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China's Development Finance to Asia

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Abstract

This study empirically examines China's development finance to developing countries with a focus on Asia from 2000 to 2012. It uses AidData's Global Chinese Official Finance Dataset, one of the most reliable and publicly available data sources that systematically collects and differentiates different types of China's official development financial flows, to produce descriptive and inferential statistics for Asia, a world region where the rise of China poses unique challenges. Descriptive statistical analysis indicates that South Asia was the largest recipient of China's ODA-like flows in Asia for the period under study while the majority of China's OOF-like flows to Asia went to Eastern Europe and Central Asia. In both types of flows, energy, transport, and mining sectors received the bulk of financing. The estimation results show that China's allocation decisions for its concessional flows in the region have strong motives of pursuing strategic interests while its less concessional flows are committed to more governance-challenged countries. This study also provides detailed discussion of the trends in China's development finance to Southeast Asia, a subregion which is critical to China's strategic and economic interests.

JEL Classification: F35, O1

Keywords: China; development finance; aid; Asia; Southeast Asia

* Research Fellow, Center for Area Studies. This paper uses data from the AidData's Global Chinese Official Finance Dataset (Version 1.0) released in October 2017. See Dreher et al. (2017a) for information on the database. This is an updated and revised version of the author's 2016 working paper published as "China's Development Finance to Asia: Characteristics and Implications." KIEP Working Paper 16-12.

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I. Introduction

China's rapid economic growth in the past decades has led to a significant expansion of China's overseas development finance.¹ The increase in China's development financing has created significant interest as well as alarm among policy makers and academics in the field of international development. Common perceptions in media reports and policy debate are that China allocates development finance for commercial purposes, that it uses aid to secure access to natural resources and support Chinese companies for overseas investment opportunities, and also for strategic purposes to promote its geostrategic interests (The Economist 2008; Naim 2007). Critics have said Chinese aid has serious, damaging consequences for recipient countries. China's aid programs have been criticized for lack of respect for social and environment standards and not considering human rights or democracy conditions in recipient countries, thus hindering the political reforms in recipient countries (Crouigneau and Hiault 2006). Others say that the rise of emerging donors, mostly notably China, may put the international standards, embodied by the Paris Declaration on Aid Effectiveness, at risk (Manning 2006) and challenge the US-led order in international development finance (Snell 2015).

Although some recent research shows that some aspects of these allegations may be true (Bader 2015), many of these claims have been made without using accurate empirical data on China's development finance. These popular media and policy accounts tend to conflate concessional and non-concessional development flows from China (Brautigam 2009; 2011). In fact, among what is known as China's development financial flows, what would be qualified as official development assistance (ODA) by the Organization for Economic Co-operation and Development (OECD) definition may be relatively small (Bautigaum 2011). Most of its development finance includes commercial loans, natural-resource-backed loans, export credits that do not meet ODA criteria and thus cannot be considered as development

¹ In this study, development finance is largely limited to narrower and more traditional categories of official development assistance (ODA) and official other flows (OOF). Recent debates on development finance emphasize more expansive approaches, including blended finance, equity investment, and guarantees. A wider concept of total official support for sustainable development (TOSSD) is being discussed by the Organization for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC) to expand the scope of international development finance (OECD DAC 2016).

assistance.² The fundamental cause for this misunderstanding is the lack of data. The Chinese government does not collect and disclose official aid statistics in accordance with the international standards. In the absence of official statistics, various efforts have been made to estimate China's development assistance comparable with international standards.

This study uses one of the most recent, and more reliable results of such efforts to understand China's development finance to Asia. It uses AidData's Global Chinese Official Finance Dataset (Version 1.0) (Dreher et al. 2017a) to investigate China's official flows to Asia. While the primary focus is to provide descriptive statistical analysis for Asia and Southeast Asia, an important subregion, it also attempts to utilize preliminary econometric analysis to understand what drives China's different types of development financing to the region.

Among many world regions, Asia is a home region to China, the largest country in this region in terms of land area, population, and economic output. Several countries in the region have territorial disputes over lands and waters with China. China is the major trade partner and investor for many countries in the region, making some of them considerably China-dependent. As it seeks to reduce the US influence in the region, China's behavior has become increasingly assertive in the recent years. Nonetheless, the nascent empirical literature on Chinese aid has not examined China's aid behavior in Asia and this study seeks to fill this gap.

This study proceeds as follows. Section 2 reviews the main issues and recent studies on China's development finance. Section 3 provides the descriptive statistics of China's development assistance in general and to Asia. Section 4 introduces the data and measures to examine the determinants of China's bilateral development finance to Asia, going on to report the empirical results. Section 5 discusses Southeast Asia in detail to provide more substantial implications and discuss recent developments. Section 6 concludes.

II. Literature on China's Development Finance

Recent scholarly investigations have made clear that what is commonly referred to as China's official development assistance is a mixture of what could be categorized as ODA,

² China's Ministry of Commerce, China Eximbank, and China Development Bank are the main providers for China's overseas development financing. See Varrall (2016) for the intra-government differences on China's external development finance.

OOF, and other types of development finance by the OECD DAC standards (Brautigam 2009; 2011; Dreher et al. 2017b). The DAC has developed standards for what can be considered as ODA and established a reporting regime, known as the OECD Creditor Reporting System (CRS). Detailed project-level information, the essential part of useful aggregate ODA data, is collected and made public according to this process. To qualify as ODA, a project should have the concessionality and development intent. For loans, they should have a grant element, calculated by a set formula, of at least 25 percent. To differentiate quasi-ODA from more concessional flows, the DAC also has its members report the “residual category” of Other Official Flows (OOF) that are developmental in character but “do not meet ODA criteria.” Examples of OOF include export credits and non-concessional loans. This categorization allows for more fine-grained and nuanced, much more accurate understanding of development finance.

China's “Foreign Aid White Paper 2014,” one of the few official government sources currently available for China's aggregate development finance, states that China's total foreign “aid” budget totals US\$ 14 billion from 2010 to 2012 for 121 countries (Government of China 2014). Yet it offers no information disaggregated by recipient country, year, sector, or flow types. The lack of official information has led not only to substantial confusion and misperceptions but also made systematic analysis impossible in regard to determinants of Chinese aid allocation, its characteristics and finally its development impact. Unfortunately, the data problem is unlikely to be resolved by the Chinese government in the immediate term. The Chinese government will not fully disclose official ODA statistics even if it is willing to follow the international standards outside the OECD DAC framework, as some of the emerging donors such as the UAE and Qatar have done in recent years. China may see benefits in operating outside the scope of DAC. Furthermore, it may fear that the Chinese public resent that their government prioritizes overseas development over its own citizens in need (Cheng and Smyth 2016).

Considering the importance of China's ODA, there have been several attempts to estimate China's development flows before. Lum et al. (2009) and Kitano and Harada (2015) are two major examples that estimate China's state flows with a global scope. Lum et al. (2009) estimate China's “aid” to Africa, Latin America, and Southeast Asia from 2002 to 2007 based on media reports. The researchers employ a broad definition of China's development finance, using “aid and related activities” that include a broad range of economic

cooperation activities, including overseas investment by Chinese state-owned enterprises. The research suggests that China's total aid to three regions grew from \$51 million in 2002 to \$25 billion in 2007. However, information on annual flows to each country is not provided and the dataset is not publicly available.

