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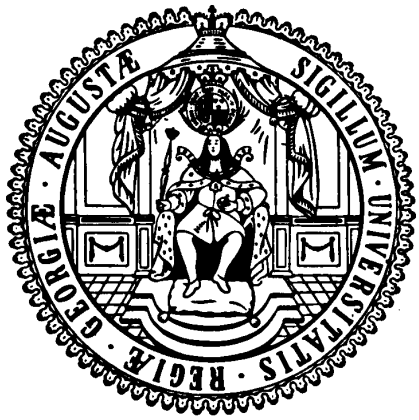

Discussion Papers

No. 175

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May 2015

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Tracking Under-Reported Financial Flows: China's Development Finance and the Aid-Conflict Nexus Revisited

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Abstract: China's provision of development finance to other countries is sizable but reliable information is scarce. We introduce a new open source methodology for collecting project-level development finance information and create a database of Chinese official finance to Africa from 2000-2011. We find that China's commitments amounted to approximately US$ 73 billion, of which US$ 15 billion are comparable to Official Development Assistance following OECD definitions. We provide details on 1,511 projects to 50 African countries. We use this database to extend previous research on aid and conflict, which suffers from omitted variable bias due to the exclusion of Chinese development finance. Our results show that sudden withdrawals of "traditional" aid no longer induce conflict in the presence of sufficient alternative funding from China. Our findings highlight the importance of gathering more complete data on the development activities of "non-traditional donors" to better understand the link between aid and conflict.

Keywords: Development Finance; Foreign Aid; Non-DAC Donors; South-South Cooperation; China; Africa; Aid Shocks; Violent Armed Conflict; Civil War; Intrastate War

* This article is accompanied by the release of AidData's Chinese Official Finance to Africa Dataset, Version 1.1, available for download at http://china.aiddata.org/datasets/1.1 and an interactive database platform (at http://china.aiddata.org). AidData's Tracking Underreported Financial Flows (TUFF) methodology is also available for download at http://china.aiddata.org/TUFF_codebook. An earlier version of this article – entitled "China's Development Finance to Africa: A Media-Based Approach to Data Collection," co-authored with Vijaya Ramachandran – is available as working paper of the Center for Global Development (CGD Working Paper 323). This research was made possible in part by funding from the William and Flora Hewlett Foundation. Axel Dreher and Andreas Fuchs are grateful for generous support from the German Research Foundation (DFG) in the framework of the project "Foreign Aid of Emerging Donors and International Politics" at Heidelberg University (DR 640/4-1). We thank Owen Barder, Deborah Bräutigam, Anke Hoeffler, Bruce Bueno de Mesquita, Chuan Chen, Vivien Foster, Fang He, Cullen Hendrix, Nataliya Pushak, Mona Sehgal, Arvind Subramanian, Bann Seng Tan, Yan Wang, Eric Werker, and Franck Wiebe for comments on earlier drafts of this paper. We also thank seminar audiences at the Center for Global Development in Washington, DC (February and April 2013), Jiaotong University in Shanghai (June 2013), the National Health Development Research Center (NHDRC) in Beijing (June 2013), the Institute for West Asian & African Studies (IWAAS) of the Chinese Academy of Social Sciences (CASS) in Beijing (June 2013), Heidelberg University (July 2013), the First Symposium of Development and Institutional Economics in Kaifeng (June 2014) and the School of International Economics and Trade of the Central University of Finance and Economics in Beijing (September 2014). We are grateful to Julie Walz and Vijaya Ramachandran for contributing to earlier versions of this paper. We owe a debt of gratitude to Brian O'Donnell and Charles Perla, who managed the team of research assistants at the College of William and Mary responsible for the creation of AidData's China's Official Finance to Africa Dataset, Versions 1.0 and 1.1, and Robert Mosolgo and Jason Pully, who created the online coding interface for our research assistants and the interactive database platform at http://china.aiddata.org. Wen Chen, Sarah Christophe, Alexandria Foster, Jaclyn Goldschmidt, Dylan Kolhoff, Patrick Leisure, Kevin McCrory, Alex Miller, Henrique Passos Neto, Grace Perkins, Kyle Titlow, Wendy Wen, Amber Will, Jiaorui Jiang, Rebecca Thrope, Torey Beth Jackson, Yue Zhang, Wenxia Tang, Tiffanie Choi, Faith Saviano, Melanie Gilbert, Catherine Crowley, Hanyang Xu, Ze Fu, Junrong Zhu, Emily Qui, Xiao Liu, Daniel Lantz, and Zach Baxter provided outstanding research assistance during the project. The authors are solely responsible for any errors or shortcomings in this article.

