**ONLINE APPENDIX TO** Aid, China, and Growth: Evidence from a New Global Development Finance Dataset, Dreher, Axel, Andreas Fuchs, Bradley C. Parks, Austin Strange, and Michael J. Tierney, *American Economic Journal: Economic Policy*.

## Appendix A1: The Tracking Underreported Financial Flows (TUFF) Methodology

TUFF data collection and quality assurance procedures are documented in their entirety in an accompanying methodology document (Strange et al. 2017b). Here we provide a brief summary. The TUFF methodology is divided into three stages: two stages of primary data collection (project identification and source triangulation) and a third stage to review and revise individual project records (quality assurance). The method standardizes and synthesizes large volumes of information primarily from four sources: English, Chinese and local-language news reports; documents from Chinese ministries, embassies, and economic and commercial counselor offices; the aid and debt information management systems of finance and planning ministries in counterpart countries; and case study and field research undertaken by scholars and NGOs. It represents a systematic, transparent, and replicable way of tracking the identifiable universe of projects financed by donors and lenders who do not publish official financing data at the project level. The method and some of the datasets that it has produced have been subjected to peer review, stress-tested, and substantially improved over time (e.g., Muchapondwa et al. 2016; Strange et al. 2017a; Dreher et al. 2018a).

In the first stage of primary data collection, researchers identify potential projects at the donor/lender-recipient/borrower-year unit of analysis through a standardized set of search queries in Factiva, a Dow Jones-owned media database that draws on approximately 33,000 media sources worldwide in 28 languages, including newspapers and radio and television transcripts. A machine-learning algorithm is then used to identify the subset of articles retrieved through these Factiva queries that are most likely to contain information about officially-financed projects for the donor/lender of interest (i.e., China in our case).[1] Researchers then review each of the Factiva

[1] The machine learning tool that is used relies upon large amounts of training data (i.e., past articles that were identified via Factiva and later classified by researchers as containing or not containing information about projects financed by the official donor/lender of interest) to "teach" the algorithm to accurately classify hundreds of thousands of articles into "relevant" and "irrelevant" categories. Use of this tool significantly reduces the amount of time that researchers would otherwise spend reviewing articles that contain no information about projects financed by the official donor/lender of interest ("false positives").

records that the machine-learning algorithm has classified as "relevant" and make case-by-case determinations about whether those records contain information about an officially financed project by the donor/lender of interest. In parallel, researchers retrieve all individual projects that are financed by the donor/lender of interest and recorded in (a) the aid and debt information management systems of recipient/borrower countries, (b) IMF country reports, and (c) the websites of Chinese embassies and Chinese Economic and Commercial Counselor Offices (ECCOs).

Once a potential project has been identified during the first stage of data collection, it is entered into our data management platform with a unique identification number and assigned to a different researcher for a second stage of record review and augmentation. During this second stage, the researcher performs a set of targeted online searches to validate, invalidate, and/or enrich the project-level information that was retrieved in the first stage. These searches are conducted in English, Chinese and recipient/borrower country languages by trained language experts and native speakers in order to improve record accuracy and completeness. The researcher also seeks to collect supplementary information from government sources (e.g., annual reports published by the lender or granting agency), field reports published by NGOs and implementing entities (e.g., private contractors), scholarly research (e.g., case studies of particular projects, doctoral dissertations on the development finance activities of a particular donor/lender in a particular country), and experts with information or knowledge about specific projects that is not in the public domain or is not easily identifiable (e.g., photographic evidence of a project's current status). This process of project-level investigation and triangulation is designed to reduce the risk of over-reliance on individual sources, such as media reports, that might be inaccurate or incomplete.

The third stage of the TUFF methodology involves the systematic implementation of data quality assurance procedures to maximize the reliability and completeness of project records. First, a set of de-duplication procedures is implemented in order to minimize the risk of double counting. Second, to account for the fact that idiosyncratic coding decisions made by individual researchers can result in inconsistencies across project records, a set of automated data checks are undertaken to limit discretion and eliminate illogical and inconsistent codings.[2] Third, each project record in

[2] For example, China Development Bank (CDB) offers finance on commercial, rather than concessional, terms, so an automated decision rule disallows CDB finance from ever being categorized as Official Development Assistance (ODA). Likewise, the China Export-Import Bank offers loans and export credits at commercial and concessional rates, but does not offer grants or

the dataset is vetted by a program manager—who oversees the team of research assistants—or a senior research assistant appointed by the program manager to identify potential errors, missing data, or incorrect categorizations. Fourth, the dataset then undergoes another layer of review that focuses specifically on projects with low "health of record" scores and large-scale projects (as indicated by the financial value of the transaction).[3] Finally, the dataset as a whole is subjected to several rounds of careful scrutiny by AidData staff and external peer reviewers.[4] Internal and external reviewers not only seek to identify errors of omission and commission, but also flag inconsistencies that should be addressed and additional sources that should be consulted.[5]

interest-free loans, so an automated decision rule disallows any project financed by the China Export-Import Bank to ever be categorized as a grant or interest-free loan.

[3] "Health of record" scores are calculated in order to systematically identify projects that might benefit from additional sourcing or investigation. More specifically, for all projects in the dataset, source triangulation and data completeness scores are calculated. Whereas the source triangulation indicator captures the number and diversity of information sources supporting a given project record, the data completeness indicator measures the extent to which fields/variables for a given project record are populated with missing or vague information.

[4] More than 30 external and internal reviewers were involved in this process for the version of the dataset used in this paper. Also, feedback provided by users of a dynamic online platform (at china.aiddata.org) is reviewed and, where appropriate, used to update project records. For example, a PhD student helped AidData to vet and augment project records in the Democratic Republic of the Congo with information she directly gathered through extensive fieldwork in that country. In another instance, Chinese Ministry of Health officials and Chinese university faculty identified missing information about in-kind, medical supply donations made during recurring visits from Chinese medical teams. When a credible source of information about these donations was furnished, new project records were added to the dataset.

[5] Among other things, these reviewers (a) generate descriptive statistics with the dataset and compare them to official and third-party estimates to identify anomalies or suspicious results; and (b) review individual project records to suggest potential ways to address errors, biases, and gaps.

## Appendix A2: Background on New TUFF 1.0 Global Dataset

In this paper, we introduce a new dataset that measures foreign aid and other forms of concessional and non-concessional state financing from China to the developing world between 2000 and 2014. More specifically, the dataset captures ODA and OOF from China to 140 countries and territories in five regions of the world: Africa, the Middle East, Asia and the Pacific, Latin America and the Caribbean, and Central and Eastern Europe.[6] It includes 4,304 Chinese development projects (worth approximately US$351 billion) that were officially committed, in implementation, or completed between 2000 and 2014. The dataset also includes 630 pledges of support worth an estimated US$137 billion. We could not find evidence that these projects reached the official commitment stage, and exclude these records from our analysis.[7] Appendix B1 illustrates the distribution of project status over time. Unsurprisingly, projects announced in recent years are less likely to have reached the completion stage than those announced in earlier years.

The dataset was constructed using the TUFF methodology. This methodology was initially developed by several authors of this paper—in collaboration with AidData, a research lab at the College of William & Mary (Strange et al. 2017b). It codifies a set of open-source data collection procedures that make it possible to identify detailed financial, operational, and locational information about officially financed projects that are not voluntarily or systematically recorded by sovereign donors and lenders through international reporting systems, such as the OECD's Creditor Reporting System (CRS) or the International Aid Transparency Initiative (IATI). This methodology, which is described at greater length in Appendix A1 and Strange et al. (2017b), standardizes and synthesizes large volumes of information primarily from four sources: English, Chinese and local-language news reports; documents from Chinese ministries, embassies, and economic and commercial counselor offices; the aid and debt information management systems of finance and planning ministries in counterpart countries; and case study and field research undertaken by scholars and NGOs. It represents a systematic, transparent, and replicable way of tracking the identifiable universe of projects financed by donors and lenders who do not publish

[6] However, Kiribati received only one project and it was cancelled, which is why it does not appear in the above statistic. We also exclude Palestine from our analysis.

[7] We also exclude all 44 suspended or cancelled project records from our analysis and from the descriptive statistics presented in this paper. The same applies to 348 so-called "umbrella" projects that reached the commitment stage. Umbrella projects cover a number of specific sub-projects, and we thus remove them to avoid potential double counting.

official financing data at the project level. The methodology and the datasets that it has produced have been subjected to peer review, stress-tested, and substantially improved over time (e.g., Muchapondwa et al. 2016; Strange et al. 2017a; Dreher et al. 2018a).

TUFF-derived data have now been used in dozens of publications in economics and political science (e.g., Hendrix and Noland 2014; Dreher and Fuchs 2015; Hsiang and Sekar 2016; Kilama 2016; Hernandez 2017; Li 2017; Dreher et al. 2018a; Eichenauer et al. 2018; Zeitz 2020). The first empirical application of the TUFF methodology was a dataset that measured 21st-century Chinese official financial flows to Africa (Strange et al. 2013, 2017a). This dataset has been used to study China's motivations for aid giving in Africa and the intended and unintended impacts of these financial flows in one region of the world (BenYishay et al. 2016; Blair and Roessler 2016; Brazys et al. 2017; Hernandez 2017; Strange et al. 2017a; Isaksson and Kotsadam 2018a, 2018b). Apart from the study of contemporary Chinese aid, researchers have adapted and applied our methodology to identify grants and loans from Gulf Cooperation Council (GCC) members (Minor et al. 2014), under-reported humanitarian assistance flows from Western and non-Western sources (Ghose 2017), foreign direct investment from Western and non-Western sources (Bunte et al. 2018), and pre-2000 foreign aid flows from China to Africa (Morgan and Zheng 2019).

The dataset introduced and used in this paper builds upon and expands the geographical and temporal scope of the earlier dataset of Chinese official financial flows to Africa constructed in collaboration with AidData (see Strange et al. 2017a). It allows one to distinguish between three different types of Chinese official financing. "ODA-like" projects are comparable to ODA in that they are nominally intended to promote economic or social development and they are provided at levels of concessionality that are consistent with the ODA criteria established by the OECD-DAC. "OOF-like" projects are also financed by the Chinese government, but either have a non-developmental purpose (e.g., export promotion) or are insufficiently concessional to qualify as ODA (e.g., loans at market rates). "Vague OF" projects represent official financial flows where there is insufficient open-source information to make a clear determination as to whether the flows are more akin to ODA or OOF (Dreher et al. 2018a). Appendix B2 presents the distribution of these three categories of Chinese official financing over time. The graph in the left panel demonstrates that the vast majority of Chinese projects each year are ODA-like. However, as the right panel shows, these projects represent only 21% of total Chinese official commitments in financial terms between 2000 and 2014.

The dataset introduced in this paper can be used to generate an estimate of global, annual Chinese ODA. Our estimate of average annual Chinese ODA (from 2000-2012), which is measured as the sum of all officially committed projects, projects in implementation, and completed projects during this time period, is US$5.4 billion. Therefore, our global estimates of Chinese ODA are quite similar to those produced by Kitano (2016) and the Chinese government itself. China's 2014 White Paper (State Council 2014) puts total annual foreign aid from China at about US$4.8 billion (US$14.41 billion over 2010-2012). Kitano (2016) arrives at a slightly higher estimate of US$5.2 billion (in 2012). However, it should be noted that neither Kitano (2016) nor the Chinese government separately measures other sources of Chinese official financing (i.e., OOF). A major advantage of our dataset is that it is at the project level, which allows for analysis at various levels of disaggregation.

To analyze the sectoral distribution of Chinese official financing, we also coded the OECD-DAC sector classification (3-digit purpose codes) for all projects. The conventional wisdom that China funds the "hardware" of development is consistent with the descriptive statistics presented in Appendix B3, which ranks sectors by the number of dollars committed. China invests significantly more money in the "hardware" areas of energy generation and supply, transportation, industry, mining, and construction than it does on the "software" side of development in sectors like education, health, and governance. However, a measure of project counts, rather than dollar amounts, paints a very different picture, as can be seen in the same figure. Because the size of "software" projects are substantially smaller than the large "hardware" projects that dominate the news, the measure using project counts actually shows health, education, and governance as the most prominent sectors. These smaller, "software" projects are disproportionately ODA-like, while the large economic infrastructure projects tend to be funded with OOF-like loans.

A nuanced pattern also emerges when one examines the countries that receive the "most" Chinese official financing. The Chinese State Council's official White Papers from 2011 and 2014 claim that the vast majority of Chinese aid flows to Africa, rather than other regions of the world. This view is reinforced by press accounts (Poplak 2016) and academic sources (Alden et al. 2008; Carmody 2016: ch. 3) that emphasize a new, Chinese-led "scramble for Africa" in the 21st century. This is also what one observes in our global dataset (see Appendix B4). African countries received a large proportion (59 percent) of the total number of projects financed by China between 2000 and 2014. Seven of the top-ten recipient countries are African countries (Appendix B5).

However, a different picture emerges when one counts total dollars, rather than projects, committed. These cross-country rankings reflect the fact that the number of "mega-projects" in Southeast Asia, the former Soviet Union, and Latin America dwarfs the number of "mega-projects" in Africa.[8] Of the 25 largest Chinese projects in financial terms, only six are located in Africa and the largest is #13 on that list (see Appendices B6 and B7 for details). More broadly, if one measures the average size of Chinese government-financed projects in terms of constant dollars, only one African country is on the list of top 20 recipients (South Africa at #8; see also Appendix B9).[9]

In addition to illustrating the broad empirical patterns that emerge from this new dataset, we want to draw attention to several limitations related to missing data that one needs to keep in mind while conducting analysis. First, as described above, because of insufficiently specific information in the underlying data sources, roughly eight percent of the project records and almost 16 percent of the project dollars are coded as "Vague Official Financing." These projects receive official financing, but it is not possible (based upon the underlying source documentation) to make a clear determination of whether they qualify as ODA or OOF. Therefore, one needs to explicitly account for this uncertainty.[10]

Second, a substantial and increasing proportion of project records lack information about the financial amounts committed. The percentage of projects that are missing financial amounts ranges from 20 percent in 2001 to 48 percent in 2014 (Appendix B11). Some types of flows are particularly likely to lack financial amounts. For example, over 90 percent of projects that support technical assistance activities and scholarships lack financial amounts. However, loans include financial amounts 92 percent of the time. This missing data problem should be a second-order

[8] We define "mega-projects" as those projects whose financial value exceeds US$ 1 billion.

[9] Appendix B10 shows the top-ten recipients of total Chinese official financing from 2000-2014. If no country in a particular region is ranked in the top 10, we list the highest ranked country in each region along with its rank and the total amount of Chinese official financing allocated to that country as it appears in the dataset. The most important recipient of Chinese official financing is Russia, followed by Pakistan and Angola.

[10] In this paper, we do so by separately analyzing the effects of Chinese ODA and OOF, where we include Vague OF flows in the latter. We think it is reasonable to assume that most Vague OF is actually OOF since many of the observable attributes of projects coded as Vague OF (e.g., projects in the infrastructure and economic production sectors, projects financed with loans, projects financed by China Development Bank and China Exim Bank) resemble the attributes of OOF projects more so than ODA projects. Therefore, comparisons of the effects of Chinese ODA and OOF (including Vague OF) should help reveal differences in the effects of Chinese ODA and OOF.

problem for researchers interested in the aggregate effects of aid on outcomes since loans (where financial information is mostly complete) are typically the largest flows, while technical assistance projects and scholarships (where financial information is relatively incomplete) tend to be small-scale flows (Appendix B12).

A third missing data problem is the incomplete coverage of the Chinese government institutions that financed the projects in the dataset. While the dataset identifies dozens of funding agencies within the Chinese government (including various ministries, Chinese embassies, policy banks, and state-owned news agencies), 78 percent of the project records, which reflect 20 percent of the financial value tracked in the dataset, lack information about the main funding agency responsible for the project. To the extent that the effectiveness of Chinese aid is conditional upon variation in the Chinese government institutions that fund aid projects, this is another limitation of the data that must be acknowledged.[11]

Finally, it should be noted that the TUFF methodology may be subject to some degree of detection bias—in terms of its ability to identify projects and project financial amounts in countries where English is not the official language (Kilby 2017; Dreher et al. 2018a). However, there are also reasons for optimism. For example, Muchapondwa et al. (2016) find a generally high level of correspondence between the Chinese development project data collected using the TUFF methodology and data collected through field-based, on-site data collection protocols by local enumerators in South Africa and Uganda. The same authors also find that the TUFF methodology is able to identify significantly more projects than field-based methods.