Kitano and Harada (2015) estimate China's net aid disbursements from 2001 to 2013 following a stricter definition of ODA. They only include grants, interest-free loans, scholarships, concessional loans, and contributions to international organizations while providing estimates for China's multilateral assistance as well as bilateral aid. Using a wide range of available Chinese government statistics, including financial yearbooks, China Exim Bank reports and information from ministry websites, the authors estimated that China's net aid reached \$7.1 billion in 2013, which makes China the sixth largest donor in the world for 2013.

The AidData project represents one of the most comprehensive and systematic efforts to collect data on China's project-level development finance. It collects project-level information on China's overseas development finance using media-based methodology with a group of consistent, transparent, and preset rules. In the current version (Version 1.0), it has information on Chinese development finance flows to all developing regions from 2000 to 2014 (Dreher et al. 2017a). One of its advantages is to differentiate "ODA-like" activities from "OOF-like" activities.

III. China's Development Finance to Asia, 2000-2012: Descriptive Statistics

A. AidData

This paper uses data from AidData's Global Chinese Official Finance Dataset (Version 1.0) (Dreher et al. 2017a), which is probably the best alternative currently available for empirical investigation of China's development finance at the recipient country and project level. AidData's methodology is primarily drawn from media-based data collection.³ Despite

³ In the first stage, China's development projects are searched using Factiva, a media database, according to pre-laid procedure. In the second stage, additional information is searched on each project to corroborate information and obtain additional details from government documents, press releases, policy reports, and academic papers. Individual projects are classified into up to twelve different flow-type categories. These categories can be aggregated to ODA-like and OOF-like flows based on the concessionality principle. In

having many limitations, their methodology is transparent and thus the limitations of data are known to researchers, which is critical to unbiased empirical research.

For the analysis in the paper, I use two measures of China's development finance developed by AidData. The first measure is China's ODA flows, which is coded "ODA-like" types of flows in the AidData database. It includes all grants, technical assistance and scholarships, loans with large grant elements, debt relief, and military aid with development intent. The second is China's OOF flows, which includes both "OOF-like" flows and "Vague" flows in the AidData database. "OOF-like" flows include loans and export credits that have little or no grant element or that are primarily intended to improve economic development or welfare in the recipient country, as well as grants that are not intended for development purposes. Vague projects are non-classified projects due to insufficient information. Dreher et al. (2017b) show that AidData's ODA and OOF measures are different from each other and are largely consistent with the characteristics of more and less concessional development flows. My own preliminary analysis also confirms that ODA flows and OOF flows in the dataset behave quite differently from each other.

B. ODA-like Flows

According to AidData, China provided US\$ 64.6 billion to the world in ODA-like flows from 2000 to 2012. These types of flows have increased dramatically in the later years, with 47 percent of the total China committed from 2000 to 2012 being pledged from 2010 to 2012.⁴ Still, China's economic assistance is far smaller than major donors. For the same period, the US and Japan provided US\$ 312 billion and US\$ 186 billion for bilateral ODA commitments respectively, according to OECD DAC statistics (2016).

Now we turn to Asia, the main focus of the current analysis.⁵ Although Asia receives less development finance from China than Africa, flows for 2000–2012 amount to US\$ 17.0

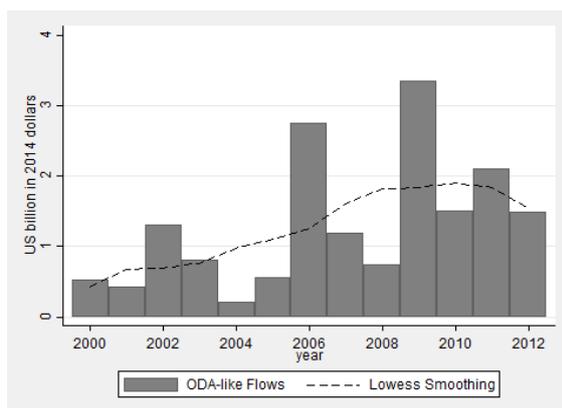
addition, AidData conducts follow-up audits to screen for project cancellations, scale-backs, or duplications. See Strange et al. (2017) for further information. The methodology for the entire process is available on AidData's website (<https://www.aiddata.org/data/chinese-global-official-finance-dataset>).

⁴ The terms, "ODA," "ODA-like flows," and "aid" are used interchangeably for the rest of the study.

⁵ For the purpose of this study, developing countries are grouped into three regions: Asia, Africa and the Americas. Asia includes East Asia and the Pacific region, South Asia, Southeast Asia, and Eastern Europe & Central Asia. Africa covers the Middle East and North Africa (MENA) and Sub-Saharan Africa. The Americas include Latin America and the Caribbean. Regional categorization largely follows the World Bank country grouping (<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>).

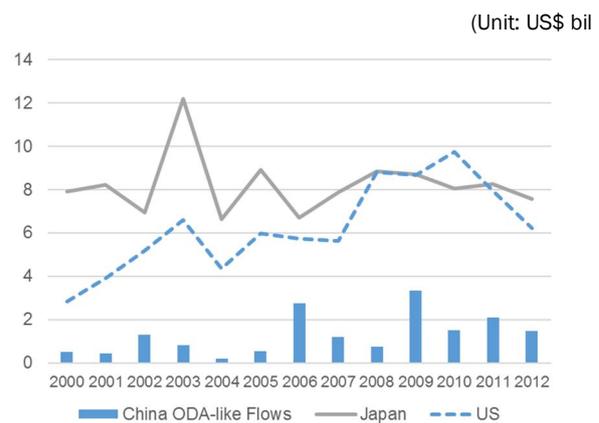
billion.⁶ Figure 1 indicates that China's concessional flows have been increasing over the years and that its ODA-like flows have surged since 2009 as well. Flows for 2009–2012 are equivalent to 50% of the total amount for 2000–2012. Compared against major DAC donors, China still fails to measure up. Over this period, Japan, the top donor in Asia, provided US\$ 106.8 billion and more or less maintained its level of flows throughout the period. The US offered a substantial amount of US\$ 81.7 billion and its aid steadily increased from US\$ 2.9 billion to US\$ 6.2 billion. Thus, contrary to popular perceptions, China's concessional development finance remained much smaller than the US or Japan for this period.

