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The Impact of Chinese Aid on Democratization: Empirical Evidence from Southeast Asia

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The Impact of Chinese Aid on Democratization: Empirical Evidence from Southeast Asia*

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Abstract

It has been argued that the "unconditional" nature of Chinese development aid causes deleterious effects on institutional quality in recipient countries. This article focuses on Southeast Asia to investigate the political impact of Chinese developmental aid. I argue that the effect of Chinese aid is conditional on regime types of recipient countries. Specifically, Chinese aid should intensify repression in closed autocracies but reinforce electoral manipulation in electoral autocracies. Moreover, I propose a nonlinear effect of Chinese aid in electoral autocracies as overdependence on Chinese aid could instigate anti-China sentiment, which arouses civil mobilization against the government and increases the likelihood of democratization. My identification strategy exploits time variation of Chinese steel production and cross-sectional variation of the probability to receive aid from China to construct instruments of Chinese aid reception. Overall, I find weak evidence of a Chinese "political aid curse" in Southeast Asia.

Introduction

Recently, democratic recession and autocratization have become important issues for political scientists. Beyond domestic social and economic factors, international factors of democratic survival gain more attention from researchers. Authoritarian regional powers such as Russia and China exploit their dominant political and economic influences to corrode legitimacy of democratic regimes and prolong stability of autocratic regimes either by value demonstration or direct intervention. Diamond (2018) even points out that compared to Russia, an economic rising and politically ambitious China is a far more dangerous threat to global liberal democratic order in the long term. According to Diamond, China has become the major actor in the wave of authoritarian diffusion. It has been debated whether Chinese international economic behaviors have deleterious impacts on democratization. Literature of political economy have indicated that as a form of cross-national resource transfer, foreign aid plays a significant approach to export institutions and value systems of donor countries, either for democratic or authoritarian countries.

Southeast Asia provides an ideal scenario to test the impact of Chinese aid because its strategic position and economic prospect make it a tendentious target of Chinese aid provision to expand its international influence. According to Dreher et al (2017), during 2000 to 2014, the total Chinese official finance outflowing to the region was 39237 million US dollars, which was 11% of China's overseas finance. In addition, adequate variance lies between Southeast Asian countries and enables us to observe the covariate relationship between the inflow of Chinese aid and institutional development. There are countries that basically receive no Chinese aid (Singapore and Brunei) and countries whose economies substantially depend on Chinese aid like Cambodia and Laos (See Figure 2). Based on the recent political development experiences in Thailand and Malaysia, I contend that there is a U-shaped relationship between aid dependency and democratization in electoral autocracies. Aid could be used as an effective tool to buy support from target voters at the initial stage. However, overdependence on Chinese aid could trigger nationalist sentiment and anti-government protests, which adversely undermine the popular support of electoral autocrats

and create favorable conditions for democratization.

Utilizing the AidData and the novel V-Dem dataset, I analyze the effect of aid on various institutional outcomes such as civil liberties, electoral accountability, and state repression. However, the potential endogeneity between Chinese aid reception and democratic level makes it difficult to infer causality. To address this problem, I utilize the interaction of Chinese steel production and the frequency of receiving Chinese aid to instrument aid dependence. The rationale behind the choice of instrument is that Chinese aid budget highly depends on steel production. By interacting a time-variant with a country-variant variable, I construct an exogenous instrument to estimate Chinese aid reception of a given country in a given year. I will discuss it in detail in the following section. Unlike previous large-N analyses, my medium sample strategy focuses on a group of rather culturally and geographically homogeneous countries, which mitigates the effect of other confounders.

The paper is organized in the following description. First, I review the relationship between aid and political institutions by studying literature regarding this issue. Then I provide an overview of China's foreign policy and discuss how researchers consider their intention and impact. Next, I form testable hypotheses based on theoretical implications and empirical evidence. I describe my data and empirical strategy in the fifth part, and present results and interpretations of empirical analysis in the sixth section. In the final section, I conclude my findings and discuss their potential extensions.

