21.19
Financial Value of OOF Projects (log)	1,584	1.33	4.94	0.00	22.56
Lagged Weighted Labor Unrest	1,584	0.00	1.00	-3.59	7.11
Imports from China (bn USD)	1,583	2.46	4.01	0.00	14.20
FDI from China (bn USD)	1,584	0.21	0.97	0.00	17.47
GDP growth (%)	1,539	4.26	3.49	-4.39	10.30
GDP per capita (USD)	1,531	4,445	3,966	463	14,437
Government Consumption per capita	1,199	740	711	55	2,534
Household Consumption per capita	1,197	2,707	2,173	385	8,009
Capital Formation per capita (USD)	1,195	983	876	81	3,204
Imports per capita (USD)	1,447	1,789	1,806	104	6,486
Exports per capita (USD)	1,447	1,335	1,653	39	5,942
Unemployment Rate	1,474	8.12	5.93	1.13	22.61

*Note:* This table shows recipient country-level descriptive statistics for the sample used in Table 3. Financial amounts are in constant 2014 USD. The data sources are described in Subsection 4.2.

**Table A.17: List of Countries**

**Panel A. Countries that Ever Received Chinese Aid Projects Implemented by Central State-Owned Firms in 2005 - 2015**

Afghanistan	Guinea-Bissau	Pakistan
Angola	Guyana	Philippines
Argentina	Indonesia	Russia
Bangladesh	Iran	Rwanda
Belarus	Jamaica	Senegal
Benin	Kazakhstan	Serbia
Bolivia	Kenya	Seychelles
Bosnia and Herzegovina	Kyrgyz Republic	Sierra Leone
Botswana	Laos	Sri Lanka
Brazil	Liberia	Sudan
Burundi	Macedonia	Tajikistan
Cambodia	Madagascar	Tanzania
Cameroon	Malawi	Togo
Central African Republic	Malaysia	Tonga
Chad	Maldives	Tunisia
Costa Rica	Mali	Turkey
Cote d'Ivoire	Mauritania	Turkmenistan
Djibouti	Mauritius	Uganda
Dominica	Micronesia	Ukraine
Ecuador	Montenegro	Uzbekistan
Egypt	Morocco	Vanuatu
Eritrea	Mozambique	Venezuela
Ethiopia	Myanmar	Vietnam
Fiji	Namibia	Yemen
Gabon	Nepal	Zambia
Ghana	Niger	Zimbabwe
Grenada	Nigeria	

**Panel B. Other Low- and Middle-Income Countries**

Albania	Guatemala	Peru
Algeria	Haiti	Poland
Armenia	Honduras	Romania
Azerbaijan	Hungary	Saint Kitts and Nevis
Belize	India	Saint Lucia
Bhutan	Iraq	Saint Vincent and the Grenadines
Bulgaria	Jordan	Samoa
Burkina Faso	Kiribati	Sao Tome and Principe
Cape Verde	Lebanon	Slovak Republic
Chile	Lesotho	Solomon Islands
Colombia	Lithuania	Somalia
Comoros	Marshall Islands	South Africa
Croatia	Mexico	Suriname
Cuba	Moldova	Swaziland
Czech Republic	Mongolia	Syria
Democratic People's Republic of Korea	Nicaragua	Thailand
Dominican Republic	Oman	Timor
El Salvador	Palau	Trinidad and Tobago
Estonia	Palestine	Tuvalu
Gambia	Panama	Uruguay
Georgia	Papua New Guinea	
Gibraltar	Paraguay	

*Note:* Panel A lists all countries that ever received Chinese foreign aid projects implemented by central state-owned firms during the sample period. Panel B lists all other non-high income countries (as classified by the World Bank in 2005) in the sample.