1. INTRODUCTION

In 2007 Western aid donors substantially reduced their development assistance to Sri Lanka in response to the breakdown of a ceasefire between the government and the secessionist Liberation Tigers of Tamil Eelam (LTTE). By contrast, China substantially increased its aid to Sri Lanka over the 2007-2009 period, thereby helping the authorities to cope with the sudden negative "shock" caused by the withdrawal of traditional aid resources (Campbell et al. 2012). When asked to explain the government's changing sources of aid, a senior official from Sri Lanka's Ministry of Foreign Affairs indicated that "we had to succumb to acknowledge blackmail and compromise with terrorism, or look for other friends, which we did. ... We shifted our focus from our traditional contacts towards the east, and we were very successful. ... In fact, we hardly felt the pinch of the withdrawal of western development assistance" (Perera 2009). Sri Lanka's ruling government eventually defeated the LTTE in 2009, ending three-decades of internal strife. Chinese- and Indian-funded infrastructure projects helped the government implement a strategy of winning over the North and East—previously controlled by the LTTE—through the promotion of economic development (Campbell et al. 2012).

The Sri Lankan case illustrates the growing role that non-Western donors play in shaping economic, political, and conflict outcomes in aid-recipient countries. Over the last decade, foreign assistance from non-Western donors has increased sharply—both in absolute terms and as a share of global development finance (Manning 2006; Woods 2008; Walz and Ramachandran 2011; Dreher et al. 2011, 2013; Fuchs and Vadlamannati 2013). This explosion of new funds and suppliers of development finance poses a challenge to the existing aid regime that is organized around the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD). Increasing donor competition provides developing countries the opportunity to "shop around" for the types of development finance that best suit their interests (Dreher et al. 2013). The rapid increase in development finance from governments that do not report to the DAC also raises a set of vexing questions for scholars and policymakers. How much funding do these non-DAC donors provide, to whom and on what terms?

What impact do non-DAC sources of finance have on economic development, democratization, debt sustainability, environmental outcomes, conflict and violence in developing countries? China, Russia, Venezuela, and India are thought to provide billions of dollars in assistance every year (Walz and Ramachandran 2011), but most of these "new" suppliers of development finance have chosen not to participate in existing reporting systems, such as the OECD's Creditor Reporting System (CRS) or the International Aid Transparency Initiative (IATI).[1]

China is a crucial case for researchers and policymakers because of the scale and opaqueness of its activities in developing countries. Western policymakers accuse China of expanding its presence, particularly in Africa, for self-interested reasons: securing access to natural resources, subsidizing Chinese firms and exports, cementing and expanding political alliances, and pursuing global economic hegemony.[2] China counters that its investment in Africa "[…] is based on respecting the will of Africa, listening to the voice of Africa and caring about the concerns of Africa, thus earning the trust of most African countries."[3] With increasing development activities all over the African continent, China's development finance has come under intense scrutiny over the past decade. African policymakers are divided on the issue of how Chinese development finance impacts social, economic, environmental, and government outcomes.[4] While some leaders perceive Chinese financing as better suited to Africa's needs, others feel threatened by China's growing presence in their countries.[5] Adjudicating between these competing claims has proven difficult because Beijing discloses very little official information about its

[1] There are widely varying levels of commitment to transparency among non-DAC suppliers of development finance. For example, Brazil, India, South Africa, and many of the new Eastern and Central European donors have demonstrated a higher level of interest in data disclosure and compliance with international reporting standards (Aufricht et al. 2012; Sinha and Hubbard 2012).

[2] See Dreher and Fuchs (forthcoming) for a summary of the relevant literature.

[3] "Is China an irresponsible friend of Africa?" *People's Daily Online*, 16 August 2006, available at http://english.peopledaily.com.cn/90883/7899133.html (last accessed 5 December 2014).

[4] We discuss this in more detail in a previous version of this paper (Strange et al. 2013).

