Chinese Development Lending & the Amplification Effect*

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Abstract

Over the last few decades, China has emerged as a major player in foreign aid and development lending. While a large empirical literature exists on the effects of foreign aid upon recipient countries' political institutions, less has been written on this with respect to China's role as an official lender and source of foreign aid in the developing world. Since Chinese lending differs significantly from conventional lending activities engaged in by multilateral institutions and OECD creditor governments, how much of what we know about the effects of foreign aid on political institutions applies to the Chinese case? This paper investigates the "amplification effect" hypothesis—that aid amplifies recipients' existing set of political institutions—with respect to Chinese development flows. Employing different estimators upon panel data for 104 countries between 2002 and 2017 that have been recipients of Chinese development flows, the paper's findings support the amplification effect hypothesis as applied to the Chinese case, as the average sampled democracy becomes more democratic in consequence, and the average sampled autocracy becomes more authoritarian. However, the amplification effect exhibits a greater magnitude in autocratic recipients of Chinese development flows, as autocracies become more autocratic relative to democracies becoming more democratic. Various channels through which these effects take place are explored.

Keywords: China, Official lending, Foreign aid, Political institutions, Belt & Road Initiative
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1 Introduction

Over the span of only a few decades, China transformed from a nation comprised of hundreds of millions struggling to get by at subsistence level into the world's second largest economy. At the time of Mao's death in 1976, China's GDP per capita was $200; by 2010, it was more than $4,000, and today over $10,000. In this timespan, China's share of the global economy has risen from below 2 percent to just under 20 percent (IMF, 2019). In what has been referred to as "the greatest program for economic reform in history" (Coase & Wang, 2012), China's economic transition from a communist system to a capitalist system "with Chinese characteristics" transformed a country making up one fifth of the world's population from one in which 66% of its citizens lived in extreme poverty in 1990 to less than 1% in 2015 (Roser & Ortiz-Ospina, 2017). Foreign direct investment began flooding into China with Deng Xiaoping's "opening up" reforms, averaging about 2 billion USD per year in the 1980s (mostly from Hong Kong and Taiwan), and when the rest of the world caught on, this rapidly increased to 40–60 billion USD per year in the 1990s (Coase & Wang, 2012).

As China's national wealth has grown, it has increasingly become a major player in foreign aid and development lending, a domain previously occupied primarily by multilateral creditors and OECD governments. While Chinese foreign aid and development lending is not a strictly new phenomenon, its efforts in this domain have increased dramatically as China has become rich. This is particularly so in conjunction with the Belt and Road Initiative (BRI), Beijing's transnational development strategy of Chinese–financed infrastructure development unveiled by Xi Jinping in 2013. The rapid growth of Chinese official lending and investment is nearly unprecedented in history, being comparable only to the rise of US postwar lending, and accordingly, has transformed the Chinese government into the world's largest official creditor (Horn et al., 2019, p. 6).[1] A growing literature exists on the nature of China's foreign aid and overseas lending, with a consistent feature of this literature being an emphasis upon the opaqueness of China's lending practices and standards, as well as the true extent and scope of lending that takes place.[2] A key finding of this literature is that developing nations are much more indebted to China that was previously known, as China is the largest external creditor to approximately 30 countries (Horn et al., 2020).

Whereas conventional foreign aid and overseas lending from bilateral and multilateral creditors to LIDCs (low income developing countries) is concessional (below market interest rates, or interest free, and containing grant elements) in nature, China's official loans are done at prevailing market

[1] The designation, "official", here refers to the fact that almost all of China's overseas lending "is undertaken by the Chinese government, state–owned enterprises or the state–controlled central bank." In contrast, the largest overall creditor remains the United States (Horn et al., 2019, p. 6).

[2] On Chinese foreign aid and lending, Hernandez (2017) found that, with respect to the conditionality of World Bank aid, a one percentage increase in Chinese aid is associated with 15% fewer conditions from the World Bank. Zeitz (2021) found that in response to a country receiving Chinese aid, the World bank "emulates" the Chinese approach by increasing the proportion of its aid allocations towards projects in infrastructure– intensive sectors. Brazys and Vadlamannati (2021) found that Chinese development aid flows "may be accompanied by negative externalities" relative to Development Assistance Committee (DAC) donor partners, particularly in undermining positive economic reforms. See also Dreher et al. (2019), Dreher et al. (2021), R. Blair and Roessler (2021) and Pearson et al. (2021).

interest rates, with terms of agreement including collateral clauses and high risk premia.[3] Horn et al. (2019) provide data suggesting that, given China's non–disclosure of its official lending to multilateral development bank (MDBs) and other international financial institutions, about 50% of China's overseas lending, amounting to over 200 billion USD, "...is 'hidden', in the sense that it is not picked up by official statistics of the IMF, World Bank or [the Bank of International Settlements]." Of the the 50 main recipients of Chinese aid, the average stock of debt owed to China has grown from 1% of debtor country GDP in 2005 to more than 15% in 2017, according to lower bound estimates (Horn et al., 2019, p. 4).

This paper investigates the effects of Chinese development lending upon the political institutions of recipient countries. Given the significant institutional differences between Chinese development lending and the disbursements from conventional bilateral and multilateral creditors (e.g. USAID, World Bank), how much of what we know about the effects of foreign aid and overseas lending on recipient countries' political institutions applies to the Chinese case? Utilizing new data estimating the extent of the Chinese development lending in over 100 countries, this paper fills a gap in the literature by examining the political and institutional impacts of Chinese development lending *relative to* conventional development lending and aid.

A large empirical literature exists examining the effects of conventional development aid upon the political institutions of recipient countries. We categorize the competing claims about foreign aid's effects on political institutions into two broad categories; the "optimistic view" and the "pessimistic" view (Dutta et al., 2013; Leeson, 2008). The "optimistic" hypothesis argues that aid has the power to turn autocracies into democracies. On the contrary, the "pessimistic" hypothesis underscores not only the inability of aid to promote democracy in recipient countries, but provides evidence that aid weakens democracy and solidifies predatory regimes' grips upon autocratic power, in the process incentivizing inefficient rent seeking behavior as opposed to productive economic activity.

This paper tests a third hypothesis—the "amplification effect"—as put forth by Dutta et al. (2013). In their study of 124 developing countries between 1960 and 2009, they found, "foreign aid neither causes democracies to become more dictatorial nor causes dictatorships to become more democratic. It only amplifies recipients' existing political–institutional orientations. Aid makes dictatorships more dictatorial and democracies more democratic." Utilizing new data on Chinese overseas lending from Horn et al. (2019) that uncovered 200 billion USD of "hidden" Chinese aid, this paper tests the amplification effect hypothesis using panel data covering 104 developing countries that have been recipients of Chinese aid between 2002 and 2017. Across a number of different estimations, my findings support the amplification effect hypothesis as it pertains to Chinese aid, which has the effect of making the average sampled democracy more democratic (as demonstrated by higher Polity scores of the average democracy) and the average sampled autocracy more autocratic

[3]By contrast, the US government extends grants funds for military and economic cooperation, while official creditors in Europe often lend with maturities up to 30 years and almost no risk premia or collateral clauses (Horn et al., 2019, pp. 16–17).

(as demonstrated by deteriorating Polity scores of the average dictatorship).

The setup of the paper is as follows: Section II will contain a brief comparison of Chinese aid vs. conventional development aid, as well as an overview of competing aid hypotheses vis–a–vis the amplification effect. Section III will provide an overview of the data utilized as well as the empirical strategy employed. Section IV will outline the results of the analysis, as well provide interpretation of the channels through which the amplification effect works. Section V concludes.

2 Chinese vs. Conventional Development

2.1 Chinese versus conventional development lending

While Chinese aid is not a new phenomenon, its efforts in this domain have dramatically increased as China has become a wealthier country.[4] The figures plainly show this, as the Chinese government holds upwards of five trillion USD of debt towards the rest of the world (roughly 6% of world GDP), compared to less than 500 billion in the early 2000s (roughly 1% of world GDP). Nearly 80% of the world's countries are now recipients of Chinese official finance, a figure rapidly approaching the near–full global coverage of US official lending. The footprint of official Chinese finance is particularly prevalent in LIDCs, where Chinese lending exceeds the total lending figures of multilateral creditors like the IMF and the World Bank. In developing and emerging markets, debtor governments owe an estimated 380 billion USD to China compared to an estimated 246 billion USD to 22 Paris Club member governments (Horn et al., 2019, pp. 11–13).