**Table A.18: First Stage**

Dependent Variable:	Number of Aid Projects			Financial Value of Aid Projects		
	All (1)	ODA (2)	OOF (3)	All (4)	ODA (5)	OOF (6)
Weighted Unrest,t-1 (Standardized)	0.194 (0.046)	0.059 (0.026)	0.099 (0.022)	0.808 (0.279)	0.511 (0.286)	0.964 (0.238)
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,584	1,584	1,584	1,584	1,584	1,584
Adjusted R <sup>2</sup>	0.373	0.230	0.301	0.317	0.209	0.260
Kleibergen-Paap F-Statistic	18.02	5.13	20.32	8.38	3.19	16.41
Dependent Variable Mean	0.307	0.128	0.114	3.117	1.607	1.326
Dependent Variable SD	0.916	0.436	0.564	7.085	5.206	4.940

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects. Number of aid projects: total number of Chinese foreign aid projects, implemented by central state-owned firms, committed to a country in year  $t$ . Financial value of aid projects:  $\log(1 + \text{total financial value of Chinese foreign aid projects, implemented by central state-owned firms, committed to a country in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. Weighted unrest is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. Standard errors are clustered at the country level and reported in parentheses.

**Table A.19: First Stage, by Sector of Project**

	Dependent Variable: Number of Aid Projects					
	All (1)	Transport (2)	Energy (3)	Industry, Mining (4)	Communications (5)	Services, Other (6)
Weighted Unrest,t-1 (Standardized)	0.194 (0.046)	0.085 (0.034)	0.083 (0.036)	0.010 (0.009)	0.003 (0.004)	0.013 (0.011)
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,584	1,584	1,584	1,584	1,584	1,584
Adjusted R <sup>2</sup>	0.373	0.207	0.228	0.136	0.017	0.243
Kleibergen-Paap F-Statistic	18.02	6.31	5.17	1.41	0.52	1.26
Dependent Variable Mean	0.307	0.102	0.102	0.032	0.011	0.059
Dependent Variable SD	0.916	0.435	0.484	0.209	0.135	0.300

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects. Number of aid projects: total number of Chinese foreign aid projects, implemented by central state-owned firms, committed to a country in year  $t$ . Weighted unrest is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. Standard errors are clustered at the country level.

Table A.20: First Stage Placebo Checks

Dependent Variable:	Number of Aid Projects				Imports from China (5)	FDI from China (6)	OECD-DAC Aid (7)
	(1)	(2)	(3)	(4)			
Weighted Unrest, $t-2$ (Standardized)	-0.089 (0.060)						
Weighted Unrest, $t-1$ (Standardized)		0.194 (0.046)			-0.053 (0.033)	-0.020 (0.026)	-0.001 (0.007)
Weighted Unrest, $t$ (Standardized)			0.091 (0.046)				
Weighted Unrest, $t+1$ (Standardized)				0.010 (0.047)			
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,440	1,584	1,440	1,296	1,583	1,584	1,457
Adjusted R <sup>2</sup>	0.348	0.373	0.376	0.377	0.916	0.406	0.841
Kleibergen-Paap F-Statistic	2.21	18.02	3.96	0.04	2.50	0.56	0.02
Dependent Variable Mean	0.317	0.307	0.322	0.326	2.463	0.242	0.437
Dependent Variable SD	0.912	0.916	0.948	0.968	4.005	0.789	0.505

Note: The unit of observation is a country-year. All regressions control for country and region-year fixed effects. Number of aid projects: number of Chinese foreign aid projects, implemented by central state-owned firms, committed to a country in year  $t$ . Imports from China: imports from China received by a country in billion USD (WDI data). FDI from China: FDI from Chinese firms received by a country in billion USD (AEI Global Investment Tracker data). OECD-DAC aid: foreign aid received by OECD Development Assistance Committee donors received by a country in billion USD (WDI data). All financial amounts are in constant 2014 USD. Weighted unrest is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects implemented by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. Standard errors are clustered at the country level.