Figure 1. China's ODA-like Flows to Asia, 2000–2012



Source: AidData

Figure 2. China's ODA-like Flows to Asia Compared to US and Japanese Aid, 2000-2012



Source: AidData

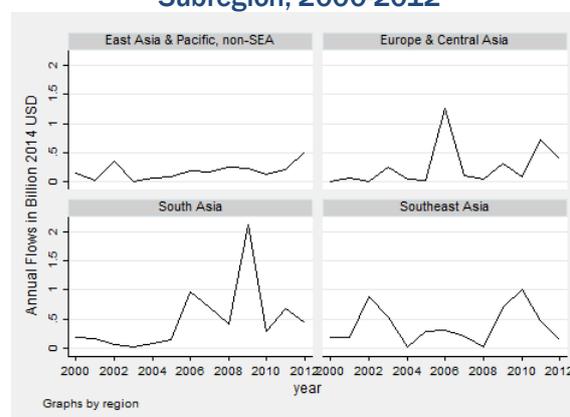
Within Asia, South Asia is the largest recipient of China's ODA-like flows from 2000 to 2012 (36.7%), followed by Southeast Asia (29.5%), and Eastern Europe and Central Asia (19.6%) (Table 1). Countries in East Asia and Pacific excluding Southeast Asia, largely represented by Pacific island states, make up the last group, receiving 19.6%. The annual trends in Figure 2 show that for most Asian regions except Southeast Asia, the flows are generally increasing despite high levels of fluctuations.

⁶ Africa (60%) takes the largest share of China's ODA-like flows from 2000 to 2012, followed by Asia (26%) and the Americas (14%). A more detailed regional breakdown indicates that Sub-Saharan Africa received the largest share of China's aid (59%) for this period, followed by Latin America and the Caribbean (14%), and South Asia (14%).

Table 1. China's ODA-like Flows to Asia by Subregion, 2000-2012

	ODA-like (US\$ mil)	%
South Asia	6,232.2	36.7
Southeast Asia	5,011.7	29.5
Eastern Europe & Central Asia	3,321.6	19.6
East Asia & Pacific, non-SEA	2,410.1	14.2
Total	16,975.6	100

Source: AidData

Figure 3. China's ODA-like Flows to Asia by Subregion, 2000-2012

Source: AidData

The sectoral distribution of Chinese ODA-like flows to Asia clearly shows the importance of energy access, transport, and natural resource development in China's development financing. A total of 4 billion dollars, which represents 23.6 percent of the total flows, went into energy generation and supply. The second largest category is transport and storage while the third is industry, mining, construction. These three sectors account for 47.7 percent of total flows. The overall patterns are consistent with common perceptions that Chinese aid is focused on infrastructure development, including power plants, roads and railway construction.

Table 2. Sectoral Distribution of China's ODA-like Flows to Asia, 2000-2012

Sector	Amount (US\$ mil)	Share (%)
Energy Generation and Supply	4,001.2	23.6
Transport and Storage	2,336.0	13.8
Industry, Mining, Construction	1,744.9	10.3
Other Social infrastructure and Services	1,739.2	10.2
Action Relating to Debt	1,613.0	9.5
Emergency Response	1,555.2	9.2
Government and Civil Society	1,009.4	5.9
Communications	829.0	4.9
Agriculture, Forestry and Fishing	597.8	3.5
Other Multisector	410.0	2.4
Education	365.4	2.2
Health	203.9	1.2
Unallocated / Unspecified	150.8	0.9

Business and Other Services	114.9	0.7
Water Supply and Sanitation	84.3	0.5
Trade and Tourism	80.5	0.5
General Budget Support	75.8	0.4
Non-food commodity Assistance	36.9	0.2
Developmental Food Aid/Food Security	13.6	0.1
General Environmental Protection	9.9	0.1
Banking and Financial Services	4.0	0.0
Total	16,975.6	100

Source: AidData

C. OOF-like Flows

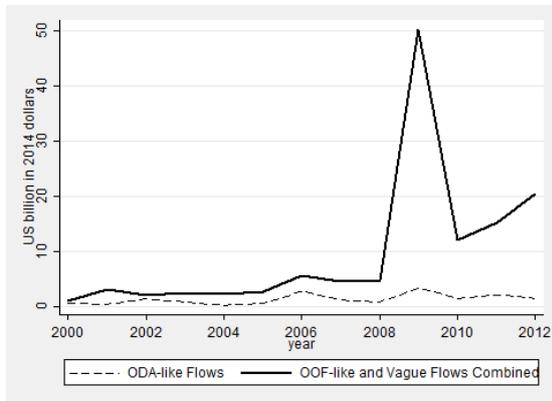
China's OOF-like flows are substantially larger than its ODA-like flows, with the total amount committed to the world for the period amounting to 215.8 billion dollars for the period 2000–2012, and have increased rapidly from US\$ 1.3 billion in 2000 to US\$ 29.8 billion in 2012.⁷ It is only in terms of OOF-like flows where China becomes comparable to the US' global aid (US\$ 312 billion) and Japan's (US\$ 185 billion). As discussed in the literature, some of these flows may have been mistaken as aid and caused the impression that Chinese aid is larger than it actually is.

For China's OOF-like flows to Asia for the same period, the amount rises to US\$ 126.4 billion, increasing from US\$ 988.6 million to US\$ 23.4 billion (Figure 4). There was a big jump in 2009 when US\$ 62.2 billion was committed for mega projects mostly in energy-related sectors in Russia and Turkmenistan.⁸ As discussed earlier, Japan provided US\$ 106.8 billion and the US offered US\$ 81.7 billion. Since 2009, China's OOF-flows have surpassed US and Japanese aid to Asia (Figure 5). It may be the case that the surge in Chinese development finance in Asia described in the popular press is associated with the rise in China's non-concessional flows in this period. Here, China's government financing is as large as or even surpasses the two most important bilateral donors in the region.

⁷ In this section and throughout the paper, "OOF-like flows" include vague flows in China AidData data unless specified otherwise.

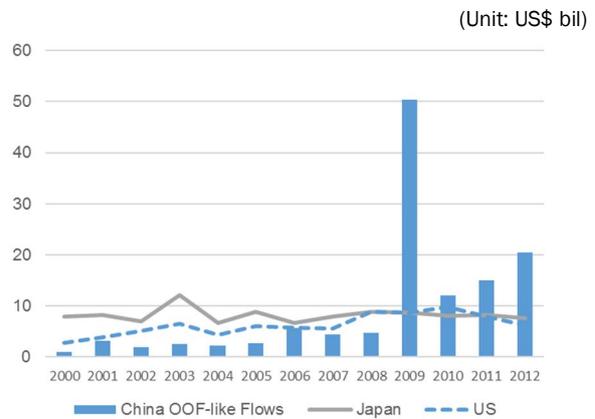
⁸ The two largest projects were US\$ 34 billion loan packages provided to Russian state-owned energy companies Rosneft and Transneft (AidData project IDs 43069, 43012). The third largest was a US\$ 5.4 billion gas field development project in Turkmenistan (AidData project ID 40393).

