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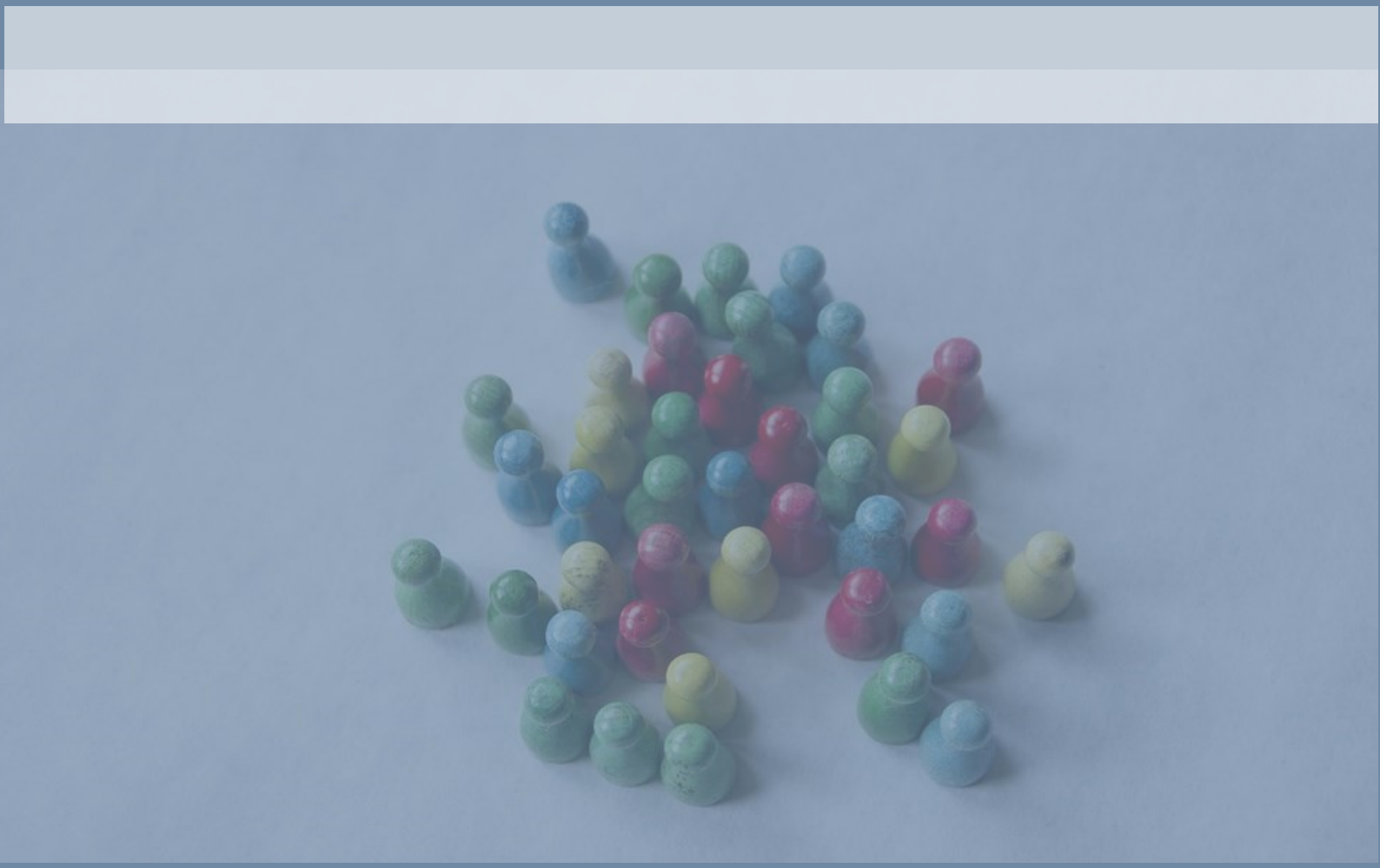

Aid Curse with Chinese Characteristics? Chinese Development Flows and Economic Reforms

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Abstract: The emergence of China as a major development partner requires a reassessment of traditional donor-recipient dynamics. In addition to using new rhetoric like "South-South cooperation" or "Win-Win", China has also eschewed classifications and practices of the traditional donors of the Organization for Economic Cooperation and Development's (OECD) Donor Assistance Committee (DAC). Yet this "new approach" and willful ignorance may not spare China from the same issues confronted by traditional donors. In this paper, we consider the extent to which Chinese development efforts disincentivize difficult economic reforms by providing recipient governments with a budgetary cushion. Using an instrumental variable approach with panel data covering 117 countries during the 2000-2014 period, we find that the presence of Chinese development flows, particularly those over which recipients have a high degree of discretion, inhibit broader economic reform. These findings are robust to a number of alternative specifications, data, instruments and approaches and are suggestive of an institutional aid curse "with Chinese characteristics" as insidious as that which has plagued some traditional donor-recipient relationships.

Keywords: Development aid, economic reforms, endogeneity, China.

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1. Introduction

In 2004, prompted by major donors, the Federated States of Micronesia (FSM), one of three Western Pacific States in a "Compact of Free Association" with the United States, undertook an economic reform initiative to replace sub-national sales taxes with a national value added tax (VAT). Since its founding in 1986, the FSM has been one of the most aid-dependent countries in the world, with aid to gross domestic product (GDP) ratios consistently in excess of 30% and aid to government budget ratios routinely above 80% (Brazys 2010).[1] The tax reform effort was to be a keystone initiative in modernizing the FSM's government revenues to offset a built-in decrement in annual budget grants from the United States. The effort came tantalizingly close to fruition in 2013 when implementing legislation was passed at the national level and by two of the four constituent states. However, both Pohnpei and Yap states failed to pass the necessary laws and, as of January 2018, the VAT reform remained in limbo.

Why did the VAT reform effort fail in the FSM, despite clear cut aggregate economic benefits, urging from major donor partners, and technical support and advice from respected international organizations? The *prima facie* explanation is that the reforms, while beneficial in aggregate, were politically costly as they were opposed by vested business interests, particularly in the wholesale and retail sectors[2]. However, it was undoubtedly easier to avoid these political costs as the mid-2000s also saw a gradual shifting in the source of external budgetary assistance. While still dominated by the United States, the People's Republic of China increased the amount and frequency of its assistance to the FSM. After making a commitment of four million dollars in 2008[3], China disbursed $1.5 million in 2011[4] before committing a further $10 million, or roughly 4% of GDP, in 2015[5]. While these funds did not directly offset the promised revenue increase from the tax reform, they were welcomed as an alternative by a political elite wary of economic dependence on the United States[6]. As unconditional budget grants, the funds softened the public budget constraint which allowed politicians to use official largess to maintain popular support[7].

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[1]Particularly for the FSM state governments in Pohnpei, Chuuk, Yap and Kosrae.

[2]http://pacificpolicy.org/2013/05/fsm-tax-reform/ Accessed 03-01-0218. This same domestic constituency was also broadly opposed to trade liberalization efforts (Brazys 2014).

[3]http://china.aiddata.org/projects/40039 Accessed 03-01-2018

[4]http://www.fsmpio.fm/RELEASES/2011/february/02_14_11.html Accessed 03-01-2018

[5]http://www.guampdn.com/story/news/2015/12/03/fsm-seeks-end-compact-agreement-us/76755600/ Accessed 03-01-2018

[6] Ibid. While working for the FSM Executive, on numerous occasions the author heard senior policymakers, including the President, invoke China as an alternative to US support. The unconditional nature of Chinese budgetary grants was touted in contrast to the US Compact funding which is approved via an annual meeting of the Joint Economic Management Committee (JEMCO) which seats three US and two FSM members and makes budgetary decisions via a majority vote.

[7]Members of the FSM Congress, state legislatures, governors, and the President are allocated "representation funds." (see http://www.fsmcongress.fm/pdf%20documents/19th%20Congress/BILLS/CB%2019-32.pdf) While working for the FSM Executive, the author heard several second-hand accounts of politicians' representation funds being utilized to buy rice and/or other consumables for constituents. These impressions are substantiated by various Public Auditor accounts that have found irregularities with respect to these funds (see http://www.kpress.info/index.php?option=com_content&view=article&id=531:pohnpei-files-criminal-charges-against-former-governor-john-ehsa&catid=8&Itemid=103 or http://www.fm/news/kp/2008/june08_3.htm). Representation funds are allocated from general funding which would include tax revenues and unconditional budget support, such as the Chinese grants, but not conditional budget support like the JEMCO-approved US Compact grants.

In this paper we investigate if our implicit suggestion that Chinese aid inhibited economic reform via an institutional "aid curse" in the vignette above is observable as a more general phenomenon. The importance of this inquiry stems from China taking its place amongst the largest development partners over the past 15 years (Dreher et al 2017). This fact, coupled with a burgeoning literature on the characteristics (Brautigam 2011), modalities (Schiere 2010, Dreher et al. 2017), and impacts (Ben Yishay et al, 2016, Dreher et al. 2016, Isaksson and Kotsadam 2018) of Chinese development efforts, stresses the importance of fully considering all aspects of how China is engaging the developing world. While China explicitly distances itself from traditional donor-recipient dynamics (Woods 2008, Brautigam 2011), and has been reluctant to engage with international institutions promoting development cooperation, transparency and effectiveness, it cannot escape encountering many of the issues that have confronted traditional donors. Even if Chinese development programs are qualitatively different, "dragon fruits" compared to traditional donors' "apples", these external flows still have the potential to impact the political economy of the host countries (Dreher et al. 2018).