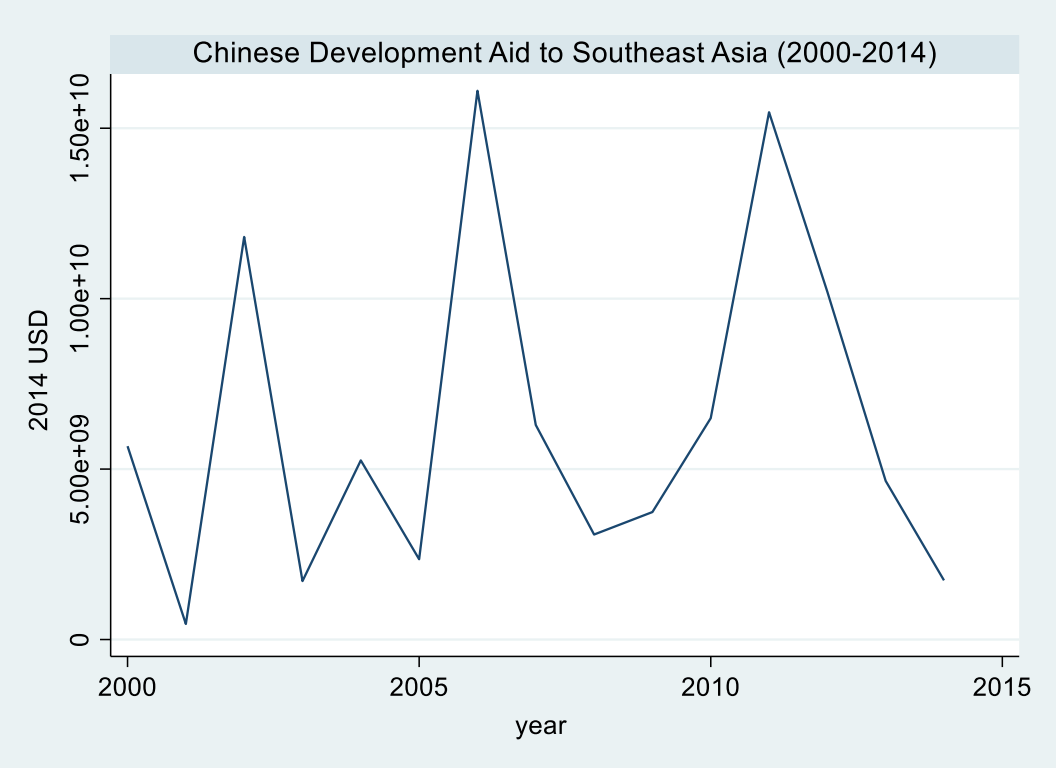

Figure 1. Total inflow of Chinese development aid to Southeast Asia, 2000-2014

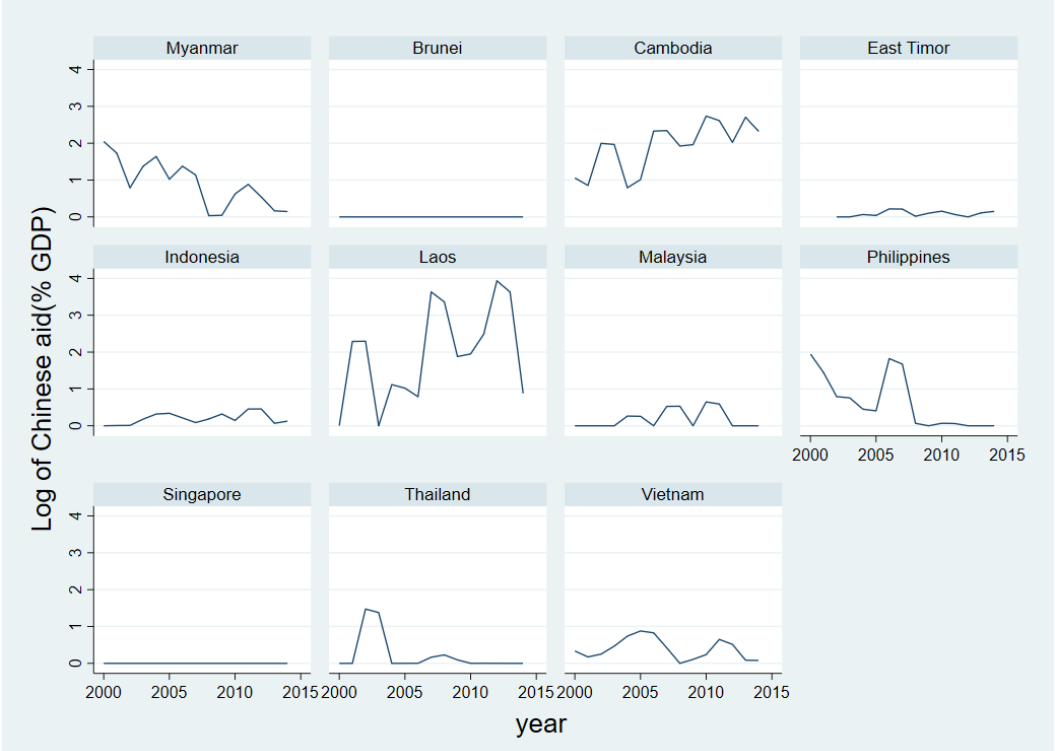

Figure 2. Chinese aid dependency of Southeast Asian countries over time, 2000-2014

Literature Review

Political Economy of Foreign Aid

The economic and political impacts of foreign aid have been widely contended by researchers. Conventional studies focus on the impact of aid on development such as economic growth or alleviation of poverty. The frustrating impact of aid on development is partially because the allocation of aid is more driven by strategic interests of donors, for example, geopolitical concern or international affinity, instead of the need of recipients. Alesina (2000) pointed out that foreign policy consistency, former colonies and geostrategic position are major predictors of big donors, such as USA, Japan and France's aid policy. Countries that share colonial ties and consistent foreign policy preferences with western donors receive more aid than those who don't. On the contrary, poverty or institutional quality are not first priorities for western countries when distributing aid. Bueno de Mesquita and Smith (2007) also proposed that the primary concern of the donor's aid policy is to satisfy its domestic constituent and increase the chance of leadership survival. As the result, the incentive of aid could be distorted by domestic political considerations, depending on the coalition size. These studies illustrate that aid primarily serves as a foreign policy tool of donor countries to facilitate its national interest.

Aside from the aspect of motivation, some research focus on the effectiveness of aid on recipient countries' development. Bueno de Mesquita and Smith (2010a) used the membership of UN security council as a natural experiment to test the pernicious effect of aid on recipient countries' economic and political development, and verified that membership of the UN security council is associated with higher amount of aid, which leads to lower growth and recession of democracy in coming years.

Effect of Aid on Political Institution

The detrimental effect of aid on democratic institutions has been contentiously debated by political scientists since aid can serve as an "unearned income" for recipient governments to

acquire disposable resources without taxing citizens and thus reduce democratic accountability. The rationale behind the "Political Aid Curse" is if rulers can acquire wealth from foreign donors instead of taxing the economic activities, it lacks the necessity to respond to citizens' demand. Using the fractalization of US house of Representative as an instrument of US bilateral aid, Ahmed (2016) confirmed that US bilateral aid undermines political rights and intensifies state repression in recipient countries. However, Altencekic and Bearce (2014) found no robust evidence to support the "political curse" of foreign aid. Some researchers turn to the pernicious effect of aid on political stability, as the lion share of free rent generated by aid increases the incentive for domestic rival groups to contend for it by force. For example, Nunn and Qian (2014) utilized US wheat production to instrument US food aid and estimated its effect on civil conflicts. In another work, Ahmed and Werker (2015) used the exogenous fluctuation of global oil price to instrument aid disbursement of Arab countries and discovered that aid from oil producers arises conflicts in Muslim countries. However, studies of "aid curse" suffer from endogeneity because aid disbursement is potentially a result of economic and political conditions in recipient countries, thus leading to the concern of reversed causality. Researchers have strived to identify valid instrumental variables (IV) of aid due to its time-variant nature. Instruments like government fractionalization (Langlotz and Potrafke, 2019), foreign policy similarity (Kono and Montinola, 2012), and colonial ties (Carnegie and Marinov, 2017) were proved to be powerful for causal inference. These studies suggest the selection of instruments should be contextualized to determinants of donors' aid decisions such as domestic political considerations or cultural affinity which are unrelated to political institutions of recipient countries.

Conditional Effect of Regime Type

Some researchers argue that the effectiveness of aid could be heterogenous across regime types, depending on the coalition size and survival strategies of recipients. Based on the Selectorate model, Bueno de Mesquita and Smith (2009) claim that the size of a regime's winning coalition

determines the allocation and effect of aid. Aid by nature serves as a policy tool to buy support from key coalition members, depending on the size of ruling coalition. Following the Selectorate logic, Kono and Montinola (2012) argue that large coalition regimes like democracies tend to transfer aid to provision of public goods like education or health care, which are beneficial for citizens' welfare. While autocracies are more inclined to misappropriate aid in the form of private goods and divert aid to sector which could enhance their capacity of repression like the military. Bueno de Mesquita and Smith (2010b) note that small coalition leaders with access to "free rent" such as natural resources or aid are more inclined to increase repression when facing revolutionary threats as leaders could acquire free wealth without taxing productive economic activities. Wood and Wright's (2016) research found that humanitarian aid followed by large natural disasters increase repression in autocracies but not in democracies. While a number of researchers argued that aid does not hinder democratization in all certain circumstances. For instance, it is noted that aid could foster democratization in institutionalized authoritarian regimes like party regimes as such type of autocratic regimes is willing to concede political openness in exchange for aid while stay in power meanwhile. (Wright, 2009)

Chinese Aid Policy: An Overview

There has been ample research investigating the motivation of Chinese aid provision and its economic and political impacts. Foreign aid has been a central project of Chinese foreign policy agenda since the 1960s. While most of Chinese aid flowed to African countries before the 1980s, as they are important international partners. Most researchers agree that Chinese aid follows a "demand-driven" pattern, which means poorer countries receive more aid from China. GDP per capita is a strong predictor of Chinese aid inflow. On the contrary, regime type of recipient countries is not a major concern of China's aid policy. Authoritarian regimes do not substantially receive more aid from China. Diplomatic relationship with China is also an important factor determining Chinese aid allocation. Countries that recognize the One-China principle or vote more

aligned with China in the United Nations General Assembly (UNGA) tend to receive more Chinese aid. These studies demonstrate that China utilizes aid as a foreign policy tool to buy support from other countries in the international arena. Some researchers also pointed out natural resource abundance is a consequential determinant of Chinese aid inflow due to its desperate need of natural resources to support its expanding industrial development. China provides more aid to oil producers like Angola to ensure stable source of natural resources. (Dreher and Fuch, 2016)

China has become an influential international donor after the cold war as China provides a more attractive pattern for autocratic leaders of developing countries, some observers even concern that China would crowd out the leverage of western donors. Chinese aid policy has been criticized for its "unconditionality" because China's aid provision does not depend on recipients' commitments to conduct institutional reforms such as improvement of human rights and democratic reforms like those of western donors do after the cold war period. As the result, Chinese aid is condemned as "Rogue Aid" by western observers because some of its big receivers have the most notorious human rights practices like Sudan and Zimbabwe. China has been accused of being the "foreign patron" of several notorious repressive regimes such as Myanmar and North Korea (Wood, 2008). On the economic impact of Chinese development aid, although some scholars argue that the unconditionality of Chinese aid leads to inefficiency and corruption, which are harmful to growth. However, empirical studies show a quite different picture. Dreher, Fuchs, and Parks et al (2017) used a large sample from 2000 to 2014 and corroborated that inflow of Chinese aid has a positive effect on fostering growth.