**Table A.21: Effects of Chinese Foreign Aid on Recipients, Leads and Lags**

Dependent Variable at t+3:	GDP per capita	Capital Formation per capita	Govt. Consumption per capita	HH Consumption per capita	Imports per capita	Exports per capita	Unemployment Rate (%)	GDP Growth per capita (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Instrumented Number of Aid Projects,t	117.598 (53.523)	88.669 (47.178)	35.333 (13.056)	73.690 (35.736)	33.038 (41.810)	51.132 (61.765)	-0.434 (0.233)	0.890 (0.493)
Instrumented Number of Aid Projects,t+1	103.203 (41.326)	105.042 (58.504)	34.212 (11.813)	55.566 (34.722)	27.378 (37.800)	75.238 (48.810)	-0.419 (0.211)	0.193 (0.408)
Instrumented Number of Aid Projects,t+2	71.665 (33.054)	22.510 (24.843)	22.682 (9.408)	28.041 (27.413)	48.101 (44.265)	103.579 (78.001)	-0.193 (0.184)	0.614 (0.570)
Instrumented Number of Aid Projects,t+3	34.081 (24.839)	12.736 (19.677)	10.860 (10.281)	5.780 (18.889)	14.790 (40.604)	58.994 (57.489)	-0.144 (0.128)	1.283 (0.597)
Instrumented Number of Aid Projects,t+4	- -	- -	- -	- -	- -	- -	- -	- -
Instrumented Number of Aid Projects,t+5	-19.271 (24.962)	-36.398 (39.961)	-2.612 (8.791)	-32.091 (24.664)	-4.401 (40.097)	-15.030 (43.060)	-0.186 (0.210)	-0.095 (0.487)
Instrumented Number of Aid Projects,t+6	-9.235 (34.338)	-36.100 (42.271)	14.405 (10.873)	-2.897 (30.635)	-10.051 (45.054)	-10.438 (38.069)	0.002 (0.230)	0.740 (0.671)
Instrumented Number of Aid Projects,t+7	7.014 (41.806)	-16.213 (37.188)	-1.974 (12.752)	8.488 (27.064)	-14.792 (47.699)	-75.095 (64.788)	-0.101 (0.223)	-0.176 (0.602)
Country and Region-Year FEes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,521	1,122	1,108	1,108	1,333	1,333	1,474	1,526
Kleibergen-Paap F-Statistic	17.50	14.39	13.49	13.23	18.16	18.30	17.38	17.64
Dependent Variable Mean	4,729	1,067	796	2,953	1,909	1,412	8,023	2,204
Dependent Variable SD	4,122	917	746	2,317	1,837	1,685	5,963	3,227

*Note:* The unit of observation is a country-year. The sample includes countries that have non-missing values for all leads and lags. All regressions control for country and region-year fixed effects, as well as population, and outcome in year  $t - 1$ . Each row shows the coefficient estimates from separate 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 3$  on the number of Chinese foreign aid projects by central state-owned firms, received by a country in the indicated year, where the number of aid projects is instrumented by weighted unrest in China one year prior to the indicated year. The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses.

**Table A.22: Effects of Chinese Foreign Aid on Recipients, Robustness**

Dependent Variable at t+3:	GDP per capita	Capital Formation per capita	Govt. Consumption per capita	HH Consumption per capita	Imports per capita	Exports per capita	Unemployment Rate (%)	GDP Growth per capita (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Instrumented Number of Aid Projects,t	109.660 (51.447)	102.532 (51.964)	34.958 (12.396)	70.099 (32.361)	33.689 (43.542)	38.636 (73.282)	-0.389 (0.233)	0.984 (0.504)
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,386	1,071	1,070	1,069	1,298	1,298	1,339	1,388
Kleibergen-Paap F-Statistic	18.16	13.65	13.74	13.67	18.77	18.77	17.99	18.34
Dependent Variable Mean	4,752	1,049	787	2,916	1,860	1,376	8.047	2.122
Dependent Variable SD	4,139	903	737	2,293	1,808	1,666	5.985	3.185
Number of Aid Projects Mean	0.326	0.357	0.353	0.353	0.333	0.333	0.339	0.326
Number of Aid Projects SD	0.926	0.990	0.988	0.988	0.948	0.948	0.942	0.926

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects, population, outcome in year  $t - 1$ , imports from China per capita in year  $t - 1$ , FDI from China in year  $t - 1$ , as well as weighted exports from Chinese prefectures in year  $t - 1$ . Panel A shows the coefficient estimates from 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 3$  on the number of Chinese foreign aid projects by central state-owned firms, received by a country in year  $t$ , where the number of aid projects is instrumented by weighted unrest in China in year  $t - 1$ . The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses.