In that vein, while the institutional aid curse has received considerable scholarly attention, there is substantially less work which considers if Chinese development efforts can be linked to institutional retardation. While previous literature has evidenced the potential for a general institutional aid curse (Knack 2001, Moss et al. 2006, Brazys 2017), China appears to be a particularly likely candidate given its stated policies of non-interference and its indifference to governance or conditionality reforms (Brazys et al. 2017, Hernandez 2017). While stunting local institutional reform may not be the aim of Chinese development flows, it is nonetheless a negative externality that can ultimately work at cross-purposes to broader economic development. Our vignette is also suggestive of a further complication of China's rise as a development actor, namely its interactions with traditional donors. Early evidence suggests that Chinese development efforts may be undermining the aims of traditional donors (Brazys et al. 2017, Hernandez 2017, Humphrey and Michaelowa 2018), even if this relationship is unintentional or indirect (Swedlund 2017).A Chinese aid curse which frustrates institutional reform would directly challenge the aims of many traditional donors who seek to promote good governance via aid conditionality (Molenears et al. 2015). Again, this externality is unlikely to perturb a China that trumpets a rhetoric of non-interference in local government affairs.

In the following sections, we first develop theoretical underpinnings for an aid curse "with Chinese characteristics". We then test our theoretical expectations by drawing on a recently developed global database of Chinese aid projects to explain changes in the Index of Economic Freedom, utilizing a measure of Dalai Lama visits as an instrument for Chinese aid flows. We find evidence that China's development flows do indeed hinder economic reforms, especially when those flows are likely to be increasingly discretionary. We then conclude with thoughts on the implications of our findings not only on Chinese development efforts but also on China's role as a new global power.

2. Aid Curse with Chinese Characteristics

Scholars have recognized the potential for negative consequences from aid, or "aid dependence", for at least 50 years (Crocker 1968). Simply put, the condition is one of

reliance by a recipient state on some level of aid that persists over time. This reliance has at least three implications (Brazys 2017). First, aid-dependent states may be subject to pressure from their patrons on issues of geo-strategic importance. A vast literature exists concerning the presence of "vote-buying" in international institutions (Vreeland and Dreher 2014, Carter and Stone 2015, Kersting and Kilby 2016, Brazys and Panke 2017) and on donors using aid in their own interest to secure political, military or economic aims (McKinlay and Little 1977, Berthelemy and Tichit 2004, Bermeo 2017). Second, aid-dependent states may experience depressed economic growth. Like its resource-variant, aid-induced "Dutch Disease" can lead to an exchange rate appreciation and an associated shift in domestic production from tradable to non-tradable sectors, creating a drag on growth (Younger 1992, Arellano et al, 2009, Rajan and Subramanian 2011).Finally, aid dependence can work against good governance by casting an institutional "aid curse". While there is evidence that governance, broadly, can be undermined by high levels of aid (Knack 2001, Brazys 2016), institutional aid-dependence effects are most often associated with immature domestic tax collection efforts (Moss et al. 2006, Besley and Persson 2014).

While there is no reason to suspect that Chinese development efforts might not also lead to geo-strategic or economic aid-dependence dynamics, this paper pays particular focus tothe prospect for a Chinese institutional aid curse[8]. We suggest that Chinese aid induces institutional dependence based on its fundamental characteristics of "non-interference" and respect for state sovereignty (Alden 2005, Brautigam 2011, Reilly 2012).China has repeatedly and explicitly disavowed any desire for government reform with its development packages (Hernandez 2017). It has been widely shown that economic reforms have political costs to leaders in the short run and this absence of institutional conditionality makes Chinese aid attractive to leaders who fear that institutional reform might undermine their domestic bases of support (Mohan and Power 2008, Swedlund 2017). Non-interference means, at a minimum, that Chinese aid is unlikely to proactively *contribute* to economic institutional reform.

However, there are several characteristics of Chinese development assistance that may actively *hinder* economic reform. First, any evidence that the political "aid curse" might be overstated (Altincekic and Bearce, 2014) is predicated on a theoretical basis that aid is not as fungible, unconditional or stable as resources revenues as was assumed in earlier findings (Djankov et al 2008).However, work has suggested that Chinese aid *is* fungible, unconditional and stable (Kishi and Raleigh 2015, Strange et al. 2017a). Fungibility is a topic that has received extensive attention in the aid literature, especially with respect to dependence and the undermining of domestic revenue-generating institutions. Cash grants, or other forms of budget support, may enable governments to function without having to raise revenues from domestic sources. Taxation and tax-reform are both politically costly, especially for "visible" taxes such as Value Added Tax (VAT) or income tax (Appel 2006). Yet, it is precisely these tax reforms which are often needed in developing countries to both widen and deepen the tax base,

[8]Indeed, work has shown that the detrimental institutional effects of aid dependence were more prevalent (or only existed) during the heightened geo-strategic tension of the Cold War (Dunning 2004). China's rise has increased geo-strategic concerns (Shambaugh 2013, Chan 2017), with China as a principal figure in several international standoffs. Thus, like the DAC donors of the Cold War, China may well be less concerned with using its aid and economic clout in a manner that promotes institutional development than with securing reliable allies or resources. (Zafar 2007).

putting government finances on a sustainable footing (Keen and Ligthart 1999). Indeed, earlier aid-dependence literature has shown countries with aid to government budget ratios in excess of100 percent (Knack 2001). When aid is unhindered in usage, it can fund the wide variety of government functions, including largess such as public employment, fuel or food subsidies, or constituent-targeted infrastructure projects (Ahmed 2012). Thus, fungible or discretionary aid which enables government leaders to put off costly domestic reforms is likely to lead to institutional aid dependence. To the extent that Chinese aid comes as cash, it is characteristically "no-strings-attached" and likely to fulfill the discretionary criteria that can induce the dependence described above (Perlez 2006, Woods 2008 p. 1210, Bader 2015,Gonzalez-Vicente 2015, Hackenesch 2015).

The second characteristic of Chinese flows that may induce institutional aid dependence relates to Chinese project assistance. Unlike flows which resemble budgetary support, these flows are often in-kind, related to commercial projects, and tied to Chinese suppliers/providers (Dreher et al. 2018). While these flows are more restricted than budgetary grants, they may still have sufficient *political* discretion in that they can be targeted to the core supporters of political elites. If a leader can direct sufficient patronage to her "selectorate", then she may not need to promote broader growth or revenue via economic reform (De Mesquita 2005, De Mesquita and Smith 2010, Ahmed 2012). Indeed, Bader (2015) finds that Chinese economic cooperation can be used to support an existing regime when a sufficient patronage network (in this case a party structure) is in place. Similarly, Dreher et al. (2016) find that Chinese ODA-like projects are likely to show favoritism in their geographic distribution, being more likely to be directed to the birth regions of incumbent leaders.These types of patronage may well be preferable to engaging in economic reforms that might undermine the political support of the selectorate as it might introduce them to foreign competition, privatize state or semi-state assets from which they might be securing rents and/or introduce income or wealth taxes to which they are net contributors (Biglaiser and DeRouen 2011). In this way, the aid may entrench existing institutions and patronage networks and create an institutional dependence that inhibits economic reform. Beyond this, the non-interference and national sovereignty characteristics again suggest that in the absence of some other (Chinese) economic or security motivations, the Chinese government is unlikely to be perturbed by how projects are distributed within a given country. Accordingly, Chinese aid may well induce a political curse that leads to institutional retardation.

A final characteristic of Chinese development flows that may facilitate institutional aid dependence is the institutional impact of Chinese projects themselves. Chinese development flows are often associated with contemporaneous commercial projects and/or are explicitly commercial themselves. While China has undertaken a vast array of domestic economic initiatives, observers suggest that incomplete reforms have stunted the full potential of the Chinese growth model (Wederman 2004). A key shortcoming is the absence of a full promotion of the rule of law, particularly with regards to transparency and competition in contracting. The presence of corrupt business practices in China is no secret and, indeed, has been the focus of a major domestic reform effort under Xi Jinping (Yuen 2014). While skepticism persists that this

latter effort is more of a political purge rather than an economic reform[9], there is little evidence that the focus has been expanded internationally, in any event. Indeed, China ranks poorly on Transparency International's "exporting corruption" index and several studies have found evidence that China's development efforts are associated with increased local corruption (Brazys et al. 2017; Isaksson and Kotsadam 2018). Moreover, similar to the OECD DAC's reporting and transparency principles, China has also not joined the OECD's Convention on Combating Bribery of Public Officials in International Business Transactions ("anti-bribery convention")aimed at deterring foreign corrupt practices by firms engaging in outward foreign direct investment (FDI) (Brazys and Kotsadam 2017). Even if corrupt practices accompanying Chinese development efforts do not directly obstruct economic reforms, they may subvert the normative environment for governance reform. Moreover, they can create and/or entrench the rent-seeking constituency that would stand in opposition to economic reform.

While our three arguments above suggest that *all* Chinese development flows may have the propensity to undermine institutional reform, our arguments also imply that the likelihood to do so rests on the degree of discretion for the flow. Flows which political leaders can direct to individuals, sectors or locations of their choice are more likely to undermine economic reforms which may otherwise be needed to maintain political support. Usefully, the data we use in the empirical analysis below delineates between "ODA-like" and "OOF-like" (Other Official Flows) flows (Dreher et al, 2017, Strange el al. 2017a). ODA-like flows encompass the budgetary and in-kind project grants discussed above, while OOF-flows capture projects of a more commercial nature. The latter are likely to have less discretion than the former as they often accompany specific Chinese commercial interests and may be tied to some non-discretionary location, such as the site of a natural resource (Isaksson and Kotsadam 2018). Accordingly, we hypothesize that increased Chinese development assistance will reduce the rate of economic institutional reform, but that this effect will be more pronounced for "ODA-like" compared to "OOF-like" flows.

This hypothesis may operate through one or more of the mechanisms described above. Chinese aid provides resources which allow leaders to secure political support in the short term. These leaders have no incentive to introduce costly and political unpopular economic reforms if they have sufficiently discretionary resources to maintain support in the short term if Chinese aid allows them to maintain support and power. Other donors' aid flows can (and perhaps have) induce a similar institutional aid dependence. However, China's development assistance seems particularly prone to facilitating this type of relationship due to unconcern with how flows are used in partner countries and a lack of any potentially compensating governance conditionality.

3. Data and Methods

3.1 Model Specifications

[9]See: https://www.reuters.com/article/us-china-corruption-xi-insight/chinas-xi-purging-corrupt-officials-to-put-own-men-in-place-sources-idUSBREA3F1UT20140417
https://edition.cnn.com/2013/09/05/world/asia/china-corruption-crackdown-florcruz/index.html
https://thediplomat.com/2015/04/will-xis-anti-corruption-campaign-become-an-outright-purge/
Accessed 04-13-2018.