When we turn to the political effect of Chinese development aid, there are two contradictive viewpoints. One of them states that China does not intentionally foster autocratic stability by giving aid. China's enduring financial support for autocratic regimes like North Korea or Myanmar are mainly based on their strategic positions instead of its ideological favor over autocratic regimes. While some others claim that China deliberately exploits economic engagements like aid, trade and

investment to project its "sharp power" to support autocratic clients, while evidence of such political impact of Chinese aid is mixed. Bader (2015) investigated the impact of various forms of Chinese bilateral cooperation like developmental aid, trade, and foreign direct investment, and found only weak evidence that Chinese trade dependency only extends leadership survival in party regimes but not in other types of authoritarian regimes. Mixed evidence show that Chinese economic cooperation is not conducive to autocratic survival in all circumstances.

Causal Explanations and Hypotheses

Following Bueno de Mesquita et al (2010b), I claim that "coordination goods" like freedom of speech and assembly allow citizens to exchange information and act collectively, which are essential for regime change in autocracies. I expect that Chinese aid increases governments' capacity to contract those coordination goods and enhance their ability to extract rents from society. Hence, we have my first hypothesis:

H1: Inflow of Chinese aid has a negative effect on civil liberties.

I argue that the inflow of Chinese aid undermines democratic accountability through the channel of non-tax revenue, according to previous studies. Based on Ahmed's (2012) finding, free income like aid or remittance reduce social spending in autocracies and allow autocrats to free their hands to finance patronage networks. Because electoral competition plays as a major mechanism for citizens to hold politicians accountable, I expect that inflow of Chinese aid allows recipient governments to evade public scrutiny and restrict electoral competition. There comes my second hypothesis:

H2: Inflow of Chinese aid has a negative effect on democratic accountability.

I argue that the political effect of Chinese aid is determined by the institutional arrangement and survival strategies of recipient governments. More specifically, I hypothesize that the size of

ruling coalition has a conditioning effect. Closed autocracies with small ruling coalitions like military regimes, one-party regimes, or monarchies, whose rules rely more on the employment of repression, tend to divert aid to reward coercive agents such as military or secret police, which strengthen their capability to repress. Moreover, aid augments the stake to contend for power in closed autocracies due to their small coalition sizes, and thus incentivize rival groups to resort to conflicts and thus increase the intensity of state repression. Thereby I hypothesize that inflow of Chinese aid should intensify repression in closed autocracies. In contrast, electoral autocracies, whose rule depend on the dominant electoral advantage of the incumbents, would divert aid to "softer" forms of rent-seeking behaviors like electoral fraud to extend their survival. Governments could strategically use aid projects to buy votes and strengthen their patronage networks. The larger support coalition of electoral autocracies also makes the stake to contend for aid by force smaller than that in closed autocracies. Hence, I suppose that Chinese aid enhances electoral manipulation in electoral autocracies, and it enhances repression in closed autocracies. I come to my third and fourth hypothesis:

H3: Inflow of Chinese aid intensifies state repression in closed autocracies.

H4: Inflow of Chinese aid intensifies electoral manipulation in electoral autocracies.

Finally, we believe that aid has a much different impact in electoral autocracies due to the precarious nature of its survival strategy. To stay in office, incumbents need to ensure dominant advantage in elections. However, foreign patron is not a reliable guarantee to win elections because voters are not mindless puppets who simply follow the government's instruction to vote. Overreliance of Chinese aid could incite nationalist sentiment when it is perceived as a violation of sovereignty. I argue that the rentier effect of Chinese aid backfires as it arouses civil mobilizations, which adversely destabilizes authoritarian rule and increases the chance of democratic transition, but only in electoral autocracies because elections provide a focal point for

citizens to take collective actions against the regime. Recently in Malaysia, we have witnessed pervasive discontent triggered by anti-China sentiment ended the persistent rule of the electoral autocrat, Najib Razak. As the result, I propose a U-shaped relationship between Chinese aid and democratization in electoral autocracies. Chinese aid facilitates autocrats' ability to capture electoral support initially, however, as affiliation with China provokes citizens, aid becomes a liability.

H5: Inflow of Chinese aid has a nonlinear effect on democratization in electoral autocracies

So far I have completed my theoretical framework and hypotheses, now I turn to the empirical test in the next section.

Research Design

Data

Dependent Variable

My dependent variables contain a series of institutional variables, based on which dimension of institutions we are interested in. I have institutional variables from the novel V-Dem dataset because it has the most various measurements of political institutions, compared to other existing datasets such as Polity IV or Freedom House. I use Civil Liberties Index to measure the degree of civil liberty of a given country. Vertical Accountability Index is utilized to measure the level of democratic accountability. This variable focuses on electoral competition as the main mechanism for citizens to hold the government accountable, therefore allows us to separate the change of electoral accountability from other segments of democratic institutions. I use Physical Violence Index as the measurement of state repression. It measures to what degree does a government prevents its citizens from physical violence such as extrajudicial killings, political imprisonments, and tortures. Finally, I utilize the Clean Election Index to measure the level of electoral

manipulation. It measures whether a government seeks to control elections by irregular means such as vote-buying or intimidation on oppositions, which is most consistent with my theoretical concept. All institutional variables range from 0 to 1, with a higher value refers to a higher level of civil liberty, democratic accountability, physical integrity, and electoral fairness.

Independent Variable

My main explanatory variable is Chinese aid dependency, which is measured as the amount of Chinese aid as a percentage of GDP (log transformed due to the right-skewed distribution). I also use alternative measurements of Chinese aid dependency for robustness checks, including the annual Chinese aid per capita and the total amount of Chinese aid (log transformed). I add one unit to each observation before log transformation to prevent zero values from dropping out of analysis. To ensure our measurements are consistent, we convert aid value into 2014 US dollars. Aid measurements are adjusted by calculating two-year moving averages (*t-1* and *t*) because the effect of aid is very likely not to be contemporaneous, and we also want to ensure that our measurements capture current level of inflows rather than large fluctuations in a given year. I rely on the Global Chinese Official Finance Dataset, Version 1.0 from the AidData project, constructed by Dreher, Fuchs and Parks et al (2017) as our source of Chinese development aid. This dataset contains projects and net value of Chinese overseas official finance, based on media sources from 2000 to 2014. According to the editors, it "*includes concessional and non-concessional sources of funding from Chinese government institutions (including central, state or local governments) with development, commercial or representational intent.*", which makes it the most reliable and comprehensive source of Chinese aid we have so far. AidData divides Chinese aid commitment into categories of "Official Development Assistance (ODA)" and "Other Official Flow (OOF)" based on the development intent of projects. I aggregate two types of aid to create a single variable "Aid Dependency" as I do not consider their difference because recipient countries reserve the discretion to appropriate them despite of commitments they make.