We conclude this section with a brief analysis of the determinants of missing information at the project level. Kilby (2017) reports that projects are more likely to include financial amounts if English is among the official languages of a recipient country, in particular in countries with larger internet penetration. For projects that are non-ODA-like, Kilby shows that financial amounts are more likely to be included with larger press freedom of the recipient country. Broadly following his analysis, columns 1-3 of Appendix B17 regress an indicator that takes a value of one for projects with no financial amounts available (and zero for projects including such amounts) on GDP per

[11] We are partially able to address this limitation by decomposing Chinese official financing and separately analyzing Chinese ODA and OOF, as MOFCOM is known to provide the bulk of China's ODA, while OOF projects are often financed by China Exim Bank and China Development Bank.

capita growth, (log) per capita GDP, (log) population, an indicator of press freedom (taken from Freedom House, with larger values indicating less freedom), binary indicators for one of five languages being among a recipient country's official languages, and a (varying) number of fixed effects—for the sector to which the project belongs; flow class (ODA, OOF, or vague OF); and flow type (such as grant, loan, or debt forgiveness). According to the results in column 1, information on financial amounts is more likely to be missing in countries with lower press freedom as well as in countries that include French or Spanish as official language. When we control for fixed effects for world regions in addition in column 2, projects in richer countries are—surprisingly—less likely to include financial information. However, within-region variation in per capita GDP is comparably low, and there is no such finding in regressions with country-fixed effects (see column 3). Most importantly, there is no significant (conditional) correlation between missing financial amounts and the variables we include in our regressions—economic growth and population.

Columns 4-6 replicate the analysis but focus on a binary variable that indicates that the project is "vague" Official Finance, in the sense that we know it is either ODA or OOF, but cannot classify a project in one of the two categories. We find that projects in richer countries are more likely to have precise information with the exception of the specification where we control for region-fixed effects (in columns 4 and 6). There is again no correlation with our variables of interest, however.

In conclusion, the lack of a significant correlation of missing information with our variable of interest in the main analysis—economic growth—in particular, makes any biases resulting from this missing information unlikely to be consequential.

## Appendix A3: How Surplus Foreign Exchange Reserves Increase the Supply of Chinese Official Financing

Understanding the principal-agent relationship between China's State Administration of Foreign Exchange (SAFE) and the public sector institutions that are responsible for China's overseas lending portfolio helps clarify the process by which surplus foreign exchange reserves increase the supply of Chinese official financing.[12] Consider the relationship between SAFE and the country's single largest source of official financing to other countries—China Development Bank—at a time when SAFE had strong incentives to use the country's official lending institutions as vehicles for generating higher investment returns.[13] SAFE invested the lion's share of China's foreign exchange reserves in US Treasury bonds prior to 2008. However, it changed course in response to the 2008 Global Financial Crisis. Quantitative easing by the US Federal Reserve weakened the US dollar, which in turn weakened the incentive to invest in US Treasury bonds. At the same time, international commodity prices plummeted, creating an opportunity for SAFE to invest the country's foreign exchange reserves in undervalued overseas assets. SAFE and CDB negotiated a so-called "entrust loan" agreement in 2008, whereby SAFE would act as the principal and CDB would act as its agent. Under this arrangement, SAFE deposited foreign exchange reserves in the CDB and directed it to engage in international on-lending activities on its behalf. CDB, in exchange, collected a commission (equivalent to approximately 10 basis points). CDB's foreign currency-denominated loans sharply increased in volume from US$64.5 billion in 2008 to US$260 billion in 2014, and by the end of this period roughly two thirds of CDB's foreign currency-denominated lending was taking place under the auspices of the "entrust loan" agreement with SAFE.[14] CDB was also directed by SAFE to focus its international on-lending activities in the natural resource and energy sector, which is clearly evident in our dataset. Nine of the ten largest CDB loans in our dataset are in the natural resource and energy sector; all of these loans were committed between 2008 and 2014; and all of these loans are priced at commercial rates (i.e., 5.5%-7% interest rate or

[12] SAFE is responsible for managing China's foreign exchange in coordination with the People's Bank of China.

[13] Our description of the relationship between SAFE and CDB draws heavily upon Kong and Gallagher (2016).

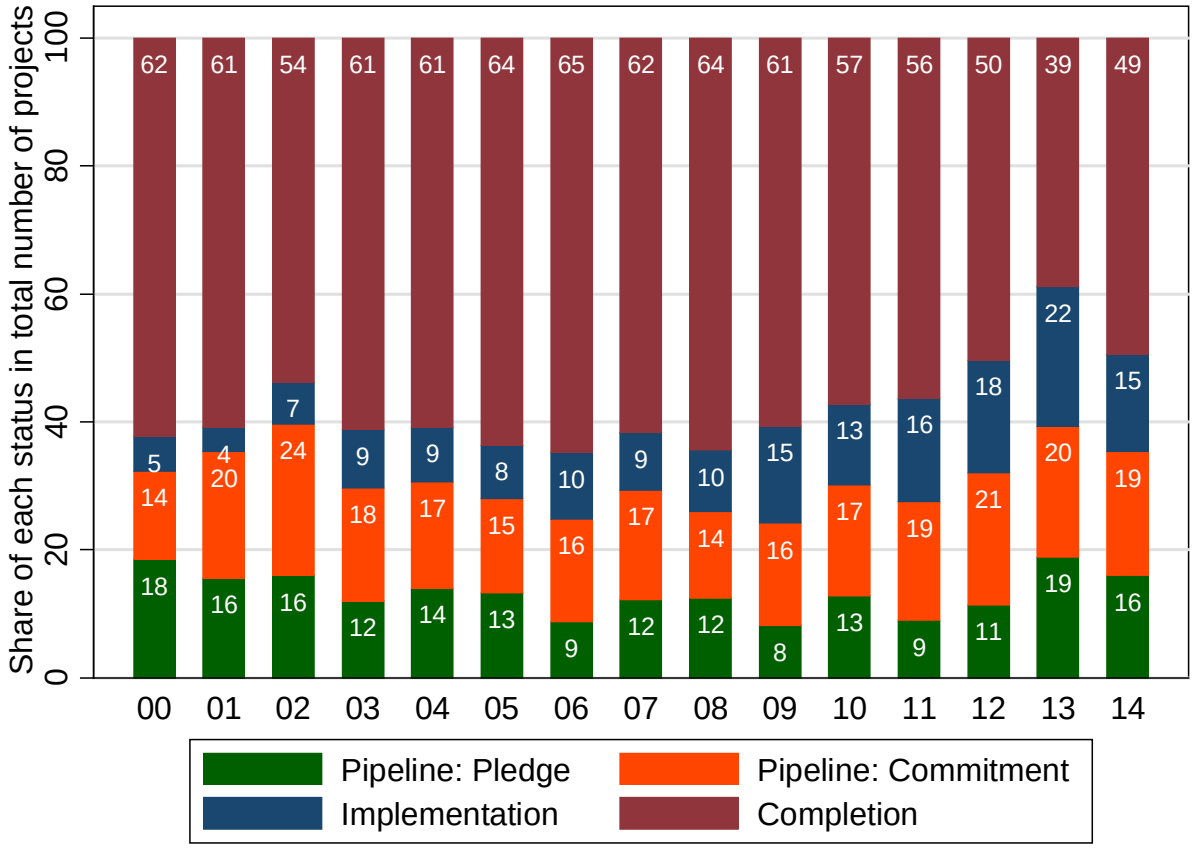
[14] The vast majority of the loans in our dataset are denominated in US dollars. On this point, see Horn et al. (2019: 16-18).

London Inter-bank Offered Rate plus a margin), which is consistent with SAFE's interest in maximizing investment returns.[15] This arrangement between CDB and SAFE reflects a broader process in which China's excess foreign reserves positively correlate with its outward development finance flows.

[15] In the wake of the 2008 Global Financial Crisis, Chen Yuan, the President of China Development Bank, said that "[e]veryone is saying we should go to the western markets to scoop up [underpriced assets]. … I think we should not go to America's Wall Street, but should look more to places with natural and energy resources" (Anderlini 2009).

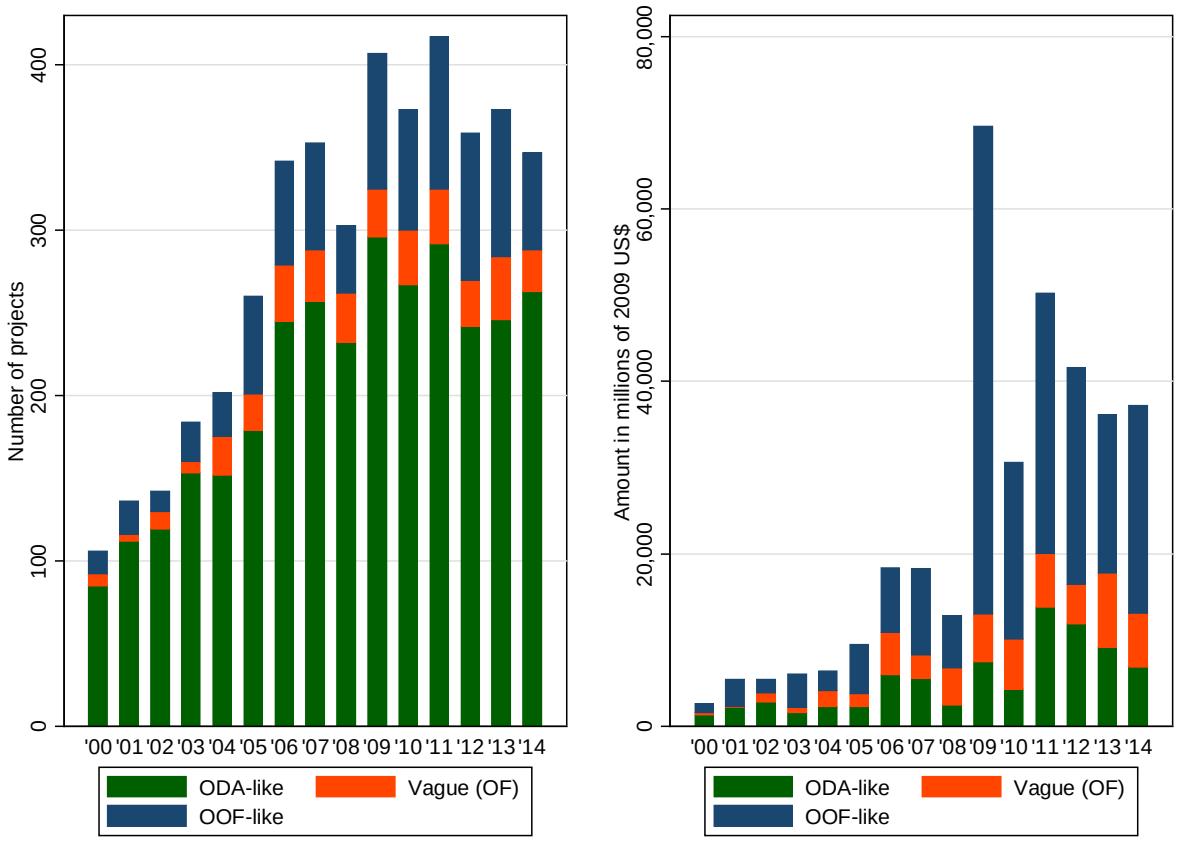
## Appendix B: Additional tables and figures of Section 1 and Appendix A

**Appendix B1:** Proportion of Chinese OF projects by status (2000-2014)



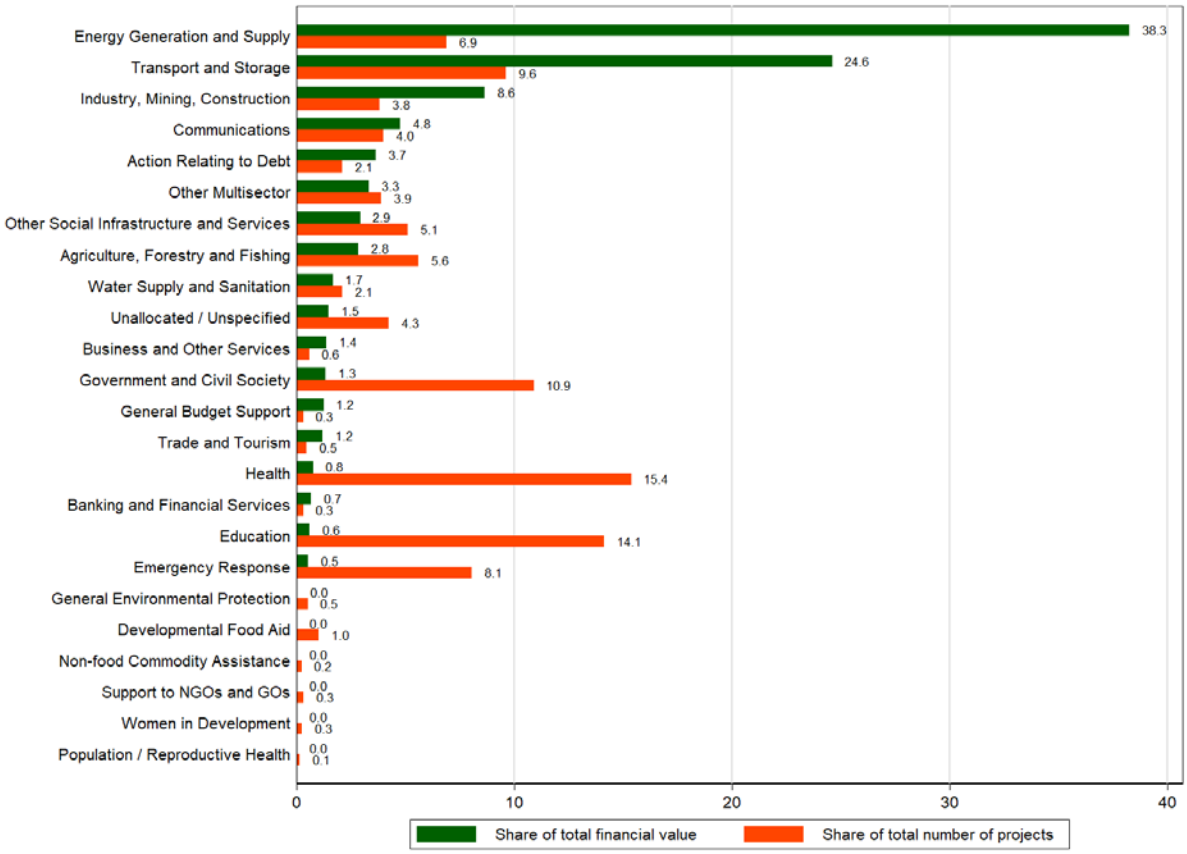

Note: This figure illustrates the distribution of project status for all projects in each year of the dataset. The share of completed projects is shaded red; the share of implemented projects is blue; the share of formally committed projects is orange; and the share of informally pledged projects is green. The figure demonstrates that for almost every year in the dataset, the majority of projects have been completed.

**Appendix B2:** Variation in flow class over time (2000-2014)



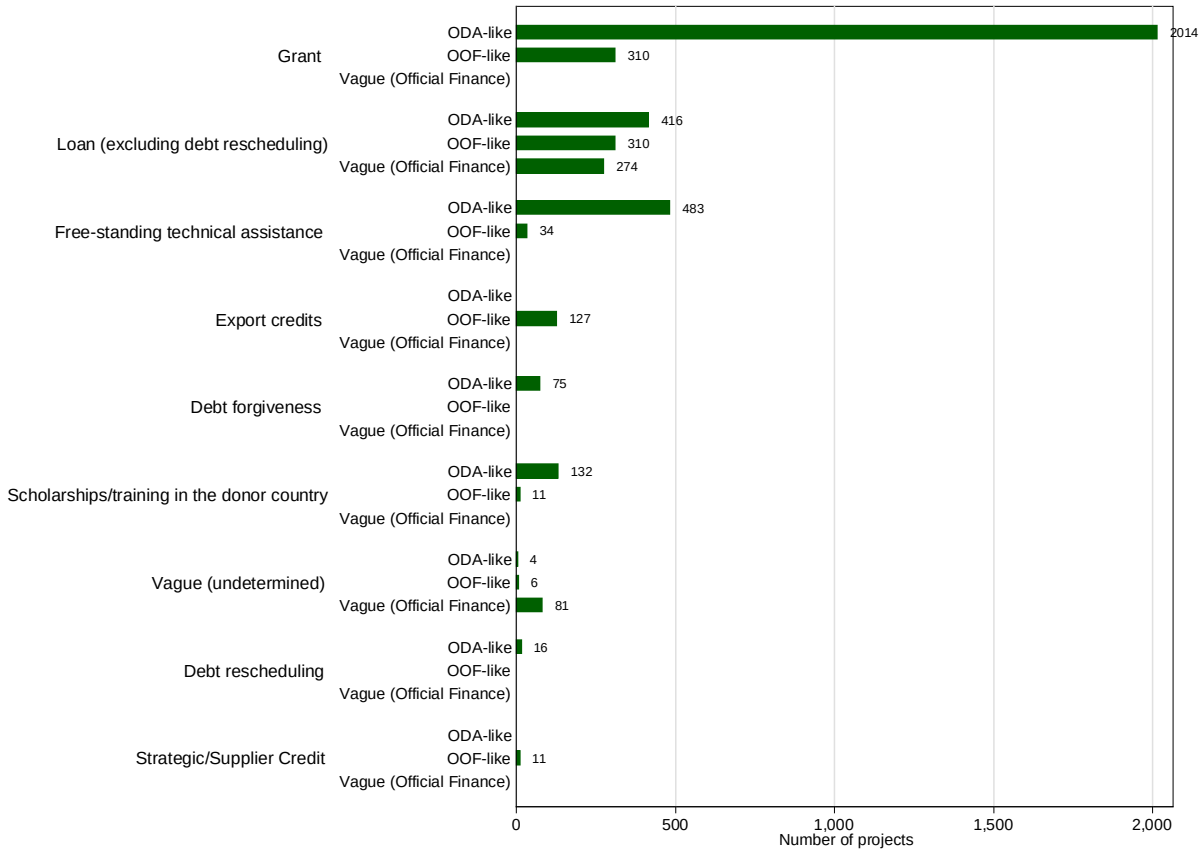

Note: This figure presents the share of projects in terms of their flow class for each year in the dataset. Projects with flow class "ODA-like" are shaded green, whereas "OOF-like" and "Vague (OF)" are shaded blue and orange, respectively. The contrast between the left- and right-hand side of the figure demonstrates how ODA-like projects constitute the bulk of Chinese official finance in terms of the number of unique projects, but that OOF-like projects comprise the majority of financing in terms of dollar value.