Chinese development flows differ substantially in a few key respects relative to the disbursements of conventional bilateral and multilateral lenders.[5] First, a clear pattern exists by which the terms of Chinese aid are highly tailored to fit the risk profile of each recipient country. Advanced and higher income countries receive portfolio investments through sovereign bond purchases of the People's Bank of China, while developing countries receive direct loans. While official creditors over the last few decades have typically lent to LIDCs at concessionary terms with long maturities at below–market interest rates, Chinese aid takes on nearly the opposite, lending at market rates with shorter maturities, risk premia, and collateral clauses to secure repayment in the event of default, often through commodity exports (Horn et al., 2019, p. 5). A great deal concern has been articulated regarding the debt sustainability of BRI projects in LIDCs, including references to Chinese lending policy as "predatory lending". Malik et al. (2021, pp. 31–32) found that, whereas in the early 2000s around 30 percent of China's overseas lending portfolio contained credit insurance, pledges of

[4]For simplicity, I will refer to Chinese lending in the developing world (which takes the form of direct loans) as "Chinese aid". Though distinct, the the opaqueness of Chinese aid does not provide confidence to distinguish between official lending via direct loans versus aid disbursements similar in nature to that of conventional lenders. Li (2017) and Brazys and Vadlamannati (2021), for example, refers to Chinese lending as "Chinese aid".

[5]See Palagashvili and Williamson (2021), who argue that despite public perceptions, DAC and non–DAC donors perform similarly poorly in terms of best practices including transparency, overhead costs, aid specialization, selective allocation, and effective delivery channels.

collateral, or third–party repayment guarantees, this figure has risen to nearly 60 percent.[6]

Second, Chinese aid differs from conventional development aid to the extent that the vast majority of it is bilateral, as opposed to multilateral, in nature. Accordingly, more than 75% of Chinese official lending between 2000 and 2017 has been done by two Chinese state–owned banks, the Chinese Export–Import Bank and China Development Bank, both of which are owned by and report to the Chinese State council, the chief administrative authority of the People's Republic of China (PRC). Whereas in conventional development aid, debtors governments are often dealing with multilateral creditors like the IMF and the World Bank, in the case of Chinese aid these debtors are dealing, for all intents and purposes, directly with the Chinese state. As Gelpern et al. (2021, p. 34) found, Chinese official lenders utilize "senior creditor" arrangements, placing themselves at the front of the repayment line by accessing borrower accounts to collect unpaid debts. In their analysis of the debt implications of BRI, Hurley et al. (2019) argues that LIDCs are more likely to successfully handle Chinese debt to the extent that BRI lending is multilateral in character, including lending transparency and concessionality, as opposed to a BRI that is "overwhelmingly directed, financed, and operated by the Chinese government." The founding of the Asian Infrastructure Investment Bank (AIIB), launched by the Chinese government in 2014, and its subsequent adoption of existing MDB rules signaled a willingness on the part of the Chinese government to embrace international lending and development aid norms. In practice, Chinese development flows via AIIB takes up a very small share of Chinese official finance. Hurley et al. (2019) estimate that AIIB accounts for about 2 billion USD of official Chinese finance, while Chinese official lending bilateral channels (in particular, the Chinese Export–Import Bank and China Development Bank) accounts for 30–40 billion USD.

Third, Chinese aid demonstrates a lending strategy that Horn et al. (2019, p. 8) refers to as a "closed circle" or "circular lending" strategy, and what Brautigam (2011) calls the "Eximbank Cycle". Rather than disbursing funds to accounts controlled by debtor governments, which is typical of conventional development flows, China's state–owned lenders disburse funds directly to the Chinese state–owned enterprise contracted to complete infrastructure projects abroad by debtor governments. It is estimated that, of all the contractors participating in Chinese–funded projects, nearly 90% are Chinese companies, while 7% are local contractors from the country in which the project is taking place (Hillman, 2018, p. 4). While the "closed circle" strategy may reduce default risks as well as the ability of borrowers to misuse the funds—as a great deal of Chinese official finance remains within its own financial system—it also facilitates China to lend to increasingly risky debtors. Already described as highly opaque in general, these practices further blur the overall picture of Chinese official lending activity, contributing to what Horn et al. (2019, p. 18) refers to as a "potentially severe underreporting of external debt stocks". Malik et al. (2021, p. 56) estimates that the average borrowing government is underreporting its debt obligations to China by an amount

[6] In their analysis of 68 BRI borrowing countries, Hurley et al. (2019) "conclude that eight countries are at particular risk of debt distress based on an identified pipeline of project lending associated with BRI," including the Maldives, Mongolia, Djibouti, Montenegro, Laos, Pakistan, Kyrgyzstan, and Tajikistan.

equivalent to 5.8% of its GDP, a total nearing $400 billion.

2.2 The Amplification Effect

Given the institutional differences between the lending activities of the Chinese government and conventional lenders, how much of what we know from the literature on the effects of foreign aid and development lending on political institutions applies to the Chinese case? Dutta et al. (2013) frame their hypothesis against two broadly competing views, the "optimistic" and "pessimistic" hypotheses, regarding the effects of development lending and foreign aid on recipient countries' political institutions.

The "optimistic" hypothesis holds that targeted aid can facilitate movements within autocratic regimes to become more democratic. For example, Birchler et al. (2016) find that aid from the World Bank and IMF has positive effects on democratization, if made conditional on increased participation and recipient accountability. Likewise, Ziaja (2020) argues that a country's democracy improves when it receives aid from more donor countries, as fragmented aid permits choice to the local actors involved in the democratization process.[7]

In this view, one channel through which aid can enhance democracy is through targeted investment in the human capital of recipient countries, including primary, secondary, and tertiary education. Noting that education levels and democracy are highly correlated, Glaeser et al. (2007) found that increased educational attainment raises the benefits of civic participation, and at the margin, increases popular support for democratic movements within authoritarian countries. Another channel through which aid is argued to facilitate democratic transition is through technical assistance to strengthen checks on executive power within developing countries. Of this, Knack (2001) found that successfully targeted aid that, (a) supports electoral processes, strengthens judiciaries, and legislatures; and, (b) promotes civil society organizations such as a free press, labor unions, and human rights groups, can diminish an executive's autocratic control of society. Through this channel, aid assists democratic supporters in their struggle against authoritarian regimes through assistance including training, advice, moral support, or funding (Carothers, 2009, 2011).[8]

The "pessimistic" hypothesis holds that aid "[has] power to make democracies into dictatorships" through a series of unintended consequences (Dutta et al., 2013, p. 210).[9] One channel through which this can occur is through the "double asymmetry" of aid, as pointed out by Bauer (2000, pp. 48–49). While aid may take up a relatively small percentage of recipient countries' national income—thus possessing limited scope for improving economic conditions in the country—fungible

[7] On the "optimistic" hypothesis, see for example, Scott and Steele (2011), Stokke (2013) Jones and Tarp (2016) Carnegie and Marinov (2017), and Carothers (2020).

[8] H. Blair (2004) provides evidence from two U.S. Agency for International Development (USAID) supported democracy programs, or civil society organizations (CSOs), in the Philippines and Indonesia, arguing that civil society made progress in both settings, with "marginal" elements having gained voice in both settings.

[9] On the "pessimistic hypothesis", see for example, Easterly (2003) and Easterly et al. (2007), Djankov et al. (2008), Rajan and Subramanian (2007), Kalyvitis and Vlachaki (2012), and Pritchett et al. (2013).

aid disbursements may make up a relatively large portion of the discretionary spending of a recipient country. This may, in turn, enable autocratic regimes to tighten their grips upon political power and resource control (Bueno De Mesquita & Smith, 2009; Feyzioglu et al., 1998; Winters, 2010).