[5] See, for example, evidence reported in media reports: Wade, Abdoulaye, "Time for the West to Practice What It Preaches," *Financial Times*, 23 January 2008, available at http://www.ft.com/intl/cms/s/0/5d347f88-c897-11dc-94a6-0000779fd2ac.html#axzz295bvXrn1; Kagame, Paul, "Why Africa Welcomes the Chinese," *The Guardian*, 2 November 2009, available at http://www.guardian.co.uk/commentisfree/2009/nov/02/aid-trade-rwanda-china-west; Conway-Smith, Erin, "Zambian Election Results Check Chinese Influence in Africa," *Global Post*, 25 September 2011, available at http://www.globalpost.com/dispatch/news/regions/africa/110924/zambian-election-results-check-chinese-influence-africa (accessible through http://www.archive.org; all last accessed 5 December 2014).

development finance activities. In the absence of reliable and comprehensive data, much of the conventional wisdom about Chinese development finance rests on untested assumptions, individual case studies, and incomplete data sources.[6]

As such, scholars cannot account for China's development activities in quantitative studies of the allocation, effectiveness or side effects of aid. Since China is widely considered the most important non-Western source of development finance, this omission may bias research results. To understand the allocation pattern and consequences of development finance, scholarship must consider the activities of all major donors to give reliable answers to research questions involving aid and conflict, geopolitical competition, and connections between aid shocks and violence. Studies on the aid-conflict nexus could particularly benefit from inclusion of data on China and other non-Western donors, since development finance from these states might serve as a crucial backstop for recipient regimes experiencing sudden withdrawals of aid from "traditional" donors.

As a first step towards addressing this critical information gap, we (a) systematize a web-based, open source methodology for collecting project-level development finance information; and (b) create a comprehensive database of Chinese development finance flows to Africa from 2000 to 2011. We find that China's project commitments exceed US$ 73 billion over the 2000-2011 period, of which approximately US$ 15 billion is comparable to Official Development Assistance according to the OECD definition. We use this database to replicate and extend the analysis of Nielsen et al. (2011), who show that aid shocks significantly increase the likelihood of conflict onset. By adding Chinese development finance to the analysis, our empirical results suggest that sudden withdrawals of "traditional" aid are only more likely to induce conflict in the absence of sufficient alternative funding from China. This is an important extension to the findings of Nielsen et al. (2011), as recent research demonstrates that "China increases faster its

[6] The Chinese authorities have taken some modest steps to make their development finance activities more transparent in recent years. The State Council's release of the inaugural "White Paper on China's Foreign Aid" in April 2011 and an updated version in 2014 is one of several encouraging developments in this regard (State Council 2011, 2014). However, official sources do not cover most of Chinese development finance activities; nor do they consistently specify financial amounts or forms of support at the project level or even the country-year level.

[financial] commitments towards fragile countries when traditional donors disengage" (Giovannetti and Sanfilippo 2011: 167).

This paper is structured as follows. Section 2 provides an overview of previous attempts to measure Chinese development finance and identifies some of the key factors that have impeded the creation of accurate, detailed, and comprehensive datasets. In Section 3, we introduce our new data collection methodology and present the resultant database of Chinese overseas development finance activities. Section 4 provides an overview of Chinese development finance to Africa as tracked by this new database. In Section 5, we extend the findings of Nielsen et al. (2011) and show that the collection of Chinese aid data is crucial to understanding the aid-conflict nexus. Finally, we conclude and discuss the limitations and weaknesses imposed by this data collection approach, also suggesting avenues for future research.

2. QUANTIFYING CHINESE DEVELOPMENT FINANCE

For a variety of domestic political and administrative reasons, the Chinese government does not release detailed, project-level financial information about its overseas development finance activities (Lancaster 2007; Strange et al. 2013).[7] Beijing's resistance to aid transparency may also reflect a broader disinterest in complying with Western (OECD-DAC) standards (Grimm et al. 2011). The absence of detailed, comprehensive and reliable information has fueled speculation and confusion about China's aid to Africa. Scholars, policy analysts, and journalists routinely use inflated estimates to demonstrate the challenge that China poses to Western donors.

[7] The yearbooks of the Ministry of Commerce (MOFCOM) reported a list of "comprehensive projects completed" by recipient country between 1990 and 2005, but do not identify the financial value of these projects (available at http://aiddata.org/content/index/Research/research-datasets). The World Food Program's Food Aid Information System (FAIS; available at http://www.wfp.org/fais/) and the UN OCHA's Financial Tracking Service (FTS; available at http://fts.unocha.org/) report information on China's food aid and humanitarian aid flows, respectively. However, these flows constitute only a small fraction of China's development finance. Appendix D compares our dataset with data available through these sources.