**Appendix B3:** Largest sectors by financial values and project counts




Note: This figure presents the share of projects by sector for each year in the dataset. Sectoral shares defined in terms of financial value are shaded green, while sectoral shares measured by the number of unique projects are shaded orange. The figure makes it apparent that infrastructure-intensive sectors like Energy Generation and Supply and Transport and Storage account for the majority of financial value of Chinese official finance, but other sectors, such as Health, Education, Government and Civil Society, and Emergency Response account for a disproportionate share of unique projects.

**Appendix B4:** Flow type and flow class (number of projects)




Note: This figure presents the share of projects in terms of flow type and flow class. As reflected in the figure, most projects where the flow type is “Grant” or “Free-standing technical assistance” qualify as ODA-like financing. The opposite is true for “Export credits,” all of which have a flow class of OOF-like. In contrast, loan-based financing contains a mix of ODA-like and OOF-like projects.

**Appendix B5:** World regions

| | | Total official financing | | | | ODA-like | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Rank** | **World region** | **mil. US$** | | **#** | | **mil. US$** | | **#** | |
| 1 | Africa | 118,074 | 34% | 2,345 | 54% | 46,052 | 58% | 1,855 | 59% |
| 2 | Central/East. Eur. | 56,718 | 16% | 171 | 4% | 2,751 | 3% | 62 | 2% |
| 3 | Latin America | 53,389 | 15% | 317 | 7% | 9,877 | 12% | 165 | 5% |
| 4 | South Asia | 48,763 | 14% | 423 | 10% | 7,987 | 10% | 294 | 9% |
| 5 | Southeast Asia | 39,237 | 11% | 507 | 12% | 5,951 | 7% | 362 | 12% |
| 6 | Central/North Asia | 28,491 | 8% | 183 | 4% | 4,391 | 6% | 109 | 3% |
| 7 | Middle East | 3,083 | 1% | 93 | 2% | 409 | 1% | 66 | 2% |
| 8 | The Pacific | 2,813 | 1% | 265 | 6% | 2,157 | 3% | 227 | 7% |

Note: "mil. US$" refers to Chinese official finance and ODA-like financial commitments (2009 US$ millions), followed by a region's share of the total value. "#" refers to a region's number of official finance and ODA-like projects, also followed by its share of the total.

**Appendix B6:** Largest recipient countries (number of projects)

| **Rank** | **Recipient country** | **World region** | **#** |
|---|---|---|---|
| 1 | Cambodia | Southeast Asia | 168 |
| 2 | Pakistan | South Asia | 121 |
| 3 | Zimbabwe | Africa | 120 |
| 4 | Angola | Africa | 110 |
| 5 | Sudan | Africa | 108 |
| 6 | Tanzania | Africa | 101 |
| 7 | Ghana | Africa | 95 |
| 8 | Kenya | Africa | 89 |
| 9 | Ethiopia | Africa | 88 |
| 10 | Sri Lanka | South Asia | 86 |
| … | | | |
| 18 | Papua New Guinea | The Pacific | 68 |
| … | | | |
| 43 | Belarus | Central and Eastern Europe | 33 |
| 43 | Kyrgyz Republic | Central and North Asia | 33 |
| 43 | Uzbekistan | Central and North Asia | 33 |
| … | | | |
| 49 | Bolivia | Latin America and the Caribbean | 31 |
| … | | | |
| 64 | Yemen | Middle East | 24 |
| … | | | |
| 136 | Sao Tome & Principe | Africa | 1 |
| 136 | United Arab Emirates | Middle East | 1 |
| 136 | Australia | The Pacific | 1 |

**Appendix B7:** Largest 25 officially-financed Chinese projects by financial amount (in millions of constant 2009 US$)

| Rank | Recipient country | Year | Title (shortened) | Flow class | Flow type | Amount |
|---|---|---|---|---|---|---|
| 1 | Russia | 2009 | Rosneft takes out loan from China Development Bank | OOF-like | Loan | 20,356 |
| 2 | Russia | 2009 | China Development Bank to offer loans totaling 25 billion USD in to Russian Rosneft and Transneft | OOF-like | Loan | 13,571 |
| 3 | Laos | 2012 | EXIM Bank loan for construction of Kunming-Vientiane high-speed railway link | OOF-like | Loan | 7,625 |
| 4 | Cuba | 2011 | China forgives US$ 6 billion worth of Cuban Debt | ODA-like | Debt forgiveness | 6,660 |
| 5 | Turkmenistan | 2009 | China Provides 4 Billion USD for South Yolotan—Osman Field Development | OOF-like | Loan | 5,428 |
| 6 | Turkmenistan | 2011 | China Provides 4.1 Billion USD for Ioujno-Elotenshoie Field Development | OOF-like | Loan | 4,551 |
| 7 | Venezuela | 2011 | ICBC loans Venezuela oil firm 4 billion USD for construction of housing projects | OOF-like | Loan | 4,440 |
| 8 | Brazil | 2010 | China Development Bank extends $3.5 billion USD loan to Petrobras from $5 billion line of credit | OOF-like | Loan | 4,402 |
| 9 | Venezuela | 2013 | CDB funds $4 billion PDVSA and CNPC joint venture Sinovensa in Orinoco belt | OOF-like | Loan | 4,087 |
| 10 | Pakistan | 2014 | Part III: China's financial package loan includes preferential buyer credit for Karachi Nuclear Power Plant | OOF-like | Export credits | 4,001 |
| 11 | Ukraine | 2012 | China EXIM Bank agrees USD3B for Ukraine Agricultural Projects | OOF-like | Loan | 3,177 |
| 12 | Belarus | 2013 | China Exim Bank and CDB loan 3 billion USD in total for China-Belarus Industrial Park | OOF-like | Loan | 3,050 |
| 13 | Ethiopia | 2013 | Chinese Banks Loan 3.3 Billion USD for Addis Ababa-Djibouti Railway Project | Vague (OF) | Loan | 2,847 |
| 14 | Bahamas | 2011 | China EXIM Bank loans $2.45 billion to Bahamas for the Baha Mar Resort | OOF-like | Loan | 2,719 |
| 15 | Ethiopia | 2011 | China loans 2,400 million USD for Rail Line From Sebeta to Adama in Ethiopia | Vague (OF) | Loan | 2,664 |
| 16 | Pakistan | 2014 | China pledges loan of 233.4177 billion rupees to Pakistan for Karachi-Lahore highway | Vague (OF) | Loan | 2,309 |
| 17 | Pakistan | 2014 | Part II: China's financial package loan includes buyer credit for Karachi Nuclear Power Plant | OOF-like | Export credits | 2,250 |
| 18 | South Africa | 2013 | ICBC signs funding support agreement for South African renewable energy projects | OOF-like | Loan | 2,237 |
| 19 | Angola | 2011 | CDB loans $2 billion USD to oil company Sonangol in Angola | OOF-like | Loan | 2,220 |
| 20 | Ecuador | 2011 | Ecuador Signs $2B loan with CDB for renewable energy purposes | OOF-like | Loan | 2,220 |
| 21 | Iran | 2014 | CMC and SUPOWER signed agreement on the railway electrification program | Vague (OF) | Loan | 2,143 |
| 22 | Cote d'Ivoire | 2012 | Chinese company building railway in Ivory Coast from Man to San Pedro | ODA-like | Loan | 2,118 |
| 23 | Argentina | 2014 | China commits 2.1 Billion USD loan for rehabilitation of Belgrano Cargas railway | OOF-like | Loan | 2,100 |
| 24 | Angola | 2014 | CDB provided $2 billion USD loan to Sonangol | OOF-like | Loan | 2,000 |
| 25 | Pakistan | 2011 | Loans from Silk Road Fund, EXIM, and CDB for Korrak hydropower project/ Korat Dam in Pakistan | OOF-like | Loan | 1,831 |

**Appendix B8:** Largest 25 development projects by sector (in millions of constant 2009 US$)

| Sector (in alphabetic order) | Recipient | Year | Title (shortened) | Flow class | Flow type | Amount |
|---|---|---|---|---|---|---|
| Action Relating to Debt | Cuba | 2011 | China forgives US$ 6 billion worth of Cuban Debt | ODA-like | Debt forgiveness | 6,660 |
| Agriculture, Forestry and Fishing | Ukraine | 2012 | China EXIM Bank agrees USD3B for Ukraine Agricultural Projects | OOF-like | Loan | 3,177 |
| Banking and Financial Services | South Africa | 2009 | Chinese banks sign $1 billion loan facility for South Africa's Standard Bank | OOF-like | Loan | 1,357 |
| Business and Other Services | Belarus | 2013 | China Exim Bank and CDB loan for China-Belarus Industrial Park | OOF-like | Loan | 3,050 |
| Communications | India | 2010 | Reliance Industries in India Ordered Equipment from Shanghai Electric | OOF-like | Loan | 1,383 |
| Developmental Food Aid etc. | Somalia | 2011 | China Grants 16 million USD for Humanitarian Interventions in Somalia | ODA-like | Grant | 18 |
| Education | Angola | 2006 | China constructs several institutes in Angola for $93.2 million | OOF-like | Loan | 171 |
| Emergency Response | Pakistan | 2007 | Grant for repatriation of Afghan refugees from Pakistan | ODA-like | Grant | 651 |
| Energy Generation and Supply | Russia | 2009 | Rosneft takes out loan from China Development Bank | OOF-like | Loan | 20,356 |
| General Budget Support | Sudan | 2012 | $1.5 billion loan from China Development Bank | OOF-like | Loan | 1,589 |
| General Environmental Protection | Jamaica | 2010 | China ExIm bank loans Jamaica to repair and protect the shoreline of Palisadoes | Vague (OF) | Loan | 73 |
| Government and Civil Society | Ecuador | 2012 | China commits a loan of $240 million to Ecuador to set up security service ECU 911 | Vague (OF) | Loan | 254 |
| Health | Trinidad & Tobago | 2013 | Trinidad and Tobago Children's Hospital with concessional loan | OOF-like | Loan | 153 |
| Industry, Mining, Construction | Turkmenistan | 2009 | China Provides 4 Billion USD for South Yolotan, Osman Field Development | OOF-like | Loan | 5,428 |
| Non-food commodity assistance | Pakistan | 2010 | China donates 40000 wheel chairs to Pakistani charity Bait ul Maal | ODA-like | Grant | 37 |
| Other Multisector | Ecuador | 2011 | Ecuador Signs $2B loan with CDB for renewable energy purposes | OOF-like | Loan | 2,220 |
| Other Social infrastructure and services | Venezuela | 2011 | ICBC loans Venezuela oil firm 4 billion USD for construction of housing projects | OOF-like | Loan | 4,440 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Population Policies etc. | Zimbabwe | 2012 | China provides 4.5 million RMB loan for neonatal equipment in Zimbabwe | Vague (OF) | Loan | 1 |
| Support to NGOs and GOs | Zimbabwe | 2010 | Zimbabwe miners' association received 10 million USD grant from China | ODA-like | Grant | 13 |
| Trade and Tourism | Bahamas | 2011 | China EXIM Bank loans $2.45 billion to Bahamas for the Baha Mar Resort | OOF-like | Loan | 2,719 |
| Transport and Storage | Laos | 2012 | EXIM Bank loan for construction of Kunming-Vientiane high-speed railway link | OOF-like | Loan | 7,625 |
| Unallocated / Unspecified | Ethiopia | 2006 | China loans Ethiopia 500 million USD for unspecified development projects | Vague (OF) | Loan | 920 |
| Water Supply and Sanitation | Cameroon | 2009 | China loans 366 billion CFA to Cameroon for water distribution project | ODA-like | Loan | 1,052 |
| Women in Development | Chad | 2012 | Grant to Construct Women's Center | ODA-like | Grant | 12 |

**Appendix B9:** Average project size by country (in millions of constant 2009 US$)

| Rank | Recipient country | Amount |
|---|---|---|
| 1 | Russia | 3,052 |
| 2 | Turkmenistan | 1,525 |
| 3 | Cuba | 1,356 |
| 4 | Brazil | 1,218 |
| 5 | Venezuela | 1,122 |
| 6 | India | 796 |
| 7 | Argentina | 773 |
| 8 | South Africa | 628 |
| 9 | Ecuador | 622 |
| 11 | Kazakhstan | 591 |
| 11 | Iran | 430 |
| 12 | Bahamas | 360 |
| 13 | Montenegro | 340 |
| 14 | Ukraine | 314 |
| 15 | Turkey | 301 |
| 16 | Bosnia-Herzegovina | 287 |
| 17 | Belarus | 283 |
| 18 | Chile | 279 |
| 19 | Pakistan | 276 |
| 20 | Laos | 267 |
| … | … | … |

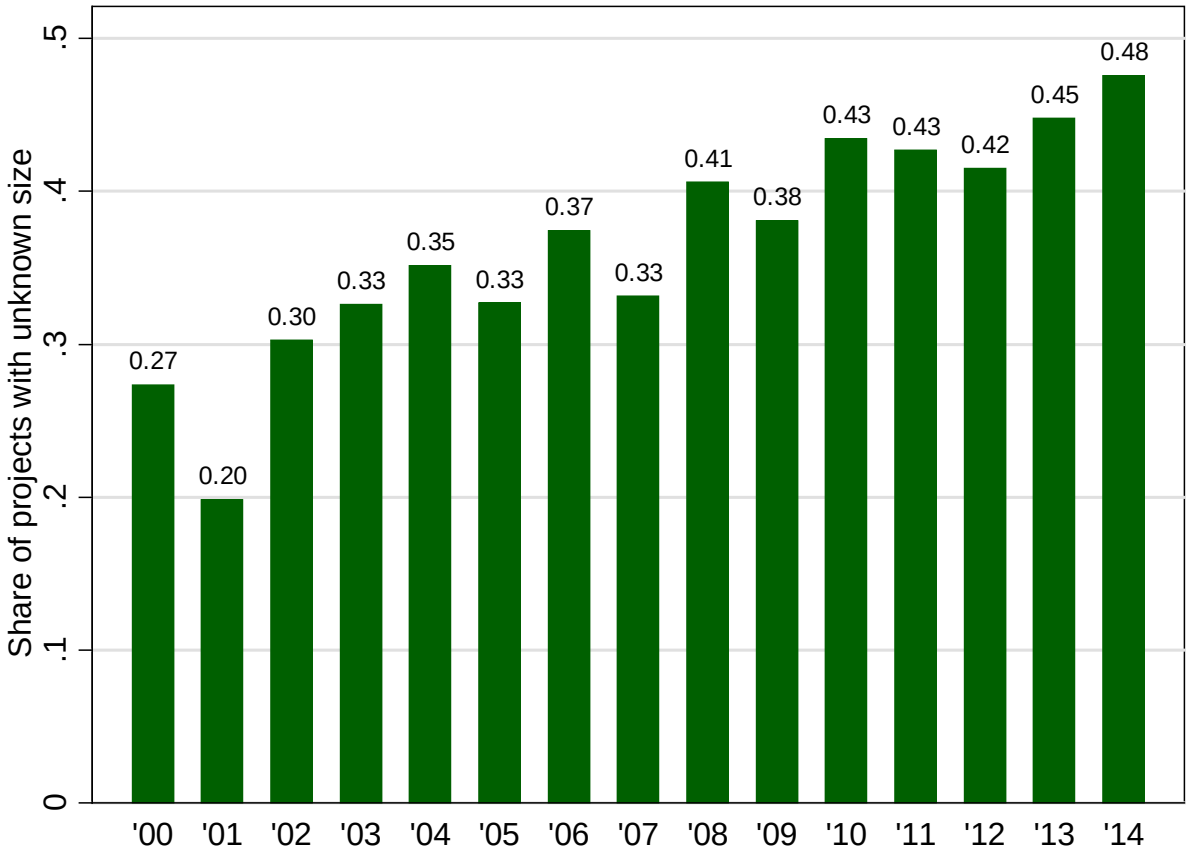
Note: Reports average project size (in millions of 2009 US$) per country over the years 2000-2014 (excluding projects with no information on amount).

**Appendix B10:** Largest recipient countries (financial values, in millions of constant 2009 US$)

| Rank | Recipient country | World region | Amount |
|---|---|---|---|
| 1 | Russia | Central and Eastern Europe | 36,623 |
| 2 | Pakistan | South Asia | 24,325 |
| 3 | Angola | Africa | 16,556 |
| 4 | Ethiopia | Africa | 14,834 |
| 5 | Sri Lanka | South Asia | 12,680 |
| 6 | Laos | Southeast Asia | 12,016 |
| 7 | Venezuela | Latin America and the Caribbean | 11,219 |
| 8 | Turkmenistan | Central and North Asia | 10,676 |
| 9 | Sudan | Africa | 10,237 |
| 10 | Ecuador | Latin America and the Caribbean | 9,953 |
| … | | | |
| 37 | Iran | Middle East | 2,148 |
| … | | | |
| 58 | Fiji | The Pacific | 1,039 |
| … | | | |

Note: The table shows the top-ten recipients of total Chinese official financing from 2000-2014. If no country in a particular region is ranked in the top 10, we list the highest ranked country in each region along with its rank and the total amount of Chinese official finance allocated to that country as it appears in the dataset.