**Table A.23: Effects of Chinese Foreign Aid on Recipients, No Lag Outcome**

Dependent Variable at t+3:	GDP per capita	Capital Formation per capita	Govt. Consumption per capita	HH Consumption per capita	Imports per capita	Exports per capita	Unemployment Rate (%)	GDP Growth per capita (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Instrumented Number of Aid Projects,t	122.763 (55.811)	106.063 (58.869)	38.844 (13.465)	60.704 (37.210)	35.513 (41.558)	34.014 (70.357)	-0.460 (0.241)	0.969 (0.491)
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,534	1,223	1,231	1,230	1,457	1,457	1,474	1,539
Kleibergen-Paap F-Statistic	17.45	15.99	16.35	16.57	17.93	17.93	17.21	17.67
Dependent Variable Mean	4,700	1,043	770	2,857	1,854	1,365	8.023	2.223
Dependent Variable SD	4,118	903	725	2,259	1,815	1,664	5.963	3.229
Number of Aid Projects Mean	0.316	0.356	0.355	0.354	0.325	0.325	0.326	0.315
Number of Aid Projects SD	0.929	1.013	1.010	1.011	0.948	0.948	0.945	0.928

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects, and population. Panel A shows the coefficient estimates from 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 3$  on the number of Chinese foreign aid projects by central state-owned firms, received by a country in year  $t$ , where the number of aid projects is instrumented by weighted unrest in China in year  $t - 1$ . The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses.

**Table A.24: Effects of Chinese Foreign Aid on Recipients, Historical Weights**

Dependent Variable at t+3:	GDP	Capital	Govt. Con-	HH Con-	Imports	Exports	Unemploy-	GDP
	per capita	Formation	sumption	sumption	per capita	per capita	ment Rate	Growth per
	(1)	(2)	(3)	(4)	(5)	(6)	(%)	capita (%)
Instrumented Number of Aid Projects,t	211.855 (98.266)	289.165 (251.546)	49.912 (26.225)	136.523 (85.570)	86.666 (65.059)	66.793 (114.581)	-0.492 (0.460)	2.048 (0.803)
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,526	1,170	1,167	1,166	1,413	1,413	1,474	1,529
Kleibergen-Paap F-Statistic	9.51	4.19	4.82	4.72	9.18	9.10	9.29	9.54
Dependent Variable Mean	4,718	1,049	783	2,901	1,872	1,386	8.023	2.209
Dependent Variable SD	4,121	906	736	2,289	1,821	1,676	5.963	3.229
Number of Aid Projects Mean	0.315	0.349	0.347	0.346	0.326	0.326	0.326	0.315
Number of Aid Projects SD	0.930	1.003	1.001	1.001	0.957	0.957	0.945	0.929

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects, as well as population, outcome in year  $t - 1$ , and uninteracted time-varying weights. Panel A shows the coefficient estimates from 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 3$  on the number of Chinese foreign aid projects by central state-owned firms, received by a country in year  $t$ , where the number of aid projects is instrumented by weighted unrest in China in year  $t - 1$ . The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 until  $t - 1$  during which the country received any aid projects by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses.