These dynamics exist because, as Bauer (2000, p. 48) notes, "Unlike manna from heaven, which descends indiscriminately on the whole population, these subsidies go to governments…". This entails, for example, lowered relative costs facing government actors faced with the choice of restricts the inflow of foreign commercial capital, an engine of economic growth for LIDCs. As Leeson (2008, p. 47) describes, aid disbursements affect the incentives facing political actors in recipient countries by changing the costs and benefits of autocratic decision–making, which may have the effect to, "[exacerbate] the already substantial difference between ruler and citizen interests in recipient countries" (Leeson, 2008, p. 47). Recently, Andersen et al. (2020) found that aid disbursements to highly aid-dependent countries coincide with sharp increases in the value of offshore bank deposits. They estimate the extent of the elite capture of aid at 7.5 percent of GDP of sampled countries, and that receiving aid corresponding to 1 percent of GDP increases offshore deposits by approximately 3.4 percent relative to countries receiving no aid (Andersen et al., 2020, pp. 3–4).

Another channel through which aid flows may yield deleterious effects is through increasing the returns to unproductive activities—such as political rent seeking—relative to produce ones, in the process creating a long term pattern of unpredictability for private entrepreneurs (Baumol, 1996; Coyne, 2013; Leeson, 2008). Relatedly, Ahmed (2012, p. 164) argues that "unearned foreign income can increase private government consumption in the form of patronage, which a government can use to ensure its political survival." Of this, Bauer (2000, p. 48) argues that aid "contributed significantly to the disastrous politicisation of life" in the developing world post–WWII.

In contrast to both the "optimistic" and "pessimistic" hypotheses, Dutta et al. (2013, p. 209) argues that both of these hypotheses, "ascribe too much power to aid's ability to influence recipients' political institutions". Instead, they argue in favor an "amplification effect" hypothesis, holding that "aid does not alter recipient countries' institutional orientations. It amplifies their existing ones." This view endorses—and takes a step further—the institutionally–stabilizing claims regarding the effects of aid upon political institutions (Bueno De Mesquita & Smith, 2010; Kono & Montinola, 2009; Morrison, 2007, 2009, 2013). Rather than the view that aid as *stabilizing both* the institutions of democracies and autocracies, Dutta et al. (2013, p. 223) argue that aid contributes to amplifying the existing set of political institutions within recipient countries, "[making] democratic countries more democratic and already dictatorial countries more dictatorial."

An intuitive appeal of the "amplification effect" hypothesis is that—rather than viewing aid's effects as occurring in a vacuum—the effects of aid on recipient countries' political institutions are institutionally contingent upon each localities' existing set of political institutions. Democratic governments, for instance, reflect a pattern of separation of powers, executive constraint, and a consistently applied rule of law (McCloud, Delgado, et al., 2018) . At the margin, these checks

provide some measure of confidence that aid disbursements will be used in the manner agreed upon by recipient countries and creditors (Dutta et al., 2013, p. 211). On the other hand, it is not surprising that within autocratic regimes, aid disbursements may be used in a manner to further consolidate political power or predate upon political rivals. Such outcomes are consistent with the "amplification effect" approach.

3 Data & Empirical Strategy

3.1 Data Overview

To investigate the effects of Chinese development lending on the political institutions of recipient countries, I utilize panel data covering 104 countries from 2002–2017 that were recipients of Chinese official finance. For estimates of debt stocks owed to China, I utilize data on Chinese official finance from Horn et al. (2019), which has been relied upon by researchers investigating the motivations and effects of Chinese aid. Their data is comprised of nearly 5,000 "hidden" direct loans and grants extended by the Chinese government and other state–owned creditors.[10] Estimates of debt stock owed to China are recorded in current $USD, and the estimated total external debt stock owed to China in percent of debtor GDP. Notably, this data only includes debt held in the form of direct loans by private and public entities within recipient countries to Chinese state–owned creditors. Importantly, Horn et al. (2019, p. 10) note that their data represents a "conservative, lower bound" estimate of the true extent of China's overseas lending, and given the opaqueness involved, they "do not fully capture the true extent of China's overseas lending."[11] Appendix Table A1 includes a list of countries sampled, and Appendix Table A3 provides a list of all variables utilized and their sources.

Because nearly all of the sampled countries receive Chinese aid in addition to official development aid, other foreign aid received must be controlled for. Net official development assistance (ODA) consists of disbursements of loans and grants made on concessional terms made by members of the Development Assistance Committee (DAC) and MDBs. Importantly, this only refers to loans and grants made "to promote economic development and welfare in countries", excluding military assistance.

For estimates of how relatively democratic or autocratic the political institutions are of Chinese aid recipient countries, I utilize Polity IV Project (Marshall et al., 2018), which tracks political regime characteristics and transitions from 1800–2017 for 167 independent states. The "Polity" score, ranging from -10 (full autocracy) to +10 (full democracy), is assessed in each given year by subtracting the country's "AUTOC" score from its "DEMOC" score. These scores are derived from

[10] Importantly, these data exclude portfolio debt holdings, which is the Chinese government's primary debt instrument when dealing with advanced countries (Horn et al., 2019, pp. 32–34).

[11] Malik et al. (2021, p. 58) estimate the average LIDC government is under–reporting debt obligations to China by approximately 5.8% of its GDP, a total worth approximately $385 billion.

considering various "authority characteristics" including the presence of institutions through which citizens can express political preferences, institutionalized constraints on the usage of executive power, and the guarantee of civil liberties to all citizens (Marshall et al., 2018). For our purposes, "democracies" are countries with Polity scores in a given year greater than zero, while "autocracies" refers are countries with scores of zero and below in a given year. To examine Polity scores over time, I use the "Polity 2" variable (which henceforth will be simply referred to as "Polity"), which was designed for time series analysis.[12]

Following Dutta et al. (2013), as well as previous research on the effects of aid upon countries' political institutions, I include a battery of control variables to best isolate the effects of Chinese aid. To account for the persistence of the Polity score (the dependent variable), I lag the Polity score one period, accounting for regressions–to–mean effects, as well as capturing higher scoring countries' limited opportunities to improve their Polity scores. Additional controls include the (log) GDP per capita, as well as three population measures including log population, population density, and percent of urban population. To account for political leaders controlling a countries' natural resources, thereby further consolidating their power and impacting a country's political institutions, total natural resource rents as a percentage of GDP is controlled for. Data for the aforementioned controls are from the World Bank (2019).

Controlling for regime stability and regime age, I utilize data from the Database of Political Institutions (Cruz et al., 2018). To control for regime stability, I utilize the "Tensys" variable, which measures how long the country has been autocratic or democratic. For regime age, I utilize the "Yrsoffc" variable, which measures how long the country's chief executive has been in power. Appendix Table A.2 reports summary statistics for all variables. Of sampled countries, the average stock of Chinese debt is approximately 4.3 percent of debtor GDP, with a standard deviation of 8.4 percent. The average Polity score is 2.85, with a standard deviation of 5.7. Average GDP per capita is $3806, with an average growth rate of 2.7 percent.

3.2 Empirical Strategy

The empirical strategy I employ examines how recipient countries' existing set of political institutions interacts with received Chinese aid in a manner that affects the degree of democracy or autocracy in those countries. To distinguish between Chinese aid received by democracies and autocracies, I construct an interaction term, "ChinaAid*Democracy dummy", which multiplies the stock of Chinese aid a recipient country receives with a dummy variable that measures whether the country is an autocracy or democracy, to predict the extent to which the degree of democracy or autocracy (the dependent variable, "Polity") is affected.

[12]The "Polity 2" variable takes countries' Polity scores and applies a simple treatment to account for periods which lack a functioning government, including cases of foreign "interruption", cases of "interregnum", and cases of "transition" (Marshall et al., 2018).

It is likely that our variable of interest—Chinese development aid—is endogenous to the political institutions of recipient countries. The endogeneity of conventional development aid is clear through the conditionality of aid upon various political and economic reforms. In contrast, while Chinese lenders have no ostensible interests in the democratic reform of countries, there is a clearly pattern of Chinese aid being disbursed to countries with either low degrees of democracy or relatively stable autocracy. With this, it may be the case that existing set political institutions within countries influences the extent to which they receive Chinese aid disbursements.

To address these concerns, I employ a variety of estimators designed to account for issues of endogeneity. First, I estimate a basic equation utilizing ordinary least squares (OLS) with two–way fixed effects. Second, I use two generalized method of moments (GMM) estimators, including difference GMM and system GMM. With each test, I address how these estimators take endogeneity concerns into account, as well as the validity of each strategy. Across these different estimators, I find similar results regarding the effects of Chinese aid upon political institutions.