**Appendix B11:** Share of projects with unknown financial amounts by year (2000-2014)




**Appendix B12:** Average project size by flow type and share of missing financial values

| Rank | Flow type | Average project size (in US$ million) | Missing financial amount (share of projects in %) |
|---|---|---|---|
| 1 | Export credits | 333 | 6 |
| 2 | Loan (excluding debt rescheduling) | 304 | 8 |
| 3 | Strategic/Supplier Credit | 206 | 0 |
| 4 | Debt forgiveness | 175 | 12 |
| 5 | Debt rescheduling | 44 | 25 |
| 6 | Vague (undetermined) | 41 | 34 |
| 7 | Grant | 9 | 40 |
| 8 | Free-standing technical assistance | 8 | 92 |
| 9 | Scholarships/training in the donor country | 1 | 92 |

**Appendix B13:** List of countries included in the allocation analysis

Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Central African Republic, Chad, Chile, Colombia, Comoros, Congo, Dem. Rep., Congo, Rep., Costa Rica, Cote d'Ivoire, Croatia, Cuba, Czech Republic, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, Arab Rep., El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Gabon, Gambia, The, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Islamic Rep., Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kosovo, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Macedonia, FYR, Madagascar, Malawi, Malaysia, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia, Fed. Sts., Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Slovak Republic, Solomon Islands, South Africa, South Sudan, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, Uruguay, Uzbekistan, Vanuatu, Venezuela, RB, Vietnam, Yemen, Rep., Zambia, Zimbabwe.

Note: The country list refers to the estimation sample used in column 1 of Table 1.

**Appendix B14:** Descriptive statistics (allocation)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Number of OF projects | 1,666 | 2.19 | 3.20 | 0.00 | 35.00 |
| Input factors (t-1) | 1,664 | -0.22 | 0.91 | -1.64 | 1.26 |
| Reserves (t-1) | 1,664 | 0.11 | 0.16 | -0.12 | 0.32 |
| Probability of receiving OF, historic | 1,666 | 0.20 | 0.22 | 0.00 | 0.80 |
| Probability of receiving OF, contemp. | 1,666 | 0.61 | 0.33 | 0.00 | 1.00 |
| UNGA voting alignment | 1,666 | 0.96 | 0.07 | 0.54 | 1.00 |
| Diplomatic relations Taiwan | 1,666 | 0.12 | 0.33 | 0.00 | 1.00 |
| Trade with China (log) | 1,666 | 20.01 | 2.31 | 12.04 | 25.32 |
| Petroleum exporter | 1,666 | 0.51 | 0.50 | 0.00 | 1.00 |
| Government debt (% of GDP) | 1,666 | 56.08 | 45.30 | 1.98 | 487.45 |
| Polity Score | 1,666 | 12.87 | 5.84 | 0.00 | 20.00 |
| GDP per capita (log) | 1,666 | 7.40 | 1.13 | 4.81 | 9.62 |
| Population (log) | 1,666 | 16.14 | 1.52 | 12.90 | 20.97 |
| English is official language | 1,666 | 0.26 | 0.44 | 0.00 | 1.00 |

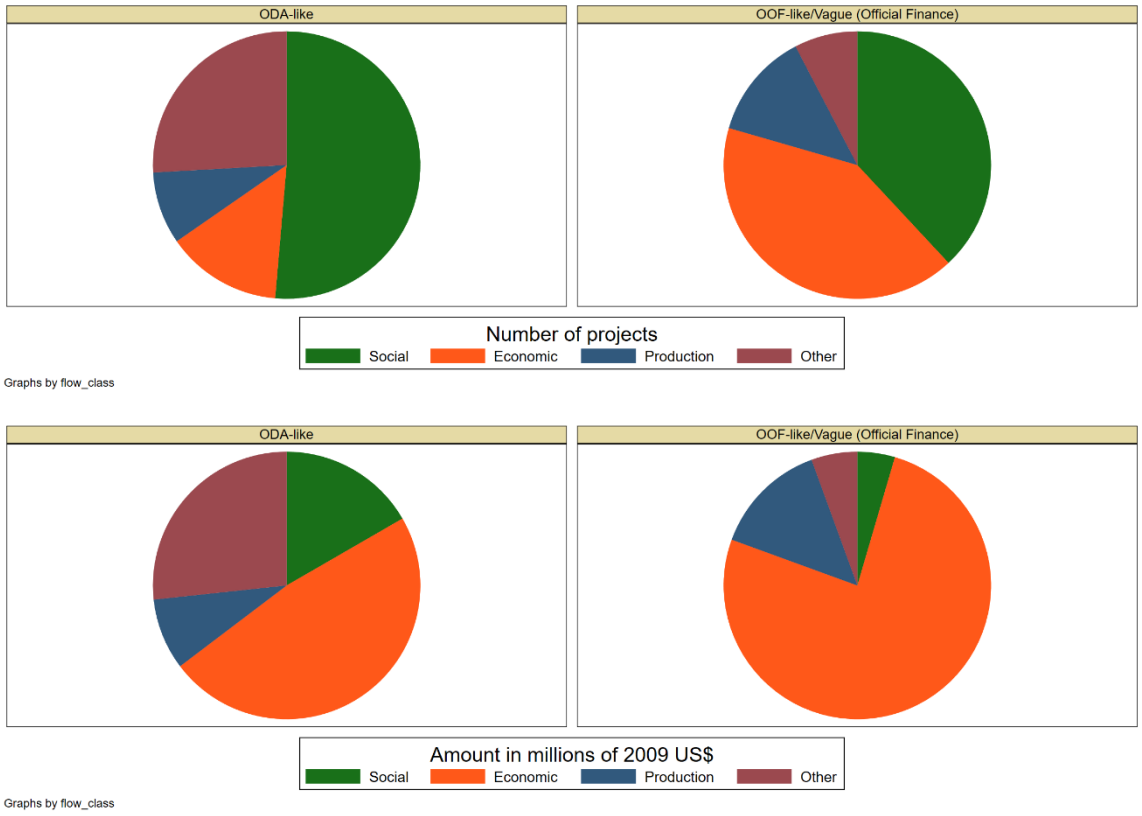
Note: Reports descriptive statistics for the estimation sample used in column 1 of Table 1.

**Appendix B15:** Largest projects (in terms of millions of constant 2009 US$) in the six most prominent sectors (in terms of project numbers)

| Sector | Recipient | Year | Title | Amount |
|---|---|---|---|---|
| Education | Angola | 2006 | China constructs several institutes in Angola for $93.2 million | 171 |
| | Angola | 2006 | China constructs institutes and schools for $67.3 million in Angola | 124 |
| | Angola | 2005 | China constructs technical schools for $58.9 million in Angola | 116 |
| | North Korea | 2000 | China provides 400 million yuan grant to North Korea for school uniforms | 112 |
| | Gabon | 2013 | China funds construction of three vocational schools in Gabon | 104 |
| Emergency Response | Pakistan | 2007 | Grant for repatriation of Afghan refugees from Pakistan | 651 |
| | Pakistan | 2006 | China EXIM Commits $300M USD to Pakistan for Earthquake Relief | 552 |
| | Senegal | 2012 | China implements security project in Senegal | 53 |
| | Sierra Leone | 2014 | [EBOLA] China donates $48M to Bo City Council | 48 |
| | Sri Lanka | 2005 | 166 million RMB cash grant for Tsunami relief | 40 |
| Energy Generation and Supply | Russia | 2009 | Roseneft takes out loan of 10 billion USD out of available 15 from China Development Bank | 20356 |
| | Russia | 2009 | China Development Bank to offer loans totaling 25 billion USD in to Russian Roseneft and Transneft | 13571 |
| | Brazil | 2010 | China Development Bank extends $3.5 billion USD loan to Petrobras from $5 billion line of credit | 4402 |
| | Venezuela | 2013 | CDB funds $4 billion PDVSA and CNPC joint venture Sinovensa in Orinoco belt | 4087 |
| | Pakistan | 2014 | Part III: China's financial package loan includes preferential buyer credit of $4.001 billion USD to Pakistan for Karachi Nuclear Power Plant's K-2/K-3 | 4001 |
| Government and Civil Society | Ecuador | 2012 | China commits a loan of $240 million to Ecuador to set up security service ECU 911 | 254 |
| | Fiji | 2007 | China loans $150 million USD to Fijian government after coup | 244 |
| | Mongolia | 2012 | China EXIM Bank Provides 200 Million USD Loan to Mongolian Development Bank for construction of apartments for civil servants | 212 |
| | Senegal | 2005 | China assists Senegal in building e-government network | 196 |
| | Zimbabwe | 2010 | China pledges to fund new Zimbabwe parliament building | 182 |
| Health | Trinidad & Tobago | 2013 | China completed the construction of Trinidad and Tobago Children's Hospital with concessional loan of $950 million | 153 |
| | Venezuela | 2014 | The China-Venezuela Fund delivers $127 mln for Surgical Equipment | 127 |
| | Angola | 2007 | Complementary Action (#34030): Four Regional Hospitals | 124 |
| | Kenya | 2011 | China provides a $9.5 Billion KES concessional loan for the construction of Kenyatta University Teaching, Research and Referral Hospital | 123 |
| | Niger | 2009 | China Aids to build the Medical Hospital | 115 |
| Transport and Storage | Laos | 2012 | EXIM Bank loan for construction of Kunming-Vientiane high-speed railway link | 7625 |
| | Ethiopia | 2013 | Chinese Banks Loan 3.3 Billion USD for Addis Ababa-Djibouti Railway Project | 2847 |
| | Ethiopia | 2011 | China loans 2,400 million USD for Rail Line From Sebeta to Adama in Ethiopia | 2664 |
| | Pakistan | 2014 | China pledges loan of 233.4177 billion rupees to Pakistan for Karachi-Lahore highway | 2309 |
| | Iran | 2014 | CMC and SUPOWER signed agreement on the railway electrification program | 2143 |

Note: We first select the six sectors that have the largest number of projects based on Appendix B3. Then we list here the five projects with the largest commitment amounts in terms of millions of constant 2009 US dollars.

**Appendix B16:** Share of each broad sector in Chinese development finance by flow class (2000-2014)




Notes: The upper panel displays the share of each broad sector in the total number of Chinese development projects by flow class. The lower panel displays the share of each broad sector in the total financial value of Chinese development projects by flow class. The "Social Infrastructure & Services" category includes health, education, governance, and water supply and sanitation projects; the "Economic Infrastructure & Services" category includes transportation projects (e.g., roads, railways, and airports), energy production and distribution projects, and information and communication technology (ICT) projects (e.g., broadband internet and mobile phone infrastructure); and the "Production Sector" category includes agriculture, fishing, forestry, mining, industry, trade, and tourism projects.

**Appendix B17:** Project-level analysis of missing values and socio-economic characteristics

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | 1 if no financial information | | | 1 if flow class is vague | | |
| GDP p.c. growth | 0.000 | 0.001 | 0.001 | -0.001 | -0.001 | -0.002 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| (log) GDP p.c. | 0.017 | 0.021 | -0.007 | -0.011 | -0.009 | -0.068 |
| | (0.01) | (0.01) | (0.07) | (0.01) | (0.01) | (0.04) |
| (log) Population | 0.003 | -0.005 | 0.100 | -0.000 | -0.000 | -0.061 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Less press freedom | 0.001 | 0.001 | 0.003 | 0.000 | 0.000 | -0.000 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| French language | 0.072 | 0.047 | | -0.010 | -0.018 | |
| | (0.02) | (0.02) | | (0.02) | (0.02) | |
| English language | -0.005 | -0.025 | | -0.002 | -0.013 | |
| | (0.02) | (0.02) | | (0.01) | (0.02) | |
| Portuguese language | 0.039 | 0.004 | | -0.070 | -0.084 | |
| | (0.04) | (0.04) | | (0.04) | (0.05) | |
| Spanish language | 0.085 | 0.097 | | 0.005 | 0.007 | |
| | (0.05) | (0.05) | | (0.04) | (0.05) | |
| Arabic language | 0.020 | -0.008 | | 0.049 | 0.034 | |
| | (0.02) | (0.02) | | (0.02) | (0.02) | |
| Number of observations | 4114 | 4114 | 4150 | 4114 | 4114 | 4150 |

Notes: Each column represents one regression. The unit of observation is the project level. The dependent variable in columns 1-3 is a binary indicator that takes a value of one if the project record lacks financial information. The dependent variable in columns 4-6 is a binary indicator that takes a value of one if the project is coded as "Vague (Official Finance)." The variables of interest are *Growth p.c.; (log) Population*; the recipient country's logged per-capita income (*(log) GDP p.c.*); the Freedom House index Freedom of the Press (*Less press freedom*), where larger values indicate less press freedom; and binary variables that take a value of one if the recipient country has one of the following languages as official language: French, English, Spanish, Portuguese, and Arabic. Columns 2 and 5 control for region-fixed effects. Columns 3 and 6 account for country-fixed effects. All regressions include sector- , flow-type, and year-fixed effects; columns 1-3 further include flow-class-fixed effects (see Appendix B4 for flow-type and flow-class, and B5 for regions used here; sector refers to three-digit CRS codes). Standard errors are clustered by recipient country and reported in parentheses.

**Appendix B18:** Share of Official Development Assistance and Sector-specific Assistance in total Official Finance by Country (2000-2014)