To examine our theoretical propositions, we consider panel data covering 117 countries (see Appendix 1 for list of countries) over the 2000–20014 (15 years) period which coincides with China's rise as a major development partner. Since some of the data are not available for all countries for all years, our dataset is unbalanced. We thus estimate:

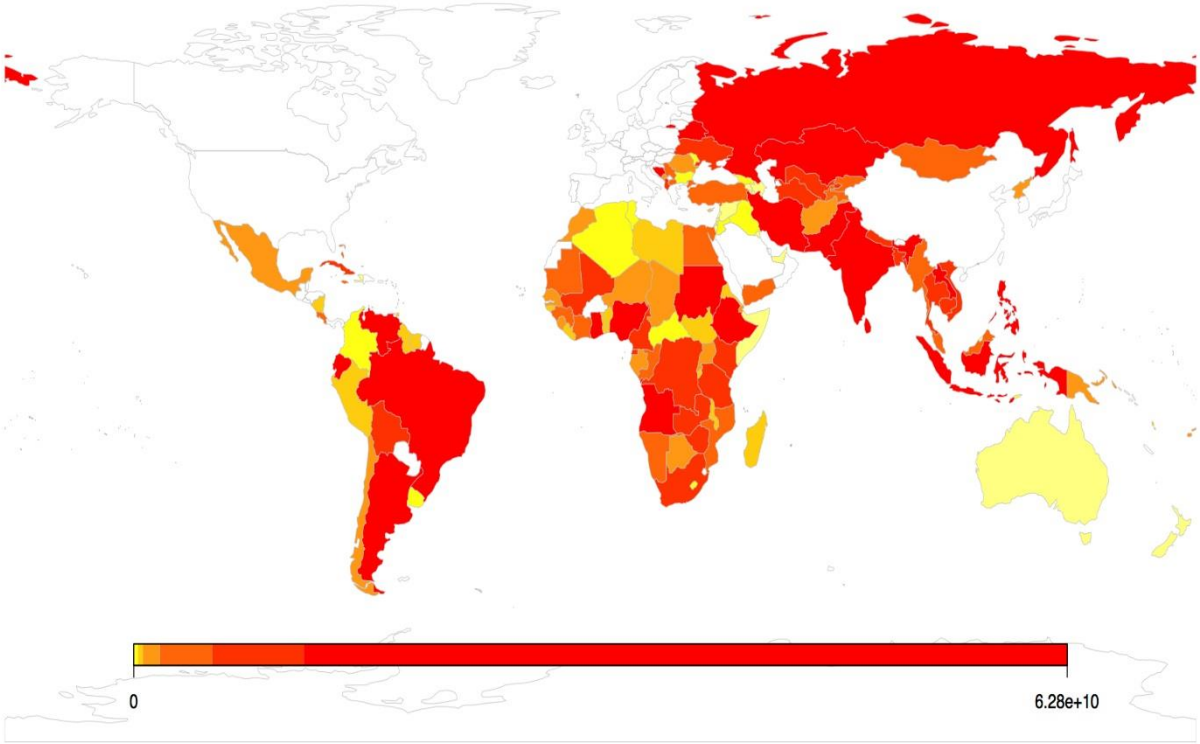
$$\Delta\, EFI_{it} = \phi_c + \beta\, EFI_{it-1} + \beta \ln(Aid)_{it-1} + \beta\, Z_{it} + \lambda_t + \upsilon_i + \omega_{it} \qquad (1)$$

Wherein, $\Delta\, EFI_{it}$ is our outcome variable which measures economic reforms, $\boldsymbol{\phi}$ is the intercept, Aid_{it-1} is our key variable of interest, $\boldsymbol{Z_{it}}$ are control variables, and $\boldsymbol{\lambda_t}$ is year dummies, $\boldsymbol{\upsilon_i}$ is country specific dummies and $\boldsymbol{\omega_{it}}$ is error term. Following de Soysa and Vadlamannati (2012), Dreher et al. (2009) and others we use the yearly change in Economic Freedom Index (EFI hereafter) for country ***i*** at year ***t*** as our dependent variable. According to de Soysa and Vadlamannati (2017), "this index is a measure of economic policy reforms (Bjørnskov and Foss 2010) constructed by Gwartney and Lawson (2008) and the data are available in five year-intervals over the period 1970–2000, and on yearly basis thereafter. The EFI is a comprehensive measure made up of five sub-indices capturing: expenditure and tax reforms; property rights and legal reforms; trade reforms; reforms related to access to sound money; labor, business and credit reforms. These five sub-indices are in turn roughly made up of 35 components of objective indicators under each sub index. In order to construct the indices, each variable in the respective sub-indices was transformed to an index on zero to 10 scale. Where higher values of the original variable indicate higher freedom, the formula $[(V_i - V_{min}) / (V_{max} - V_{min})] \times 10$ was used for transformation. Conversely, when higher values indicate less freedom, the formula was $[(V_{max} - V_i) / (V_{max} - V_{min})] \times 10$. The sub-component indices were then averaged to determine each component. The component indices within each area were averaged to derive indices for each of the five aforementioned areas. In turn, the five area indices are averaged to derive the summary index for each country. The final index is then ranked on the scale of 0 (not free) to 10 (totally free).[10] Another way of interpreting this would be that the value of 0 denotes the absence of state regulations or state failure to provide these public goods, while 10 denotes the highest level in a highly competitive market economy. As we use year-to-year change in the EFI as our measure of policy reforms, a positive value indicates a movement towards more free market policies and a negative value would be a move towards more state regulation and dirigisme. In other words, the economic reforms capture the new policy decisions taken by the state in the short run and not necessarily the accumulation of reforms over the years resulting in economic freedom (i.e. EFI) in the long run, which we also use in our analysis. We control for policy convergence by including a lagged value of EFI because countries already at high values change much slower than those at lower values" (p. 275-276). The mean value of year-to-year change in EFI in our sample is 0.03 with a standard deviation of 0.19 suggesting significant variation in policy reforms among countries in the sample, with a maximum value of 1.34 and minimum value of -1.09. The description on EFI is listed in Exhibit 1.

[10] see: http://www.freetheworld.com/datasets_efw.html

Our main independent variable is Chinese development aid which we utilize from the newly released global dataset on Chinese development activities— the AidData's Global Chinese Official Finance Dataset, version 1.0 (AidData 2017) developed by Dreher et al.(2017).[11] This data captures official Chinese state finance which includes both foreign aid— which is akin to the OECD's Official Development Assistance (ODA), and other forms of state financing (concession and non-concessional)— which is similar to the OECD's Other Official Flows (OOF) with development or commercial intent. The dataset covers Chinese aid activities in 138 countries during the 2000-2014 period spanning cross five geographic regions in the world namely, Africa, the Middle East, Asia and the Pacific, Latin America and the Caribbean, and Central and Eastern Europe (Dreher et al. 2017). According to AidData (2017), the total amount of aid and other state financing during the period amounted to $354.4 billion. This dataset was first used by Dreher et al. (2017) to examine the growth effects of Chinese aid across 138 developing countries. However, the earlier version of the Chinese aid data was generated by the Tracking Underreported Financial Flows (TUFF) methodology[12] developed by Strange et al. (2017a,b) which sourced information from various secondary sources focusing exclusively on Sub-Saharan Africa. That dataset has been used by scholars to examine the causes and consequences of Chinese aid in Africa (e.g., Dreher et al. 2018, Isaksson and Kotsadam 2016, Brazys et al. 2017, Hernandez 2017, Strange et al. 2017a).

Map 1: Distribution of Chinese Development Aid during 2000–2014 period

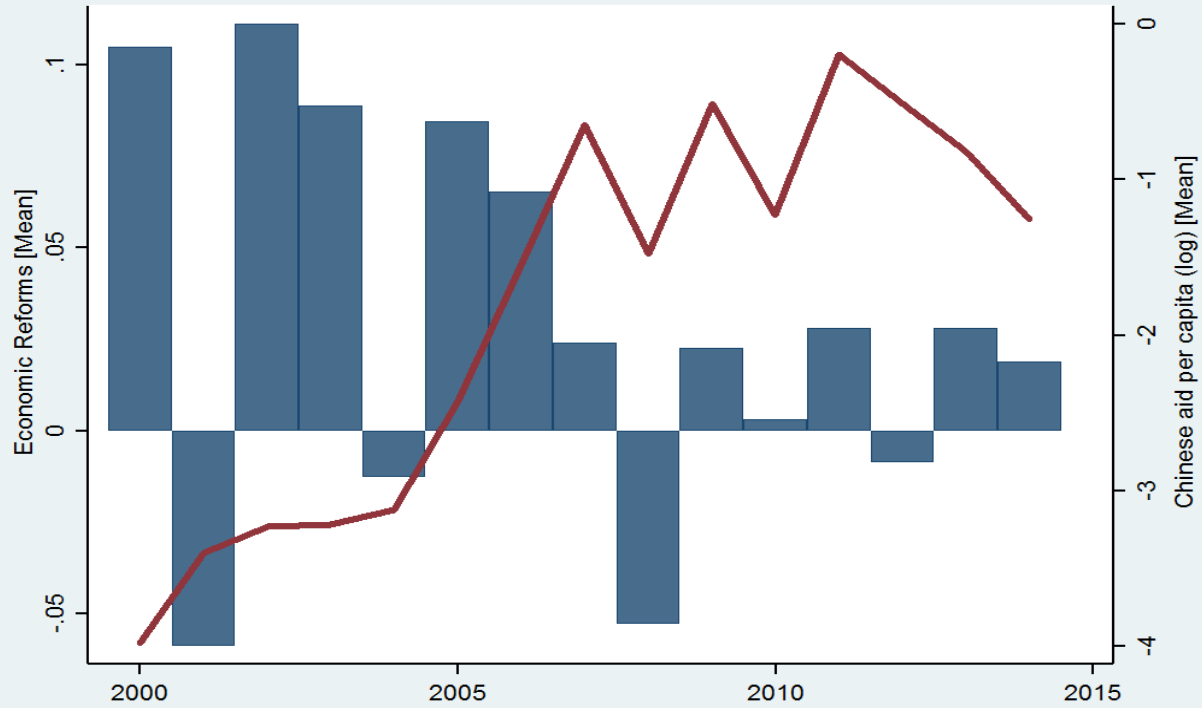


[11] See: http://aiddata.org/data/chinese-global-official-finance-dataset

[12] For more details on TUFF methodology, see: http://aiddata.org/methods/tracking-underreported-financial-flows

In this paper we use two measures of Chinese aid activities. First, we use total number of Chinese aid projects (log) which ranges from 0 to maximum value of 58 (Pakistan). The mean of aid projects is about 6 with a standard deviation of 7 projects. The distribution of aid projects over time suggests that the number of aid projects increased dramatically from 2005 onwards. Second, we deploy total Chinese aid flows per capita (log), measured in US dollar constant prices— the broader definition capturing both ODA and OOF for 122 countries during the 2000-2014 period. The mean value of Chinese aid per capita is about $44 with a standard deviation of $385 suggesting significant variation in the sample, and a maximum value of$14,360. The Map 1 captures the distribution of Chinese total aid in the world during the 2000-2014 period. Much of the Chinese aid is concentrated in Asia and Sub-Saharan Africa followed by Latin America.