4 Results

4.1 OLS

Providing baseline results, I present an OLS model with a series of controls, two–way fixed effects and robust standard errors clustered by country, estimating the following equation:

$$\begin{aligned}\text{Polity}_{i,t} = \beta_0 + \beta_1 \,\text{ChinaAid} \times \text{Democracy}_{i,t} + \beta_2 \,\text{ChinaAid}_{i,t} + \beta_3 \,\text{ODA}_{i,t} + \\ \beta_4 \,\text{Polity}_{i,t-1} + \mathbf{X}_{i,t}\beta_5 + \gamma_i + \varphi_t + \epsilon_{i,t}\end{aligned} \tag{1}$$

The key variables of interest, ChinaAid×Democracy and ChinaAid, estimate the effect of Chinese aid upon the political institutions of recipient countries (as measured through the Polity score of country i in time t). Both of these variables are the the log of country i's estimated debt stock owed to China in time t in the form of direct loans held by public and private entities to Chinese state–owned creditors. Of these, ChinaAid×Democracy$_{i,t}$ is an interaction term, capturing the effect of Chinese aid as disbursed to "democracies" in period t by multiplying the log of country i's debt stock owed to China by a dummy variable (equal to 1 when Polity score > 0, and zero otherwise). ChinaAid$_{i,t}$ is the log of country i's estimated debt stock owed to China in time t, conditional on the country being an "autocracy" (having a Polity score < 0).

The variable ODA is the log of country i's official development assistance, measured as the log of official development assistance extended to country i in time t). This variable controls for the stock of non–Chinese aid flows to recipient countries by DAC members and other multilateral institutions, including only grants and loans made on concessionary terms, and excluding military

assistance. My dependent variable, Polity$_{i,t}$, measures the relative degree of democracy or autocracy in country i in time t). Due to the persistence of the dependent variable, Polity$_{i,t\text{-}1}$ measures the political institutions of country i lagged one period. $\mathbf{X}_{i,t}$ is a mix of covariates that also affect the countries' relative degree of autocracy or democracy. Lastly, $\boldsymbol{\gamma}_{i,t}$ controls for country–specific effects, $\boldsymbol{\varphi}_{i,t}$ controls for period–specific effects, and $\varepsilon_{i,t}$ is a random error term. Table 4.1 presents the results of my OLS estimation.

The results of the model are consistent with the amplification effect hypothesis, that aid makes democracies more democratic and autocracies more autocratic. Interpreting this through the model's coefficients, the coefficient on the interaction term, ChinaAid×Democracy is positive and significant, while the coefficient on ChinaAid is negative and significant. Consistent with the findings of Dutta et al. (2013) the β1 coefficient is larger in absolute value terms than the β2 coefficient. Column 1 contains the baseline specification, Column 2 adds additional controls, and Column 3 contains the full battery of covariate controls.

The results reflected in each column support the amplification effect hypothesis as applied to the Chinese case. ChinaAid's coefficient is negative and statistically significant in each case, meaning that autocracies become relatively more autocratic with additional Chinese lending and aid. Likewise, the coefficient on ChinaAid×Democracy interaction is positive and statistically significant. While these results support the amplification effect hypothesis that foreign aid amplifies countries' existing institutional orientations, the difference in magnitudes suggests a stronger amplification effect of Chinese aid towards autocratic recipients of Chinese aid, as autocracies become more autocratic *relative to* democracies becoming more democratic. That is, while there is a weakly positive *total effect* associated with the ChinaAid×Democracy interaction (the effects of Chinese aid upon democracies), there is a relatively larger negative effect associated with ChinaAid (the effects of Chinese aid upon autocracies).

4.2 GMM

While the OLS model with fixed effects provides baseline results, correlation between the lagged dependent variable and the error term contributes towards biased and inconsistent estimates. Likewise, fixed effects may not be appropriate with dynamic panel estimates, since in the case of samples with small T and large N, a correlation is created by the within transformation between the error term and the lagged dependent variable (Nickell, 1981). Additional endogeneity concerns exist in these estimates, as poorer and more autocratic regimes may attract more aid than relatively more well–off, more democratic countries.

To address these endogeneity questions, I employ two generalized method of moments (GMM) estimators, Difference and System (Blundell & Bond, 1998; Djankov et al., 2008; Valette, 2018). GMM estimators are particularly suitable for "small T, large N" panels (Roodman, 2009, p. 86). Difference GMM estimators rely upon lagged regressors as instruments for the first–differenced

Table 4.1: OLS Results

	(1)	(2)	(3)
ChinaAid×Democracy	0.163***	0.165***	0.156***
	(0.025)	(0.0251)	(0.023)
ChinaAid	-0.130***	-0.146***	-0.136***
	(0.026)	(0.029)	(0.027)
ODA	0.105	0.071	0.059
	(0.089)	(0.084)	(0.045)
$\text{Polity}_{t\text{-}1}$	0.560***	0.545***	0.550***
	(0.049)	(0.048)	(0.045)
Log GDP per $\text{capita}_{t\text{-}1}$		0.333**	0.423**
		(0.162)	(0.168)
GDP growth		0.00325	0.00292
		(0.009)	(0.008)
Log population		1.075	1.960
		(0.803)	(1.202)
Urban population		-0.031	-0.037
		(0.031)	(0.035)
Regime stability			-0.029**
			(0.014)
Regime age			0.003
			(0.009)
Population density			-0.007
			(0.005)
Natural resource rents			-0.004
			(0.007)
Constant	-0.372	-17.99	-31.53*
	(1.784)	(11.54)	(17.78)
Observations	1,369	1,350	1,300
No. countries	97	97	93
R-Squared	0.668	0.674	0.685
Time FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes

Note: *** p<0.01, ** p<0.05, * p<0.10. All regressions include country and period fixed effects. The dependent variable is $\text{Polity}_{i,t}$. ChinaAid×Democracy is an interaction variable that multiplies the debt stock of country i in period t by a dummy variable (equal to 1 when Polity >0, and zero otherwise). ChinaAid measures the log of country i's estimated debt stock owed to China in the form of direct loans. ODA controls for Official Development Assistance, measured as the log of ODA to recipient countries, which includes grants and loans made on concessional terms, excluding military assistance.

endogenous variables, which permits us to address questions of endogeneity (Arellano & Bond, 1991). System GMM estimators uses additional moment conditions that correspond to the levels of the equation, and uses lagged differences of the endogenous regressors as instruments (Arellano & Bover, 1995; Roodman, 2009; Windmeijer, 2005).[13]

The model takes the following form:

$$\begin{aligned}\text{Polity}_{i,t} - \text{Polity}_{i,t-1} = \alpha_0 + \alpha_1[\text{ChinaAid} \times \text{Democracy}_{i,t} - \text{ChinaAid} \times \text{Democracy}_{i,t-1}] + \\ \alpha_2[\text{ChinaAid}_{i,t} - \text{ChinaAid}_{i,t-1}] + \alpha_3[\text{ODA}_{i,t} - \text{ODA}_{i,t-1}] + \\ \alpha_4[\text{Polity}_{i,t-1} - \text{Polity}_{i,t-2}] + \alpha_5[\text{Polity}_{i,t-2} - \text{Polity}_{i,t-3}] + \\ [\mathbf{X}_{i,t} - \mathbf{X}_{i,t-1}]\alpha_6 + \epsilon_{i,t} - \epsilon_{i,t-1}\end{aligned} \tag{2}$$

As displayed below in Table 4.2 the results of the GMM estimations regarding the amplification effect remain present, yielding the predicted signs and retaining statistical significance. Relative to the OLS results, the coefficients on the main variables of interest demonstrate a larger effect, suggesting a downward bias in the OLS model. ChinaAid's coefficient is negative and statistically significant in each case, meaning that the average autocracy becomes more autocratic with additional Chinese aid. Likewise, the coefficient on the ChinaAid×Democracy interaction is positive and statistically significant. Again, these results reveal a stronger amplification effect of Chinese aid upon autocratic recipients, as autocracies become more autocratic than democracies become more democratic. For the majority of specifications, the F-statistic is above the suggested threshold of 10. However, it falls below 10 in Column 3 (F-statistic = 8.66) and Column 6 (F-statistic = 9.23).[14] This may indicate weak instrumentation. The Hansen J-statistics, reported at the bottom of each table, suggest that over identification restrictions for the instruments are met (Dutta & Williamson, 2016).