| Country | (1) ODA share per total number of OF projects | (2) ODA share per total OF amount | (3) Social share per total number of OF projects | (4) Social share per total OF amount | (5) Economic share per total number of OF projects | (6) Economic share per total OF amount | (7) Production share per total number of OF projects | (8) Production share per total OF amount |
|---|---|---|---|---|---|---|---|---|
| Haiti | 100% | 100% | 0% | 0% | 0% | 0% | 0% | 0% |
| Armenia | 100% | 100% | 0% | 0% | 0% | 0% | 33% | 11% |
| Somalia | 100% | 100% | 0% | 0% | 50% | 4% | 0% | 0% |
| Cook Islands | 100% | 100% | 0% | 0% | 71% | 85% | 14% | 0% |
| Grenada | 100% | 100% | 0% | 0% | 67% | 99% | 17% | 1% |
| Nauru | 100% | 100% | 0% | 0% | 0% | 0% | 0% | 0% |
| St. Lucia | 100% | 100% | 0% | 0% | 67% | 100% | 33% | 0% |
| Antigua & Barbuda | 100% | 100% | 50% | 0% | 50% | 3% | 0% | 0% |
| Timor-Leste | 100% | 100% | 3% | 0% | 64% | 100% | 15% | 0% |
| Nicaragua | 100% | 100% | 50% | 0% | 0% | 0% | 50% | 16% |
| Iraq | 100% | 100% | 0% | 0% | 50% | 0% | 0% | 0% |
| Sao Tome & Principe | 100% | | 0% | | 100% | | 0% | |
| Niue | 100% | 100% | 50% | 0% | 50% | 100% | 0% | 0% |
| Niger | 97% | 92% | 10% | 0% | 53% | 14% | 14% | 0% |
| Papua New Guinea | 96% | 88% | 4% | 0% | 71% | 44% | 15% | 48% |
| Seychelles | 95% | 100% | 5% | 0% | 41% | 18% | 0% | 0% |
| Samoa | 95% | 70% | 19% | 0% | 52% | 72% | 5% | 10% |
| Tonga | 95% | 100% | 19% | 0% | 50% | 5% | 17% | 33% |
| Lesotho | 95% | 99% | 17% | 0% | 59% | 27% | 5% | 3% |
| Afghanistan | 95% | 89% | 5% | 0% | 55% | 31% | 0% | 0% |
| Burundi | 94% | 91% | 18% | 0% | 48% | 12% | 2% | 0% |
| Micronesia | 93% | 100% | 21% | 0% | 46% | 35% | 14% | 0% |
| Uganda | 93% | 76% | 14% | 0% | 62% | 23% | 11% | 6% |
| Central African Rep. | 93% | 48% | 15% | 0% | 63% | 25% | 7% | 0% |
| Botswana | 91% | 16% | 14% | 0% | 71% | 7% | 3% | 0% |
| Rwanda | 91% | 99% | 10% | 0% | 59% | 9% | 14% | 4% |
| Jordan | 91% | 62% | 9% | 0% | 50% | 35% | 9% | 13% |
| Mauritius | 90% | 45% | 22% | 0% | 70% | 18% | 3% | 0% |
| Sierra Leone | 90% | 37% | 16% | 0% | 48% | 6% | 10% | 8% |
| Cape Verde | 89% | 92% | 5% | 0% | 84% | 89% | 5% | 11% |
| Liberia | 89% | 66% | 9% | 0% | 60% | 68% | 13% | 3% |
| Mauritania | 89% | 99% | 14% | 0% | 46% | 2% | 14% | 1% |
| Comoros | 88% | 100% | 15% | 0% | 69% | 16% | 4% | 0% |
| Eritrea | 88% | 80% | 8% | 0% | 54% | 4% | 12% | 74% |
| Congo, Dem. Rep. | 88% | 26% | 21% | 0% | 61% | 5% | 6% | 4% |
| Lebanon | 88% | 100% | 13% | 0% | 69% | 9% | 13% | 67% |
| Togo | 88% | 29% | 13% | 0% | 55% | 8% | 10% | 5% |
| Tunisia | 86% | 85% | 14% | 0% | 64% | 80% | 9% | 0% |
| Congo, Rep. | 86% | 75% | 20% | 0% | 54% | 4% | 5% | 8% |
| Guinea-Bissau | 86% | 99% | 4% | 0% | 54% | 61% | 11% | 0% |
| Guinea | 86% | 34% | 20% | 0% | 66% | 19% | 3% | 1% |
| Vanuatu | 86% | 95% | 14% | 0% | 71% | 46% | 3% | 2% |
| Namibia | 85% | 88% | 11% | 0% | 61% | 25% | 5% | 0% |
| Maldives | 85% | 10% | 12% | 0% | 47% | 32% | 0% | 0% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Madagascar | 85% | 48% | 7% | 0% | 59% | 0% | 7% | 0% |
| South Sudan | 85% | 24% | 15% | 0% | 30% | 1% | 11% | 11% |
| Tanzania | 85% | 84% | 16% | 0% | 60% | 8% | 7% | 36% |
| Gabon | 85% | 68% | 15% | 0% | 62% | 29% | 15% | 18% |
| Malawi | 84% | 48% | 16% | 0% | 69% | 63% | 6% | 0% |
| Zimbabwe | 84% | 59% | 21% | 0% | 47% | 25% | 15% | 28% |
| Mozambique | 84% | 85% | 14% | 0% | 38% | 9% | 20% | 6% |
| Iran | 83% | 0% | 17% | 0% | 0% | 0% | 0% | 0% |
| Dominica | 83% | 69% | 6% | 0% | 67% | 45% | 11% | 33% |
| Nepal | 83% | 94% | 17% | 0% | 59% | 15% | 4% | 2% |
| Zambia | 81% | 34% | 27% | 0% | 54% | 9% | 5% | 4% |
| Guyana | 81% | 85% | 29% | 0% | 43% | 3% | 14% | 5% |
| Mali | 80% | 45% | 14% | 0% | 53% | 8% | 6% | 1% |
| Cuba | 80% | 99% | 0% | 0% | 20% | 1% | 0% | 0% |
| Benin | 80% | 36% | 12% | 0% | 56% | 22% | 8% | 8% |
| Senegal | 79% | 48% | 14% | 0% | 59% | 47% | 10% | 12% |
| Djibouti | 79% | 7% | 25% | 0% | 58% | 3% | 0% | 0% |
| Cameroon | 79% | 62% | 22% | 0% | 51% | 37% | 8% | 3% |
| Cote D'Ivoire | 79% | 90% | 9% | 0% | 55% | 11% | 18% | 23% |
| Kyrgyz Republic | 79% | 56% | 48% | 0% | 21% | 1% | 3% | 5% |
| Cambodia | 79% | 35% | 32% | 0% | 37% | 2% | 14% | 6% |
| Mongolia | 79% | 44% | 11% | 0% | 39% | 21% | 18% | 34% |
| Ghana | 78% | 49% | 22% | 0% | 56% | 19% | 6% | 3% |
| Fiji | 78% | 52% | 24% | 0% | 40% | 29% | 11% | 2% |
| Syria | 78% | 100% | 11% | 0% | 44% | 0% | 0% | 0% |
| Thailand | 76% | 92% | 0% | 0% | 47% | 11% | 0% | 0% |
| Ethiopia | 76% | 24% | 31% | 0% | 35% | 2% | 6% | 1% |
| Chad | 75% | 75% | 25% | 0% | 55% | 0% | 5% | 13% |
| Azerbaijan | 75% | 63% | 0% | 0% | 25% | 9% | 50% | 54% |
| Kenya | 74% | 28% | 29% | 0% | 45% | 10% | 7% | 0% |
| Myanmar | 74% | 38% | 18% | 0% | 36% | 1% | 10% | 40% |
| Moldova | 73% | 16% | 9% | 0% | 36% | 5% | 9% | 5% |
| Philippines | 72% | 17% | 17% | 0% | 22% | 17% | 33% | 19% |
| Algeria | 71% | 100% | 14% | 0% | 57% | 100% | 29% | 0% |
| Colombia | 71% | 1% | 10% | 0% | 52% | 0% | 10% | 94% |
| Georgia | 71% | 95% | 0% | 0% | 50% | 23% | 7% | 18% |
| Costa Rica | 71% | 59% | 29% | 0% | 47% | 14% | 6% | 0% |
| Macedonia, FYR | 70% | 75% | 30% | 0% | 60% | 2% | 0% | 0% |
| Bangladesh | 70% | 32% | 25% | 0% | 38% | 17% | 18% | 34% |
| Indonesia | 68% | 9% | 38% | 0% | 19% | 0% | 1% | 0% |
| Tajikistan | 67% | 40% | 59% | 0% | 26% | 1% | 4% | 7% |
| Malaysia | 67% | 0% | 17% | 0% | 17% | 0% | 0% | 0% |
| Yemen | 67% | 39% | 13% | 0% | 38% | 11% | 29% | 59% |
| Pakistan | 66% | 10% | 29% | 0% | 22% | 1% | 4% | 0% |
| Laos | 66% | 6% | 26% | 0% | 36% | 3% | 16% | 5% |
| Uruguay | 64% | 9% | 36% | 0% | 27% | 4% | 0% | 0% |
| Bolivia | 61% | 35% | 35% | 0% | 26% | 0% | 10% | 16% |
| Bosnia-Herzegovina | 60% | 1% | 40% | 0% | 40% | 1% | 20% | 0% |
| Equatorial Guinea | 60% | 11% | 47% | 0% | 20% | 0% | 13% | 66% |
| Nigeria | 59% | 43% | 37% | 0% | 41% | 1% | 10% | 3% |
| Peru | 59% | 6% | 23% | 0% | 55% | 7% | 9% | 0% |
| Jamaica | 59% | 38% | 9% | 0% | 64% | 21% | 14% | 14% |
| Serbia | 57% | 50% | 29% | 0% | 43% | 0% | 21% | 33% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Viet Nam | 54% | 8% | 31% | 0% | 40% | 2% | 17% | 18% |
| Korea, Dem. Rep. | 54% | 100% | 23% | 0% | 46% | 47% | 8% | 26% |
| Sri Lanka | 51% | 22% | 45% | 0% | 28% | 14% | 5% | 3% |
| South Africa | 50% | 2% | 13% | 0% | 58% | 1% | 21% | 17% |
| Chile | 50% | 1% | 50% | 0% | 0% | 0% | 0% | 0% |
| Suriname | 50% | 3% | 42% | 0% | 33% | 3% | 17% | 13% |
| Libya | 50% | 1% | 25% | 0% | 25% | 0% | 0% | 0% |
| Sudan | 49% | 15% | 28% | 0% | 40% | 6% | 13% | 2% |
| Morocco | 45% | 1% | 18% | 0% | 41% | 4% | 9% | 0% |
| Ukraine | 45% | 2% | 10% | 0% | 50% | 0% | 5% | 84% |
| Egypt | 41% | 5% | 18% | 0% | 64% | 4% | 14% | 40% |
| Albania | 40% | 2% | 10% | 0% | 65% | 1% | 10% | 1% |
| Turkmenistan | 38% | 6% | 50% | 0% | 0% | 0% | 50% | 99% |
| Ecuador | 36% | 0% | 41% | 0% | 36% | 3% | 5% | 2% |
| Belarus | 36% | 2% | 45% | 0% | 27% | 1% | 12% | 12% |
| Turkey | 36% | 0% | 27% | 0% | 55% | 0% | 0% | 0% |
| Uzbekistan | 33% | 16% | 36% | 0% | 24% | 4% | 27% | 24% |
| India | 33% | 0% | 53% | 0% | 27% | 0% | 0% | 0% |
| Angola | 31% | 6% | 37% | 0% | 44% | 12% | 12% | 6% |
| Mexico | 29% | 2% | 14% | 0% | 57% | 0% | 0% | 0% |
| Montenegro | 25% | 89% | 75% | 0% | 25% | 0% | 0% | 0% |
| Kazakhstan | 18% | 0% | 29% | 0% | 24% | 0% | 41% | 69% |
| Russia | 15% | 0% | 38% | 0% | 8% | 0% | 31% | 2% |
| Brazil | 7% | 0% | 33% | 0% | 53% | 0% | 7% | 2% |
| Venezuela | 4% | 0% | 39% | 0% | 13% | 40% | 48% | 14% |
| Romania | 0% | 0% | 29% | 0% | 57% | 0% | 7% | 58% |
| Argentina | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 0% |
| Bulgaria | 0% | 0% | 0% | 0% | 70% | 4% | 0% | 0% |

Note: Column 1 shows the share of ODA projects in all projects. Column 2 shows the share of ODA amounts in all amounts. Columns 3-8 show the share of sector-specific ODA-project numbers in all projects. The “Social Infrastructure & Services” category includes health, education, governance, and water supply and sanitation projects; the “Economic Infrastructure & Services” category includes transportation projects (e.g., roads, railways, and airports), energy production and distribution projects, and information and communication technology (ICT) projects (e.g., broadband internet and mobile phone infrastructure); and the “Production Sector” category includes agriculture, fishing, forestry, mining, industry, trade, and tourism projects.

## Appendix C: Additional tables and figures in Section 2

**Appendix C1:** List of countries included in the effectiveness analysis

Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Central African Republic, Chad, Chile, Colombia, Comoros, Congo, Dem. Rep., Congo, Rep., Costa Rica, Cote d'Ivoire, Croatia, Cuba, Czech Republic, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, Arab Rep., El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Gabon, Gambia, The, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Islamic Rep., Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kosovo, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lesotho, Liberia, Libya, Lithuania, Macedonia, FYR, Madagascar, Malawi, Malaysia, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia, Fed. Sts., Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Slovak Republic, Solomon Islands, South Africa, South Sudan, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, Uruguay, Uzbekistan, Vanuatu, Venezuela, RB, Vietnam, Yemen, Rep., Zambia, Zimbabwe.

Note: The country list refers to the estimation sample used in column 1 of Table 3.

**Appendix C2:** Descriptive statistics (effectiveness)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Growth p.c. | 2,061 | 2.85 | 5.15 | -62.23 | 50.12 |
| Number of OF projects (t-2) | 2,061 | 1.97 | 3.04 | 0.00 | 35.00 |
| Number of OOF/vague projects (t-2) | 2,061 | 0.51 | 1.35 | 0.00 | 31.00 |
| Number of Chinese ODA projects (t-2) | 2,061 | 1.47 | 2.33 | 0.00 | 24.00 |
| (log) Chinese OF amounts (t-2) | 2,061 | 7.93 | 8.71 | 0.00 | 24.06 |
| (log) Chinese OOF/vague amounts (t-2) | 2,061 | 3.68 | 7.41 | 0.00 | 24.06 |
| (log) Chinese ODA amounts (t-2) | 2,061 | 6.31 | 8.01 | 0.00 | 22.39 |
| (log) Population (t-1) | 2,061 | 15.55 | 2.12 | 9.16 | 20.99 |
| Assassinations (t-1) | 2,046 | 0.15 | 0.93 | -1.00 | 26.00 |
| Government surplus (% of GDP, t-1) | 1,612 | -1.47 | 17.68 | -206.79 | 216.63 |
| Inflation (t-1) | 1,896 | 0.73 | 2.05 | -62.73 | 19.52 |
| Money/GDP (t-1) | 1,931 | 66.66 | 582.21 | -27.78 | 18347.09 |
| Trade openness (t-1) | 1,994 | 84.47 | 39.54 | 0.17 | 393.38 |

Note: Reports descriptive statistics for the estimation sample used in column 1 of Table 3. We added a value of one before taking logs of Chinese official finance, in order to not lose observations with zero aid. Descriptive statistics for the IVs can be found in Appendix B14.

**Appendix C3:** Growth effects of Chinese official finance (without 2007/2008)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.107 | 0.034 | 0.163 | -0.000 | 0.022 | 0.015 |
| | (0.05) | (0.07) | (0.07) | (0.02) | (0.02) | (0.02) |
| (log) Population (t-1) | 5.401 | 5.894 | 5.201 | 5.909 | 5.686 | 5.826 |
| | (2.88) | (2.91) | (2.84) | (2.89) | (2.97) | (2.87) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | -1.401 | 0.752 | -2.097 | -1.686 | 1.372 | -2.508 |
| | (2.92) | (3.67) | (2.88) | (3.03) | (3.57) | (3.13) |
| Input (t-3)*probability | 1.567 | 0.693 | 1.924 | 1.631 | 0.678 | 2.063 |
| | (0.57) | (0.88) | (0.55) | (0.60) | (0.96) | (0.63) |
| (log) Population (t-1) | 4.548 | 5.769 | 3.621 | 4.645 | 5.655 | 3.967 |
| | (3.02) | (2.91) | (3.07) | (3.04) | (2.92) | (3.09) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.973 | 0.830 | 1.479 | 1.084 | 0.140 | 1.141 |
| | (0.36) | (0.82) | (0.50) | (0.69) | (0.13) | (0.60) |
| (log) Population (t-1) | 1.290 | 5.563 | -0.500 | -0.600 | 4.526 | -0.494 |
| | (3.51) | (2.92) | (3.82) | (8.23) | (3.21) | (6.82) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 3.01 | -0.253 | 3.392 | 3.641 | 17.151 | 3.903 |
| | (1.76) | (2.19) | (1.35) | (4.38) | (9.54) | (4.73) |
| Input (t-3)*probability | 0.849 | 1.012 | 0.435 | 0.576 | 3.554 | 0.736 |
| | (0.33) | (0.42) | (0.27) | (0.71) | (1.67) | (0.78) |
| (log) Population (t-1) | 3.203 | 0.259 | 2.626 | 4.727 | 8.018 | 3.715 |
| | (1.34) | (0.55) | (1.09) | (5.26) | (4.81) | (4.20) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 1782 | 1782 | 1782 | 1782 | 1782 | 1782 |
| Cragg-Donald F | 33.51 | 42.04 | 33.01 | 2.36 | 35.98 | 3.72 |
| Kleibergen-Paap F | 35.34 | 27.33 | 30.29 | 2.71 | 17.48 | 3.97 |
| Hansen J statistic (p-value) | 0.17 | 0.81 | 0.04 | 0.24 | 0.79 | 0.21 |

Notes: Excludes the years 2007 and 2008. Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C4:** Growth effects of Chinese aid, alternative instruments (2002-2016)

Table A: Foreign-exchange reserves only

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | 6.437 | 4.464 | 7.404 | 6.452 | 4.969 | 7.651 |
| | (2.55) | (4.00) | (2.58) | (2.95) | (4.47) | (3.12) |
| (log) Population (t-1) | 5.111 | 6.339 | 4.231 | 5.229 | 6.226 | 4.592 |
| | (3.02) | (2.92) | (3.07) | (3.04) | (2.93) | (3.09) |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.886 | 0.954 | 1.336 | 0.932 | 0.143 | 1.015 |
| | (0.34) | (0.84) | (0.46) | (0.59) | (0.12) | (0.56) |
| (log) Population (t-1) | 2.420 | 6.364 | 0.541 | -0.050 | 5.105 | -0.472 |
| | (3.40) | (2.91) | (3.70) | (7.71) | (3.21) | (6.86) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 7.261 | 4.68 | 5.543 | 6.925 | 34.829 | 7.539 |
| | (0.86) | (0.68) | (0.70) | (2.91) | (6.07) | (2.84) |
| (log) Population (t-1) | 3.036 | -0.026 | 2.762 | 5.665 | 7.853 | 4.991 |
| | (1.38) | (0.64) | (1.05) | (5.26) | (4.76) | (4.20) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 59.44 | 43.97 | 65.10 | 5.19 | 68.67 | 7.05 |
| Kleibergen-Paap F | 72.02 | 47.33 | 61.83 | 5.65 | 32.87 | 7.07 |

Notes: Uses changes in foreign reserves interacted with the probability of receiving official financing as instrument. Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

Table B: Physical project inputs only

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Input (t-3)*probability | 1.298 | 0.801 | 1.489 | 1.301 | 0.882 | 1.527 |
| | (0.42) | (0.71) | (0.42) | (0.49) | (0.79) | (0.51) |
| (log) Population (t-1) | 5.128 | 6.361 | 4.272 | 5.242 | 6.269 | 4.640 |
| | (2.97) | (2.92) | (2.98) | (2.99) | (2.92) | (3.01) |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.973 | 0.787 | 1.579 | 1.022 | 0.142 | 1.125 |
| | (0.33) | (0.71) | (0.49) | (0.56) | (0.12) | (0.55) |
| (log) Population (t-1) | 2.020 | 6.388 | -0.542 | -0.681 | 5.112 | -1.227 |
| | (3.37) | (2.89) | (3.80) | (7.83) | (3.15) | (6.95) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Input (t-3)*probability | 1.333 | 1.018 | 0.943 | 1.273 | 6.212 | 1.358 |
| | (0.16) | (0.17) | (0.13) | (0.47) | (1.04) | (0.46) |
| (log) Population (t-1) | 3.193 | -0.034 | 3.05 | 5.799 | 8.147 | 5.217 |
| | (1.39) | (0.65) | (1.05) | (5.22) | (4.79) | (4.10) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 67.47 | 69.05 | 63.94 | 5.85 | 71.54 | 7.69 |
| Kleibergen-Paap F | 72.24 | 36.88 | 55.67 | 7.32 | 35.39 | 8.65 |