Figure 4. China's OOF-like Flows to Asia, 2000–2012



Source: AidData

Figure 5. China's OOF-like Flows to Asia Compared to US and Japanese Aid, 2000–2012



Source: AidData

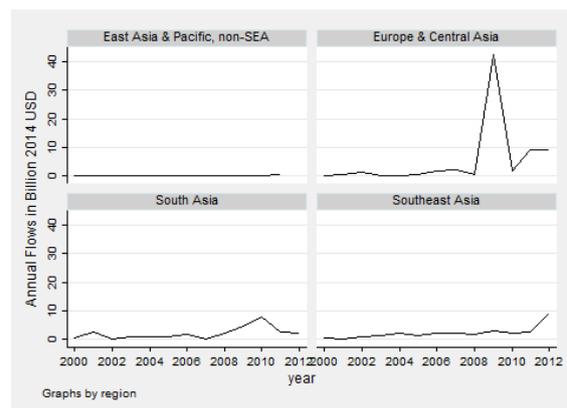
Within Asia, Eastern Europe and Central Asia is the largest recipient of China's OOF-like flows from 2000 to 2012 (55.6%), followed by Southeast Asia (22.6%), and South Asia (20.8%). Countries in East Asia and Pacific excluding Southeast Asia, largely represented by Pacific island states, make up the last group, receiving 19.6% (Table 3). The annual trends in Figure 6 show that for most Asian regions except Southeast Asia, the flows are increasing despite high levels of fluctuations.

Table 3. China's OOF-like Flows to Asia by Subregion, 2000-2012

	OOF-like (US\$ mil)	%
Eastern Europe & Central Asia	70,275.5	55.6
Southeast Asia	28,617.0	22.6
South Asia	26,327.4	20.8
East Asia & Pacific, non-SEA	1,210.2	1.0
Total	126430.1	100

Source: AidData

Figure 6. China's Annual OOF-like Flows to Asia by Subregion, 2000-2012



Source: AidData

The sectoral distribution of Chinese OOF-like flows to Asia reinforces the importance of energy access, transport, and natural resource development in China's OOF flows, actually more so than ODA-like flows. A total of US\$ 62.5 billion, which represents 49.4 percent of the total flows, goes into energy generation and supply. The second largest category is

transport and storage while industry, mining, construction follows in third. These three sectors account for 85.2 percent of total flows. The overall patterns are consistent with common perceptions that China's development financing is concentrated on infrastructure investment.

Table 4. Sectoral Distribution of China's OOF-like Flows to Asia, 2000–2012

Sector	Amount (US\$ mil)	Share (%)
Energy Generation and Supply	62,459.9	49.4
Transport and Storage	24,531.1	19.4
Industry, Mining, Construction	20,789.4	16.4
Communications	6,763.0	5.3
Agriculture, Forestry and Fishing	4,654.7	3.7
Other Multisector	2,031.8	1.6
General Budget Support	1,228.9	1.0
Unallocated / Unspecified	820.9	0.6
Action Relating to Debt	689.5	0.5
Banking and Financial Services	637.6	0.5
Business and Other Services	589.2	0.5
Water Supply and Sanitation	462.4	0.4
Government and Civil Society	426.0	0.3
Other Social infrastructure and services	290.6	0.2
Education	24.9	0.0
Health	24.3	0.0
Trade and Tourism	4.1	0.0
Emergency Response	1.8	0.0
Total	126,430.1	100.0

Source: AidData

IV. What Drives China's Development Finance to Asia?

In the aid literatures, largely four groups of factors are known to matter in aid allocation: the development needs of a recipient country; institutional quality such as good governance, democracy, or respect for human rights, which are the merits Western countries want to promote in a recipient country; a donor's commercial interests; and donors' foreign policy interests. In the popular accounts, China has been criticized for primarily being motivated by the latter factors at the expense of recipient countries.

Due to the dearth of data suitable for empirical analysis, research on the allocations of

China's development finance has been rare. In their analysis of China's development finance to Africa over the 2000–2012 period, Dreher et al. (2017b) found that Chinese ODA-like flows are allocated more to countries with lower levels of development or receiving more Western aid. Countries which are temporary members of the United Nations Security Council or recognize Taiwan receive less Chinese ODA. They fail to find support to the claims that Chinese aid is motivated by natural resource access, or affected by the institutional quality or regime type. For less concessional types of China's financing, they found natural resource endowments matter.

Using a different dataset, Dreher and Fuchs (2015) examine bilateral aid allocation from 1956 to 2006 provided by the Chinese Ministry of Commerce. They find that trade and foreign policy interests are important motives but not more so than Western donors. Both China and Western donors use aid for strategic reasons. At the same time, Chinese aid is largely unlinked to natural resource endowments and institutional characteristics of the recipient countries. The authors conclude that the criticism that Chinese aid is “rogue aid” is unjustified and it is more sensible to judge China's development practice by the convention of large donors and not their “best practices.”

A. Model

My model specification largely follows Dreher et al. (2017b). Explanatory variables are grouped into four categories: developmental/humanitarian, institutional, commercial and foreign policy motives. The first two groups largely represent recipient needs whereas the last two capture donor interests.

The first group includes the developmental and humanitarian motives of aid giving. For this group, I include GDP per capita, which is self-evident, and natural disaster, measured by the total number of people affected by natural disasters in the recipient country, as provided by the international disasters database EM-DAT.

For the second group of institutional merits of a recipient, I use first democracy as represented by the polity2 variable from the Polity IV Project. China is often accused of supporting other authoritarian regimes for its own survival or regional stability (Bader 2015). Another variable in this group is the Control of Corruption index from the Worldwide Governance Indicators project, which ranges from -2.5 to 2.5, with higher values representing better governance. China has been also accused of engaging corrupt governments, thus

undermining international efforts to improve governance in the recipient country (Zafar 2007).

Third, to explain how commercial motivations might shape the bilateral allocation of Chinese official finance, I employ two measures. As a proxy for China's trade interests, I include the value of China's exports to the recipient country. It is common in the aid literature that export competition is linked to aid allocations (Barthel et al. 2014). Similarly, to account for China's potential interest in securing access to natural resources, I include a measure of energy depletion in a given country provided by the World Bank. This is a standardized indicator of a country's resource endowment, measuring the value of energy resource stock including coal, crude oil, and natural gas in a country over the remaining reserve lifetime.

There are three strategic interest variables. I first employ the voting behavior of recipient countries in the United Nations General Assembly (UNGA), which measures the degree of similarity between each country and China on a scale from 0 to 1, developed by Bailey, Strezhnev and Voeten (2015). I also use a measure of the strategic value of a recipient country recognized by DAC donors by taking the residuals of an OLS regression of ODA committed by all DAC donors in the sample, as in Dreher et al. (2017b). I also include a country's stance on the One-China policy by using a binary indicator variable that takes a value of one if a recipient country recognizes the government of Taiwan.

I control for population as well as time trend and add a binary indicator that takes a value of one if English is the official language, to account for the bias that may arise from the AidData's data collection process where primary search is limited to English-language media sources. Finally, I include a binary indicator that takes a value of one if the recipient country shares a common border with China. 14 countries, including Russia and others in Central and Southeast Asia share an international border with China. Shared borders account for broadly-defined commercial and geostrategic ties and also are a proxy for the Chinese government's domestic policy interests in promoting the development of its border provinces. I lag all time-varying explanatory variables by one year to mitigate endogeneity concerns and account for the time needed for these factors to have influence on aid allocation decisions. My data set covers 47 countries from 2000 to 2012 and I exclude North Korea. Data sources and summary statistics of all variables are presented in Tables A1 and A2.⁹

Aid allocations suffer from an identification problem associated with selection bias.