Conceptual differences further confound efforts to catalogue and measure "Chinese aid." Chinese development finance flows do not easily align with the well-defined OECD-DAC definitions of Official Development Assistance (ODA) and Other Official Flows (OOF). The DAC defines ODA as "[g]rants or loans to [developing] countries and territories […] and to multilateral agencies which are: (a) undertaken by the official sector; (b) with promotion of economic development and welfare as the main objective; (c) at concessional financial terms (if a loan, having a grant element of at least 25 per cent). In addition to financial flows, technical co-operation is included in aid" (OECD DAC glossary).[8] Members of the DAC have agreed that assistance to refugees, scholarships for developing country students, and funding relevant research are eligible to be included in ODA. Military aid and peacekeeping enforcement are excluded (OECD 2008). OOF is categorized as "[t]ransactions by the official sector with [developing] countries […] which do not meet the conditions for eligibility as Official Development Assistance, either because they are not primarily aimed at development, or because they have a grant element of less than 25 per cent" (OECD DAC glossary).

China states that its foreign aid "[f]alls into the category of South-South cooperation" (State Council 2011); however, it does not provide precise definitions in the 2011 White Paper or other official publications. The White Papers provide five "basic features" of Chinese foreign aid, but these are more about principles for how to give aid. They do not explicitly address how China classifies different development finance flow types (State Council 2011, 2014). The initial White Paper states that Chinese financial aid flows include grants, interest-free loans and concessional loans, and also lists eight forms of aid: "complete projects, goods and materials, technical cooperation, human resource development cooperation, medical teams sent abroad, emergency humanitarian aid, volunteer programs in foreign countries, and debt relief" (State Council 2011). What is more, there is no consensus as to how to classify many Chinese financial instruments that lack OECD-DAC counterparts such as natural resource-backed loans. So-called Chinese "package financing" means that development finance often consists of

[8] The OECD DAC Glossary of Key Terms and Concepts is available online at http://www.oecd.org/dac/dac-glossary.htm (last accessed 5 December 2014).

agreements that mix aid and investment, and/or concessional and non-concessional financing (Grimm et al. 2011). Chinese state-owned enterprises also blur the line between official government finance and private flows; FDI or joint ventures can come from firms that are either private or state-owned. Finally, there may be substantial discrepancies between Western and Chinese calculations of the cost of aid for the donor country. Western aid budgets include administrative costs which might inflate statistics on aid flows since substantial chunks of aid budgets are used on donor administrative costs rather than directly on recipient development.[9]

Aligning Chinese development finance with DAC categories is further complicated by the fact that many of Beijing's transactions with African countries are "bundled together" in ways that challenge conventional flow type definitions. Bräutigam (2011b) argues that a relatively small amount of finance is given as ODA to Africa—only around US$ 1.4 billion in 2009, while the majority comes as OOF. A study by the Congressional Research Service (CRS) and NYU Wagner School adopted a broader definition, characterizing many more flow types, including state-owned companies investing abroad, as "aid and related activities." As a result, they estimate US$ 18 billion in annual aid and related activities to Africa (Lum et al. 2009).[10]

These wide-ranging estimates—US$ 0.58 to 18 billion in annual "aid" to Africa (see Strange et al. 2013)—have significant implications for how China should be considered as a donor on the continent in comparison to DAC donors. If the upper estimate is to be believed, China gave three times more assistance to Africa in 2007 than the United States provided in ODA there (US$ 5.3 billion). DAC donors jointly disbursed US$ 27 billion in ODA to Africa in 2007 (DAC CRS database). Yet high estimates of Chinese aid are likely inflated for several reasons discussed below.