4.3 Extensions and robustness checks

To extend the analysis, I provide alternative measures of Chinese development flows. Thus far, the independent variables of interest (ChinaAid×Democracy and ChinaAid) have measured the log of the Chinese debt stock of recipient countries across periods, conditional upon their Polity scores. For additional robustness checks, I use the log of Chinese aid *per capita*, which provides a more comparable measure of Chinese aid and lending disbursements across countries.

The dependent variable to this point has been $\text{Polity}_{i,t}$. For robustness checks of the dependent

[13] Roodman (2009, p. 86) argues that GMM estimators are ideal for situations dealing with: 1) small "T", large "N" panels (too few periods, too many individuals); 2) a linear functional relationship; 3) a dynamic left–hand–side variable that is dependent upon its own past realizations; 4) independent variables that are not strictly exogenous (correlated with past and possibly current realizations of the error); 5) fixed individual effects; and 6) heteroskedasticity and autocorrelation within individuals, but not across them.

[14] The common rule of thumb for interpreting F-statistics is the threshold of 10. If the F-statistic exceeds 10, then the typical critical values of 1.96 are used (Lee et al., 2021, pp. 3, 16).

Table 4.2: GMM Results

	System GMM			Difference GMM		
	(1)	(2)	(3)	(4)	(5)	(6)
ChinaAid×Democracy	0.240***	0.240***	0.226***	0.239***	0.234***	0.226***
	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)
ChinaAid	-0.195**	-0.185***	-0.173***	-0.190***	-0.180***	-0.175***
	(0.001)	(<.001)	(<.001)	(0.001)	(<.001)	(<.001)
ODA	-0.130	-0.182	-0.0242	-0.204	-0.0504	0.00336
	(0.645)	(0.670)	(0.959)	(0.498)	(0.913)	(0.995)
$\text{Polity}_{t\text{-}1}$	0.0007	0.0029	0.0007	-0.0100	-0.0011	-0.0003
	(0.982)	(0.921)	(0.988)	(0.762)	(0.976)	(0.995)
$\text{Polity}_{t\text{-}2}$	-0.0177	-0.0224	-0.0206	-0.0145	-0.0266	-0.0234
	(0.300)	(0.263)	(0.246)	(0.383)	(0.167)	(0.257)
Log GDP per capita		0.656	0.819		0.613	0.705
		(0.123)	(0.257)		(0.178)	(0.277)
GDP growth		0.0047	0.0021		0.0053	0.0051
		(0.747)	(0.918)		(0.722)	(0.776)
Log Population		46.62	-21.39		52.18	17.92
		(0.319)	(0.888)		(0.493)	(0.925)
Urban population		-0.110	-0.764		-1.041	-2.383
		(0.952)	(0.748)		(0.636)	(0.538)
Regime stability			0.00258			0.0230
			(0.979)			(0.831)
Regime age			0.0329			0.0132
			(0.771)			(0.910)
Population density			0.0453			-0.158
			(0.927)			(0.820)
Natural resource rents			-0.0148			-0.0087
			(0.413)			(0.668)
Observations	1256	1237	1191	1160	1141	1099
No. countries	96	96	92	94	94	90
No. instruments	31	31	31	29	29	29
F-statistic	11.83	11.12	8.66	12.67	15.33	9.23
AR(2)	0.71	0.77	0.88	0.63	0.78	0.78
Hansen test	0.03	0.31	0.40	0.03	0.43	0.41
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** p<0.01, ** p<0.05, * p<0.10. The dependent variable remains $\text{Polity}_{i,t}$. AR(2) tests for autocorrelation, with the null hypothesis that the error term exhibits no second-order serial correlation. The null hypothesis of the Hansen test holds that included and excluded instruments are valid.

variable, I use alternate measures of the political and institutional health of recipient countries from the "Varieties of Democracy" (V-Dem) index (Coppedge et al., 2018). In particular, I rely upon the following variables from V-Dem: (1) Electoral democracy index; (2) Liberal democracy index; and, (3) Participatory democracy index.[15]

Results of these robustness checks are provided in Appendix tables A4, A5, and A6. In Table A4, which uses per capita variables of Chinese aid, the coefficients on (ChinaAid×Democracy and ChinaAid) are of larger magnitude relative to my baseline tests, particularly so in columns 4-6 (Fixed Effects model) and columns 7-8 (System GMM). Table A5 reports the results using the Chinese aid variables from our original tests, but switch the dependent variable to three different indicators of democracy from the V-Dem index.

In each test, the coefficients on our variables of interest retain their predicted signs and statistical significance, though are of smaller magnitude relative to the results in Table A4 and in the baseline model. Table A6 reports the results of V-Dem index variables of democracy regressed upon per capita variables of Chinese aid. Similarly to the results found in Table A5, our key variables of interest retain their predicted signs and statistical significance. While their magnitudes are larger than that of those reported in Table A5, they remain much smaller than those reported in Table A4 as well as in our baseline specifications.

4.4 Interpretations

The results of across specifications yield a consistent story with respect to the amplification effect hypothesis as applied to Chinese aid. However, the results suggest that the effect is much stronger towards autocratic recipients of Chinese aid, as autocracies become more autocratic *relative to* democracies becoming more democratic. While there is a weakly positive total effect associated with the ChinaAid×Democracy interaction (i.e. the effects of Chinese aid upon democracies), there is a relatively larger negative effect associated with ChinaAid (i.e. the effects of Chinese aid upon autocracies). With that, a number of interesting questions emerge regarding the institutional characteristics of Chinese lending that are driving these effects, and why they exhibit different magnitudes across democracies and autocracies.

Relative to conventional development lending, China under no pretenses engages in overseas lending conditional upon democratic and other institutional improvements within recipient countries. Unsurprisingly, China has established itself as "a financier of first resort" for many low- and middle-income countries (Malik et al., 2021). As Li (2017) points out, an appeal of Chinese dealings is the "sheer competence and speed with which China is able to negotiate and execute its development programs" relative to overly bureaucratized and dysfunctional conventional foreign aid alternatives. This maps on well to the description of China's "closed circle" lending strategy, as

[15]V-Dem, the largest global dataset on democracy comprised of over 180 countries from 1900 to 2018, provides a multidimensional index reflective of the complexity of the concept of democracy (Coppedge et al., 2018).

funds disbursed from Chinese state-owned development banks flow directly to Chinese state-owned enterprises that have agreed with local governments upon a project. Relative to conventional development lenders, the arrangement from China presents a vertically integrated, "one-stop shopping" experience for recipient governments, as from their perspective, the lender and the project builder are synonymous.

Comments made by Abdoulaye Wade (2008), the former President of Senegal, captures the attractiveness of this arrangement very well:

> I have found that a contract that would take five years to discuss, negotiate and sign with the World Bank takes three months when we have dealt with Chinese authorities. I am a firm believer in good governance and the rule of law. But when bureaucracy and senseless red tape impede our ability to act—and when poverty persists while international functionaries drag their feet—African leaders have an obligation to opt for swifter solutions. I achieved more in my one hour meeting with President Hu Jintao in an executive suite at my hotel in Berlin during the recent G8 meeting in Heiligendamm than I did during the entire, orchestrated meeting of world leaders at the summit.

However, while the rapidity of China's official lending disbursement process presents an attractive option to countries in the developing world, this arrangement reduces the relative costs facing autocratic governments desirous of agreeing upon and implementing autocratically-planned projects that are not reflective of citizens' desires. This mechanism—a matter of concern for for international observers (Hurley et al., 2019; Malik et al., 2021), is present in the findings of this analysis. That is, the finding of a relatively stronger amplification effect in autocracies compared to democracies suggests that autocratic governments are more effectively able to utilize Chinese aid for projects serving autocratic ends relative to the ability of democratic recipients of Chinese aid to serve democracy-enhancing ends.