To test the conditional effect of Chinese aid on regime type, I include interaction terms of aid and regime types. Regimes are categorized as dummies of democracy, electoral autocracy, and closed autocracy according to the classification of Regime of the World from V-Dem, and I use democracy as the reference group. To test the curvilinear relationship of Chinese aid in electoral autocracies, I add both aid and its *squared term* and interact them with the electoral autocracy dummy in the regression. If a U-shaped relationship exists as I predict, the sign of the linear term would be negative while its squared term should be *positive*.

Control Variables

I include a set of control variables in regression models which are said to be correlated with democratization according to previous studies. I carefully select covariates to be controlled as too few would lead to omitted variable bias while too many would make the estimation too "noisy" due to the small sample size of my data structure.

First, I include log of GDP per capita and annual GDP growth to control for long- and short-term economic performance since countries with higher economic development and rapid growth are less likely to experience democratic backlash according to the modernization theory. Population (logged) is controlled as larger and more populous countries tend to be more repressive and less likely to democratize. Corruption should be a strong predictor of democratization as higher corruption encroaches citizens' trust in public institutions and enable autocratic governments to extract more rent to spoil their cronies. I utilize the Political Corruption Index from the World Governance Indicator constructed by the International Monetary Fund (IMF), which is a continuous score range from -2.5 to 2.5, a higher value refers to a lower level of corruption. I include a binary variable of internal conflict because countries facing insurgencies are prone to intensify repression and undermine institutional checks on governments. Internal conflict is coded as 1 if a country experiences a conflict between the government and an internal rival group with at least 25 battle deaths. Data of internal conflicts are drawn from the Uppsala

Conflict Data Program.

I have the level of ethnic fractionalization controlled because ethnically fractalized countries are more difficult to remain stable democracies. Finally, I control for a country's reliance on natural resource rent because natural resources like oil, gas, and mine are also sources of "free rent" for autocratic regimes to reinforce capacity of repression and reduce accountability, according to the resource curse literature. A country's dependence on natural resources is measured as natural resource rent as a percentage of GDP from the World Development Indicator. Finally, year dummies are controlled in regression models to capture common exogenous factors of democratization, which is also known as year fixed effects. All independent variables are lagged for one year to prevent simultaneity except for internal conflict.

Empirical Strategy

My cross-section time-series dataset is composed of 10 Southeast Asian countries from 2000 to 2014, each country-year is treated as a unit of analysis. Time series spans from 2000 to 2014 due to the limitation of Chinese aid data. Brunei is excluded from my sample because its institutional variables are not available from V-Dem. According to AidData, Brunei didn't receive any Chinese developmental aid during the period, therefore excluding it should not seriously bias my results.

In my standard model specification, I use ordinary least square (OLS) regression to estimate the covariate relationship between the outcome and explanatory variables. Country fixed effects are applied to control for unobserved country-specific factors. I estimate with random effects in several specifications because the amount of aid is stationary in few countries, which makes the estimates of fixed effects to be downwardly biased. Random effects address the lack of variance of certain explanatory variables by assigning random intercepts to each panel. I do not include a lagged dependent variable at the right-hand side like some research did because including both lagged dependent variables and fixed effects with a relatively short time series ($T=15$) could lead to Nickel Bias. My baseline estimation could be denoted as the below regression:

$$Y_{i,t} = \alpha Aid_{i,t-1} + \partial X_{i,t-1} + \delta + \gamma + \varepsilon$$

Where *Y* is the institutional variable in country *i* and year *t*, *Aid* is my measurement of Chinese aid dependency, say it to be Chinese aid as a percentage of GDP or Chinese aid per capita, with *a* as its coefficient, which is my parameter of interest. *X* denotes a vector of controls, δ and γ refer to country and year fixed effects, and ε is the error term.

However, as aid is potentially endogenous to democratic recession because countries experiencing democratic recessions could receive more aid from China, the causality could be reversed. To address endogeneity and omitted variable bias, I conduct an instrumental variable approach and a standard two-stage least square (2SLS) estimation strategy. A proper instrument should be highly correlated to the endogenous variable but uncorrelated to the error term. In this case, a valid instrument should correlate to Chinese aid provision while exogenous to the institutional development of recipient countries. I follow Dreher et al (2017) and Brazys and Vadlamannati (2020), use the interaction of Chinese steel production and the frequency of receiving Chinese aid to instrument Chinese aid reception. The wisdom behind the relationship between Chinese steel production and aid is that Chinese aid budget is highly correlated to the surplus of steel production due to its strategic nature for Chinese government. Specifically, China exports surplus of steel in the form of aid to absorb its excess capacity. It serves as a valid instrument because Chinese steel production should have no direct impact on institutions of recipients but can only affect it through the channel of aid disbursement, which satisfies the assumption of exclusion restriction. The first-stage regression is estimated with the below equation:

$$Aid_{i,t-1} = \sigma Chinese\ steel_{t-2} \times Prob_i + \vartheta X_{i,t-1} + \delta + \gamma + \varepsilon$$

The first-stage regression estimates predicted values of Chinese aid by using *Chinese steel production,* the log of Chinese steel production in year *t-2*, and its interaction with the likelihood of

country *i* to receive Chinese aid as instruments. I lag this variable for 2 years because Chinese aid disbursement in a certain year is very likely based on the surplus of steel in the previous year. The probability of a country to receive Chinese aid is calculated as the sum of years receiving positive amount of Chinese aid divided by the total years of my period of analysis (2000-2014), which is $\frac{1}{15}\sum_{y=1}^{15} P_{i,t}$, therefore the instrument captures time variation of Chinese steel production and cross-sectional variation of likelihood to receive Chinese aid, and σ is its effect on aid. Although one might concern that aid frequency ($Prob_i$) is potentially endogenous to democratization, the interaction of an endogenous term and an exogenous term with inclusions of country and year fixed effects could allay that concern, according to Ahmed (2016). *X* refers to a set of control variables, δ and γ refer to country and year fixed effects same as the second stage estimation.

I present summary statistics of variables in appendix B. The sample shows a wide variance to observe the covariate the relationship between aid and institutions. The maximum observation of aid as a percentage of GDP is Laos in 2012, with Chinese development aid shared 50.14% of its GDP. From the country level, the country with the highest level of vertical accountability during the period is Indonesia, with a mean of 0.897, and the country with the lowest level is Laos, with a mean of 0.330, which is also the largest recipient of Chinese development aid.

I graph scatterplots of Chinese aid against two institutional variables in figure 3 and 4. The x-axes are averages of vertical accountability and physical integrity index of each country from 2000 to 2014, and the y-axis is the average of Chinese as a percentage of GDP during the period. We can observe a negative relationship between Chinese aid dependency and level of democratic institutions: More repressive and uncountable regimes receive more Chinese development aid. Certainly, that does not lead us to a causal inference as it does not consider heterogeneity between and within countries. Now we shall turn to empirical analysis in the following section.