Figure 1A: Economic Reforms and Chinese aid per capita (log) during 2000-2014 period



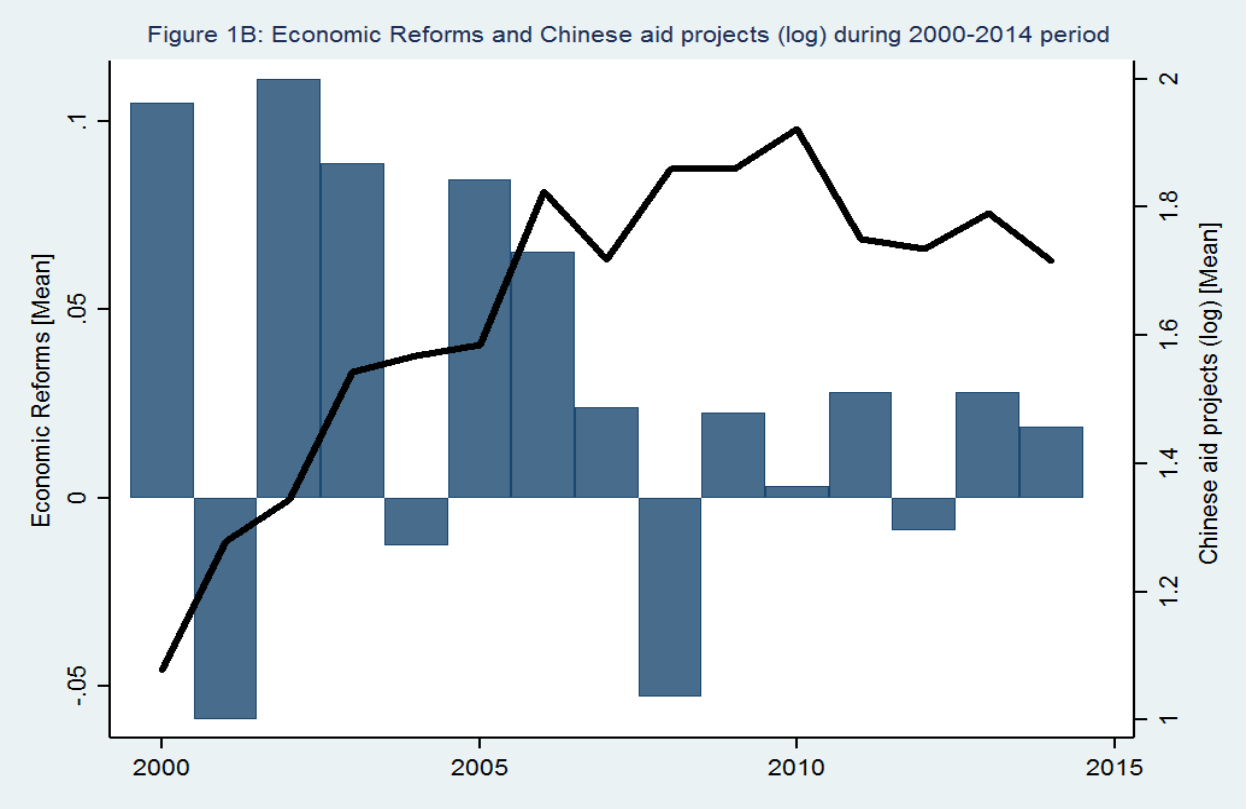


Figure 1A captures the trend of Chinese aid flows log(mean), while figure 1B shows Chinese aid projects log (mean) and yearly change in EFI during 2000-2014 period. Both figures show lower levels of economic reforms coinciding with increased Chinese aid activities. Notice that the change in EFI has been dramatic since 2007 which might be attributed to global financial crisis, which we control for in our regression models.

The control variables in vector $\boldsymbol{Z_{it}}$ includes determinants of economic reforms obtained from Gassebner et al. (2011), Dreher et al. (2009) and Pitlik (2007) and other prominent studies on the determinants of Economic Freedom (Potrafke 2013, Bjørnskov and Potrafke 2012). In order to avoid the trap of "garbage-can models" or "kitchen-sink models" (Achen 2005, Schrodt 2014), we account for only the most important factors that determine economic policy reforms.

First, we control for economic development using per capita income (logged) in US Dollar constant prices and GDP growth of rate sourced from the World Development Indicators (World Bank 2017) since economic reforms are likelier to be more peaceful the richer a country is as well as one that is benefiting from higher economic growth. We control for Polity IV regime type index sourced from Gurr and Jaggers (1995) to control for political regime in power. The regime type score is coded on the scale of +10 (full democracy) to −10 (full autocracy).[13] Next, we include Laeven and Valencia's (2008) economic crisis dummy measure which captures either a systemic banking,

[13] It is noteworthy that the Polity IV measure encountered some criticism. As illustrated by Potrafke (2012), the Polity measure includes three key features namely, prevalence of institutions, effective constraints on the chief executive and political participation, which are found to be main determinants of economic reforms (Alesina et al. 2006, Pitlik and Wirth 2003). Nevertheless, we also use Bjørnskov and Rode' (2018) updated and expanded version of Cheibub, Gandhi and Vreeland's (2010) regime type data. Our results are remain robust to using alternative regime type data.

currency, and debt crises. Sharma (2012) argues that most countries are likely to undertake key economic policy reforms when they stare at an economic or financial crisis. Likewise, we also control for IMF programs as Boockmann and Dreher (2003) show that countries participating in IMF and World Bank programs have significant effect on undertaking economic policy reforms. We include a dummy variable which takes the value 1 if a country is under an IMF program for more than five months in a financial year and 0 otherwise sourced from Dreher (2006). Previous studies find strong resistance for most resource rich countries to implement economic policy reforms (Torvik2009). Thus, we include a measure of natural resource rents as a share of GDP from the World Development Indicators (World Bank 2017). Accordingly, the World Bank defines resource rents as unit price minus the cost of production times the quantity produced. The descriptive statistics are provided in Appendix 2 and the sources on data and definitions presented in Appendix 3.

3.2 Endogeneity concerns

It is possible that our key variable of interest – Chinese development aid – is endogenous to economic policy reforms. It could be that economic policy reforms (or the lack of it) might influence Chinese aid allocation in the first place. Not taking this endogeneity into account would result in a bias in our estimate of the effect of Chinese aid on economic policy reforms. This issue is not trivial because those who argue that Chinese aid curtail economic reforms also make causal claims that Chinese development assistance seeks out countries that score poorly oneconomic reform indices.[14]This problem, which has long plagued empirical studies of aid and governance, seems likely to be more pronounced when considering Chinese aid again precisely due to the "governance-blind" nature of Chinese flows. Particularly if/when Chinese development flows are directed to countries with high levels of natural resource endowment, these same countries may also suffer the institutional "resource" curse, confounding identification between aid and governance. To address this problem, we employ a two-stage least squares instrumental variable (2SLS-IV hereafter) estimator. We use two instrumental variables to address the endogeneity concerns. Following Dreher et al. (2017, 2018) we use, (i) the probability of a recipient country receiving Chinese aid weighted by steel production (log) in China, $iv = \left[\frac{1}{15} \sum_{y=1}^{15} p_{it} \times \ln(steel)_t \right]$ lagged by two-years. While the steel production data comes from the World Steel Association's statistical yearbook (2017),[15] the probability to receive Chinese aid is the share of years during the sample period (2000-2014) a recipient has received Chinese development aid. By interacting the two variables we gauge whether countries with a high probability to receive Chinese aid is in turn driven by steel production in China. The identifying assumption is the same as in Dreher et al. (2017) that economic policy reforms in recipient countries with varying chances of obtaining Chinese aid will not be in any way affected by changes in steel production in China, other than its impact on development aid. Notice that like Dreher et al. (2017) we also control for recipient country and year fixed effects which control for the effect of the probability of receiving Chinese aid on economic reforms, making our instrumental variable exogenous. We also construct

[14]The empirical evidence however suggest a strong negative correlation between Chinese aid allocation and per capita income in recipient countries (Dreher and Fuchs 2015, Dreher et al. 2018).