These findings are supported in addition by the nature of China's lending portfolio. Recent data from Malik et al. (2021, p. 20) found that 89% of Chinese official lending over the period of 2000 and 2017 went to countries that scored below the global median on WGI the Control of Corruption Index. Of this, China's state-owned lenders have been directed by the Chinese central government to pursue a "high risk, high reward" strategy, developing over the last two decades a portfolio of loans in countries that suffer from persistently high levels of corruption, nepotism, and clientelism (Kyriacou, 2016). In particular, of the portfolio of China Development Bank (CDB)the largest source of official lending within China—82% of their lending is disbursed to countries within the bottom quartile of the Control of Corruption index (Malik et al., 2021, p. 41).

Additionally, since the start of China's Belt & Road Initiative in 2013, there has been an increase in lending from China's Ministry of Commerce (MOFCOM), whose portfolio contains loans on highly concessional terms, often with a grant element approaching 75%, aimed at generating "diplomatic and geostrategic benefits rather than commercial benefits"(Malik et al., 2021, p. 39). Accordingly,

MOFCOM loans "often support the construction of presidential palaces, parliamentary complexes, theaters, opera houses, convention centers, stadiums and other facilities that cater to governing elites in major urban centers" (Malik et al., 2021, p. 39).[16] By increasing the resources available to powerful elites, lending of this type provides additional qualitative evidence in support of relatively stronger amplification effect findings in autocracies.

Even in a scenario characterized by "closed-circle" lending—in which funds from Chinese official lenders would not enter the financial system of recipient countries—the fungibility of aid disbursements provides a channel through which autocratic regimes misuse disbursed resources in conventional foreign aid dealings (Bueno De Mesquita & Smith, 2009; Feyzioglu et al., 1998; Winters, 2010). Consider a country receives aid earmarked for highway improvement. Assuming those funds actually go towards repairing the highways, political actors then have incentives to cut domestic funding for highway improvement, instead diverting funds towards themselves, their political allies, or their own projects (Leeson, 2008, p. 46). Writing of "graft-prone" Central Asia's powerful individuals and interest groups, Toktomushev (2018, pp. 84–85) writes, "[They] are infamously experienced at capturing the state through corrupt and nefarious practices. As such, BRI runs the risk of becoming a new source of rent for Central Asia's kleptocratic elites." The opaqueness of Chinese aid, plus the rapidity of the lending and implementation process for projects, suggests a clear channel through which autocratic regimes face lower relative costs in initiating autocratically-planned projects that do not benefit citizens.

Importantly, direct financial flows are not the only channel through which graft can occur. Given the high degree of opaqueness with respect to Chinese aid dealing, there may be a significant underestimation of both the volume of Chinese lending activities, as well as the extent to which leverage exists in these creditor/debtor relationships (Horn et al., 2019, p. 9). Recent data released in October 2021 by the AidData Research Lab (Custer et al., 2021) lends strong credence to this notion, estimating that the average LIDC borrwer underreports its debt obligations to China by an amount equivalent to 5.8% of its GDP, a total nearing $400 billion (Malik et al., 2021, p. 56).

In addition to analyzing the incentives facing recipients of Chinese aid, there are important considerations with respect to the motivations of Chinese creditors worth paying attention to. In his recent book on BRI, Tom Miller (2019) recorded that "Chinese officials privately admit that they expect to lose up to 80 percent of their investment in Pakistan". If BRI is, in fact, not about "win-win" partnerships between China and LIDCs (as official state documents regarding BRI suggest), nor very concerned with producing projects of economic value, and instead is more concerned with increasing soft power relationships and assuaging domestically powerful interest groups like large state-owned enterprises by providing them with external markets to deal with overcapacity (Maçães, 2018, pp. 16–20), then the widespread existence of ill-founded infrastructure projects within BRI

[16] For example, Custer et al. (2019) suggest that recipient countries need to find ways to "protect their independence of action to prevent Beijing from translating its economic clout into political leverage" and "decrease their vulnerability to corruption and co-option through [financing responsibly]".

would make sense. The evidence on the extent to which this is the case is mixed, though China's recent hard pivot away from large scale projects (like the construction railroads and coal plants) towards smaller-scale projects lends credence towards the notion that they're interested in avoiding obvious failures such as these.

As the Pakistan case suggests, there is very likely plenty of anticipated, intentional "loss" built into BRI from the perspective of Chinese ROI. Importantly, this does not equate to being a wash for China from a soft power perspective. Notably, China (since 2000) has a fairly extensive record of debt forgiveness (Hurley et al., 2019). This is especially so in African countries, with amounts typically forgiven ranging from tens of millions to hundreds of millions of USD. Debt forgiveness is rarely the case in other regions where BRI investment is taking place, with a notable exception being Pakistan, the site of the China-Pakistan Economic Corridor (CPEC), which has been referred to as the "flagship project" of BRI. In the African case, a track record exists whereby what is *ex ante* "official lending" from the Chinese becomes a "gift/grant" *ex post*. However, the relative costs of these sort of dealings have recently increased for the Chinese, as many recipient countries have applied for debt relief with the emergence of the coronavirus global pandemic (Kynge & Yu, 2020). The extent to which loans have been turned into grants provides yet another channel through which autocratic regimes can initiate projects that "cater to governing elites" (Malik et al., 2021, p. 39) as opposed to their intended usage.

5 Conclusions and discussion

The findings of this analysis support the amplification effect hypothesis, as Chinese development lending received tends to make democracies more democratic and autocracies more autocratic. While this is the case, the difference in observed magnitudes reveals a stronger amplification effect of Chinese aid disbursed to autocratic recipients, as autocracies become more autocratic *relative to* democracies becoming more democratic. While there is a weakly positive *total effect* associated with the ChinaAid×Democracy interaction (i.e. the effects of Chinese aid upon autocracies), there is a relatively larger negative effect associated with ChinaAid (i.e. the effects of Chinese aid upon autocracies).

These findings follow the findings of Dutta et al. (2013), who argue that aid lacks the ability to make autocracies democracies or to make democracies autocracies, as the "optimistic" and "pessimistic" views they outline suggest. Rather, they take the aid-as-institutionally-stabilizing claims (i.e. aid ensures democratic countries remain democratic, and vice versa) advanced in previous research (Bueno De Mesquita & Smith, 2010; Kono & Montinola, 2009) a step further, arguing that the effects of aid are not only institutionally contingent, but also that aid contributes to making already democratic countries more democratic and already autocratic countries more autocratic.

Additionally, this paper has discussed three fundamental ways in which Chinese aid differs from conventional development aid, including its' being done (A) in the form of direct loans at market

rates with risk premia and collateral clauses, (B) almost entirely in a bilateral manner through Chinese state-owned banks, and (C) through a "closed circle" lending strategy (Horn et al., 2019). Of these differences, I've argued that the institutional characteristics associated with China's "closed circle" lending offer the primary mechanisms through which Chinese aid exhibits larger amplifying effects upon the institutions of autocratic recipients relative to democratic recipients.

Given the "high risk, high reward" character of China's lending profile, including a large majority of disbursements to countries below the global median on the Control of Corruption index (Malik et al., 2021, p. 20), Chinese development lending serves to further enhance the ends of autocratic regimes relative to democratic ones. This occurs by reducing the relative costs facing autocratic regimes who, with relative low constraints upon their actions, agree upon and implement autocratically-planned projects that benefit political elites relative to ordinary citizens. The institutional characteristics of Chinese development lending, particularly its remarkably opaque nature plus the rapidity of the lending and implementation process for projects, suggests that relatively autocratic regimes will initiate autocratically planned projects, whereas projects embarked upon in democracies reflect a more democratic character. This mechanism lines up with new evidence from a survey of nearly 180,000 respondents in locales near over 200 Chinese projects. Of this, Pearson et al. (2021) found that while the initial announcement of Chinese investment inspires economic optimism and improves local perceptions of political leaders, this effect persists for only one year. After these projects begin construction and are operational, these individuals view their local economy as worse than it would have been without Chinese investment, and their perceptions of political leaders sharply declines.