Notes: Uses the first factor of six construction materials interacted with the probability of receiving official financing as instrument. Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

Table C: Both IVs with historical probabilities

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | 4.139 | 4.139 | 4.139 | 4.139 | 4.139 | 4.139 |
| | (4.79) | (4.79) | (4.79) | (4.79) | (4.79) | (4.79) |
| Input (t-3)*probability | 0.642 | 0.642 | 0.642 | 0.642 | 0.642 | 0.642 |
| | (0.81) | (0.81) | (0.81) | (0.81) | (0.81) | (0.81) |
| (log) Population (t-1) | 4.964 | 4.964 | 4.964 | 4.964 | 4.964 | 4.964 |
| | (3.14) | (3.14) | (3.14) | (3.14) | (3.14) | (3.14) |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.646 | 3.021 | 0.805 | 0.810 | 0.894 | 0.517 |
| | (0.30) | (1.73) | (0.37) | (0.67) | (0.64) | (0.30) |
| (log) Population (t-1) | 3.529 | 6.071 | 2.908 | 0.808 | -2.239 | 2.949 |
| | (3.27) | (3.39) | (3.41) | (6.91) | (7.81) | (4.20) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 3.665 | -0.307 | 3.972 | -3.205 | -3.587 | 8.794 |
| | (3.86) | (2.38) | (2.55) | (8.09) | (10.38) | (8.20) |
| Input (t-3)*probability | 1.437 | 0.445 | 0.992 | 1.834 | 1.696 | 1.103 |
| | (0.63) | (0.37) | (0.46) | (1.46) | (1.55) | (1.46) |
| (log) Population (t-1) | 2.354 | -0.248 | 2.602 | 5.835 | 8.802 | 3.875 |
| | (1.45) | (0.73) | (1.07) | (5.30) | (5.14) | (4.11) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 27.93 | 3.93 | 32.05 | 1.46 | 1.24 | 5.57 |
| Kleibergen-Paap F | 21.80 | 3.18 | 25.28 | 1.12 | 1.11 | 3.94 |
| Hansen J statistic (p-value) | 0.68 | 0.51 | 0.82 | 0.37 | 0.42 | 0.95 |

Notes: Uses the share of years a recipient received Chinese projects during the 1970-1999 period as part of the interacted instruments ("historic probabilities"). Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

Table D: Foreign-exchange reserves only with historical probabilities

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | 7.275 | 7.275 | 7.275 | 7.275 | 7.275 | 7.275 |
| | (3.51) | (3.51) | (3.51) | (3.51) | (3.51) | (3.51) |
| (log) Population (t-1) | 4.955 | 4.955 | 4.955 | 4.955 | 4.955 | 4.955 |
| | (3.13) | (3.13) | (3.13) | (3.13) | (3.13) | (3.13) |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.681 | 3.893 | 0.825 | 1.264 | 1.546 | 0.513 |
| | (0.31) | (2.75) | (0.37) | (1.28) | (1.91) | (0.30) |
| (log) Population (t-1) | 3.367 | 5.947 | 2.821 | -2.382 | -8.617 | 2.976 |
| | (3.41) | (3.78) | (3.52) | (11.75) | (19.99) | (4.28) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 10.689 | 1.869 | 8.821 | 5.758 | 4.704 | 14.183 |
| | (1.85) | (1.09) | (1.29) | (5.52) | (5.89) | (5.10) |
| (log) Population (t-1) | 2.332 | -0.255 | 2.587 | 5.806 | 8.776 | 3.858 |
| | (1.45) | (0.72) | (1.07) | (5.29) | (5.13) | (4.11) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 47.32 | 5.05 | 56.89 | 1.47 | 1.09 | 10.52 |
| Kleibergen-Paap F | 33.21 | 2.93 | 46.46 | 1.09 | 0.64 | 7.74 |

Notes: Uses changes in foreign reserves interacted with the share of years a recipient received Chinese projects during the 1970-1999 period as instrument ("historic probabilities"). Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

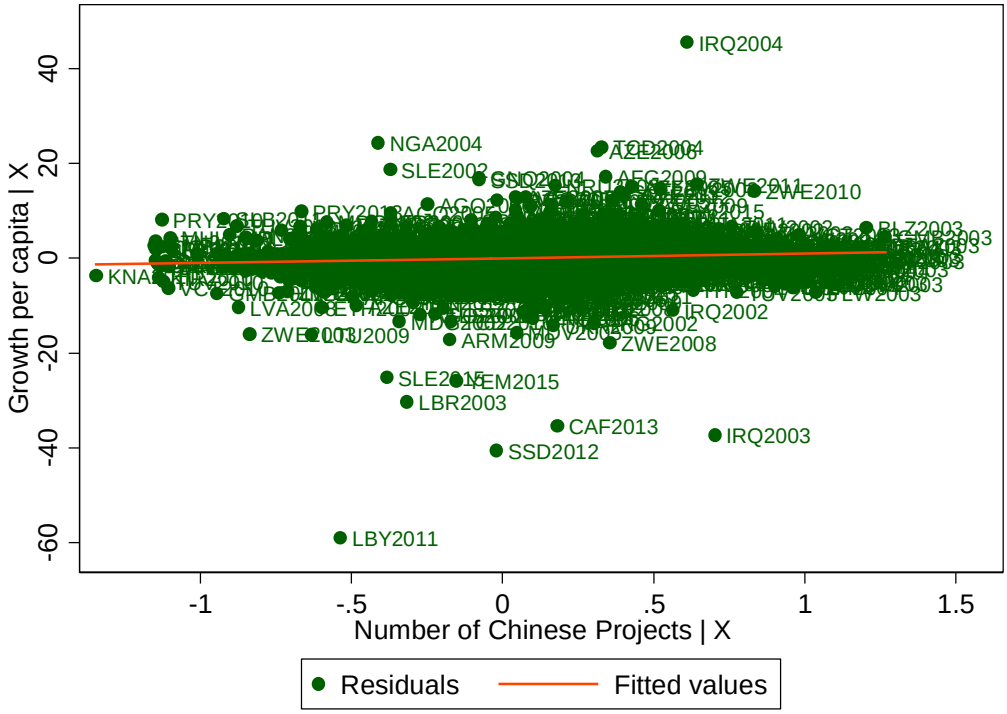
Table E: Physical project inputs with historical probabilities

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Input (t-3)*probability | 1.243 | 1.243 | 1.243 | 1.243 | 1.243 | 1.243 |
| | (0.60) | (0.60) | (0.60) | (0.60) | (0.60) | (0.60) |
| (log) Population (t-1) | 5.228 | 5.228 | 5.228 | 5.228 | 5.228 | 5.228 |
| | (2.99) | (2.99) | (2.99) | (2.99) | (2.99) | (2.99) |
| | 1.243 | 1.243 | 1.243 | 1.243 | 1.243 | 1.243 |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.631 | 3.105 | 0.792 | 0.909 | 1.058 | 0.522 |
| | (0.30) | (1.78) | (0.38) | (0.76) | (0.83) | (0.32) |
| (log) Population (t-1) | 3.595 | 6.059 | 2.966 | 0.110 | -3.845 | 2.912 |
| | (3.22) | (3.42) | (3.36) | (7.71) | (9.73) | (4.16) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Input (t-3)*probability | 1.97 | 0.4 | 1.569 | 1.368 | 1.175 | 2.381 |
| | (0.30) | (0.16) | (0.23) | (0.98) | (0.89) | (0.90) |
| (log) Population (t-1) | 2.588 | -0.268 | 2.855 | 5.630 | 8.573 | 4.435 |
| | (1.41) | (0.67) | (1.06) | (5.20) | (5.04) | (3.99) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 54.22 | 7.82 | 60.67 | 2.80 | 2.30 | 9.96 |
| Kleibergen-Paap F | 42.49 | 6.23 | 45.40 | 1.96 | 1.73 | 6.99 |

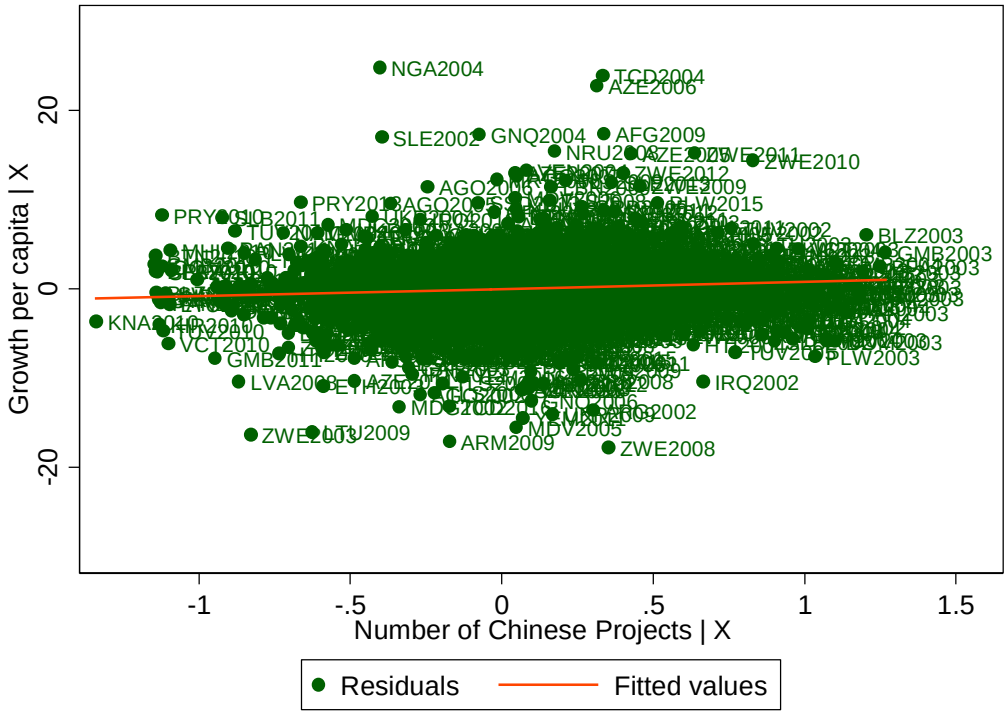
Notes: Uses the first factor of six construction materials interacted with the share of years a recipient received Chinese projects during the 1970-1999 period as instrument ("historic probabilities"). Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C5:** Growth effects of Chinese official finance, partial leverage plots

Panel A: Corresponds to regression shown in column 1 of Table 3




Panel B: Corresponds to regression of column 1 in Table 3, excluding outliers



**Appendix C6:** Growth effects of Chinese official finance, key results with control variables (2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.136 | 0.243 | 0.119 | 0.019 | 0.041 | 0.019 |
| | (0.05) | (0.06) | (0.06) | (0.02) | (0.02) | (0.02) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | 0.915 | 6.584 | 0.535 | 2.442 | 7.129 | 2.519 |
| | (3.53) | (4.86) | (3.39) | (3.72) | (5.19) | (3.71) |
| Input (t-3)*probability | 1.17 | 0.124 | 1.428 | 1.126 | 0.175 | 1.358 |
| | (0.58) | (0.86) | (0.54) | (0.59) | (0.94) | (0.58) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.89 | 0.949 | 1.464 | 0.887 | 0.186 | 1.001 |
| | (0.34) | (0.76) | (0.50) | (0.49) | (0.13) | (0.50) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 3.556 | -1.097 | 3.766 | 8.529 | 17.682 | 8.152 |
| | (2.23) | (3.45) | (1.54) | (5.02) | (10.96) | (5.43) |
| Input (t-3)*probability | 0.892 | 1.263 | 0.367 | 0.132 | 4.44 | 0.280 |
| | (0.40) | (0.69) | (0.28) | (0.74) | (2.02) | (0.82) |
| Number of countries | 112 | 112 | 112 | 112 | 112 | 112 |
| Number of observations | 1546 | 1546 | 1546 | 1546 | 1546 | 1546 |
| Cragg-Donald F | 24.06 | 25.65 | 21.68 | 3.30 | 33.35 | 4.31 |
| Kleibergen-Paap F | 31.36 | 23.93 | 20.97 | 3.37 | 20.84 | 4.14 |
| Hansen J statistic (p-value) | 0.51 | 0.19 | 0.14 | 0.22 | 0.42 | 0.25 |

Notes: Includes the average number of assassinations in a recipient country, its government surplus as a share of GDP, its rate of inflation, money as a share of GDP, trade openness, and (log) population as additional control variables. Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C7:** Growth effects of Chinese official finance, additional controls (2SLS, 2002-2016)

| | Coef. aid | Coef. control | Countries | Obs. | Cr.-Don. F | Kl.-Paap F | Hansen J |
|---|---|---|---|---|---|---|---|
| | | | Panel A: Chinese exports control | | | | |
| OF | 0.834 | -0.027 | 130 | 1523 | 30.87 | 36.27 | 0.32 |
| | (0.32) | (0.09) | | | | | |
| OOF | 1.176 | -0.023 | 130 | 1523 | 34.68 | 30.47 | 0.46 |
| | (0.73) | (0.09) | | | | | |
| ODA | 1.182 | -0.028 | 130 | 1523 | 29.06 | 27.75 | 0.08 |
| | (0.43) | (0.09) | | | | | |
| | | | Panel B: Chinese FDI control | | | | |
| OF | 1.669 | -0.116 | 101 | 931 | 6.29 | 10.34 | 0.99 |
| | (0.87) | (0.19) | | | | | |
| OOF | 1.252 | 0.055 | 101 | 931 | 4.72 | 6.58 | 0.68 |
| | (1.36) | (0.16) | | | | | |
| ODA | 2.317 | -0.075 | 101 | 931 | 7.40 | 8.17 | 0.57 |
| | (1.21) | (0.20) | | | | | |
| | | | Panel C: Exports*probability of receiving aid control (*Reserve*-IV only) | | | | |
| OF | 4.134 | -7.966 | 150 | 2061 | 2.96 | 3.90 | |
| | (2.35) | (5.31) | | | | | |
| OOF | 0.914 | 0.062 | 150 | 2061 | 20.53 | 24.18 | |
| | (1.09) | (0.82) | | | | | |
| ODA | 3.191 | -3.886 | 150 | 2061 | 12.55 | 16.49 | |
| | (1.14) | (1.81) | | | | | |
| | | | Panel D: FDI*probability of receiving aid control (*Reserve*-IV only) | | | | |
| OF | 2.148 | -1.474 | 150 | 2061 | 7.32 | 9.90 | |
| | (0.96) | (0.98) | | | | | |
| OOF | 0.584 | 0.278 | 150 | 2061 | 25.46 | 28.22 | |
| | (0.94) | (0.35) | | | | | |
| ODA | 2.431 | -1.09 | 150 | 2061 | 16.39 | 24.61 | |
| | (0.86) | (0.63) | | | | | |
| | | | Panel E: Future values of instruments (placebo) | | | | |
| OF | 0.962 | | 149 | 1539 | 7.28 | 4.72 | 0.19 |
| | (0.61) | | | | | | |
| OOF | 0.367 | | 149 | 1539 | 13.32 | 3.18 | 0.97 |
| | (0.64) | | | | | | |
| ODA | 2.013 | | 149 | 1539 | 6.57 | 4.09 | 0.23 |
| | (1.07) | | | | | | |