⁹ I have largely followed AidData's Data Use Recommendations, especially only using records marked "TRUE" in the "recommended for research" field.

This may arise from a number of factors. First, aid allocations are uneven. Not all donors give development finance to every recipient country. Second, due to the nature of AidData, the missing data may be the result of a systematic error in the data collection process. Then there is the problem of log-transformation. Since many countries receive zero flows, data distribution on the dependent variable is highly skewed. Log-transformation creates distribution more standardized, but this drops quite a number of observations, hence information, from the sample. The censored nature of these flows naturally leads to consideration of estimation techniques such as the Heckman selection model and Tobit model in the aid literature. Yet it is also known that these two techniques are not without limitations.

First, a two-stage Heckman sample selection model is a useful technique to address selection bias because it allows the error terms to be corrected for the correlation between the selection and allocation models (Heckman 1979). In the context of aid research, it is empirically often the case that the residuals of the selection equation in the first step are significantly associated with the allocation equation in the second step. The Heckman model depends on the existence of a variable that fulfills the exclusion restriction, i.e., that affects the first stage of aid decision, but not the second stage. However, it is unrealistic that any of the variables affecting the receipt of aid are independent of the allocation decision. As a result, some of the previous studies that examine the determinants of aid allocations estimate the allocation equation without correcting for selection (Fleck and Kilby 2010; Hoeffler and Outram 2011). Second, the high frequency of zeros in the data suggests that the data may be censored, leading to a consideration of a Tobit estimator. However, the Tobit model relies heavily on heteroscedasticity in the underlying latent model, which could be quite problematic given the nature of China's allocation of official flows (Wooldridge 2003). For these reasons, I use a simple panel data model which takes the following basic form:

$$y_{it} = \alpha_i + \delta_t + \beta X_{it} + \varepsilon_{it} \quad (1)$$

Where i denotes recipient and t year. y_{it} represents China's ODA-like flows to country i in year t , X_{it} a vector of explanatory variables, α_i country-fixed effect, δ_t year-fixed effect, and ε_{it} the error term.

B Estimation Results: Allocation of ODA-Like Flows

Table 5 shows the estimation results for China's ODA-like flows to Asia. To establish a baseline, Model 1 uses the full sample, including all the countries, and Model 2 adds region

dummies with Latin America and the Caribbean as a reference category.¹⁰

The results from the full sample suggest that Chinese global aid allocation is associated with commercial and foreign policy interests (Models 1 and 2). Although the impact of export relations is insignificant, China unsurprisingly links its aid flows to the recipient's resource wealth. A one unit increase in resource wealth of a recipient country on a scale from 0 to 100 is associated with an increase in Chinese aid by 1.9 percent. Foreign policy considerations appear to play a major role and two factors stand out in particular. First, Taiwan recognition is a significant foreign policy variable in both Models 1 and 2. Based on the results from Model 1, countries with full diplomatic ties with Taiwan receive 165 % larger ODA-like financing from China. This may suggest that when it comes to its One-China policy, China is eager to make “new friends” and win them over away from Taiwan. Another foreign policy variable worth mentioning is UN voting alignment. It influences China's aid allocation positively, yet without regional dummies in Model 1. If a country's voting patterns are similar to those of China, the country on average is likely to receive larger Chinese aid. Substantively, a 0.1 point rise in voting similarity, on a scale from 0 to 1, leads to 43% increased Chinese aid to the country. This may suggest that China is strategically using its aid to reward its allies. The UN voting patterns resurface in more robust forms from results limited to Asia (Models 3 and 4). DAC strategic values, another foreign policy variable, appear insignificant. This suggests that it is difficult to conclude that China is involved in head-on competition with established donors. After regional dummies of Asia and Africa are added in Model 2, the results for natural resources and Taiwan recognition largely remain unchanged.

Model 3 restricts the sample to Asian countries and Model 4 adds subregional dummies of Eastern Europe and Central Asia, South Asia, and Southeast Asia with East Asia & Pacific (non-Southeast Asia) as a reference category. For both specifications, only UN voting alignment registers as significant. For UN voting alignment, a 0.1 point rise in voting similarity, on a scale from 0 to 1, leads to 67% increased Chinese aid to the country.

GDP per capita, the control of corruption, population size, sharing borders with China have significant effects in only either of Model 3 or Model 4. GDP per capita, one of the two measures of development needs, and control of corruption appear to have a significant effect

¹⁰ The initial sample has 47 countries in Asia that received any ODA-like flows from China for the period, yet it comes down to 27 countries in the regression analysis due to data limitations on independent and control variables.

in either of the specifications, but the results are not robust. Natural disaster is not systematically related to Chinese aid allocation. The non- or weak relationship between domestic institutions, captured by level of democracy and the control of corruption, and aid allocation is actually consistent with China's aid principle of "non-interference" and "no political conditionality," which is based on the "Five Principles of Peaceful Coexistence," a major pillar of China's foreign policy dating from 1954.¹¹ Commercial interests and strategic considerations of DACaid flows have no effects.¹²

Table 5. Allocation of China's ODA-Like Flows to Asia, 2000–2012

	(1) World	(2) World with Regional Dummies	(3) Asia	(4) Asia with Subregional Dummies
GDP per capita	-0.293 (-1.339)	-0.182 (-0.884)	-0.529* (-1.760)	-0.385 (-1.203)
Disaster	0.029 (1.641)	0.031* (1.773)	0.015 (0.390)	0.003 (0.070)
Democracy	-0.027 (-1.140)	-0.017 (-0.720)	-0.026 (-0.756)	-0.005 (-0.142)
Control of Corruption	-0.223 (-0.854)	-0.282 (-1.057)	-0.931 (-1.299)	-1.660** (-2.076)
Chinese exports	-0.009 (-0.073)	-0.013 (-0.104)	0.034 (0.235)	0.252 (1.575)
Natural Resources	0.019** (2.057)	0.017* (1.768)	-0.009 (-0.279)	-0.005 (-0.136)
UN Voting	4.283** (1.976)	3.753 (1.447)	6.736** (2.424)	6.879* (1.944)
DAC strategic values	-0.251 (-1.172)	-0.257 (-1.200)	0.289 (0.478)	0.351 (0.571)
Taiwan	1.649*** (3.915)	1.761*** (4.257)		
Population	-0.154 (-0.943)	-0.149 (-0.940)	-0.043 (-0.257)	-0.504* (-1.901)
Time trend	0.128*** (3.617)	0.127*** (3.606)	0.183*** (3.233)	0.120* (1.921)
Common Border	-0.060 (-0.157)	0.164 (0.307)	-0.329 (-0.802)	-0.854** (-2.347)
English-Speaking	1.124*** (3.793)	1.023*** (3.600)	0.172 (0.357)	0.328 (0.955)
Asia		0.307 (0.402)		
Africa		0.674 (1.069)		
Eastern Europe and Central Asia				0.551 (0.983)
South Asia				2.114** (2.057)

¹¹ Adopted in the Agreement on Trade and Intercourse between the Tibet Region of China and India, also known as the Panchsheel Treaty, signed in 1954 by China and India

¹² In the Asian sample, Macedonia (Eastern Europe and Central Asia) and Nauru (East Asia and Pacific) recognized Taiwan at one time during the period under study, yet these countries were dropped for the regression analysis due to missing values on other variables.