New data from Custer et al. (2021) provides a route forward for further research, particularly in investigating the extent to which "closed circle" lending strategy is employed, whether this practice is more common in autocracies, and whether this practice is regionally specific or ubiquitous throughout China's lending portfolio. Additionally, analysis is needed regarding how the amplification effect is influenced by differences in project implementation by Chinese state-owned enterprises as opposed to other firms. As noted by Hillman (2018), nearly 90% of contracted firms to complete projects in LIDCs are Chinese companies, a great many of which are SOEs. Understanding the share of these that are Chinese SOEs as opposed to other firms may yield important findings, as these firms face different incentives with respect to project implementation. Shedding light on these questions will help us to better understand the channels through which the amplification effect is transmitted.

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A Appendix

Table A.1: Sampled Countries

Albania	Chile	Iran	Morocco	South Sudan
Algeria	Colombia	Jamaica	Mozambique	Sri Lanka
Angola	Comoros	Jordan	Myanmar	Sudan
Argentina	Congo, Dem. Rep.	Kazakhstan	Namibia	Suriname
Armenia	Congo, Rep.	Kenya	Nepal	Tajikistan
Azerbaijan	Costa Rica	Kyrgyz Republic	Niger	Tanzania
Bahamas, The	Cote d'Ivoire	Laos	Nigeria	Togo
Bangladesh	Djibouti	Lebanon	Oman	Tonga
Belarus	Dominica	Lesotho	Pakistan	Turkey
Benin	Ecuador	Liberia	Papua New Guinea	Turkmenistan
Bolivia	Egypt	Macedonia, FYR	Peru	Uganda
Bosnia & Herzegovina	Equatorial Guinea	Madagascar	Philippines	Ukraine
Botswana	Eritrea	Malawi	Romania	Uruguay
Brazil	Ethiopia	Malaysia	Russia	Uzbekistan
Bulgaria	Fiji	Maldives	Rwanda	Vanuatu
Burkina Faso	Gabon	Mali	Samoa	Venezuela
Burundi	Ghana	Mauritania	Senegal	Vietnam
Cabo Verde	Guinea	Mauritius	Serbia	Yemen, Rep.
Cambodia	Guyana	Mexico	Seychelles	Zambia
Cent. African Republic	India	Mongolia	Sierra Leone	Zimbabwe
Chad	Indonesia	Montenegro	South Africa	

Table A.2: Summary Statistics

	N	Mean	Std. Dev.	Min.	Max
ChinaAid*Democracy dummy	1667	10.279	9.84	0.00	24.344
ChinaAid	1667	15.428	8.21	0.00	24.344
ChinaAid/GDP	1667	4.324	8.42	0.00	113.028
Official Development Aid	1587	19.548	1.387	13.162	23.16
Polity	1532	2.845	5.724	-9.00	10.00
Polity_{t-1}	1435	2.824	5.727	-9.00	10.00
Democracy dummy	1667	.679	.467	0.00	1.00
Log GDP per capita	1667	7.628	1.166	4.718	10.369
$\text{Log GDP per capita}_{t-1}$	1562	7.61	1.169	4.718	10.358
GDP growth	1647	2.72	4.801	-47.591	32.997
Log population	1667	16.042	1.843	11.154	21.015
Urban population	1661	48.574	21.479	8.682	95.24
Population density	1638	112.178	190.241	1.573	1654.673
Regime age	1586	8.45	8.475	1.00	47.00
Regime stability	1585	15.319	10.638	1.00	69.00
Natural resource rents	1654	10.689	11.983	.001	65.35
Electoral democracy index	1,607	0.459	0.215	0.067	0.912
Liberal democracy index	1,607	0.327	0.212	0.005	0.861
Participatory democracy index	1,607	0.283	0.159	0.008	0.776
Log China aid per capita (Dem.)	1,316	6.974	5.208	0	15.762
Log China aid per capita	1,316	10.356	2.154	3.702	15.762
Log ODA per capita	1,587	10.424	1.347	4.097	13.659

Table A.3: Data Description

Variable	Definition and source
ChinaAid	The logarithm of estimated total external debt stock owed to China in each period in current USD; this series includes debt by private and public entities to Chinese state-owned creditors. It includes only debt from direct loans, and excludes short-term trade debt, swap debt and portfolio debt (Horn et al., 2019).
ChinaAid×Democracy	The logarithm of estimated total external debt stock owed to China by country i in period t in current USD, conditional upon country i having a Polity score > 0 in time t. This series includes debt by private and public entities to Chinese state-owned creditors. It includes only debt from direct loans, and excludes short-term trade debt, swap debt and portfolio debt (Horn et al., 2019).
ChinaAid/GDP	Estimated total external debt stock owed to China in percent of debtor GDP; this series includes debt by private and public entities to Chinese state-owned creditors. It includes only debt from direct loans, and excludes short-term trade debt, swap debt and portfolio debt (Horn et al., 2019).
Polity2	Specified simply as "Polity" in the paper, this variable is an index of political decentralization that ranges from -10 (total autocracy) to +10 (total democracy). The Polity IV Project refers to this variable as its "Polity 2" measure, which is a modified version of its standard Polity variable to facilitate use of the Polity measure in time series analyses. The index is computed by subtracting a country's autocracy score from its democracy score (Marshall et al., 2018).

Variable	Definition and source
ODA	The logarithm of net official development assistance (ODA) , measured in current $US, consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent) (World Bank, 2019).
Log GDP per capita	Logarithm of gross domestic product per capita (PPP constant 2011 international dollars) (World Bank, 2019).
GDP Growth	Average annual growth rate of GDP (World Bank, 2019).
Log Population	Logarithm of total population (World Bank, 2019).
Population Density	Midyear population divided by land area in square kilometers (World Bank, 2019).
Population Density	Midyear population divided by land area in square kilometers (World Bank, 2019).
Urban Population	Percentage of population living in urban areas (World Bank, 2019).
Regime Age	Database of Political Institutions' variable *Yrsoffc*, which measures how many years the chief executive has been in office (Cruz et al., 2018).
Regime Stability	Database of Political Institutions' variable *Tensys*, which measures how long the country has been either autocratic or democratic (Cruz et al., 2018).
Natural resource rents	Total natural resources rents as a percentage of GDP (World Bank, 2019).

Variable	Definition and source
Electoral democracy index	V-Dem Institute variable measuring the core value of making rulers responsive to citizens, achieved through electoral competition for the electorate's approval under circumstances when suffrage is extensive; political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country (Coppedge et al., 2018).
Liberal democracy index	V-Dem Institute variable measuring the extent to which individual and minority rights are protected against the tyranny of the state and the tyranny of the majority. The liberal model takes a "negative" view of political power insofar as it judges the quality of democracy by the limits placed on government (Coppedge et al., 2018).
Participatory democracy index	V-Dem Institute variable measuring the extent to which active participation by citizens exists in all political processes, electoral and non-electoral (Coppedge et al., 2018).

Table A.4: Robustness Test 1

	OLS			Fixed Effects			GMM	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ChinaAid per capita×Democracy	0.258***	0.271***	0.262***	0.473***	0.492***	0.471***	0.565***	0.567***
	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)
ChinaAid per capita	-0.201***	-0.226***	-0.213***	-0.407***	-0.431***	-0.436***	-0.363***	-0.324***
	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)
ODA per capita	0.0106	0.00364	-0.0374	0.0392	0.0590	0.0612	-0.0816	-0.218
	(0.675)	(0.922)	(0.322)	(0.675)	(0.493)	(0.454)	(0.775)	(0.546)
$\text{Polity}_{t\text{-}1}$	0.714***	0.702***	0.704***	0.402***	0.394***	0.399***	-0.00759	-0.0235
	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(<.001)	(0.831)	(0.681)
$\text{Polity}_{t\text{-}2}$	0.0565	0.0546	0.0631	-0.0242	-0.0300	-0.0159	-0.0195	-0.0117
	(0.188)	(0.202)	(0.163)	(0.590)	(0.509)	(0.702)	(0.342)	(0.606)
$\text{GDP per capita}_{t\text{-}1}$		0.0210	-0.0486		0.566	0.397	0.471	0.639
		(0.701)	(0.392)		(0.119)	(0.290)	(0.218)	(0.188)
GDP growth		-0.0097	-0.0093		-0.0228*	-0.0218	0.00261	-0.0031
		(0.248)	(0.299)		(0.043)	(0.053)	(0.876)	(0.877)
Log population		-0.0366	-0.0545		1.076	1.394	12.91	-59.80
		(0.214)	(0.067)		(0.317)	(0.384)	(0.732)	(0.450)
Urban population		0.0007	0.003		-0.0243	-0.0533	0.0501	0.889
		(0.750)	(0.228)		(0.456)	(0.242)	(0.971)	(0.676)
Regime stability			0.0023			-0.0227		-0.0308
			(0.430)			(0.065)		(0.655)
Regime age			0.00310			0.0191		0.0235
			(0.588)			(0.085)		(0.792)
Population density			0.0002			-0.0071		0.143
			(0.612)			(0.313)		(0.513)
Natural resource rents			-0.00335			-0.00913		-0.00828
			(0.361)			(0.281)		(0.558)
Constant	0.945**	1.662	2.648*	1.981	-18.22	-19.94	-0.238	0.533
	(0.004)	(0.100)	(0.013)	(0.055)	(0.262)	(0.393)	(0.686)	(0.361)
Observations	1094	1076	1038	1094	1076	1038	1010	972
Country FE	No	No	No	Yes	Yes	Yes	Yes	Yes
Period FE	No	No	No	Yes	Yes	Yes	Yes	Yes
AR(2)	-	-	-	-	-	-	0.36	0.79
No. instruments	-	-	-	-	-	-	31	31
Hansen test	-	-	-	-	-	-	0.79	0.52