[15] See: https://www.worldsteel.org/steel-by-topic/statistics/steel-statistical-yearbook-.html

alternative versions of instruments in which we weight probability of receiving aid with Chinese Government final consumption expenditure (*GC)* (log) measured in US$ constant prices $iv = \left[\frac{1}{15}\sum_{y=1}^{15} p_{it} \times \ln(GC)_t\right]$.[16] Our second instrument is a count measure of number of state visits made by Dalai Lama lagged by two-years. Fuchs and Klan (2013) show evidence that countries officially receiving the Dalai Lama on a state visit are more likely to be punished by China through a reduction of their exports. Furthermore, they find that the "Dalai Lama Effect" is more prominent post-2000 period onwards compared to earlier periods. We believe that the same analogy can be extended to development aid which is driven by Chinese state. For instance, in 2016, India came to the rescue of Mongolia by offering a $1 billion line of credit when China cancelled $4.2 billion in aid and imposed a trade blockade on Mongolia for receiving the Dalai Lama on a state visit (Indian Express 2018). Our data on Dalai Lama's state visits covers the period 2000 to 2014, with the information on the travel pattern sourced from the Office of His Holiness the 14th Dalai Lama.[17]

The validity of our instruments depends on two conditions namely, instrument relevance and exclusion criteria. According to Vadlamannati and Cooray (2016), "the first is instrument relevance, i.e., they must be correlated with the explanatory variable in question. The joint F-statistic in the first stage of the IV regressions as suggested by Bound, Jaeger and Baker (1995) must be examined to test the relevance of the instruments. Thus, the instruments would be relevant when the first stage regression model F-statistics meet the thumb rule threshold of being above 10 (Staiger and Stock 1997). However, the F-test has been criticized in the literature as being insufficient to measure the degree of instrument relevance (Stock et al. 2002)" (p. 11). More powerful tests, namely the Kleibergen-Paap Wald F-statistic, offer reliable statistical inferences in a weak instrument setting (Kleibergen and Paap 2006). In this case, the null of weak instruments can be rejected if the F-statistic is above the critical value of 10. Second, the selected instruments should not differ systematically with the error term in the second stage of the equation, i.e. $\left[\omega_{it} \mid IV_{it}\right] = 0$, meaning the selected instruments should not have any direct effect on the outcome variable of interest - economic reforms, but only indirectly via the instrumented variable. To test for the exclusion criteria condition, we apply the Hansen J-test (Hansen 1982) to examine whether the selected instruments satisfy the exclusion restriction.

4. Empirical Results

Our results broadly support our hypothesis, as shown in Table 1. In our first model, column 1, which uses a simple count of the number of Chinese development projects, the sign of the coefficient is negative, although not statistically significant. However, in the models which use Chinese development flows per capita (log), we see results that support our claim (column 2).These results are particularly strong when using our preferred approach, instrumenting Chinese development flows with theprobability of Chinese aid weighted by steel production and Dalai Lamastate visits in column 5. The substantive effects in column 5 suggests that a 100 percent change in the log of Chinese aid per capita decreases the economic reforms by 0.0508 points, which is significantly

[16]The results with alternative instruments are not shown here but are available in online appendix.
[17]See: https://www.dalailama.com/

different from zero at the 1% level. In practice, as an example, a country that is at the 95th percentile of per capita aid from China ($250), will see an annual EFI change of -0.70 less than a country at the 35th percentile ($1.45).This is a drastic amount considering that the mean annual economic reforms measure in our sample is 0.03, and indeed the 0.70 change is nearly four standard deviations of the EFI change in our sample.

While the results are supportive of our hypothesis for aggregate Chinese flows, columns 3, 4, 6 and 7 suggest that our more nuanced theoretical distinction between ODA-like and OOF-like flows was warranted. While the coefficients on OOF-like flows are positive (columns 4 and 7), they are not statistically different from zero. Conversely, the coefficients on ODA-like flows (columns 3 and 6) are negative and statistically different from zero, at the 1% level in the 2SLS-IV model (column 6). These results, combined with those of Dreher et al. (2018), suggest that it is Chinese ODA-like flows which may be prone to political capture and distortion. The additional statistics provided below in columns 5 through 7 suggest that the instruments pass the exclusion criteria when examining the Sargan *J-statistic* which shows that the null cannot be rejected at the conventional level of significance that the overidentification restrictions are valid in our 2SLS-IV models. Furthermore, the joint *F-statistic* from the first stage rejects the null that both the instruments selected are not relevant atleast for total aid flows and ODA-like flows in column 5 and 6. In fact, we obtained a joint *F-statistic* of 11.99, 9.62 and a Kleibergen-Paap LM statistics of 26.8, 21.8 respectively which remain significantly different from zero at the 1% level. Our instrumental variable approach results, in the case of total aid flows and ODA-like flows, are also robust to using alternative set of instruments which are discussed in the next section.

The control variables mainly perform as expected, where the effects of the level of economic development, and regime type, predict higher levels of economic reforms, although these results are not robust across all models. Interestingly, the economic crisis indicator hasa significant negative effect in many of the models. Many who argue that development aid matters for (bad) economic outcomes often fail to control for economic crises. The strong effects of the economic crises in our models might suggest a powerful force in deterring policy reforms, regardless of the degree of Chinese development flows.

While the results above support our expectation, we have also made the argument that Chinese development flows may be particularly prone to inducing an institutional aid curse, given the unique features of their development approach. In order to evaluate this assertion, we repeat our analysis but turn our focus to traditional OECD donors. In Table 2, we look, collectively, at all DAC aid, but also at aid from both the European Union and the United States.The results in Table 2 are in-line with our suspicion that Chinese development flows are more likely to inhibit economic reform than their DAC counterparts. Indeed, when looking at all DAC donors, there is no statistically significant relationship between their collective aid and changes in the EFI. This non-result is mirrored when only considering aid from the US. However, when looking at aid from the EU we see a relationship that is *positive* and statistically significant. Given that the EU has been particularly active in using policy conditional with its

Table 1: Influence of Chinese Aid on Economic Reforms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Economic Freedom index t-1	-0.340***	-0.327***	-0.353***	-0.279***	-0.407***	-0.381***	-0.293***
	(0.0225)	(0.0191)	(0.0268)	(0.0369)	(0.0374)	(0.0497)	(0.0657)
GDP growth rate t-1	0.000145	-0.00110	-5.10e-05	0.000326	-0.00189	-0.00170	-0.000513
	(0.00178)	(0.00152)	(0.00200)	(0.00308)	(0.00228)	(0.00337)	(0.00522)
Polity democracy index t-1	0.00553*	0.00670**	0.00396	-0.000552	0.00476	0.00525	0.00299
	(0.00327)	(0.00305)	(0.00360)	(0.00612)	(0.00477)	(0.00558)	(0.0104)
Economic crises t-1	-0.0789*	-0.131***	-0.119**	-0.0877	-0.0906*	-0.0398	-0.0967**
	(0.0407)	(0.0341)	(0.0581)	(0.0608)	(0.0546)	(0.100)	(0.0443)
Natural resource Rents/GDP t-1	0.00233	0.000461	0.00297*	0.00509*	0.000810	0.000341	0.00562*
	(0.00149)	(0.00126)	(0.00176)	(0.00271)	(0.00162)	(0.00253)	(0.00300)
IMF Program t-1	0.0288	0.0291*	0.0340	0.0829**	0.0235	0.0212	0.0773**
	(0.0189)	(0.0169)	(0.0208)	(0.0367)	(0.0226)	(0.0284)	(0.0365)
Left Government t-1	0.0371	-0.0158	-0.00118	0.0213	0.000167	0.0118	-0.0140
	(0.0258)	(0.0205)	(0.0312)	(0.0442)	(0.0299)	(0.0391)	(0.0516)
Chinese Development Projects (log) t-1	-0.00565						
	(0.0119)						
Chinese Development Flows per capita (log) t-1		-0.00323**			-0.0508***		
		(0.00161)			(0.0140)		
Chinese ODA-like per capita (log) t-1			-0.00484**			-0.0624***	
			(0.00240)			(0.0181)	
Chinese OOF-like per capita (log) t-1				0.000104			0.00528
				(0.00261)			(0.0123)
Constant	1.486***	1.429***	1.525***	-0.279***	1.978***	1.840***	1.430***
	(0.123)	(0.0998)	(0.132)	(0.0369)	(0.243)	(0.286)	(0.407)
Estimator	FGLS	FGLS	FGLS	FGLS	2SLS-IV	2SLS-IV	2SLS-IV
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First Stage *F-statistics*					11.99***	9.62***	2.11
Kleibergen-Paaprk LM statistic					26.81***	21.85***	3.64
Sargan*J-statistic* [p-value]					0.886	0.421	0.291
Number of Observations	894	1,191	705	356	1,119	672	349
Number of Countries	99	98	88	89	98	89	92

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Table 2: Influence of Chinese aid vs.DAC aid on Economic Reform

	(1)	(2)	(3)	(4)
Economic Freedom index t-1	-0.318***	-0.323***	-0.317***	-0.331***
	(0.0186)	(0.0188)	(0.0196)	(0.0218)
GDP growth rate	-0.00160	-0.00174	-0.000735	-0.00197
	(0.00147)	(0.00147)	(0.00152)	(0.00164)
Polity democracy index	0.00887***	0.00860***	0.00805***	0.00822**
	(0.00310)	(0.00300)	(0.00307)	(0.00339)
Economic crises	-0.117***	-0.127***	-0.0907**	-0.108***
	(0.0342)	(0.0338)	(0.0382)	(0.0409)
Natural resource Rents/GDP	0.00116	0.00100	0.000747	0.000617
	(0.00123)	(0.00123)	(0.00123)	(0.00137)
IMF Program	0.0234	0.0224	0.0343**	0.0410**
	(0.0157)	(0.0155)	(0.0164)	(0.0181)
Left Government t-1	-0.0125	-0.00531	-0.00236	-0.0114
	(0.0201)	(0.0198)	(0.0225)	(0.0259)
DAC Aid per capita (log) t-1	-0.00312			-0.0152
	(0.00922)			(0.0133)
EU Aid per capita (log) t-1		0.0169**		0.0116
		(0.00839)		(0.0107)
USA Aid per capita (log) t-1			0.000500	-0.00217
			(0.00705)	(0.00859)
Chinese Development Flows per capita (log) t-1				-0.00355**
				(0.00179)
Constant	1.385***	1.433***	1.372***	1.547***
	(0.100)	(0.0979)	(0.102)	(0.116)
Estimator	FGLS	FGLS	FGLS	FGLS
Country Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Number of Observations	119	117	116	95
Number of Countries	1,293	1,284	1,203	1,001

Note: Standard errors in parenthesis. Statistical significance: ***p<0.01, **p<0.05, *p<0.1

aid, this is perhaps not a surprising finding (Molenaers et al. 2015). However, it does starkly illustrate the contrast between the EU and China and indeed gives some credence to the concerns that Chinese and DAC aid is at odds with respect to policy reform. We would further note that our result on Chinese development flows remains significant when accounting for aid from traditional donors.