Notes: Includes additional control variables as indicated in the header of each panel. Each row represents one regression. The dependent variable is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count. In separate rows, we show results for all official finance (*OF*) projects, Other Official Flows (*OOF*) projects, and Official Development Assistance (*ODA*) projects. All regressions include *(log) Population (t-1)* and country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C8:** Growth effects of Chinese official finance, interactions (CF approach, 2002-2016)

| | Coef. aid | Coef. interact. | Countries | Obs. | Cr.-Don. F | Kl.-Paap F | Hansen J |
|---|---|---|---|---|---|---|---|
| | | | Panel A: Good Policy (Burnside-Dollar) | | | | |
| OF | 0.642 | 0.007 | 75 | 1095 | 26.15 | 16.22 | 0.23 |
| | (0.38) | (0.03) | | | | | |
| OOF | 0.599 | 0.105 | 75 | 1095 | 23.18 | 15.38 | 0.89 |
| | (1.11) | (0.07) | | | | | |
| ODA | 1.053 | -0.005 | 75 | 1095 | 17.20 | 15.53 | 0.07 |
| | (0.54) | (0.03) | | | | | |
| | | | Panel B: Absence of Corruption (ICRG) | | | | |
| OF | 0.772 | 0.052 | 100 | 1349 | 35.90 | 24.10 | 0.34 |
| | (0.43) | (0.08) | | | | | |
| OOF | 0.799 | 0.161 | 100 | 1349 | 19.61 | 19.51 | 0.97 |
| | (1.01) | (0.17) | | | | | |
| ODA | 1.341 | 0.030 | 100 | 1349 | 26.88 | 24.36 | 0.06 |
| | (0.59) | (0.09) | | | | | |
| | | | Panel C: Democratic Accountability (ICRG) | | | | |
| OF | 0.791 | 0.047 | 100 | 1349 | 29.96 | 23.48 | 0.41 |
| | (0.43) | (0.04) | | | | | |
| OOF | 0.938 | 0.063 | 100 | 1349 | 17.21 | 20.43 | 0.91 |
| | (1.01) | (0.09) | | | | | |
| ODA | 1.376 | 0.054 | 100 | 1349 | 20.79 | 21.91 | 0.09 |
| | (0.62) | (0.05) | | | | | |
| | | | Panel D: Absence of Ethnic Tensions (ICRG) | | | | |
| OF | 0.767 | 0.049 | 100 | 1349 | 33.09 | 23.30 | 0.38 |
| | (0.44) | (0.05) | | | | | |
| OOF | 1.210 | -0.046 | 100 | 1349 | 20.19 | 20.58 | 0.95 |
| | (0.98) | (0.07) | | | | | |
| ODA | 1.233 | 0.088 | 100 | 1349 | 22.57 | 22.36 | 0.08 |
| | (0.56) | (0.06) | | | | | |
| | | | Panel E: Absence of Press Freedom | | | | |
| OF | 1.357 | -0.000 | 61 | 741 | 24.75 | 11.37 | 0.46 |
| | (0.77) | (0.00) | | | | | |
| OOF | 0.596 | -0.004 | 61 | 741 | 21.93 | 19.57 | 0.16 |
| | (1.51) | (0.01) | | | | | |
| ODA | 2.245 | 0.001 | 61 | 741 | 16.97 | 11.54 | 0.50 |
| | (1.40) | (0.00) | | | | | |
| | | | Panel F: UNGA voting with China | | | | |
| OF | 1.032 | -0.073 | 148 | 2010 | 38.45 | 32.68 | 0.44 |
| | (0.48) | (0.41) | | | | | |
| OOF | 0.649 | 0.182 | 148 | 2010 | 28.22 | 33.07 | 0.37 |
| | (1.13) | (1.07) | | | | | |
| ODA | 1.588 | -0.130 | 148 | 2010 | 30.62 | 32.56 | 0.10 |
| | (0.62) | (0.59) | | | | | |
| | | | Panel G: Left-wing recipient government | | | | |
| OF | 0.989 | -0.045 | 133 | 1821 | 33.15 | 27.99 | 0.44 |
| | (0.43) | (0.08) | | | | | |
| OOF | 1.100 | 0.192 | 133 | 1821 | 32.21 | 30.57 | 0.58 |
| | (0.82) | (0.21) | | | | | |
| ODA | 1.507 | -0.193 | 133 | 1821 | 25.43 | 27.16 | 0.14 |
| | (0.57) | (0.08) | | | | | |

Notes: Includes variables (*Coef. aid*) in levels and as interactions with official finance (*Coef. interact.*) as indicated in the header of each panel. Each row represents one regression. The dependent variable is the recipient country's annual real GDP per capita growth

in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count. In separate rows, we show results for all official finance (*OF*) projects, Other Official Flows (*OOF*) projects, and Official Development Assistance (*ODA*) projects. All regressions include *(log) Population (t-1)* and country- and year-fixed effects as control variables. Estimation is with a Control Function (CF) approach, controlling for the residual of the corresponding first-stage regressions from Table 3. Bootstrapped standard errors with 500 replications in parentheses.

**Appendix C9:** Growth effects of Chinese official finance, broad sectors (2SLS, 2002-2016)

| | Coef. aid | Countries | Obs. | Cr.-Don. F | Kl.-Paap F | Hansen J |
|---|---|---|---|---|---|---|
| | Panel A: Economic Infrastructure & Services | | | | | |
| OF | 1.677 | 150 | 2061 | 38.83 | 12.70 | 0.28 |
| | (1.02) | | | | | |
| OOF | 0.389 | 150 | 2061 | 53.40 | 20.80 | 0.89 |
| | (0.84) | | | | | |
| ODA | 4.598 | 150 | 2061 | 25.33 | 5.17 | 0.04 |
| | (2.83) | | | | | |
| | Panel B: Social Infrastructure & Services | | | | | |
| OF | 1.969 | 150 | 2061 | 42.51 | 33.95 | 0.21 |
| | (0.65) | | | | | |
| OOF | 1.428 | 150 | 2061 | 19.71 | 23.95 | 0.18 |
| | (1.57) | | | | | |
| ODA | 2.502 | 150 | 2061 | 46.67 | 32.65 | 0.02 |
| | (0.77) | | | | | |
| | Panel C: Production Sectors | | | | | |
| OF | 6.03 | 150 | 2061 | 17.96 | 11.02 | 0.34 |
| | (2.37) | | | | | |
| OOF | 2.930 | 150 | 2061 | 17.00 | 2.75 | 0.73 |
| | (3.51) | | | | | |
| ODA | 8.661 | 150 | 2061 | 20.58 | 9.05 | 0.30 |
| | (3.86) | | | | | |

Notes: Shows separate results for three broad sectors as indicated in the header of each panel. Each row represents one regression. The dependent variable is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count. In separate rows, we show results for all official finance (*OF*) projects, Other Official Flows (*OOF*) projects, and Official Development Assistance (*ODA*) projects. The "Social Infrastructure & Services" category includes health, education, governance, and water supply and sanitation projects; the "Economic Infrastructure & Services" category includes transportation projects (e.g., roads, railways, and airports), energy production and distribution projects, and information and communication technology (ICT) projects (e.g., broadband internet and mobile phone infrastructure); the "Production Sector" category includes agriculture, fishing, forestry, mining, industry, trade, and tourism projects. All regressions include *(log) Population (t-1)* and country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C10:** Effects of Chinese official finance on exports of construction material (2SLS, 2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: Exports/GDP | | | | | |
| Input (t-3)*probability | 0.0059 | 0.0056 | 0.0057 | 0.0083 | 0.0080 | 0.0082 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.01) | (0.00) |
| (log) Population (t-1) | 0.0613 | 0.0664 | 0.0588 | 0.0595 | 0.0655 | 0.0575 |
| | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| | Panel B: 2SLS estimates – Dependent variable: Exports/GDP | | | | | |
| Chinese OF (t-2) | 0.0044 | 0.0055 | 0.0061 | 0.0065 | 0.0013 | 0.0061 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| (log) Population (t-1) | 0.0472 | 0.0666 | 0.0404 | 0.0177 | 0.0552 | 0.0218 |
| | (0.03) | (0.02) | (0.03) | (0.06) | (0.03) | (0.05) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Input (t-3)*probability | 1.3352 | 1.019 | 0.9398 | 1.2648 | 6.2491 | 1.3296 |
| | (0.16) | (0.17) | (0.13) | (0.47) | (1.04) | (0.46) |
| (log) Population (t-1) | 3.1569 | -0.0454 | 3.0102 | 6.4126 | 8.0789 | 5.8290 |
| | (1.38) | (0.67) | (1.03) | (5.00) | (4.80) | (3.95) |
| Number of countries | 149 | 149 | 149 | 149 | 149 | 149 |
| Number of observations | 2053 | 2053 | 2053 | 2053 | 2053 | 2053 |
| Cragg-Donald F | 67.11 | 68.83 | 62.71 | 5.71 | 71.19 | 7.33 |
| Kleibergen-Paap F | 72.51 | 36.59 | 55.68 | 7.22 | 35.85 | 8.39 |

Notes: Each column per panel represents one regression. The dependent variable in panels A and B is China's exports of construction material, defined as the sum of exports of iron and steel (SITC code 67), lime, cement, and fabricated construction materials (661), cork and wood (24), aluminum (684), and glass (664) divided by recipient-country GDP, in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C11:** Growth effects of Chinese official financing, unlogged amounts (2002-2016)

| | (1) All amounts | (2) OOF amounts | (3) ODA amounts |
|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | |
| Chinese OF (t-2) | 0.000 | 0.000 | 0.001 |
| | (0.00) | (0.00) | (0.00) |
| (log) Population (t-1) | 6.517 | 6.511 | 6.471 |
| | (2.91) | (2.91) | (2.90) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | |
| Reserves (t-3)*probability | 0.160 | 2.437 | 0.354 |
| | (3.18) | (4.01) | (3.32) |
| Input (t-3)*probability | 1.277 | 0.518 | 1.475 |
| | (0.47) | (0.74) | (0.49) |
| (log) Population (t-1) | 5.234 | 6.230 | 4.615 |
| | (3.04) | (2.93) | (3.09) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | |
| Chinese OF (t-2) | 0.011 | 0.002 | 0.061 |
| | (0.01) | (0.00) | (0.03) |
| (log) Population (t-1) | 10.217 | 7.262 | 3.388 |
| | (7.02) | (3.15) | (6.03) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (t-2) | | |
| Reserves (t-3)*probability | 636.274 | 3151.160 | -16.264 |
| | (769.68) | (2155.05) | (164.01) |
| Input (t-3)*probability | -17.758 | -206.593 | 27.307 |
| | (123.82) | (353.00) | (24.28) |
| (log) Population (t-1) | -447.086 | -509.715 | 21.819 |
| | (490.45) | (496.87) | (85.38) |
| Number of countries | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 |
| Cragg-Donald F | 1.33 | 10.55 | 2.03 |
| Kleibergen-Paap F | 5.21 | 6.43 | 4.94 |
| Hansen J statistic (p-value) | 0.26 | 0.35 | 0.90 |

Notes: Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as (unlogged) financial amounts. Column 1 covers all official finance (OF) projects, column 2 focuses on Other Official Flows (OOF), and column 3 focuses on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C12:** Growth effects of Chinese official financing, three-year averages (2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (s-1) | 0.177 | 0.022 | 0.366 | -0.045 | -0.011 | 0.027 |
| | (0.08) | (0.07) | (0.14) | (0.05) | (0.04) | (0.03) |
| (log) Population (s-1) | 6.026 | 6.836 | 5.354 | 6.865 | 6.997 | 6.764 |
| | (2.80) | (2.85) | (2.79) | (2.83) | (3.00) | (2.83) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (s-1)*probability | 1.787 | 5.025 | 5.614 | 7.032 | 8.178 | 10.512 |
| | (12.68) | (14.51) | (13.17) | (14.85) | (16.67) | (14.57) |
| Input (s-1)*probability | 1.199 | 0.188 | 0.893 | 0.463 | -0.121 | 0.179 |
| | (1.73) | (2.08) | (1.74) | (1.98) | (2.34) | (1.91) |
| (log) Population (s-1) | 5.035 | 6.641 | 3.587 | 4.947 | 6.466 | 3.937 |
| | (3.12) | (2.90) | (3.32) | (3.18) | (2.91) | (3.30) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (s-1) | 0.909 | 0.809 | 1.484 | 3.965 | 0.176 | 1.494 |
| | (0.40) | (0.72) | (0.60) | (6.66) | (0.15) | (1.06) |
| (log) Population (s-1) | 2.638 | 6.403 | 0.791 | 5.291 | 4.547 | 2.180 |
| | (3.48) | (2.92) | (3.84) | (24.07) | (3.68) | (9.71) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (s-1) | | | | | |
| Reserves (s-1)*probability | 8.916 | 0.764 | 8.679 | -0.949 | 51.683 | 8.388 |
| | (5.37) | (10.50) | (3.19) | (12.07) | (20.89) | (10.87) |
| Input (s-1)*probability | 0.122 | 1.109 | -0.266 | 0.527 | -1.602 | -0.116 |
| | (0.95) | (2.04) | (0.50) | (1.75) | (3.05) | (1.58) |
| (log) Population (s-1) | 2.436 | 0.336 | 1.725 | 0.047 | 10.905 | 1.136 |
| | (1.28) | (0.53) | (1.06) | (6.12) | (6.74) | (5.68) |
| Number of countries | 151 | 151 | 151 | 151 | 151 | 151 |
| Number of observations | 706 | 706 | 706 | 706 | 706 | 706 |
| Cragg-Donald F | 25.24 | 20.61 | 32.41 | 0.11 | 12.07 | 1.28 |
| Kleibergen-Paap F | 41.99 | 35.75 | 45.71 | 0.23 | 9.04 | 1.68 |
| Hansen J statistic (p-value) | 0.58 | 0.79 | 0.46 | 0.84 | 0.94 | 0.90 |

Notes: Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in period *s*, where *s* is one of five three-year periods (2002-2004, 2005-2007, 2008-2010, 2011-2013, and 2014-2016). The variable of interest, *Chinese OF (s-1)*, denotes Chinese development finance commitments lagged by one three-year period and is measured as the average annual project count in columns 1-3 and as logged average annual financial amounts in column 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C13:** Growth effects of Chinese official financing, aid ratios (2002-2016)

| | (1) All amounts per GDP | (2) OOF amounts per GDP | (3) ODA amounts per GDP | (4) All amounts p.c. | (5) OOF amounts p.c. | (6) ODA amounts p.c. |
|---|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 5.486 | 5.559 | 5.453 | 0.001 | 0.001 | 0.002 |
| | (3.12) | (3.82) | (5.26) | (0.00) | (0.00) | (0.00) |
| (log) Population (t-1) | 6.579 | 6.583 | 6.591 | 6.703 | 6.617 | 6.688 |
| | (2.92) | (2.93) | (2.93) | (2.92) | (2.93) | (2.93) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | -0.471 | 1.699 | -0.189 | -0.471 | 1.699 | -0.189 |
| | (3.20) | (4.04) | (3.33) | (3.20) | (4.04) | (3.33) |
| Input (t-3)*probability | 1.365 | 0.615 | 1.552 | 1.365 | 0.615 | 1.552 |
| | (0.48) | (0.74) | (0.49) | (0.48) | (0.74) | (0.49) |
| (log) Population (t-1) | 5.382 | 6.333 | 4.770 | 5.382 | 6.333 | 4.770 |
| | (3.06) | (2.96) | (3.11) | (3.06) | (2.96) | (3.11) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 171.688 | 105.450 | 310.368 | 0.073 | 0.055 | 0.101 |
| | (71.20) | (97.64) | (155.27) | (0.03) | (0.05) | (0.06) |
| (log) Population (t-1) | 6.078 | 6.355 | 6.368 | 12.532 | 8.444 | 11.255 |
| | (2.99) | (2.90) | (3.27) | (4.37) | (3.61) | (3.90) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | -0.026 | 0.007 | -0.026 | -72.838 | 55.413 | -76.160 |
| | (0.02) | (0.03) | (0.02) | (63.96) | (51.17) | (69.53) |
| Input (t-3)*probability | 0.011 | 0.007 | 0.007 | 25.534 | 7.482 | 21.571 |
| | (0.00) | (0.00) | (0.00) | (11.68) | (7.66) | (13.71) |
| (log) Population (t-1) | -0.002 | -0.000 | -0.001 | -92.831 | -40.458 | -54.343 |
| | (0.01) | (0.01) | (0.01) | (38.03) | (20.34) | (28.64) |
| Number of countries | 149 | 149 | 149 | 150 | 150 | 150 |
| Number of observations | 2051 | 2051 | 2051 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 6.04 | 4.98 | 6.82 | 4.29 | 4.26 | 4.88 |
| Kleibergen-Paap F | 8.40 | 3.44 | 3.22 | 5.45 | 5.05 | 2.85 |
| Hansen J statistic (p-value) | 0.39 | 0.85 | 0.13 | 0.30 | 0.88 | 0.16 |

Notes: Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as financial amounts divided by recipient-country GDP in columns 1-3 and divided by recipient-country population size in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C14:** Growth effects of Chinese official financing, implemented projects (2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.166 | 0.197 | 0.14 | 0.027 | 0.020 | 0.026 |
| | (0.07) | (0.09) | (0.07) | (0.02) | (0.02) | (0.02) |
| (log) Population (t-1) | 5.984 | 6.528 | 6.029 | 6.339 | 6.348 | 6.373 |
| | (2.89) | (2.90) | (2.87) | (2.91) | (2.96) | (2.89) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | 0.484 | 2.867 | 0.335 | 1.060 | 3.093 | 0.748 |
| | (3.21) | (4.13) | (3.12) | (3.47) | (3.99) | (3.59) |
| Input (t-3)*probability | 1.563 | 0.216 | 1.706 | 1.623 | 0.140 | 1.853 |
| | (0.47) | (0.76) | (0.47) | (0.51) | (0.79) | (0.54) |
| (log) Population (t-1) | 4.447 | 6.449 | 3.644 | 4.554 | 6.388 | 4.153 |
| | (2.98) | (2.92) | (2.99) | (2.98) | (2.91) | (2.98) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 1.286 | 0.630 | 1.781 | 1.657 | 0.093 | 1.719 |
| | (0.42) | (0.74) | (0.55) | (0.90) | (0.10) | (0.92) |
| (log) Population (t-1) | 2.491 | 6.591 | 0.508 | -3.567 | 5.78 | -1.802 |
| | (3.21) | (2.89) | (3.56) | (9.91) | (2.98) | (8.61) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 2.881 | -0.665 | 3.008 | 0.395 | 15.216 | -0.183 |
| | (1.51) | (2.91) | (1.26) | (4.55) | (9.08) | (5.58) |
| Input (t-3)*probability | 0.799 | 1.096 | 0.470 | 1.016 | 4.554 | 1.168 |
| | (0.28) | (0.56) | (0.24) | (0.74) | (2.07) | (0.86) |
| (log) Population (t-1) | 1.404 | -0.210 | 1.615 | 4.914 | 6.642 | 3.506 |
| | (1.03) | (0.60) | (0.82) | (4.35) | (4.30) | (3.87) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 38.81 | 32.48 | 38.33 | 1.99 | 40.08 | 2.54 |
| Kleibergen-Paap F | 34.25 | 23.92 | 28.48 | 2.55 | 25.85 | 2.58 |
| Hansen J statistic (p-value) | 0.28 | 0.46 | 0.10 | 0.96 | 0.65 | 0.91 |