Southeast Asia				0.366 (0.395)
Constant	-241.183*** (-3.308)	-239.840*** (-3.320)	-353.170*** (-3.109)	-223.043* (-1.785)
N	527	527	165	165
Number of Countries	87	87	27	27

Note: Random effects models; Robust z-statistics in parentheses in others; *** p<0.01, ** p<0.05, * p<0.1.

C Estimation Results: Allocation of OOF-Like Flows

Table 6 shows the estimation results for OOF-like flows from China. The model setups are similar to Models 1 through 4 of Table 3. The dependent variable is the log-transformed China's annual bilateral OOF-like flows. Moving to Asia, Model 3 restricts the sample to Asian countries and Model 4 added subregional dummies of Eastern Europe and Central Asia, South Asia, and Southeast Asia with East Asia & Pacific (non-Southeast Asia) as a reference category.¹³

For the global sample (Models 1 and 2), no explanatory variable appears to be significant. Moving to Asia, results from Models 3 and 4 suggest that governance, captured by the control of corruption is negatively associated with China's OOF flows.¹⁴ The finding that China's non-concessional financing is associated with poor institutional quality is also consistent with some studies of China's outward FDI. They find that the investment by China's state-owned enterprises (SOEs) tend to be attracted to countries with higher political risks (Ramasay, Yeung, and Laforet 2012). Here, the interpretation is that China's SOEs may be allowed to make more risky investments to advance national interests while their reliance on government-to-government relationships is likely to reduce the riskiness of development projects.

Table 6. Allocation of China's OOF-like Flows to Asia, 2000–2012

	(1) World	(2) World with Regional Dummies	(3) Asia	(4) Asia with Subregional Dummies
GDP per capita	0.299 (1.205)	0.298 (1.033)	0.002 (0.003)	-0.043 (-0.067)
Disaster	-0.019 (-0.507)	-0.019 (-0.511)	0.013 (0.283)	0.015 (0.327)

¹³ The initial sample has 41 countries in Asia that received any OOF-like flows from China for the period, yet it comes down to 27 countries in the regression analysis due to data limitations on independent and control variables.

¹⁴ These results remain largely unchanged when a year dummy for 2009 was introduced. China's OOF to Asia experienced a one-time surge in 2009 with US\$ 62.2 billion.

Democracy	0.022 (0.357)	0.014 (0.222)	-0.011 (-0.120)	-0.008 (-0.076)
Control of Corruption	-0.799 (-1.428)	-0.872 (-1.489)	-2.518* (-1.754)	-2.584* (-1.763)
Chinese exports	0.235 (0.947)	0.282 (1.072)	0.511 (0.764)	0.474 (0.699)
Natural Resources	0.019 (1.325)	0.015 (1.108)	0.008 (0.393)	0.012 (0.571)
UN Voting	3.898 (1.352)	2.678 (0.764)	-2.202 (-0.387)	-2.975 (-0.442)
DAC strategic values	0.125 (0.485)	0.128 (0.499)	0.465 (1.260)	0.468 (1.301)
Taiwan	-0.725 (-0.589)	-0.825 (-0.669)		
Population	0.331 (1.289)	0.313 (1.226)	0.430 (0.722)	0.440 (0.536)
Time trend	0.053 (0.943)	0.048 (0.810)	0.015 (0.145)	0.025 (0.250)
Common Border	-0.047 (-0.049)	0.346 (0.340)	0.092 (0.073)	0.180 (0.139)
English-Speaking	-0.675 (-1.162)	-0.850 (-1.403)	-1.563 (-1.240)	-1.387 (-0.838)
Asia		-0.612 (-0.614)		
Africa		0.111 (0.129)		
Eastern Europe and Central Asia				0.348 (0.139)
South Asia				0.205 (0.060)
Southeast Asia				0.652 (0.230)
Constant	-102.232 (-0.895)	-89.535 (-0.747)	-23.124 (-0.107)	-42.675 (-0.206)
Observations	195	195	92	92
Number of countries	68	68	27	27

Note: Random effects models; Robust z-statistics in parentheses in others; *** p<0.01, ** p<0.05, * p<0.1

V. China's Development Finance to Southeast Asia, 2000–2012

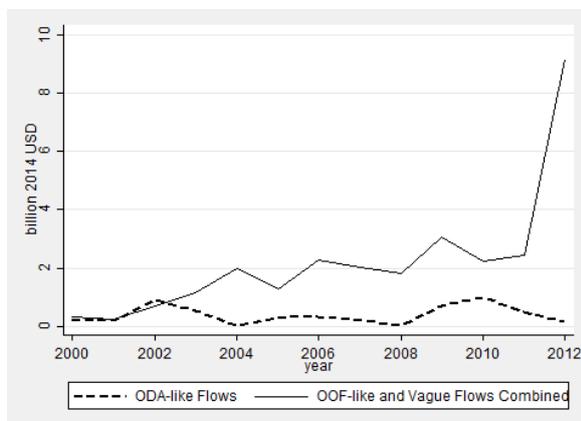
Southeast Asia is a geopolitically important zone to President Xi Jinping's "neighborhood policy" and the twenty-first century Maritime Silk Road Initiative (Renwick 2016). In its 2014 White Paper on China's foreign aid, the Chinese government specifically mentions Southeast Asia as one of the two key geographical regions where China promotes cooperation under its "Regional Cooperation Mechanism" (Government of China, 2014, p.18).¹⁵ In economic terms, it is not only an important commodity exporter to China, but is also deeply integrated into China's supply chains in manufacturing. In the security realm, out of ten countries in the region, Vietnam and the Philippines have territorial disputes with China

¹⁵ The other geographic region mentioned in the document is Africa.

in the South China Sea.

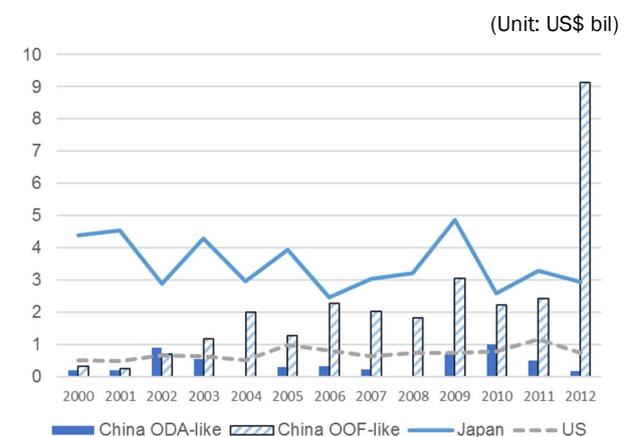
China's ODA-like flows to Southeast Asia for 2000-2012 amount to US\$ 5 billion and OOF to 28.6 billion dollars (Figure 7). Its ODA-like flows show high levels of fluctuation, reaching US\$ 1 billion in 2010 but falling to US\$ 156.3 million in 2012. In contrast, China's OOF-like flows dramatically increased from US\$ 319.1 million in 2000 to US\$ 9.1 billion in 2012. Since 2005, China has committed OOF flows over 1.8 billion every year. The overall trends suggest that China's ODA-like flows to Southeast Asia remain relatively small and its OOF-like flows to Southeast Asia are large and continue to rise. The comparison between US and Japanese aid also confirms the observation that China's ODA-like flows offered no match to the region's top donor, Japan, and still lack behind the US, but its OOF-like flows easily dwarf US aid and has been catching up to Japanese aid (Figure 8). Japan offered a total of 45.3 billion dollars while the US provided US\$ 9.3 billion for 2000–2012.