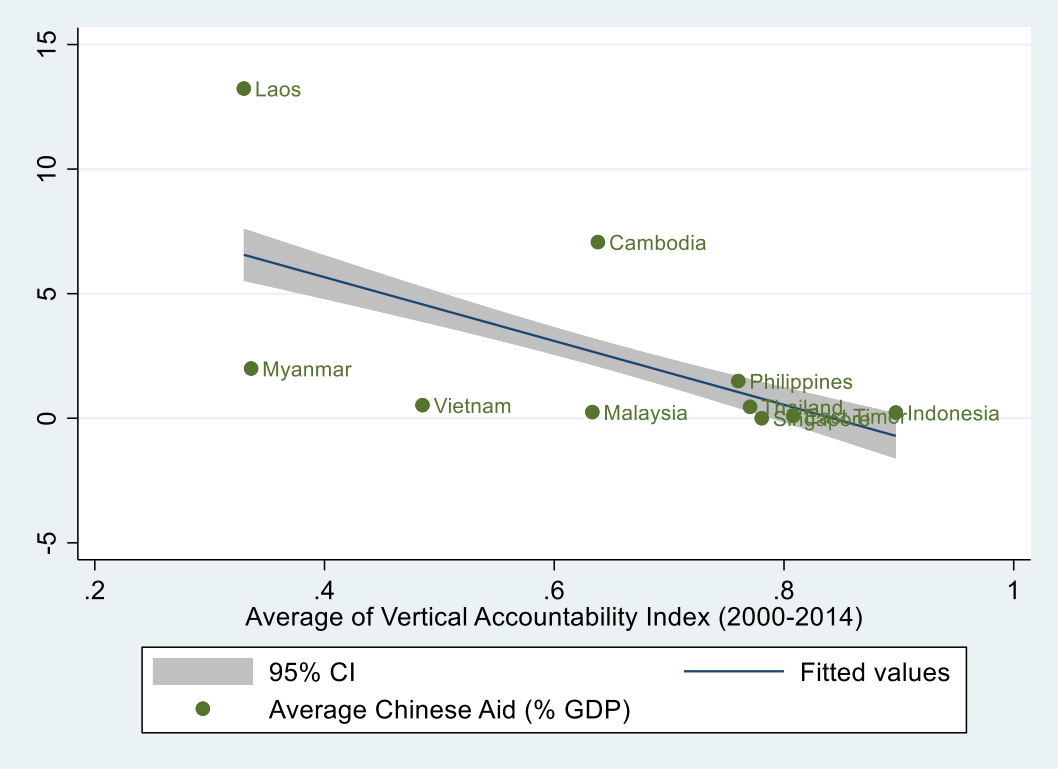

Figure 3. Correlation between Chinese aid and vertical accountability, 2000-2014

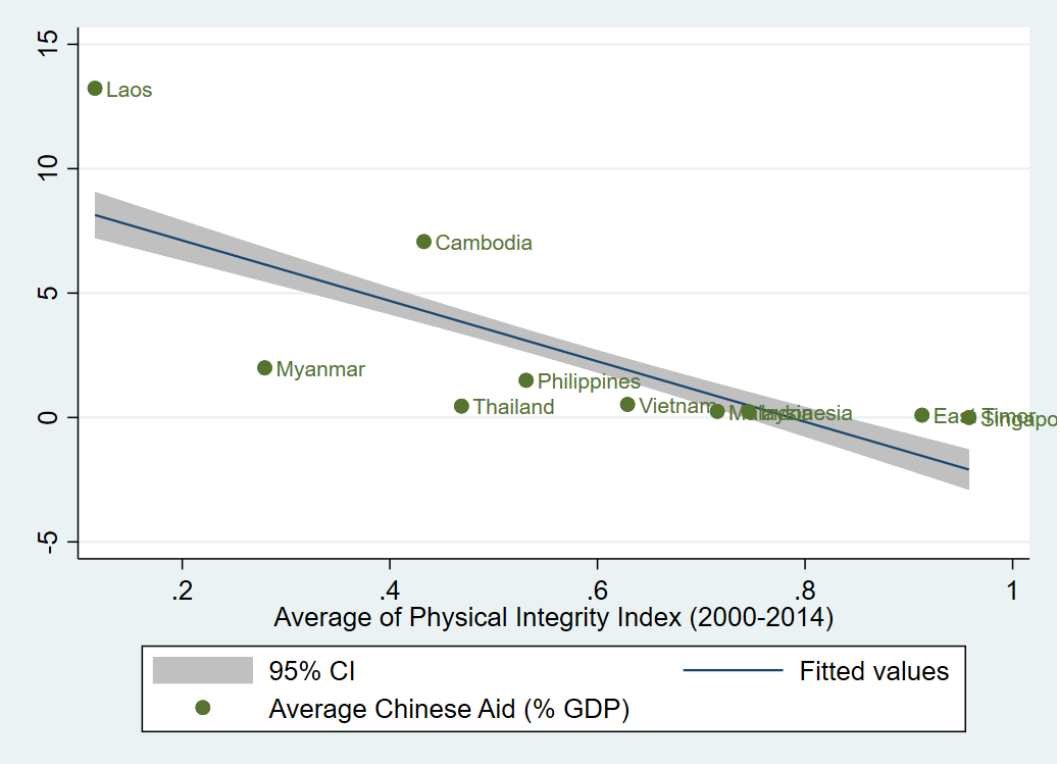

Figure 4. Correlation between Chinese aid and physical integrity, 2000-2014

Results

Effects of Chinese Aid on Civil Liberty and Democratic Accountability

I begin by testing the impact of Chinese aid on civil liberty and democratic accountability. Table 1 presents results of OLS estimates, Chinese aid is measured as a percentage of GDP. In column 1 to 3, the dependent variables are Civil Liberties Index. First, I run a simple regression with Chinese aid as the only covariate and control for country and year fixed effects in column 1. The coefficient of aid is negative and significant at 10%. However, it becomes insignificant once I add controls in the regression model as shown in column 2. In model 3, I run a random effect model in place of fixed effects. The coefficient of Chinese aid turns negative and is significant at 1% in the random effect model. Following the OLS estimates, we find an ambiguous relationship between inflow of Chinese aid and decline of civil liberty. I replicate the same specifications in column 4 to 6 but use vertical accountability as outcome variables. When we turn to the impact of Chinese aid on vertical accountability, the relationship becomes clearer. Chinese aid has negative and significant coefficients in all model specifications, indicating a negative relationship between aid and democratic accountability.

In Table 2, I present results using different measurements of Chinese aid dependency, coefficients of control variables are not reported for saving space. I use Chinese aid per capita and total amount of Chinese aid (plus 1 for each observation and log transformed) as alternative explanatory variables. Although coefficients show negative signs as I expect, none of them reaches statistical significance at conventional levels. In column 1, I use Chinese aid per capita as the explanatory variable. In column 2, I include a dummy of democracy (coded as 1 if a country receives a polity 2 score equal to or higher than 6 in a given year) and interact it with aid per capita. The interaction term is negative but not significant, suggesting the effects of Chinese aid are indistinguishable in democratic and non-democratic countries. In column 3, I use log of net Chinese aid to measure Chinese aid. I replicate those specifications in model 4 to 6 with vertical

accountability as dependent variables. When we change measurements of Chinese aid, coefficients of aid become statistically insignificant, suggesting the negative relationship is probably driven by certain specifications. My baseline OLS estimates suggest that Chinese aid is not significantly associated with civil liberty, but it is negatively associated with democratic accountability in recipient countries, although that association is inconsistent across different measurements of aid reception. However, these results should be interpreted carefully because OLS only reveals correlation but not causality, and omitted variables as well as endogeneity could lead to biased estimates. Hence, I move to results of IV estimates to make more precise inference.