There is a compelling need for a common vocabulary and categorization scheme for Chinese development finance. Bräutigam (2009, 2011a) demonstrates that many forms of Chinese development

[9] The authors thank Li Xiaoyun of China Agricultural University (CAU) for this insight.
[10] Appendix A-1 displays Chinese development finance estimates provided by these and other previous studies.

finance do not fit cleanly into OECD-DAC categorizations. However, neither the research community nor the policy community has coalesced around a single taxonomy for classifying and categorizing Chinese development finance that enables comparisons with development finance from OECD-DAC donors. Instead of combining diverse financial flows into one black box aggregation like the CRS and NYU Wagner School's "aid and related activities" category, we have attempted to create more precise classifications and definitions that capture the diversity of Chinese development finance modalities. In particular, we have made a significant effort to allow researchers to differentiate between "ODA-like" activities, "OOF-like" activities, and other types of financing.[11] Our database also has a category called "Vague (Official Finance)" for loans and grants that are either ODA-like or OOF-like, but for which there is insufficient information to assign the flows to either the ODA-like or OOF-like category. While others may want to use our dataset for different purposes, the focus of this paper is on *official finance* from China to Africa, regardless of its developmental, commercial, or representational intent but excluding military aid and official investment. We use the term *official finance* as shorthand for these ODA-like, OOF-like, and Vague Official Finance flows in the remainder of the paper.

Our categorization scheme has several benefits. The introduction of the ODA-like, OOF-like, and Vague Official Finance categories provide a basis for analysts to make more accurate comparisons of official finance provided by China and Western donors. Additionally, by introducing the Vague Official Finance category, we have made the imprecision of our data and the uncertainty of our flow-type designations explicit. We consider this last point to be particularly important. Many scholars who study Chinese aid and investment refuse to be transparent about their data and methods, which makes replication impossible. We believe that transparency is a necessary condition for scientific progress because it invites and permits scrutiny, which will uncover weaknesses in methods and errors in their application.

[11] As detailed in Strange et al. (2013, 2014), we classify all projects according to one of eleven flow class categories. These categories also include military aid and grants, loans and investments from unofficial and quasi-official sources. However, the data from some of these categories are less complete, as they are a by-product of our data collection methodology, which includes search criteria that are designed to capture official financing flows (see Strange et al. 2014 for details). We do not analyze military aid or finance from unofficial sources in this study.

3. TRACKING UNDER-REPORTED FINANCIAL FLOWS: AN OPEN-SOURCE APPROACH TO DEVELOPMENT FINANCE DATA COLLECTION

Political scientists, economists, sociologists, geographers, and computer scientists have used open-source and media-based data collection methodologies to track violent and non-violent conflict incidents; document the scale, scope, and impact of natural and man-made disasters; and study patterns of political interaction and sentiment (Schrodt and Gerner 1994; King and Lowe 2003; Shellman 2008; Leetaru 2010; Raleigh et al. 2010; Yonamine and Schrodt 2011; EM-DAT 2014; Salehyan et al. 2012). The nature of media-based data collection, in particular, presents several unique challenges for data completeness, accuracy, quality, and credibility (Woolley 2000; Reeves et al. 2006). First, as with any social scientific inquiry, there is potential for human error by the coder. To reduce the risk of human error, each project in our database received multiple rounds of arbitration, ensuring that each project entry was reviewed by at least two researchers. Second, information extracted from public media outlets is an imperfect substitute for complete and accurate statistical data from official sources. Media-based data collection is only as good as the imperfect data sources upon which it relies. In the absence of official project-level data, there is no foolproof method for adjudicating between conflicting media reports.[12] However, because our methodology pulls from a diverse set of information repositories, researchers were often able to reconcile competing media reports by finding information in government documents, NGO reports, or journal articles. Third, relying on media reports poses a risk of "detection bias," or the risk that countries with lower levels of press freedom are less likely to permit journalists to report on official finance activities from various donors. Similarly, if the motives of media reporting are economic or political in nature, the objectivity and utility of the data are questionable. Among sociologists and scholars who study conflict

[12] However, it is also not the case that official sources are always more credible (and valuable) than media-based information. First, media-based data collection that relies on information regarding the implementation and/or the completion of projects can provide more useful and accurate project-level information than official reports, depending on how official project information is collected, updated and presented. Second, aid data are politically sensitive and might thus be more susceptible to manipulation. In this regard, empirical evidence in Wallace (forthcoming) suggests caution in the usage of politically sensitive data provided by authoritarian regimes.

and terrorism, there is an appreciation for the fact that the use of media reports to identify inherently political "events" (e.g., political protests, terrorist attacks) introduces a risk of selection bias (e.g., McCarthy et al. 1996; Drakos and Gofas 2006).