Figure 7. China's Official Flows to Southeast Asia, 2000–2012



Source: AidData

Figure 8. China's Official Flows to Southeast Asia, Compared to US and Japan¹⁶



Source: AidData, OECD DAC

Table 7 indicates the sectoral distribution of Chinese ODA-like and OOF-like flows to Southeast Asia for 2000–2012. For China's ODA-like flows to the region, the largest sector is energy (39.6 percent), followed by action related to debt (18.9 percent), and transport (16.2 percent). Energy, transport and mining all account for 60.8 percent of total flows. The infrastructure focus seems to be maintained in Southeast Asia, as the broader regional level of

¹⁶ OOF-like flows include vague flows.

Asia discussed earlier. Agriculture, forestry and fishery comes in the fourth place and account for 8.3 percent. China's OOF-like flows to Southeast Asia are heavily concentrated in transport (44.0 percent) and energy (42.1 percent).

Table 7. Top Ten Sectors in China's Official Flows to Southeast Asia by Flow Type, 2000–2012

	ODA-like Flows		OOF-like Flows		
	(US\$ mil)	%	(US\$ mil)	%	
Energy Generation and Supply	1,984.4	39.6	Transport and Storage	12,581.3	44.0
Action Relating to Debt	949.0	18.9	Energy Generation and Supply	12,056.0	42.1
Transport and Storage	811.0	16.2	Industry, Mining, Construction	1,474.9	5.2
Agriculture, Forestry and Fishing	413.7	8.3	Communications	1,229.1	4.3
Industry, Mining, Construction	255.5	5.1	Other Multisector	393.8	1.4
Government and Civil Society	248.1	4.9	Agriculture, Forestry and Fishing	355.8	1.2
Communications	97.1	1.9	Other Social infrastructure	189.2	0.7
Emergency Response	91.8	1.8	Water Supply and Sanitation	154.4	0.5
General Budget Support	68.7	1.4	Unallocated / Unspecified	87.7	0.3
Other Multisector	27.7	0.6	Government and Civil Society	77.3	0.3
Others	64.9	1.3	Others	17.5	0.1
Total	5,011.7	100.0	Total	28,617.0	100.0

Source: AidData

Table 8 shows China's development flows to Southeast Asia by country for 2000–2012. First, with ODA-like flows, Cambodia was the largest recipient, receiving US\$ 2.7 billion. In fact, more than half of China's concessional lending to the region ended up in Cambodia (53.1%). It was followed by Myanmar (15.1%) and Laos (11.5%). The top three countries account for 79.3 percent of total flows. It is not surprising these lowest-income countries, commonly referred as CLM for their initials, receive the bulk of development assistance in the region, but the level of concentration in Cambodia is extraordinary. For comparison, out of Japanese aid to the region for the same period, only 3.9 percent was committed to Cambodia (OECD Stat).

Although China's ODA-like flows to Myanmar for 2000–2012, despite its second-large recipient status, amount to a modest sum of US\$ 756.1 million, this is still substantial compared to the US\$ 2.3 billion offered by all the DAC bilateral donors for the same period. In particular, the eight-year total of DAC bilateral commitment for 2000–2007 stands at about US\$ 874 million, just before the deadly Cyclone Nargis struck Myanmar, leaving 140,000 fatalities and leading up to a slight increase in foreign aid. DAC aid was largely limited to

minimum humanitarian relief during the 2000s when the country was placed under comprehensive Western sanctions. In the meantime, it was commonly believed that China provided an economic lifeline to Myanmar, providing cheap consumer goods and much-needed capital. AidData's estimates support this view to an extent although what China offered as non-concessional financing may not be as large as commonly thought.

Vietnam received about US\$ 350 million, 7 percent of regional inflows. This contrasts with the US\$ 13.5 billion it received from Japan. In fact, Vietnam accounted for 29.8 percent of Japanese aid commitment for this period (OECD Stats). The low level of China's ODA-like flows to Vietnam relative to the country's level of development may be related to Vietnam's diversified external economic relations driven by its export-oriented industrialization and also its contentious historical relationship with China, including territorial disputes in the South China Sea.

In terms of China's OOF-like flows, Laos was the largest recipient. It received US\$ 11.3 billion, which accounts for 39.3 percent of regional inflows. It is followed by Myanmar (23 percent), Malaysia (12.8 percent) and Cambodia (12.5 percent). A significant portion of the financing to Laos was driven by a US\$ 7.2 billion agreement for the Kunming-Vientiane high-speed railway project funded by China's EXIM bank.¹⁷ Indonesia received US\$ 6.5 billion, account for 22.8 percent of the regional flows. This may reflect the large size of Indonesian economy, natural resource wealth, and high demands for transport infrastructure.

Table 8. China's Official Flows to Southeast Asia by Country, 2000–2012

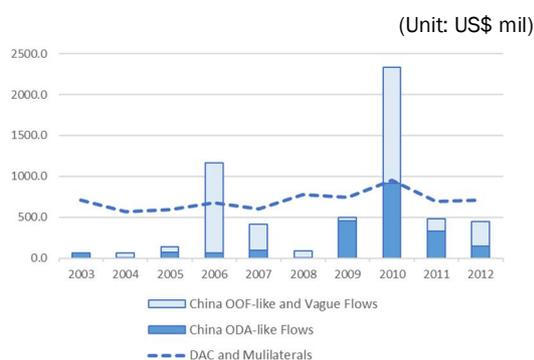
	ODA-like Flows			OOF-like Flows	
	(US\$ mil)	%		(US\$ mil)	%
Cambodia	2660.3	53.1	Laos	11,258.4	39.3
Myanmar	756.1	15.1	Indonesia	6,512.0	22.8
Laos	574.9	11.5	Vietnam	3,673.5	12.8
Indonesia	403.2	8.0	Cambodia	3,583.9	12.5
Vietnam	349.6	7.0	Malaysia	1,302.0	4.5
Philippines	253.3	5.1	Philippines	1,227.3	4.3
Thailand	14.0	0.3	Myanmar	1,058.6	3.7
Malaysia	0.4	0.0	Thailand	1.2	0.0
Total	5011.7	100.0	Total	28617.0	100.0

Source: AidData

¹⁷ AidData project ID 33726 (Dreher et al. 2015).