Table 1. OLS estimates of Chinese aid on civil liberty and democratic accountability

Dependent Variable	Civil Liberty			Vertical Accountability		
	(1)	(2)	(3)	(4)	(5)	(6)
Chinese Aid (%GDP)	-0.0138*	-0.0113	-0.0644***	-0.0239**	-0.0203**	-0.0464**
	(0.00744)	(0.00687)	(0.0227)	(0.0106)	(0.00956)	(0.0208)
Growth		-0.000691	-0.00303		-0.00170	-0.00247
		(0.000785)	(0.00282)		(0.00109)	(0.00259)
Log GDP per capita		0.133***	0.184**		0.201***	0.240***
		(0.0421)	(0.0791)		(0.0585)	(0.0726)
Corruption		0.0707*	0.0126		0.0863*	-0.0516
		(0.0361)	(0.0506)		(0.0501)	(0.0465)
Log Population		-0.507*	0.0906***		-0.822**	0.0563*
		(0.271)	(0.0351)		(0.377)	(0.0323)
Internal Conflicts		0.0148	-0.0683*		0.0253	-0.0394
		(0.0170)	(0.0397)		(0.0237)	(0.0365)
Ethnic Fractalization		1.325**	0.186**		2.402**	0.130*
		(0.661)	(0.0783)		(0.919)	(0.0719)
Natural Resource Rent		-0.000217	0.00324*		0.000209	-0.0000692
(% GDP)		(0.000773)	(0.00195)		(0.00107)	(0.00179)
Country FE	Y	Y	N	Y	Y	N
Year FE	Y	Y	Y	Y	Y	Y
Random Effects	N	N	Y	N	N	Y
R^2 (within)	0.104	0.316	0.075	0.127	0.370	0.151
Observations	138	136	136	138	136	136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year.

I now turn to the IV estimates. Table 3 reports results of baseline IV estimates, the instrument is the interaction of Chinese steel production and the probability of receiving Chinese aid. Panel A presents the result of first-stage regression. The first-stage estimate shows a positive and statistically significant relationship between my instrument and Chinese aid reception. However, the F statistic (0.83) does not pass the common threshold of 10, implying a problem of weak instrument. Control variables in the first-stage estimation also consist with conventional wisdom of determinants of aid reception: GDP per capita is negatively associated with Chinese aid, indicating poorer countries receive more aid from China. In addition, natural resource rent is positively related to Chinese aid, supporting the notion that China strategically gives aid to resource-abundant countries to secure its energy supply. While I find no relationship between growth rate, corruption, ethnic fragmentation, internal conflicts, and Chinese aid reception.

Table 2. Estimations using alternative measurements of Chinese aid

Dependent variable	Civil Liberty			Vertical Accountability		
	(1)	(2)	(3)	(4)	(5)	(6)
Chinese aid per capita	-0.00133	0.00161		-0.00383	-0.00242	
	(0.00332)	(0.00447)		(0.00464)	(0.00628)	
Chinese aid per capita		-0.00679			-0.00307	
× Democracy		(0.00673)			(0.00946)	
Log Chinese aid			-0.000730			-0.000888
			(0.000782)			(0.00110)
Controls	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
R^2 (within)	0.30	0.309	0.305	0.347	0.348	0.347
Observations	136	136	136	136	136	136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year. Control variables include log GDP per capita, GDP growth rate, corruption, log population, internal conflicts, ethnic fractalization, and natural resource rent as a percentage of GDP.

Panel B displays results of 2SLS estimates, the coefficients can be interpreted as the average

treatment effects (ATE) of aid on civil liberty and accountability. Compared to the OLS estimates, coefficients of Chinese aid become larger and are statistically significant at 10% and 5%, suggesting OLS estimates could be downwardly biased. The point estimates are also economically significant: a standard deviation increase of Chinese aid as a percentage of GDP (logged) causes 0.099 point drop of Civil Liberties Index and 0.18 point drop of Vertical Accountability Index in the following year, which are sizable effects since institutions only range from 0 to 1. I interpret this result as Chinese aid projects highly correlated to steel production, such as infrastructural constructions and energy, have detrimental effects on democratic institutions in Southeast Asian recipients. An instrumental variable strategy verifies that Chinese aid causally undermines civil liberty and democratic accountability. I plot coefficients and confidence interval of Chinese aid and compare them with other covariates in figure 5 and 6. In this section, I find causal evidence that Chinese aid leads to recession of civil liberty and democratic accountability in recipient countries, supporting the existence of a "political aid curse". Next, I examine whether Chinese aid has a conditional effect in different regimes.

Table 3. IV estimates of Chinese aid on civil liberty and vertical accountability

Panel A	**First-stage results**	
Dependent variable	Chinese aid (% GDP)	
	(1)	
Chinese steel production × probability	1.006**	
	(0.382)	
Controls	Y	
R^2 (within)	0.143	
F statistics	0.83	
Panel B	**Second-stage results**	
Dependent variable	Civil liberty	Vertical accountability
	(1)	(2)
Chinese aid (% GDP)	-0.0637*	-0.131**
	(0.0314)	(0.0580)
Controls	Y	Y
Country FE	Y	Y
Year FE	Y	Y
R^2 (within)	0.01	0.01
Observations	136	136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year. Control variables include log GDP per capita, GDP growth rate, corruption, log population, internal conflicts, ethnic fractalization and natural resource rent as a percentage of GDP.