4.1 Robustness Checks

We examine the robustness of our findings in several ways. First, we delineate Chinese flows by grant and non-grant flows, rather than ODA and OOF, as we would expect the former to be more discretionary. While negative, the results are not significant, a finding we attribute to the presence of OOF grant flows. We take this as evidence that it is the commercial nature of OOF, rather than the modality type, that renders OOF flows

unsuitable for the type of political capture that undermines economic reform. Second, we exclude the observations with extreme values reported in the Chinese data (including ODA and grants data) which could influence our main findings. We therefore exclude the 13 highest aid observations. After excluding the outliers, our results are qualitatively unchanged, suggesting that the results are not driven by extreme values. Third, we use an alternative method of operationalization of our main variable of interest. We replace Chinese development flows per capita measure with total development flows, ODA flows and grants measured in US$ constant prices (log). Our results hold when we use these measures which remain negative and significantly different from zero at the 1% and 5% levels for total development and ODA flows respectively. Fourth, following others we include additional control variables, such as labor strikes, anti-government protests, number of cabinet changes (see: Campos et al. 2010), the Herfindahl-Hirschman index of government fractionalization (e.g., Bjørnskov 2016, Potrafke 2013, Campos et al. 2010, Alesina et al. 2006, Pitlik and Wirth 2003), economic sanctions dummy, which could influence both the degree of aid allocation as well as economic policy reforms. Inclusion of these additional variables does not change the substantive findings from our results. Fifth, following Knedlik and Kronthaler (2007), we replace our dependent variable which is based on Fraser Institute's Economic freedom index with the index of economic freedom computed by Heritage Foundation which is coded on the scale of 0-100, wherein higher value denotes full economic freedom from government. The Heritage Foundation's index includes ten different categories viz., business, trade, fiscal burden, government spending, monetary policy, investment, finance, labor, as well as secure property rights and absence of corruption. However, it has been suggested that the Heritage Foundations' index of economic freedom lacks transparency and questions are raised on the theoretical and methodological foundations (Quinn et al. 2011).[18] It has also been observed that there are frequent changes to the methodology used to compute the index (Dreher and Gehring 2012). Nevertheless, we compute yearly changes of this index as our next best alternative dependent variable. Our baseline results specially on total development flows using this new measure remain robust.[19]Sixth, as discussed earlier, we use alternative instruments, namely the probability of receiving China's development flows weighted with Chinese Government final consumption (log) measured in 2005 US$ constant prices weighted the voting alignment of the recipient country with China in the United Nations General Assembly (UNGA). Again, our results remain robust to using alternative instruments. The new instruments pass the relevance and exclusion criteria and the effects of Chinese development flows per capita and ODA aid per capita on policy reforms remains negative and significantly different from zero at the 1% level. Seventh, we also estimate a system-generalized method of moments (SGMM) estimator to examine the robustness of our instrumental variable results (Arellano and Bond 1991). We apply the Sargan-Hansen test to examine the validity of the instruments used and the Arellano-Bond test of second order autocorrelation, which should be absent in order for the SGMM estimator to be consistent. We treat the lagged dependent variable and Chinese development variables as endogenous and control variables as exogenous. We lag our Chinese development variables by three years respectively. Note that we include year-specific dummies in the GMM estimations. To minimize the number of instruments in the SGMM regressions, we follow Roodman (2006)and collapse the

[18]The correlation between Fraser Institute's EFI measure and Heritage Foundation's IEF is about 0.84.
[19] However, our ODA flows measure remains statistically insignificant.

instruments matrix. Our results based on SGMM remains robust, although the statistical significance of total development flows is reduced to 10% level, while the ODA flows remains statistically insignificant. Finally, the EFI measure from Fraser institute is available on a 5-yearly basis for the following period: 1981–1985; 1986–1990; 1991–1995; 1996–2000 and on yearly basis thereafter. Although our study period begins from 2000 onwards, nevertheless the missing data between 1995-2000, which is likely to be interpolated, can affect the EFI score in the year 2000. Therefore, our standard errors must be adjusted. Hence, we reproduce our results using the panel bootstrap standard errors computed with 100 replications. Again, these results replicate the same conclusions as those in the main analysis. The full robustness check output tables are available in the online appendix. In summary, our results are robust to using alternative data, sample size, specifications, and testing procedures.

5. Conclusions and Discussion

The findings in this paper suggest that China faces similar issues as a development partner to DAC donors with 60 years of development engagement. In particular, larger Chinese development efforts undermine the impetus for the economic reforms that can ultimately free counties from the yoke of dependence on external flows. Interestingly, however, this result appears to be driven only by those projects which are "ODA-like." Given the evidence that China gives recipients a free hand over dispersing ODA-like flows, leaders can use these resources as a substitute for improved economic performance in building and maintain their political support. In contrast, OOF-like flows, which presumably have less discretion as they are often directed for some specific Chinese commercial interest, do not lend themselves to this use. The fact that China appears to be (officially) indifferent to these externalities makes aid dependence "with Chinese characteristics" perhaps an even greater challenge to overcome. Further externalities may stem from Chinese aid dependence allowing developing countries to skirt or shirk reforms demanded via traditional donor conditionality, and/or inducing those donors to loosen the conditions under which their aid is given (Hernandez 2017).

Indeed, many of China's development efforts appear focused on securing access to natural resources and, while this may be associated with increased levels of current economic growth, the failure of host countries to develop diversified economies built on strong institutional foundations could ultimately lead to major economic slowdowns if not recessions (Zafar 2007). It also remains unclear if China's principles of "non-interference" and "sovereignty" are more than just rhetorical devices. China may be willing to be "hands off" with respect to ODA-like flows as long as its broader investments are secure. If and when countries stagger in meeting their obligations to China, *post hoc* conditionality may appear. Several incidents already suggest that Chinese "non-interference" may only be skin deep. Recently, Sri Lanka, struggling to service development loans from China, signed over a major port on a 99-year lease[20]. Similarly, a senior Australian official stated concerns about small-island states in the Pacific, including the FSM, racking up large debts to China.[21] Indeed, when Tonga pressed China to transform a $60 million loan into a grant in 2013 (15 percent of GDP),

[20] https://www.nytimes.com/2017/12/12/world/asia/sri-lanka-china-port.html accessed 08-02-2018
[21] http://www.scmp.com/news/china/diplomacy-defence/article/2127626/china-funding-white-elephant-infrastructure-projects accessed 08-02-2018

concerns were raised that China would use that leverage to establish a naval base in the country.[22]

More broadly, our findings add further support to literature which suggests China is acting as a revisionist power as it takes its mantle as a leader in global international affairs (Brazys and Dukalskis 2017). While economic growth may flourish in the short term, China's apparent disregard for promoting norms of good governance (not to mention other civil, political and human rights) brings into question the long-term sustainability of Chinese global leadership or of the development efforts in the countries in which they are present.Indeed, resentment towards China has already bubbled to the surface in a number of developing countries where they operate (Buckley 2013, Wang and Elliot 2014). As much as China may want to pursue a new approach to development partnerships, they are likely to face the same learning curves as the DAC donors before them.

[22]http://www.pireport.org/articles/2013/12/20/chinese-loan-puts-tonga-difficult-position-%E2%80%98akilisi-pohiva accessed 08-02-2018

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Appendices

Appendix 1: List of countries

Afghanistan	Colombia	Indonesia	Myanmar	Swaziland
Albania	Comoros	Iran	Namibia	Syria
Algeria	Congo, Democratic Republic	Iraq	Nepal	Tajikistan
Angola	Congo, Republic	Jamaica	New Zealand	Tanzania
Antigua & Barbuda	Costa Rica	Jordan	Nicaragua	Thailand
Argentina	Cote d'Ivoire	Kazakhstan	Niger	Togo
Armenia	Cuba	Kenya	Nigeria	Tonga
Azerbaijan	Cyprus	Kyrgyz Republic	North Korea	Trinidad and Tobago
Bahrain	Djibouti	Laos	Pakistan	Tunisia
Bangladesh	Dominican Republic	Lebanon	Palestinian Adm. Areas	Turkey
Barbados	Ecuador	Lesotho	Papua New Guinea	Turkmenistan
Belarus	Egypt	Liberia	Peru	Uganda
Benin	Equatorial Guinea	Macedonia	Philippines	Ukraine
Bolivia	Eritrea	Madagascar	Romania	United Arab Emirates
Bosnia-Herzegovina	Ethiopia	Malawi	Russia	Uruguay
Botswana	Fiji	Malaysia	Rwanda	Uzbekistan
Brazil	Gabon	Maldives	Sao Tome and Principe	Vanuatu
Bulgaria	Georgia	Mali	Senegal	Venezuela
Burundi	Ghana	Mauritania	Serbia	Vietnam
Cambodia	Grenada	Mauritius	Seychelles	Yemen
Cameroon	Guinea	Mexico	Sierra Leone	Zambia
Cape Verde	Guinea-Bissau	Moldova	South Africa	Zimbabwe
Central African Republic	Guyana	Mongolia	Sri Lanka	
Chad	Haiti	Morocco	Sudan	
Chile	India	Mozambique	Suriname	