Note: *** p<0.01, ** p<0.05, * p<0.10. The dependent variable is $\text{Polity}_{i,t}$. Both ChinaAid per capita variables are reported in logs terms. Columns 7 and 8 report System GMM results. AR(2) tests for autocorrelation, with the null hypothesis that the error term exhibits no second-order serial correlation. The null hypothesis of the Hansen test holds that included and excluded instruments are valid.

Table A.5: Robustness Test 2

	Electoral dem.			Liberal dem.			Participatory dem.		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ChinaAid×Democracy	0.00173**	0.00175**	0.00153**	0.00115**	0.00115**	0.00104**	0.000798**	0.00079**	0.00069*
	(0.001)	(0.001)	(0.005)	(0.001)	(0.001)	(0.005)	(0.003)	(0.003)	(0.011)
ChinaAid	-0.00144**	-0.00143**	-0.00120*	-0.00103**	-0.00103**	-0.00089*	-0.000695*	-0.00068*	-0.00057*
	(0.008)	(0.009)	(0.030)	(0.005)	(0.005)	(0.017)	(0.012)	(0.014)	(0.042)
ODA	0.00037	0.00037	0.000042	0.00031	0.00024	-0.00041	-0.00011	-0.00017	-0.00062
	(0.880)	(0.885)	(0.986)	(0.871)	(0.903)	(0.834)	(0.935)	(0.910)	(0.673)
GDP per capita$_{t-1}$		0.0121*	0.0110		0.00735	0.00663		0.00450	0.00315
		(0.044)	(0.085)		(0.083)	(0.128)		(0.233)	(0.430)
GDP growth		0.000517	0.000507		0.000293	0.000366		0.000245	0.000252
		(0.098)	(0.160)		(0.185)	(0.173)		(0.108)	(0.157)
Log population		0.0100	0.0127		0.00995	0.00770		0.00107	-0.00292
		(0.735)	(0.677)		(0.659)	(0.735)		(0.955)	(0.887)
Urban population		0.00027	-0.00011		-0.00042	-0.00071		-0.000074	-0.00031
		(0.727)	(0.898)		(0.467)	(0.274)		(0.883)	(0.575)
Regime stability			-0.00068			-0.00071*			-0.000320
			(0.096)			(0.040)			(0.192)
Regime age			-0.00033			-0.000155			-0.00021
			(0.339)			(0.540)			(0.278)
Population density			-0.00016***			-0.00012***			-0.000063**
			(0.000)			(0.000)			(0.003)
Natural resource rents			-0.000002			-0.00002			0.000005
			(0.993)			(0.920)			(0.968)
Electoral dem.$_{t-1}$	0.800***	0.795***	0.780***						
	(0.000)	(0.000)	(0.000)						
Liberal dem.$_{t-1}$				0.829***	0.825***	0.814***			
				(0.000)	(0.000)	(0.000)			
Participatory dem.$_{t-1}$							0.848***	0.845***	0.836***
							(0.000)	(0.000)	(0.000)
Constant	0.0934*	-0.161	-0.141	0.0562	-0.132	-0.0419	0.0505	0.00748	0.114
	(0.046)	(0.735)	(0.772)	(0.093)	(0.720)	(0.910)	(0.066)	(0.980)	(0.727)
Observations	1436	1417	1348	1436	1417	1348	1436	1417	1348
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** p<0.01, ** p<0.05, * p<0.10. The dependent variables are from V-Dem (Coppedge et al., 2018), including the electoral democracy index (columns 1-3), the liberal democracy index (columns 4-6), and the participatory democracy index (columns 7-9). Both ChinaAid per capita variables are reported in logs terms. Each test employs country and period fixed effects.

Table A.6: Robustness Test 3

	Electoral dem.			Liberal dem.			Participatory dem.		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ChinaAid per capita×Democracy	0.00453**	0.00472***	0.00415**	0.00328***	0.00340***	0.00308**	0.00216**	0.00221***	0.00195**
	(0.001)	(0.001)	(0.004)	(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.005)
ChinaAid per capita	-0.00478*	-0.00497*	-0.00487*	-0.00283	-0.00293*	-0.00285*	-0.00227*	-0.00227*	-0.00217*
	(0.017)	(0.015)	(0.013)	(0.053)	(0.048)	(0.043)	(0.028)	(0.035)	(0.045)
ODA per capita	-0.00007	0.00027	0.00074	0.00034	0.00047	0.00027	-0.00022	-0.00020	-0.00027
	(0.979)	(0.922)	(0.765)	(0.853)	(0.795)	(0.879)	(0.889)	(0.900)	(0.861)
GDP per capita$_{t-1}$		0.0168*	0.0157		0.0106	0.0101		0.00671	0.00479
		(0.048)	(0.086)		(0.059)	(0.089)		(0.188)	(0.381)
GDP growth		0.000151	0.00004		-0.000009	0.000008		0.00007	0.00005
		(0.684)	(0.930)		(0.969)	(0.980)		(0.710)	(0.822)
Log population		-0.0148	0.0191		-0.00868	0.0140		-0.0135	-0.00325
		(0.703)	(0.663)		(0.764)	(0.650)		(0.540)	(0.891)
Urban population		0.0008	0.00024		-0.00017	-0.00055		0.00014	-0.000190
		(0.450)	(0.845)		(0.828)	(0.544)		(0.822)	(0.782)
Regime stability			-0.000607			-0.000646			-0.000256
			(0.201)			(0.109)			(0.346)
Regime age			-0.000233			-0.0000575			-0.000123
			(0.635)			(0.871)			(0.626)
Population density			-0.000227***			-0.00017**			-0.000092**
			(0.001)			(0.001)			(0.004)
Natural resource rents			0.000140			0.000170			0.0000740
			(0.698)			(0.461)			(0.613)
Electoral dem.$_{t-1}$	0.693***	0.689***	0.663***						
	(<.001)	(<.001)	(<.001)						
Liberal dem.$_{t-1}$				0.732***	0.729***	0.713***			
				(<.001)	(<.001)	(<.001)			
Participatory dem.$_{t-1}$							0.773***	0.774***	0.765***
							(<.001)	(<.001)	(<.001)
Constant	0.158***	0.248	-0.224	0.0893***	0.166	-0.146	0.0761***	0.243	0.122
	(<.001)	(0.690)	(0.747)	(<.001)	(0.724)	(0.771)	(<.001)	(0.492)	(0.751)
Observations	1179	1160	1112	1179	1160	1112	1179	1160	1112
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** p<0.01, ** p<0.05, * p<0.10. The dependent variables are V-Dem's electoral democracy index (columns 1-3), liberal democracy index (columns 4-6), and participatory democracy index (columns 7-9). Explanatory variables of interest, ChinaAid per capita×Democracy & ChinaAid per capita, are reported in log terms. Each test employs country and period fixed effects.