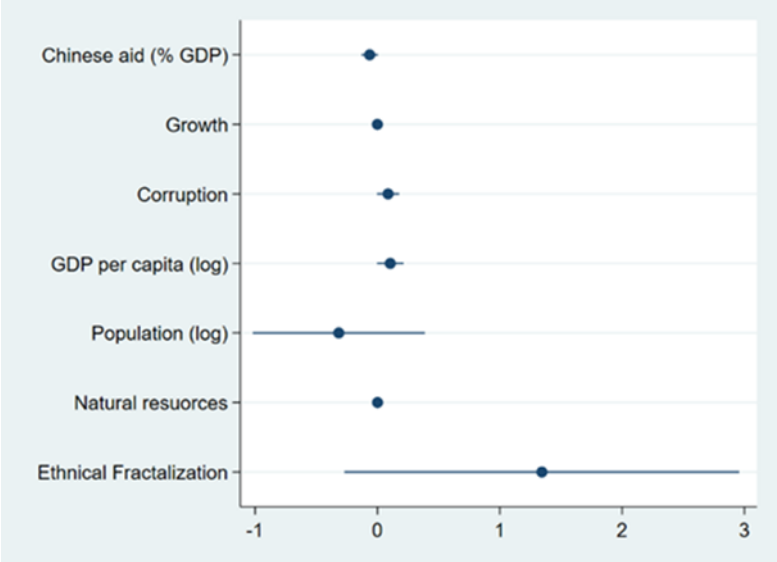

Figure 5. Coefficient plots of determinants of civil liberty

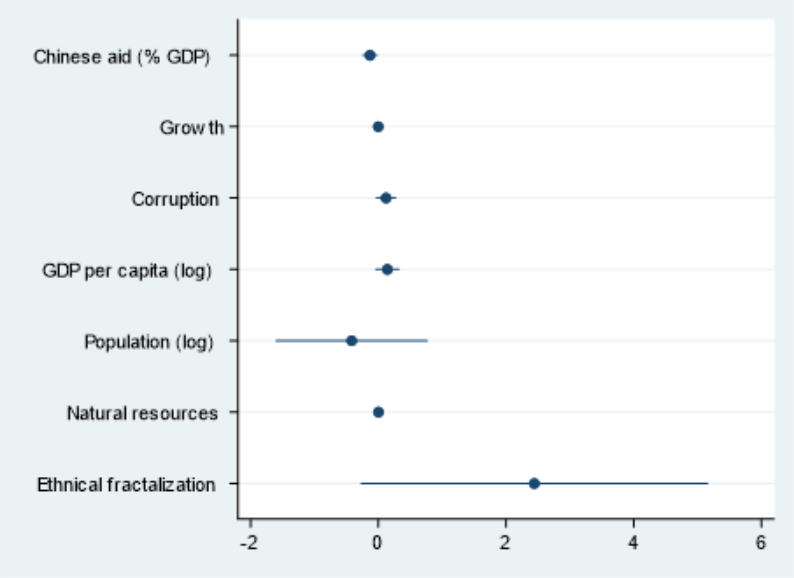

Figure 6. Coefficient plots of determinants of vertical accountability

Conditional Effect of Regime Type

I report estimation results of the conditional effect of regime type in Table 4. The interaction term of Chinese aid and regime types is my variable of interest. Again, control variables are included in all specifications but not reported to save space. Column 1 to 3 use physical integrity index as the dependent variable. Column 1 uses Chinese aid as a percentage of GDP as the explanatory variable, it shows a negative and significant coefficient, a unit increase of Chinese aid as a share of GDP is associated with 0.57 point decrease of physical integrity. However, the interaction term of aid and closed autocracy is positive and significant at 5% level, which contradicts my expectation. I replicate the same estimation in column 2 and 3 but use Chinese per capita and financial value of Chinese aid (log transformed) as alternative measurements of Chinese aid. Once again, Chinese aid is negative and significant but their interactions with closed autocracy are positive, much to our surprise. The results in electoral autocracies are much similar. Inflow of Chinese aid seems to be associated with fewer political killings, less torture, and a lower level of human rights violations in both closed and electoral autocracies. I then turn to the relationship between Chinese aid and electoral manipulation, with the Clean Election Index as the dependent variable. As we can see, interactions of Chinese aid and electoral autocracy are positive and insignificant, even if I change

different specifications. Chinese aid has no effect on electoral manipulation, either in closed or electoral autocracies. I find a positive relationship between Chinese aid and physical integrity, while I find no relationship between Chinese aid and electoral manipulation.

Next, I turn to the IV estimate, the endogenous variables are log of Chinese aid as a percentage of GDP and its interactions with regime dummies. The instruments are interactions of Chinese steel production, probability of receiving Chinese aid, and each type of regime. First-stage estimates show a weak relationship between instruments and Chinese aid reception in closed and electoral autocracies. Panel B reports second stage regressions, points estimate are effects of instrumented Chinese aid on physical integrity and electoral manipulation. Compare to OLS estimates, the coefficients become larger and negative but insignificant. Overall, the IV strategy rejects the hypothesis that Chinese aid has any effect on state repression and electoral manipulation, either in closed or electoral autocracies. It seems that Chinese aid causes restriction of civil liberty and democratic accountability while it does not lead to more state violence and electoral manipulation.

Table 4. OLS estimates of conditional effects of Chinese aid

Dependent Variable	State Repression			Electoral Manipulation		
	(1)	(2)	(3)	(4)	(5)	(6)
Chinese aid	-0.0568***			0.0138		
(% GDP)	(0.0196)			(0.0273)		
Chinese aid per capita		-0.0235***			-0.000113	
		(0.00666)			(0.00949)	
Log Chinese aid			-0.00306**			0.000944
			(0.00131)			(0.00183)
Chinese aid ×	0.0576**	0.0300***	0.00426**	0.00545	0.0104	0.000510
Electoral autocracy	(0.0257)	(0.00894)	(0.00177)	(0.0358)	(0.0127)	(0.00247)
Chinese aid × Closed	0.0415*	0.0157*	0.00189	-0.0448	-0.0156	-0.00320
autocracy	(0.0223)	(0.00891)	(0.00203)	(0.0311)	(0.0127)	(0.00284)
Controls	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
R^2 (within)	0.488	0.493	0.470	0.320	0.314	0.289
Observations	136	136	136	136	136	136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year. Control variables include log GDP per capita, GDP growth rate, corruption, log population, internal conflicts, ethnic fractalization, and natural resource rent as a percentage of GDP.

Table 5. IV estimates of conditional effects of Chinese aid

Panel A	**First-stage results**		
Dependent variable	Chinese aid	Chinese aid × Electoral autocracy	Chinese aid × Closed autocracy
Chinese steel production × probability	0.608	0.603***	0.256
	(0.431)	(0.199)	(0.335)
Chinese steel production × probability × Electoral autocracy	0.396	0.122	0.0666
	(0.277)	(0.128)	(0.216)
Chinese steel production × probability × Closed autocracy	0.834**	-0.0902	0.636**
	(0.331)	(0.153)	(0.257)
Controls	Y	Y	Y
F statistics	1.01	2.87	1.46
R^2(within)	0.20	0.415	0.266
Panel B	**Second-stage results**		
Dependent variable	State repression		Electoral manipulation
	(1)		(2)
Chinese aid (% GDP)	0.143		0.354
	(0.166)		(0.302)
Chinese aid × Electoral autocracy	-0.174		-0.322
	(0.163)		(0.297)
Chinese aid × Closed autocracy	-0.239		-0.583
	(0.190)		(0.347)
Controls	Y		Y
Country FE	Y		Y
Year FE	Y		Y
R^2(within)	0.01		0.01
Observations	136		136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year. Control variables include log GDP per capita, GDP growth rate, corruption, log population, internal conflicts, ethnic fractalization, and natural resource rent as a percentage of GDP.

Nonlinear Effect of Aid in Electoral Autocracies

In this section, I analyze the nonlinear effect of Chinese aid in electoral autocracies. To test this relationship, I include Chinese aid, its squared term, and their interactions with a dummy of electoral autocracy in regression models. First, I report results of OLS estimates using different outcome in Table 6. The curvilinear relationship exists in all columns but contradicts my hypothesis: Chinese aid per se has a positive coefficient, and its squared term has a negative one, implying an inverted U-shaped curve instead of a U-shaped one as I expect. Nonlinear relationships can be observed in column 1 and 3, with civil liberty and state repression as dependent variables. Chinese aid is associated with increase of civil liberty and physical integrity initially but then decrease as recipients rely more upon it. When vertical accountability is the outcome variable, the interaction of Chinese aid and electoral autocracy shows a positive and significant coefficient, but its quadratic term is not distinguishable from 0. Once again, I find no relationship between Chinese aid and electoral manipulation, neither of aid nor its squared term reaches statistical significance. OLS estimates demonstrate that as governments receive more aid, civil liberty and human rights protection become encroached.