Appendix 2: Descriptive statistics

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
Change in Economic Freedom index	0.03	0.19	-1.09	1.34	1982
Economic Freedom index t-1	6.71	0.92	2.93	8.86	1864
GDP growth rate	8.00	1.58	4.78	11.12	2580
Polity democracy index	4.22	5.83	-82.48	104.48	2580
Economic crises	3.61	6.43	-10.00	10.00	2375
Natural resource Rents/GDP	0.03	0.17	0.00	1.00	2580
IMF Program	11.50	16.48	-1.19	100.37	2576
Left governments	0.09	0.28	0.00	1.00	2579
Chinese Aid projects	5.18	6.66	0.00	58.00	1951
Chinese Aid projects (log)	1.66	0.87	0.00	4.06	1339
Chinese Aid per capita	45.34	389.15	0.00	14361	1793
Chinese Aid per capita (log)	-1.73	4.50	-6.91	9.57	1793
Chinese ODA per capita	28.42	197.88	0.00	4909	1058
Chinese ODA per capita (log)	-0.90	3.74	-6.91	8.50	1058
Chinese OOF per capita	57.51	332.83	0.00	5919.10	492
Chinese OOF per capita (log)	-1.04	4.74	-6.91	8.69	492
Chinese Grants per capita	16.74	192.45	0.00	4909	980
Chinese Grants per capita (log)	-1.92	3.39	-6.91	8.50	980

Appendix 3: Data sources and Definitions

Variables	Data definition and sources
EFI	EFI is made up of five sub-indices capturing: expenditure and tax reforms; property rights and legal reforms; trade reforms; reforms related to access to sound money; labor, business and credit reforms. These five sub-indices are made up of 35 components of objective indicators. The final index is ranked on the scale of 0 (not free) to 10 (totally free) and is sourced from the Fraser Institute.
Change in EFI	Year-to-year change in EFI sourced from the Fraser Institute.
Chinese aid per capita	Aid flows including ODA and OOF -type flows measured in US$ constant prices (logged) and is sourced from the AidData's Global Chinese Official Finance Dataset, version 1.0 (AidData 2017) developed by Dreher, Fuchs, Parks, Strange, and Tierney (2017)
Chinese ODA per capita	ODA flows measured in US$ constant prices (logged), sourced from the AidData's Global Chinese Official Finance Dataset, version 1.0 (AidData 2017) developed by Dreher, Fuchs, Parks, Strange, and Tierney (2017)
Chinese grants per capita	Grants flows measured in US$ constant prices (logged) and is sourced from the AidData's Global Chinese Official Finance Dataset, version 1.0 (AidData 2017) developed by Dreher, Fuchs, Parks, Strange, and Tierney (2017)
Chinese aid projects	Count of all aid (ODA and OOF) projects in country***i*** and year ***t*** (logged) based on the information sourced from AidData's Global Chinese Official Finance Dataset, version 1.0 (AidData 2017) developed by Dreher, Fuchs, Parks, Strange, and Tierney (2017)
Per capita GDP (log)	GDP per head in 2000 US$ constant prices sourced from the World Development Indicators (WDI) 2017, World Bank.
Polity democracy	Polity IV, polity2 index coded on the scale of -10 to +10 where highest value implies full democracy lagged by a year sourced from Gurr (2002)
Economic crises	Dummy takes the value 1 if a country is exposed to either currency crisis, banking crisis, debt crisis (or all together) lagged by a year sourced from Laeven and Valencia (2008)
GDP growth rate	Rate of growth of GDP sourced from the WDI, World Bank 2017
Natural resource rents/GDP	Total rents from natural resources as a share of GDP sourced from the World Bank dataset on resource rents, 2017.
IMF program	Dummy takes the value 1 if a country is in an IMF program for more than five months during the year and 0 otherwise, obtained from Dreher (2006)

Exhibit 1: Components of the Fraser Economic Freedom Index (EFI)

Area 1: Size of Government: Expenditures, Taxes, and Enterprises

- A General government consumption spending as a percentage of total consumption
- B Transfers and subsidies as a percentage of GDP
- C Government enterprises and investment
- D Top marginal tax rate
  - i Top marginal income tax rate
  - ii Top marginal income and payroll tax rates

Area 2: Legal Structure and Security of Property Rights

- A Judicial independence (GCR)
- B Impartial courts (GCR)
- C Protection of property rights (GCR)
- D Military interference in rule of law and the political process (CRG)
- E Integrity of the legal system (CRG)
- F Legal enforcement of contracts (DB)
- G Regulatory restrictions on the sale of real property (DB)

Area 3: Access to Sound Money

- A Money Growth
- B Standard deviation of inflation
- C Inflation: Most recent year
- D Freedom to own foreign currency bank accounts

Area 4: Freedom to Trade Internationally

- A Taxes on international trade
  - i. Revenues from trade taxes (% of trade sector)
  - ii Mean tariff rate
  - iii Standard deviation of tariff rates
- B Regulatory Trade Barriers
  - i Non-tariff trade barriers (GCR)
  - ii Compliance cost of importing and exporting (DB)
- C Size of the trade sector relative to expected
- D Black-market exchange rates
- E International capital market controls
  - i Foreign ownership/investment restrictions (GCR)
  - ii Capital controls

Area 5: Regulation of Credit, Labor, and Business

- A Credit market regulations
  - i. Ownership of banks
  - ii Foreign bank competition
  - iii Private sector credit
  - iv Interest rate controls/negative real interest rates
- B Labor market regulations
  - i Minimum wage (DB)
  - ii Hiring and firing regulations (GCR)
  - iii Centralized collective bargaining (GCR)
  - iv Mandated cost of hiring (DB)
  - v Mandated cost of worker dismissal (DB)
  - vi Conscription
- C Business Regulations
  - i Price controls
  - ii Administrative requirements (GCR)
  - iii Bureaucracy costs (GCR)
  - iv Starting a business (DB)
  - v Extra payments/bribes (GCR)
  - vi Licensing restrictions (DB)
  - vii Cost of tax compliance (DB)

Source: Gwartney and Lawson (2008), www.freetheworld.com

ONLINE APPENDIX

Robustness Tests

Robustness Table 1: Influence of Chinese Aid on Economic Reforms:
All Grant Flows

	(1)	**(2)**
Economic Freedom index t-1	-0.357***	-0.382***
	(0.0267)	(0.0455)
GDP growth rate t-1	0.000937	-0.000620
	(0.00209)	(0.00296)
Polity democracy index t-1	0.000574	0.00249
	(0.00373)	(0.00519)
Economic crises t-1	-0.128**	-0.137**
	(0.0600)	(0.0685)
Natural resource Rents/GDP t-1	0.00145	0.000456
	(0.00178)	(0.00257)
IMF Program t-1	0.0671***	0.0698***
	(0.0214)	(0.0260)
Left Government t-1	0.0444	0.0514
	(0.0309)	(0.0537)
Chinese Grants per capita (log) t-1	-9.66e-05	-0.0276
	(0.00281)	(0.0468)
Constant	1.556***	1.743***
	(0.133)	(0.286)
Estimator	FGLS	2SLS-IV
Country Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
First Stage *F-statistics*		2.11
Kleibergen-Paaprk LM statistic		3.64
Sargan*J-statistic [p-value]*		0.291
Number of Observations	673	644
Number of Countries	95	92

Robustness Table 2: Influence of Chinese Aid on Economic Reforms: Excluding Outliers

	(1)	(2)	(3)	(4)	(5)	(6)
Economic Freedom index t-1	-0.314***	-0.353***	-0.357***	-0.402***	-0.381***	-0.382***
	(0.0184)	(0.0268)	(0.0267)	(0.0381)	(0.0497)	(0.0547)
GDP growth rate t-1	-0.000896	-5.10e-05	0.000937	-0.00145	-0.00170	-0.00104
	(0.00152)	(0.00200)	(0.00209)	(0.00242)	(0.00337)	(0.00433)
Polity democracy index t-1	0.00802***	0.00396	0.000574	0.00694	0.00525	0.00480
	(0.00301)	(0.00360)	(0.00373)	(0.00514)	(0.00558)	(0.00720)
Economic crises t-1	-0.120***	-0.119**	-0.128**	-0.0831	-0.0398	-0.151
	(0.0338)	(0.0581)	(0.0600)	(0.0568)	(0.100)	(0.0966)
Natural resource Rents/GDP t-1	0.000731	0.00297*	0.00145	0.00181	0.000341	-0.00154
	(0.00123)	(0.00176)	(0.00178)	(0.00172)	(0.00253)	(0.00345)
IMF Program t-1	0.0249	0.0340	0.0671***	0.0228	0.0212	0.0870**
	(0.0169)	(0.0208)	(0.0214)	(0.0241)	(0.0284)	(0.0359)
Left Government t-1	-0.0200	-0.00118	0.0444	0.00789	0.0118	0.103
	(0.0202)	(0.0312)	(0.0309)	(0.0332)	(0.0391)	(0.0728)
Chinese Aid per capita (log) t-1	-0.00197			-0.0582***		
	(0.00161)			(0.0166)		
Chinese ODA per capita (log) t-1		-0.00484**			-0.0624***	
		(0.00240)			(0.0181)	
Chinese Grants per capita (log) t-1			-9.66e-05			-0.0836
			(0.00281)			(0.0606)
Constant	1.365***	1.525***	1.556***	1.955***	1.840***	1.807***
	(0.0975)	(0.132)	(0.133)	(0.246)	(0.286)	(0.318)
Estimator	FGLS	FGLS	FGLS	2SLS-IV	2SLS-IV	2SLS-IV
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,221	705	673	1,146	672	651
Number of Countries	98	88	95	98	88	95

Notes:

(1) Standard errors in parenthesis

(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Robustness Table 3: Influence of Chinese Aid on Economic Reforms:
China Aid in US$ million