**Table A.25: Effects of Chinese Foreign Aid on Recipient GDP, Other Aid**

Measure of Aid:	Dependent Variable at t+3: GDP per capita					
	Number of Aid Projects			Financial Value of Aid Projects		
	All (1)	ODA (2)	OOF (3)	All (4)	ODA (5)	OOF (6)
Instrumented Aid,t	117.800 (53.508)	370.581 (235.385)	233.429 (104.025)	26.902 (13.770)	41.670 (29.677)	22.881 (11.670)
Country and Region-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,526	1,526	1,526	1,526	1,526	1,526
Kleibergen-Paap F-Statistic	17.51	5.52	20.11	9.23	3.65	16.63
Dependent Variable Mean	4,718	4,718	4,718	4,718	4,718	4,718
Dependent Variable SD	4,121	4,121	4,121	4,121	4,121	4,121
Aid Mean	0.315	0.132	0.116	3.197	1.656	1.351
Aid SD	0.930	0.442	0.573	7.158	5.274	4.983

*Note:* The unit of observation is a country-year. All regressions control for country and region-year fixed effects, as well as population, and outcome in year  $t - 1$ . Panel A shows the coefficient estimates from 2SLS regressions of GDP per capita in year  $t + 3$  on the measure of Chinese aid indicated in the column heading by central state-owned firms, received by a country in year  $t$ , where aid is instrumented by weighted unrest in China in year  $t - 1$ . Number of aid projects: total number of Chinese foreign aid projects by central state-owned firms, committed to a country in year  $t$ . Financial value of aid projects:  $\log(1 + \text{total financial value of Chinese foreign aid projects by central state-owned firms, committed to a country in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses.

**Table A.26: Effects of Chinese Foreign Aid on Growth, Leads and Lags**

Dependent Variable at t+6:	GDP per capita	Capital Formation per capita	Govt. Consumption per capita	HH Consumption per capita	Imports per capita Growth	Exports per capita Growth	Unemployment Rate (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Instrumented Number of Aid Projects,t	0.003 (0.007)	0.010 (0.036)	0.033 (0.030)	-0.000 (0.011)	-0.021 (0.032)	0.032 (0.054)	-0.381 (0.279)
Instrumented Number of Aid Projects,t+1	-0.001 (0.006)	-0.045 (0.039)	-0.035 (0.025)	0.006 (0.009)	0.007 (0.026)	-0.049 (0.039)	-0.336 (0.266)
Instrumented Number of Aid Projects,t+2	0.010 (0.005)	0.012 (0.025)	0.015 (0.023)	0.003 (0.009)	-0.007 (0.022)	0.032 (0.042)	-0.299 (0.239)
Instrumented Number of Aid Projects,t+3	0.009 (0.006)	-0.002 (0.032)	-0.008 (0.039)	0.025 (0.011)	0.029 (0.027)	-0.021 (0.033)	-0.434 (0.233)
Instrumented Number of Aid Projects,t+4	0.005 (0.004)	0.062 (0.038)	0.034 (0.018)	-0.012 (0.016)	-0.024 (0.025)	0.000 (0.044)	-0.419 (0.211)
Instrumented Number of Aid Projects,t+5	0.012 (0.007)	-0.017 (0.034)	0.005 (0.022)	0.018 (0.015)	0.076 (0.025)	0.015 (0.051)	-0.193 (0.184)
Instrumented Number of Aid Projects,t+6	0.008 (0.007)	-0.006 (0.038)	0.014 (0.035)	0.009 (0.009)	0.032 (0.030)	0.067 (0.049)	-0.144 (0.128)
Instrumented Number of Aid Projects,t+7	- -	- -	- -	- -	- -	- -	- -
Instrumented Number of Aid Projects,t+8	-0.002 (0.006)	-0.001 (0.028)	-0.014 (0.021)	-0.004 (0.009)	-0.020 (0.036)	-0.060 (0.069)	-0.186 (0.210)
Instrumented Number of Aid Projects,t+9	0.002 (0.008)	0.010 (0.033)	0.044 (0.025)	-0.006 (0.014)	0.034 (0.031)	0.113 (0.054)	0.002 (0.230)
Instrumented Number of Aid Projects,t+10	-0.006 (0.007)	-0.028 (0.036)	-0.025 (0.029)	0.015 (0.021)	-0.008 (0.025)	-0.026 (0.031)	-0.101 (0.223)
Country and Region-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,509	1,087	1,071	1,069	1,264	1,264	1,474
Kleibergen-Paap F-Statistic	17.69	13.31	13.07	12.87	17.67	17.60	17.40
Dependent Variable Mean	0.014	0.017	0.018	0.014	0.002	0.005	8.094
Dependent Variable SD	0.049	0.166	0.094	0.056	0.166	0.255	5.984