I then turn to the IV estimates. Chinese development aid, its squared term, and their interactions with dummies of electoral autocracy are treated as endogenous, hence the instruments are Chinese steel production multiplied by the probability of receiving aid, its squared term and their interactions with electoral autocracy. All models include a full set of controls and country-year fixed effects. I only report interaction terms of Chinese aid and electoral autocracy since they are my variables of interest in Table 7. First-stage regressions show a strong relationship between Chinese steel production and aid reception in electoral autocracies. More interestingly, I find a negative relationship between Chinese steel production and Chinese aid reception and a positive relationship between their quadratic terms, signifying a U-shaped relationship between my instruments and endogenous variables. However, the F-statistics are below the standard threshold of 15 (3.93 and 4.50), indicating they are weak instruments. Turning to the second stage estimates,

the coefficients of interaction terms are large, imprecise and insignificant. Since institution variables only range from 0 to 1, coefficients larger than 1 are certainly illogical. The imprecision of IV estimates could be attributed to a measurement error in aid dependence. In addition, instrumented Chinese aid and its squared terms are not statistically different from zero in all specifications, rejecting the hypothesis that Chinese aid has a "countereffect" in electoral autocracies. The absence of a countereffect is probably because citizens only take actions against a client regime when they are informed, and autocrats can prevent such collective actions in the first place by controlling the flow of information and changing public perceptions toward Chinese aid projects.

Table 6. OLS estimates of nonlinear effect of Chinese aid in electoral autocracies

Dependent Variable	Civil Liberty	Vertical Accountability	State Repression	Electoral Manipulation
	(1)	(2)	(3)	(4)
Aid × Electoral autocracy	0.0652*	0.126**	0.113**	0.0645
	(0.0389)	(0.0546)	(0.0478)	(0.0646)
Aid^2 × Electoral autocracy	-0.0249*	-0.0307	-0.0318*	-0.00667
	(0.0136)	(0.0191)	(0.0167)	(0.0226)
Controls	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
R^2 (within)	0.341	0.381	0.293	0.188
Observations	136	136	136	136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year. Control variables include log GDP per capita, GDP growth rate, corruption, log population, internal conflicts, ethnic fractalization, and natural resource rent as a percentage of GDP.

Table 7. IV estimates of nonlinear effect of Chinese aid in electoral autocracies

Panel A	**First-stage results**	
Dependent variable	Chinese aid (% GDP) × Electoral autocracy	Chinese aid^2 (%GDP) × Electoral autocracy
Chinese steel × probability × Electoral autocracy	-0.887*	-3.259**
	(0.525)	(1.314)
Chinese steel^2 × probability^2 × Electoral autocracy	0.0499*	0.178**
	(0.0272)	(0.0681)
Controls	Y	Y
F statistics	3.93	4.50
R^2(within)	0.493	0.527

Panel B	**Second-stage results**			
Dependent variable	Civil Liberty	Vertical Accountability	State Repression	Electoral Manipulation
	(1)	(2)	(3)	(4)
Aid × Electoral autocracy	-3.763	1.974	-1.812	5.680
	(28.05)	(11.47)	(16.16)	(34.14)
Aid^2 × Electoral autocracy	1.219	-0.519	0.618	-1.653
	(8.750)	(3.579)	(5.040)	(10.65)
Controls	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
R^2 (within)	0.01	0.01	0.01	0.01
Observations	136	136	136	136

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. All independent variables lag for one year. Control variables include log GDP per capita, GDP growth rate, corruption, log population, internal conflicts, ethnic fractalization, and natural resource rent as a percentage of GDP.

Findings

I conclude my empirical findings in this section. First, I find that Chinese aid has detrimental effects on civil liberty and democratic accountability, which are consistent with my hypothesis 1 and 2. However, Chinese aid does not intensify repression in closed autocracies, nor does it enhance electoral manipulation in electoral autocracies, and I find no evidence of a U-shaped

relationship between Chinese aid and democratization in electoral autocracies. My hypothesis 3, 4, and 5 are not supported by empirical analysis. Generally speaking, I do not find robust evidence that Chinese aid diminishes democratic institutions in Southeast Asia.

Conclusion

I inquire the political consequences of Chinese development aid in Southeast Asia in this article. Different from conventional cross-national analysis, I focus on Southeast Asia, a political and economic developing region with great exposure to the international influence of China. Due to the "unconditional" nature of Chinese development aid, I hypothesize that Chinese aid has harmful effects on democratization in recipient countries. My empirical analysis provides partial evidence of a Chinese "political aid curse". Chinese aid leads to recessions of civil liberty and democratic accountability, while it has no effects on state repression and electoral manipulation.

I consider this analysis a benchmark as my spatial coverage is limited to Southeast Asia, the political impact of Chinese aid in other geographic regions should also be examined because the effect could be heterogeneous in different contexts. Meanwhile, my identification strategy is far from perfect as it suffers a weak instrument problem. I suggest researchers look into region-specific characteristics when searching valid instruments for regional studies. In addition, Chinese aid could affect democratic institutions of recipient countries through other mechanisms, for example, non-state violence and political clientelism, which I do not discuss in this article. Finally, although I only discuss the case of development aid, the political impact of other forms of Chinese economic engagements such as foreign direct investment (FDI) and infrastructure projects of the Belt & Road Initiative require further investigations.

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Appendix A. Variable descriptions and sources

Variable	Description	Source
Civil Liberties Index	0 to 1. A higher value refers to higher level of civil liberty	Varieties of Democracy
Vertical Accountability Index	0 to 1. A higher value refers to higher level of democratic accountability	Varieties of Democracy
Physical Integrity Index	0 to 1. A higher value refers to lower level of state repression	Varieties of Democracy
Clean Election Index	0 to 1. A higher value refers to higher level of electoral fairness	Varieties of Democracy
Chinese Aid (% GDP)	Chinese aid as a percentage of GDP, log transformed, two-year averages	AidData
Chinese Aid per capita	Chinese aid per capita, log transformed, two-year averages	AidData
Chinese Aid Inflow	Log of total amount of Chinese aid, adjusted to 2014 US dollars, two-year averages	AidData
Population	Log of total population	World Bank
GDP per capita	Log of GDP per capita	World Bank
GDP growth rate	Annual GDP growth rate	World Bank
Corruption	-2.5 to 2.5. A higher value refers to lower degree of corruption	World Governance Indicator
Internal Conflict	Dummy variable. Coded as 1 if a country experiences an internal conflict with at least 25 deaths in a given year	Uppsala Conflict Data Program
Ethnic Fractionalization	0 to 1. A higher value refers to higher degree of ethnic fractalization	Historical Index of Ethnic Fractionalization Dataset
Natural Resource Rent	Natural resource income as a percentage of GDP	World Bank
Regime Type	Categorical variable. Categorized as electoral democracy, electoral autocracy and closed autocracy	Varieties of Democracy
Chinese Steel Production	Log of annual tons of Chinese steel production	Correlates of War

Appendix B. Summary statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Chinese aid (% GDP)	163	2.33	6.45	0	50.14
Chinese aid per capita	163	25.08	87.76	0	792.92
Log Chinese aid	163	13.17	8.96	0	22.59
Civil liberties index	148	0.56	0.24	0.09	0.87
Vertical accountability index	148	0.64	0.20	0.20	0.93
Physical integrity index	148	0.57	0.26	0.11	0.96
Clean election index	148	0.45	0.25	0	0.86
Corruption index	163	-0.33	0.99	-1.67	2.33
Log GDP per capita	163	3.41	0.67	2.14	4.76
GDP growth rate	163	6.18	7.44	-25.91	64.08
Log population	163	7.23	0.83	5.52	8.41
Internal conflict	163	0.24	0.43	0	1
Ethnic fractalization	163	0.54	0.23	0.16	0.86
Natural resource rent (% GDP)	163	10.93	13.37	0	74.13
Log Chinese steel production	163	12.65	0.65	11.65	13.50