	(1)	(2)	(3)	(4)	(5)	(6)
Economic Freedom index t-1	-0.320***	-0.353***	-0.378***	-0.387***	-0.398***	-0.415***
	(0.0190)	(0.0268)	(0.0293)	(0.0331)	(0.0503)	(0.0679)
GDP growth rate t-1	-0.00101	-9.39e-05	0.000905	-0.00143	-0.00201	0.00151
	(0.00153)	(0.00200)	(0.00242)	(0.00218)	(0.00331)	(0.00474)
Polity democracy index t-1	0.00841***	0.00397	0.00173	0.00795*	0.00591	0.00279
	(0.00301)	(0.00361)	(0.00404)	(0.00446)	(0.00534)	(0.00742)
Economic crises t-1	-0.120***	-0.121**	-0.167**	-0.101**	-0.0586	-0.313**
	(0.0339)	(0.0581)	(0.0760)	(0.0507)	(0.0960)	(0.139)
Natural resource Rents/GDP t-1	0.00110	0.00300*	0.000876	0.00193	0.000692	0.00239
	(0.00124)	(0.00176)	(0.00196)	(0.00150)	(0.00251)	(0.00386)
IMF Program t-1	0.0284*	0.0342	0.0507**	0.0242	0.0299	0.0372
	(0.0171)	(0.0208)	(0.0230)	(0.0207)	(0.0272)	(0.0401)
Left Government t-1	-0.0156	-0.00117	0.0506	-0.000696	0.0174	-0.0185
	(0.0206)	(0.0313)	(0.0358)	(0.0267)	(0.0369)	(0.0717)
Chinese Aid (log) t-1	-0.00158**			-0.0203***		
	(0.000800)			(0.00487)		
Chinese ODA (log) t-1		-0.00187			-0.0287***	
		(0.00123)			(0.00814)	
Chinese Grants (log) t-1			-0.00141			0.133
			(0.00433)			(0.115)
Constant	1.414***	1.554***	1.695***		2.320***	-0.408
	(0.102)	(0.134)	(0.161)		(0.357)	(1.953)
Estimator	FGLS	FGLS	FGLS	2SLS-IV	2SLS-IV	2SLS-IV
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,199	705	536	1127	672	517
Number of Countries	98	88	88	98	88	88

Notes:
(1) Standard errors in parenthesis
(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Robustness Table 4: Influence of Chinese Aid on Economic Reforms: Kitchen sink approach

	(1)	(2)	(3)	(4)	(5)	(6)
Economic Freedom index t-1	-0.322***	-0.354***	-0.355***	-0.392***	-0.375***	-0.365***
	(0.0194)	(0.0272)	(0.0271)	(0.0343)	(0.0493)	(0.0572)
GDP growth rate t-1	-0.00269*	-0.00184	-0.000994	-0.00355*	-0.00253	-0.00364
	(0.00153)	(0.00201)	(0.00211)	(0.00211)	(0.00339)	(0.00450)
Polity democracy index t-1	0.00960***	0.00858**	0.00478	0.00757	0.00765	0.00764
	(0.00316)	(0.00387)	(0.00403)	(0.00466)	(0.00640)	(0.00796)
Economic crises t-1	-0.132***	-0.123**	-0.128**	-0.0994*	-0.0405	-0.141
	(0.0345)	(0.0571)	(0.0596)	(0.0528)	(0.0986)	(0.0980)
Natural resource Rents/GDP t-1	0.000262	0.00251	0.000860	4.12e-05	-0.000136	-0.00225
	(0.00127)	(0.00174)	(0.00177)	(0.00149)	(0.00261)	(0.00368)
IMF Program t-1	0.0297*	0.0375*	0.0726***	0.0206	0.0216	0.0986**
	(0.0171)	(0.0208)	(0.0215)	(0.0214)	(0.0297)	(0.0392)
Left Government t-1	0.00275	0.0197	0.0671**	0.0234	0.0191	0.140*
	(0.0214)	(0.0322)	(0.0325)	(0.0281)	(0.0408)	(0.0850)
Labor Strikes t-1	-0.00276	-0.00877	-0.0108	0.00548	-0.00714	-0.0293
	(0.0119)	(0.0150)	(0.0141)	(0.0121)	(0.0170)	(0.0193)
Anti-government demonstrations t-1	-0.00512***	-0.00628***	-0.00611***	-0.00706***	-0.00825***	-0.00625**
	(0.00179)	(0.00226)	(0.00211)	(0.00228)	(0.00285)	(0.00266)
Cabinet changes t-1	-0.00436	-0.0107	-0.00367	0.00739	0.0139	-0.00569
	(0.0113)	(0.0145)	(0.0146)	(0.0138)	(0.0215)	(0.0233)
Government System t-1	-0.0883**	-0.0883**	-0.0743*	-0.0920*	-0.0322	-0.0863
	(0.0346)	(0.0396)	(0.0380)	(0.0501)	(0.0582)	(0.0548)
Herfindahl-Hirschman Government index t-1	-0.0474	-0.0761*	-0.0682	-0.0248	-0.0636	0.0377
	(0.0327)	(0.0453)	(0.0446)	(0.0450)	(0.0770)	(0.108)
Sanctions t-1	0.0623	0.141**	0.120*	0.160*	0.101	0.107
	(0.0545)	(0.0673)	(0.0657)	(0.0845)	(0.0666)	(0.0801)
Chinese Aid per capita (log) t-1	-0.00356**			-0.0399***		
	(0.00165)			(0.0109)		
Chinese ODA per capita (log) t-1		-0.00486**			-0.0643***	
		(0.00241)			(0.0174)	
Chinese Grants per capita (log) t-1			-0.00162			-0.0894
			(0.00285)			(0.0625)
Constant	1.374***	1.447***	1.480***	1.760***	1.753***	1.693***
	(0.111)	(0.146)	(0.146)	(0.213)	(0.271)	(0.301)
Estimator	FGLS	FGLS	FGLS	2SLS-IV	2SLS-IV	2SLS-IV
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,139	680	649	1,069	648	627
Number of Countries	95	85	92	95	85	92

Notes:

(1) Standard errors in parenthesis

(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Robustness Table 5: Influence of Chinese Aid on Economic Reforms:
Alternative Dependent variable: Heritage Foundation's EFI

	(1)	(2)	(3)	(4)
Heritage Foundation Economic Freedom index t-1	-0.250***	-0.231***	-0.257***	-0.284***
	(0.0169)	(0.0147)	(0.0193)	(0.0196)
GDP growth rate t-1	-0.0371***	-0.00902	-0.0334**	-0.0422**
	(0.0141)	(0.0128)	(0.0147)	(0.0181)
Polity democracy index t-1	0.0494*	0.0522*	0.0324	0.0103
	(0.0296)	(0.0284)	(0.0316)	(0.0325)
Economic crises t-1	0.158	-0.325	-0.182	0.544
	(0.338)	(0.296)	(0.442)	(0.474)
Natural resource Rents/GDP t-1	0.0390***	0.0113	0.0536***	0.0462***
	(0.0101)	(0.00873)	(0.0117)	(0.0126)
IMF Program t-1	-0.433***	-0.286*	-0.280	-0.329*
	(0.165)	(0.152)	(0.175)	(0.183)
Left Government t-1	-0.648***	-0.669***	-0.734***	-0.907***
	(0.226)	(0.189)	(0.267)	(0.271)
Chinese Aid projects (log) t-1	-0.227**			
	(0.100)			
Chinese Aid per capita (log) t-1		-0.0233*		
		(0.0133)		
Chinese ODA per capita (log) t-1			-0.0190	
			(0.0191)	
Chinese Grants per capita (log) t-1				0.00550
				(0.0223)
Constant	8.041***	7.098***	7.502***	8.433***
	(0.826)	(0.690)	(0.796)	(0.813)
Estimator	FGLS	FGLS	FGLS	FGLS
Country Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Number of Observations	1,044	1,398	819	770
Number of Countries	112	109	100	107

Notes:
(1) Standard errors in parenthesis
(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Robustness Table 6: Influence of Chinese Aid on Economic Reforms: Alternative Instrumental variables

	(1)	(2)
Economic Freedom index t-1	-0.406***	-0.358***
	(0.0380)	(0.0502)
GDP growth rate t-1	-0.00167	-0.000564
	(0.00228)	(0.00374)
Polity democracy index t-1	0.00463	0.00576
	(0.00477)	(0.00604)
Economic crises t-1	-0.0903*	-0.0683
	(0.0548)	(0.106)
Natural resource Rents/GDP t-1	0.000734	0.000410
	(0.00162)	(0.00279)
IMF Program t-1	0.0229	0.0169
	(0.0229)	(0.0314)
Left Government t-1	0.000304	0.0100
	(0.0298)	(0.0428)
Chinese Aid per capita (log) t-1	-0.0508***	
	(0.0145)	
Chinese ODA per capita (log) t-1		-0.0746***
		(0.0241)
Constant	1.979***	1.762***
	(0.247)	(0.283)
Estimator	2SLS-IV	2SLS-IV
Country Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
First Stage *F-statistics*	11.46***	6.38***
Kleibergen-Paap rk LM statistic	25.82***	14.59***
Sargan *J-statistic [p-value]*	0.724	0.189
Number of Observations	1,110	667
Number of Countries	98	89

Notes:

(1) Standard errors in parenthesis

(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1

Robustness Table 7: Influence of Chinese Aid on Economic Reforms: SGMM approach

	(1)	**(2)**
Lagged Dependent variable	0.00852	0.212
	(0.141)	(0.162)
Economic Freedom index t-1	-0.987***	-1.223***
	(0.163)	(0.204)
GDP growth rate t-1	-0.00298*	-0.00379
	(0.00158)	(0.00243)
Polity democracy index t-1	0.00704	0.000401
	(0.00531)	(0.00436)
Economic crises t-1	-0.0781*	-0.0175
	(0.0405)	(0.0630)
Natural resource Rents/GDP t-1	0.000991	0.00239
	(0.00257)	(0.00296)
IMF Program t-1	0.0140	0.0200
	(0.0150)	(0.0156)
Left Government t-1	-0.00351	0.0191
	(0.0468)	(0.0603)
Chinese Aid per capita (log) t-1	-0.0189*	
	(0.0102)	
Chinese ODA per capita (log) t-1		-0.0101
		(0.00610)
Estimator	SGMM	SGMM
Country Fixed Effects	NO	NO
Year Fixed Effects	Yes	Yes
Arellano-Bond test for AR(1) P-value	0.003	0.046
Arellano-Bond test for AR(2) P-value	0.476	0.657
Sargan *J-statistic [p-value]*	0.277	0.522
Number of Observations	1,066	502
Number of Countries	97	74

Notes:

(1) Standard errors in parenthesis

(2) Statistical significance: ***p<0.01, **p<0.05, *p<0.1