Cambodia, as the major recipient of China's development financing, merits a further examination. China increased its ODA-like financing to Cambodia from US\$ 66.2 million in 2003 to US\$ 144 million in 2012 (Figure 9). DAC aid to Cambodia barely increased from US\$ 706.7 million in 2003 to US\$ 711 million in the same period. China's ODA-like flows for the period of 2003–2012 amounted to US\$ 2.1 billion, less than a third of all DAC aid combined of US\$ 7 billion. Yet it should be noted that China's ODA-like flows surged in 2009 and the flows from 2009 to 2012 account for 85% of total flows. This growth momentum should be recognized in contrast to the stagnant DAC aid flows. When it comes to China's bilateral OOF-like flows to Cambodia, the total amount rises to US\$ 3.5 billion, yet still smaller than DAC aid. The surge since 2009 is not as dramatic as ODA-like flows, yet the trends are unmistakably upward. Although Cambodia's major export markets are the US and EU and the country is still a recipient of major Western FDI and development assistance, its economic relationship with China is becoming increasingly closer. In terms of FDI, China is the top investor in Cambodia with 18.5 percent of FDI stock as of 2012 (Table 9).

The increasingly close bilateral economic relations may be behind Cambodia's support for China's position on the international stage. The most recent example of Cambodia's diplomatic alignment with China was its behavior in the aftermath of the ruling of the Permanent Court of Arbitration (PCA) in July 2016, where the international court decided in favor of the Philippines in its dispute with China. The Philippines brought the case to the PCA in 2013, arguing that China violated the United Nations Law of the Sea Convention (UNCLOS) following Beijing's actions in 2012 to forcibly take control of the Scarborough Shoal from the Philippines. China has been adamant in opposing any international judicial settlement and has insisted on bilateral negotiations with individual claimant states. Cambodia has consistently and forcefully supported China's position in contrast to most countries in Southeast Asia. Right after the PCA ruling, it blocked the issuance of a joint statement at the Association of Southeast Asian Nations (ASEAN) Foreign Ministers Meeting which supports the court's decision.

Figure 9. China's Development Finance to Cambodia, 2003–2012

Source: AidData

Table 9. Cambodia's Major Investors, 2012 Stock

(Unit: US\$ mil, %)

	FDI	%
China	1408.4	18.5
Malaysia	990.0	13.0
South Korea	848.6	11.1
Vietnam	769.8	10.1
Taiwan	738.5	9.7
EU	634.0	8.3
Thailand	497.1	6.5
Singapore	411.2	5.4
Others	1325.2	17.4
Total	7622.8	100

Source: UNCTAD Bilateral FDI Statistics

VI. Conclusion

Descriptive statistical analysis of China's development financing using AidData's Global Chinese Official Finance Dataset (Version 1.0) from 2000 to 2012 shows that China's concessional development finance to Asia remains highly limited compared to Japan or the US. Nonetheless, its OOF-like flows are already larger than US aid and catching up fast with Asia's top donor, Japan. Given the potential functional equivalent between China's official flows, broadly defined, and "ODA" by traditional donors, it is important to pay attention to China's non-concessional financing with "developmental" purpose. Geographically, South Asia was the largest recipient of China's ODA-like flows in Asia for the period under study while the majority of China's OOF-like flows to Asia went to Eastern Europe and Central Asia. In terms of sector, energy, transport, and mining received the bulk of financing in both types of ODA-like and OOF-like flows. The econometric analysis shows that Chinese concessional development to Asia is associated with foreign policy interests. In Southeast Asia, China indeed uses foreign aid to reward political friendship in the form of UN General Assembly voting alignment. Development needs and institutional merits of a recipient country as well as China's own commercial interest are not significant predictors of its ODA-like flows allocation decisions. China's less-concessional, more commercial development financing appears to be directed to more governance-challenged countries, suggesting its financing is more risk-taking.

When it comes to Southeast Asia, China's ODA-like flows remains relatively small and

lagging behind Japan. In contrast, its OOF flows are large and continue to grow, exceeding US aid and catching up with Japanese aid. Both ODA and OOF flows are heavily concentrated into energy, transport, and mining sectors. By recipient country, Cambodia was by far the largest recipient of China's ODA flows, whereas it was Laos with non-concessional financing. The true extent of China's economic statecraft of linking state flows and diplomacy may be closely associated with OOF rather than ODA, as the Cambodia case suggests.

The size and characteristics of China's development finance needs to be better understood, lest we construct a highly incomplete picture of its overall development assistance to recipient countries. It should be also noted that China's flows challenge the established distinction between concessional and non-concessional flows and force us to think how to understand financing that may not be concessional but developmental in nature. While China can employ a wide range of heavy-handed approaches to its neighbors as it projects its influence, it can also make considerable efforts to build a support base using a generous offer of development financing. How such flows impact the aid landscape, economic development and broader external relations of a recipient country should continue to be investigated.

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Appendix

Table A1. Data Sources

Variable	Source	
Dependent variables		
<i>ODA-like Flows</i>	AidData	http://china.aiddata.org
<i>OOB-like Flows</i>	AidData	http://china.aiddata.org
Explanatory variables		
<i>GDP per capita</i>	IMF WEO	https://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx
<i>Disaster</i>	EM-DAT	http://www.emdat.be/database
<i>Democracy</i>	Polity IV	http://www.systemicpeace.org/polity/polity4.htm
<i>China exports</i>	IMF DOTS	http://data.imf.org
<i>Natural resource wealth</i>	World Bank WDI	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators
<i>UNGA voting</i>	Bailey et al. (2015)	See References
<i>DAC ODA</i>	OECD.Stat	http://stats.oecd.org
<i>Taiwan recognition</i>	Strange et al.(2015)	See References
<i>Population</i>	World Bank WDI	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators
<i>English speaking</i>	CEPII	http://www.cepii.fr

Table A2. Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
<i>ODA-like Flows (US\$ million)</i>	429	52.8	147.1	0.0	1,424.8
<i>OOB-like Flows (US\$ million)</i>	429	352.8	1,930.7	0.0	35,465.1
<i>GDP per capita (2009 USD)</i>	419	4,660.3	6,151.5	293.2	68,826.5
<i>Disaster(million persons)</i>	407	7.1	6.7	-2.3	18.4
<i>Democracy</i>	345	2.4	6.2	-9.0	10.0
<i>Control of Corruption</i>	384	-0.7	0.5	-1.9	2.0
<i>China exports (US\$ million)</i>	403	5,263.6	10,346.1	0.0	59,830.2
<i>Natural Resource Wealth</i>	400	3.7	7.8	0.0	60.0
<i>UN Voting</i>	426	0.9	0.1	0.4	1.0
<i>DAC strategic values</i>	239	0.0	0.4	-1.6	1.7
<i>Taiwan</i>	367	0.0	0.1	0.0	1.0
<i>Population (million persons)</i>	429	52.2	147.4	0.1	,1279.5
<i>Shared Borders</i>	418	0.3	0.5	0.0	1.0
<i>English-Speaking</i>	418	0.2	0.4	0.0	1.0

Note: Sample limited to Asia

Source: Author's calculation using data sources in Table A1.