*Note:* The unit of observation is a country-year. The sample includes countries that have non-missing values for all leads and lags. All regressions control for country and region-year fixed effects, as well as population, and outcome in year  $t - 1$ . Each row shows the coefficient estimates from separate 2SLS regressions of the outcome variable indicated in the column heading in year  $t + 6$  on the number of Chinese foreign aid projects by central state-owned firms, received by a country in the indicated year, where the number of aid projects is instrumented by weighted unrest in China one year prior to the indicated year. The instrument, weighted unrest, is calculated as the sum (over all Chinese prefectures) of residualized labor unrest in a Chinese prefecture multiplied with the fraction of years in 2005 to 2015 during which the country received any aid projects by Chinese central state-owned firms in that prefecture. Weighted unrest is standardized to have a mean of 0 and a standard deviation of 1. The outcome variables are winsorized at the 5th and 95th percentiles. Standard errors are clustered at the country level and reported in parentheses.

Table A.27: Correlates of Chinese Aid With Recipient Country Characteristics

Dependent Variable:	Number of Aid Projects			Financial Value of Aid Projects		
	All (1)	ODA (2)	OOF (3)	All (4)	ODA (5)	OOF (6)
UN General Assembly Voting Alignment	1.048 (0.515)	0.412 (0.287)	0.311 (0.256)	8.343 (3.595)	5.209 (2.930)	1.829 (2.460)
Diplomatic Relations with Taiwan	-0.567 (0.142)	-0.321 (0.096)	-0.147 (0.057)	-5.305 (0.903)	-3.548 (0.775)	-1.664 (0.454)
Trade with China (log)	0.142 (0.084)	0.030 (0.031)	0.071 (0.057)	0.577 (0.384)	0.104 (0.270)	0.357 (0.282)
Petroleum Exporter	-0.232 (0.216)	-0.160 (0.119)	-0.039 (0.116)	-2.172 (1.182)	-1.508 (0.904)	-0.805 (0.932)
Government Debt (% of GDP)	-0.001 (0.002)	-0.002 (0.001)	0.000 (0.001)	-0.013 (0.009)	-0.017 (0.006)	0.001 (0.006)
Democracy (Polity Score)	-0.013 (0.012)	-0.000 (0.006)	-0.010 (0.006)	-0.116 (0.069)	0.005 (0.048)	-0.113 (0.055)
GDP per capita (log)	-0.259 (0.097)	-0.155 (0.043)	-0.054 (0.060)	-1.601 (0.528)	-1.393 (0.361)	-0.297 (0.364)
Population (log)	-0.000 (0.097)	0.001 (0.035)	-0.001 (0.062)	0.206 (0.465)	0.101 (0.323)	0.370 (0.356)
English is Official Language	0.261 (0.175)	0.257 (0.098)	0.015 (0.079)	2.024 (0.976)	2.806 (0.736)	0.572 (0.687)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,166	1,166	1,166	1,166	1,166	1,166
Adjusted R <sup>2</sup>	0.110	0.142	0.033	0.162	0.160	0.062
Dependent Variable Mean	0.611	0.296	0.195	5.031	3.071	2.030
Dependent Variable SD	1.388	0.732	0.794	8.409	6.844	5.982

Note: The unit of observation is a country-year. Each column shows an OLS regression of the measure of Chinese aid indicated in the column heading on the country-level variables listed on the left hand side, controlling for year fixed effects. The time-varying independent variables are lagged by one period. Number of aid projects: total number of Chinese foreign aid projects received by a country in year  $t$ . Financial value of aid projects:  $\log(1 + \text{total financial value of Chinese foreign aid projects received by a country in year } t)$ . ODA: Official Development Assistance. OOF: Other Official Finance. The country-level data other than Chinese aid are from Dreher et al. (2021a). Standard errors are clustered at the country level and reported in parentheses.