Notes: Shows results for projects that have at least reached the implementation stage. Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix C15:** Growth effects of Chinese official financing, completed projects (2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.147 | 0.185 | 0.101 | 0.030 | 0.011 | 0.023 |
| | (0.08) | (0.10) | (0.07) | (0.02) | (0.02) | (0.02) |
| (log) Population (t-1) | 6.231 | 6.575 | 6.281 | 6.414 | 6.444 | 6.476 |
| | (2.90) | (2.89) | (2.88) | (2.90) | (2.94) | (2.91) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Reserves (t-3)*probability | 0.204 | 3.225 | 0.312 | 0.670 | 4.283 | 0.644 |
| | (3.28) | (4.23) | (3.28) | (3.72) | (4.23) | (3.89) |
| Input (t-3)*probability | 1.727 | 0.051 | 1.895 | 2.002 | -0.090 | 2.152 |
| | (0.48) | (0.79) | (0.49) | (0.55) | (0.85) | (0.58) |
| (log) Population (t-1) | 4.424 | 6.525 | 3.502 | 4.512 | 6.486 | 4.134 |
| | (2.96) | (2.92) | (2.99) | (2.94) | (2.91) | (2.97) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 1.679 | 0.521 | 2.199 | 2.021 | 0.089 | 1.847 |
| | (0.57) | (0.78) | (0.70) | (1.02) | (0.11) | (0.91) |
| (log) Population (t-1) | 3.437 | 6.712 | 1.712 | 0.658 | 6.045 | 4.597 |
| | (3.17) | (2.92) | (3.48) | (8.72) | (2.93) | (7.29) |
| | Panel D: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Reserves (t-3)*probability | 1.967 | -1.139 | 2.929 | -4.089 | 23.383 | -5.280 |
| | (1.31) | (2.93) | (1.23) | (5.03) | (11.68) | (4.94) |
| Input (t-3)*probability | 0.728 | 1.126 | 0.371 | 1.473 | 3.413 | 1.741 |
| | (0.26) | (0.59) | (0.24) | (0.74) | (2.49) | (0.82) |
| (log) Population (t-1) | 0.501 | -0.383 | 0.690 | 2.294 | 4.998 | 0.348 |
| | (0.84) | (0.57) | (0.70) | (3.77) | (4.05) | (3.64) |
| Number of countries | 150 | 150 | 150 | 150 | 150 | 150 |
| Number of observations | 2061 | 2061 | 2061 | 2061 | 2061 | 2061 |
| Cragg-Donald F | 33.24 | 32.13 | 33.11 | 1.47 | 40.98 | 2.15 |
| Kleibergen-Paap F | 24.22 | 23.19 | 21.49 | 2.70 | 33.14 | 2.75 |
| Hansen J statistic (p-value) | 0.33 | 0.40 | 0.07 | 0.41 | 0.58 | 0.28 |

Notes: Shows results for projects that have reached the completion stage. Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

## Appendix D: Additional tables and figures in Section 3

**Appendix D1:** Growth effects of Chinese and Western aid, aid budget instrument

| | (1) China ODA projects | (2) (log) China ODA amounts | (3) (log) DAC ODA com. | (4) (log) US ODA com. | (5) (log) IBRD com. | (6) (log) IDA com. |
|---|---|---|---|---|---|---|
| t-1 | 1.376 | 1.522 | 1.915 | 1.394 | 0.114 | 0.378 |
| | (0.54) | (0.97) | (0.81) | (0.64) | (0.40) | (1.24) |
| t-2 | 1.582 | 1.711 | 1.972 | 1.495 | -0.375 | -0.243 |
| | (0.55) | (1.00) | (0.85) | (0.69) | (0.48) | (1.02) |
| t-3 | 0.886 | 0.968 | 1.968 | 1.773 | -0.656 | 0.287 |
| | (0.51) | (0.73) | (0.90) | (0.67) | (0.58) | (1.12) |
| t-4 | 0.727 | 0.677 | 2.015 | 2.433 | -0.789 | 0.717 |
| | (0.47) | (0.51) | (0.97) | (0.74) | (0.62) | (1.14) |
| t-5 | 0.391 | 0.352 | 1.979 | 2.562 | -0.767 | -0.076 |
| | (0.37) | (0.35) | (0.97) | (0.67) | (0.64) | (1.35) |
| t-6 | -0.118 | -0.102 | 1.99 | 2.118 | -0.632 | 0.054 |
| | (0.33) | (0.29) | (0.96) | (0.68) | (0.63) | (1.78) |
| | | | t-2 | | | |
| First year | 2003 | 2003 | 1978 | 1978 | 1997 | 1993 |
| Last year | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 |
| Number of countries | 149 | 149 | 157 | 157 | 154 | 157 |
| Number of observations | 1913 | 1913 | 4995 | 4996 | 2808 | 3373 |
| Cragg-Donald F | 53.02 | 3.35 | 158.90 | 134.18 | 7.03 | 25.46 |
| Kleibergen-Paap F | 30.28 | 3.87 | 9.81 | 16.51 | 2.75 | 9.56 |
| Prob > chi2 | | | 0.78 | 0.77 | 0.01 | 0.10 |

Notes: Each cell represents one regression. The dependent variable is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, denoted in the column header, denotes the respective donor's development finance commitments lagged by *h* years and is measured as a project count in column 1 and as logged financial amounts in column 2-6. Columns 1-4 and 6 cover Official Development Assistance (ODA) projects, and column 5 focuses on Other Official Flows (OOF) projects. All regressions include *(log) Population (t-1)* and country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix D2:** Growth effects of Chinese aid, aid budget instruments with contemporaneous probabilities (2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Aid budget (t-3)*probability | 0.008 | -0.001 | 0.02 | 0.008 | -0.001 | 0.02 |
| | (0.00) | (0.02) | (0.01) | (0.00) | (0.02) | (0.01) |
| (log) Population (t-1) | 3.739 | 5.359 | 1.822 | 3.739 | 5.359 | 1.822 |
| | (3.39) | (3.23) | (3.48) | (3.39) | (3.23) | (3.48) |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.733 | -0.066 | 1.582 | 6.370 | -0.011 | 1.711 |
| | (0.37) | (0.95) | (0.55) | (36.44) | (0.15) | (1.00) |
| (log) Population (t-1) | 2.295 | 5.331 | -1.567 | -39.904 | 5.448 | -7.634 |
| | (3.48) | (3.25) | (4.06) | (267.70) | (3.41) | (11.84) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Aid budget (t-3)*probability | 0.011 | 0.019 | 0.013 | 0.000 | 0.116 | 0.012 |
| | (0.00) | (0.01) | (0.00) | (0.00) | (0.03) | (0.01) |
| (log) Population (t-1) | 1.971 | -0.427 | 2.143 | 6.991 | 8.148 | 5.528 |
| | (1.63) | (0.82) | (1.23) | (5.52) | (4.98) | (4.59) |
| Number of countries | 149 | 149 | 149 | 149 | 149 | 149 |
| Number of observations | 1913 | 1913 | 1913 | 1913 | 1913 | 1913 |
| Cragg-Donald F | 52.52 | 36.61 | 53.02 | 0.02 | 48.21 | 3.35 |
| Kleibergen-Paap F | 37.72 | 13.17 | 30.28 | 0.03 | 18.70 | 3.87 |

Notes: Uses China's aid budget interacted with the probability of receiving official financing as instrument. Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix D3:** Growth effects of Chinese aid, aid budget instruments with "historical" probabilities (2002-2016)

| | (1) All projects | (2) OOF projects | (3) ODA projects | (4) (log) All amounts | (5) (log) OOF amounts | (6) (log) ODA amounts |
|---|---|---|---|---|---|---|
| | Panel A: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | | |
| Aid budget (t-3)*probability | 0.015 | 0.03 | 0.025 | 0.015 | 0.03 | 0.025 |
| | (0.01) | (0.02) | (0.01) | (0.01) | (0.02) | (0.01) |
| (log) Population (t-1) | 2.564 | 3.223 | 2.377 | 2.564 | 3.223 | 2.377 |
| | (3.50) | (3.52) | (3.47) | (3.50) | (3.52) | (3.47) |
| | Panel B: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | | |
| Chinese OF (t-2) | 0.748 | 2.755 | 1.074 | -12.521 | 0.755 | 0.663 |
| | (0.29) | (1.97) | (0.39) | (100.42) | (0.66) | (0.31) |
| (log) Population (t-1) | 2.233 | 5.918 | 0.650 | 94.288 | -1.817 | 0.313 |
| | (3.29) | (3.60) | (3.55) | (710.84) | (7.94) | (4.85) |
| | Panel C: First-stage estimates – Dependent variable: Chinese OF (t-2) | | | | | |
| Aid budget (t-3)*probability | 0.019 | 0.011 | 0.023 | -0.000 | 0.039 | 0.037 |
| | (0.00) | (0.01) | (0.00) | (0.00) | (0.03) | (0.01) |
| (log) Population (t-1) | 0.443 | -0.978 | 1.608 | 7.274 | 6.674 | 3.112 |
| | (1.74) | (0.95) | (1.23) | (5.65) | (5.44) | (4.55) |
| Number of countries | 149 | 149 | 149 | 149 | 149 | 149 |
| Number of observations | 1913 | 1913 | 1913 | 1913 | 1913 | 1913 |
| Cragg-Donald F | 55.25 | 7.90 | 58.44 | 0.02 | 3.69 | 11.37 |
| Kleibergen-Paap F | 29.44 | 3.03 | 34.32 | 0.02 | 1.93 | 7.50 |

Notes: Uses China's aid budget interacted with the share of years a recipient received Chinese projects during the 1970-1999 period as instrument ("historic probabilities"). Each column per panel represents one regression. The dependent variable in panels A and B is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, *Chinese OF (t-2)*, denotes Chinese development finance commitments lagged by two years and is measured as a project count in columns 1-3 and as logged financial amounts in columns 4-6. Columns 1 and 4 cover all official finance (OF) projects, columns 2 and 5 focus on Other Official Flows (OOF), and columns 3 and 6 focus on Official Development Assistance (ODA). All regressions include country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix D4:** Growth effects of Chinese and Western aid by sector, 1978/2003-2016

| | Coef. aid | Countries | Obs. | Cr.-Don. F | Kl.-Paap F | Period |
|---|---|---|---|---|---|---|
| | Panel A: Economic Infrastructure & Services (*Aid-budget* IV) | | | | | |
| China ODA projects | 2.816 | 149 | 1913 | 50.44 | 15.97 | 03-16 |
| | (1.58) | | | | | |
| (log) China ODA amounts | 0.359 | 149 | 1913 | 31.81 | 9.42 | 03-16 |
| | (0.18) | | | | | |
| (log) DAC ODA com. | 0.876 | 148 | 4850 | 185.94 | 65.02 | 78-16 |
| | (0.40) | | | | | |
| (log) US ODA com. | 1.426 | 148 | 4850 | 166.27 | 66.65 | 78-16 |
| | (0.62) | | | | | |
| | Panel B: Social Infrastructure & Services (*Aid-budget* IV) | | | | | |
| China ODA projects | 3.113 | 149 | 1913 | 66.61 | 38.39 | 03-16 |
| | (0.94) | | | | | |
| (log) China ODA amounts | 2.06 | 149 | 1913 | 4.77 | 7.32 | 03-16 |
| | (0.87) | | | | | |
| (log) DAC ODA com. | 1.44 | 148 | 4850 | 223.22 | 21.35 | 78-16 |
| | (0.62) | | | | | |
| (log) US ODA com. | 1.499 | 148 | 4850 | 260.32 | 62.56 | 78-16 |
| | (0.56) | | | | | |
| | Panel C: Production Sectors (*Aid-budget* IV) | | | | | |
| China ODA projects | 18.719 | 149 | 1913 | 10.88 | 4.83 | 03-16 |
| | (11.71) | | | | | |
| (log) China ODA amounts | -56.229 | 149 | 1913 | 0.02 | 0.00 | 03-16 |
| | (822.72) | | | | | |
| (log) DAC ODA com. | 2.106 | 148 | 4850 | 80.96 | 15.43 | 78-16 |
| | (0.94) | | | | | |
| (log) US ODA com. | 0.730 | 148 | 4850 | 108.98 | 46.14 | 78-16 |
| | (0.77) | | | | | |

Notes: Each row represents one regression. The dependent variable is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, denoted in the respective row in the first column, denotes the donor's development finance commitments lagged by two years and is measured as a project count or logged financial amounts as indicated. The "Social Infrastructure & Services" category includes health, education, governance, and water supply and sanitation projects; the "Economic Infrastructure & Services" category includes transportation projects (e.g., roads, railways, and airports), energy production and distribution projects, and information and communication technology (ICT) projects (e.g., broadband internet and mobile phone infrastructure); and the "Production Sector" category includes agriculture, fishing, forestry, mining, industry, trade, and tourism projects. All regressions cover official development assistance (ODA) projects only and include *(log) Population (t-1)* and country- and year-fixed effects as control variables. Standard errors in parentheses.

**Appendix D5:** Growth effects of Western official financing for Chinese aid orphans (based on number of Chinese Cold War projects)

| | (1) DAC ODA | (2) US ODA | (3) IBRD | (4) IBRD | (5) IDA |
|---|---|---|---|---|---|
| | Panel A: OLS estimates – Dependent variable: GDP p.c. growth | | | | |
| OF (t-2) | 1.047 | 0.81 | -0.036 | 0.001 | 0.301 |
| | (0.22) | (0.17) | (0.02) | (0.03) | (0.25) |
| (log) Population (t-1) | 0.352 | -1.061 | 3.604 | 11.967 | -0.026 |
| | (1.89) | (2.01) | (2.88) | (3.49) | (3.77) |
| | Panel B: Reduced-form estimates – Dependent variable: GDP p.c. growth | | | | |
| Budget (t-3)*probability | 0.091 | 4.695 | 0.035 | 0.024 | 0.022 |
| | (0.03) | (1.28) | (0.08) | (0.08) | (0.03) |
| (log) Population (t-1) | -2.632 | -2.492 | 4.098 | 12.06 | -0.054 |
| | (2.14) | (2.17) | (2.96) | (3.48) | (3.83) |
| | Panel C: 2SLS estimates – Dependent variable: GDP p.c. growth | | | | |
| OF (t-2) | 2.277 | 4.748 | 0.135 | 0.072 | -0.986 |
| | (1.04) | (2.31) | (0.31) | (0.25) | (1.70) |
| (log) Population (t-1) | 2.145 | -0.509 | 5.465 | 12.458 | -0.222 |
| | (2.72) | (3.95) | (4.71) | (3.76) | (3.90) |
| | Panel D: First-stage estimates – Dependent variable: OF (t-2) | | | | |
| Budget (t-3)*probability | 0.04 | 0.989 | 0.263 | 0.338 | -0.022 |
| | (0.02) | (0.45) | (0.09) | (0.15) | (0.01) |
| (log) Population (t-1) | -2.098 | -0.418 | -10.141 | -5.559 | -0.170 |
| | (0.95) | (1.09) | (4.91) | (5.38) | (0.82) |
| First year | 1978 | 1978 | 1997 | 2000 | 1993 |
| Last Year | 2016 | 2016 | 2016 | 2014 | 2016 |
| Number of countries | 84 | 84 | 84 | 125 | 84 |
| Number of observations | 2714 | 2715 | 1542 | 924 | 1843 |
| Cragg-Donald F | 119.41 | 17.95 | 12.59 | 10.78 | 11.29 |
| Kleibergen-Paap F | 5.84 | 4.87 | 8.09 | 5.05 | 2.37 |
| Prob > chi2 | 0.53 | 0.00 | 0.05 | 0.23 | 0.90 |

Notes: Each column per panel represents one regression. The dependent variable in panels A-C is the recipient country's annual real GDP per capita growth in year *t*. The variable of interest, indicated in the column header, denotes development finance commitments by the respective donor lagged by two years and is measured as logged financial amounts. Columns 1, 2 and 5 correspond to Official Development Assistance (ODA) projects, and columns 3-4 focus on Other Official Flows (OOF) projects. All regressions include country- and year-fixed effects as control variables. Prob > chi2 corresponds to testing the hypothesis that the effect of DAC/US/IBRD/IDA official finance in countries that are "Chinese aid orphans" is different from the effect in the full sample (as shown in panel A of Table 6). We define "aid orphans" as countries that completed fewer projects in the 1960-2005 period according to data from Dreher and Fuchs (2015) than the 60th percentile of the distribution. Standard errors are in parentheses.

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