Our methodology for tracking under-reported financial flows (TUFF), which is documented at greater length in Strange et al. (2014), is designed to mitigate many of the risks associated with using media reports to collect data. During the first stage, projects undertaken in a particular country and supported by a specific supplier of development finance—be it a sovereign government, multilateral institution, non-governmental organization, or private foundation—are identified through Factiva, a Dow Jones-owned media database. Factiva draws on approximately 28,000 media sources worldwide in 23 languages. Most of these sources are newspapers, radio and television transcripts. In the second stage, researchers perform targeted online searches for each potential project identified in the first stage to corroborate project information and populate missing data fields. In this way, the media reports gathered in the first stage serve as a departure point for a set of follow-on data collection procedures that draw information from case studies and field reports completed by academics and non-governmental organizations, project inventories supplied through Chinese government websites, and grant and loan data published by recipient governments.[13]

Our methodological approach is informed by previous attempts to use media reports to track Chinese official development financing and expands on these previous methods by supplementing media reports with additional information sources (Bartke 1989; Foster et al. 2008; Lum et al. 2009; Gallagher et al. 2012; Scissors 2012; US EX-IM Bank 2012; Wolf et al. 2013). Previous efforts to classify or collect Chinese development finance data encountered six primary challenges. First, although many Chinese projects are cancelled, mothballed, or scaled back after the original announcement is made, previous data collection initiatives did not carefully "follow the money" from initial announcement to implementation, thus increasing the risk of over-counting (Bräutigam 2011b). Therefore, we conducted follow-up audits

[13] In our background paper (Strange et al. 2014), we describe this methodology in great detail, providing a step-by-step guide that documents how we conduct these searches and record results during both stages.

on all announced projects in order to mitigate the risk of mistaking project announcements for initiated or completed projects. Second, researchers have paid insufficient attention to double-counting of individual projects and activities reported by multiple media reports over multiple years (Grimm et al. 2011). To address this challenge, we employ a web-based data platform with filtering and keyword search functions that facilitates the identification and elimination of duplicate projects. Third, most scholars and analysts elide the issue of how to classify different forms of Chinese development finance. Rather than rolling diverse financial flow types into one omnibus category, we disaggregate by flow types and thus allow the user of the data to make his or her own decisions about what to include and how to analyze different forms of Chinese development finance.

Fourth, a lack of transparency in research methods has impeded efforts to improve knowledge about the distribution and impact of Chinese development finance. Documenting and disclosing research methods allows database users to identify potential errors and procedural flaws and thus facilitates the improvement of methods and data quality. Fifth, unlike previous efforts that rely only on English-language sources to track Chinese aid, trained Chinese-language experts conducted Chinese-language search queries to fill data gaps and enhance data accuracy. Finally, wherever possible, we avoided a "sole-sourcing" data collection process, or relying on data from a single source to track Chinese development finance projects. Instead, we employed a triangulation system wherein multiple sources for the same project provided data about different project attributes. More broadly, source triangulation helped minimize data deficiencies resulting from uncertainty over whether certain projects were actually undertaken and completed following their announcement. Because this triangulation process pulled from multiple information repositories, it reduces a project record's reliance on media reports.

4. NEW EVIDENCE ON CHINESE OFFICIAL FINANCE TO AFRICA

Our database includes 1,751 Chinese official finance projects in 50 African countries over the 2000-2011 period.[14] In the remaining dataset, 13.6% of the projects remain non-binding pledges.[15] This does not necessarily mean that a project has not reached the next stage of completion; it only means that we did not find any information in open source materials that one of the subsequent stages has been reached. Since we cannot be sure that these projects do indeed get formally committed, we exclude pledges from the analysis below (239 projects amounting to US$ 24.6 billion were omitted; this value and all following values are in constant 2009 US dollars).[16] By doing so, we intend to achieve comparability with aid commitments as defined by the OECD-DAC.

Of the remaining 1,511 projects that have reached at least commitment stage, 63% of the projects provide information on the amount of official finance committed, totaling US$ 73 billion. Note that this covers all financial flows that can be classified as either ODA-like or OOF-like (including Vague Official Finance projects that are identified as one of the two). Figure 1 shows the yearly number of projects and dollar amounts over the initial study period, which are highly correlated (0.82) and increasing over time.

The majority of the projects included in our data are grants (52%), which correspond to only 10% of the total dollar amount tracked. 23% of the projects are classified as either loans, loan guarantees or export credits, 8% as free-standing technical assistance, and 4% each as scholarships and other forms of training and debt forgiveness, respectively.[17] Within these flow types the likelihood that the monetary

[14] These values (and the subsequent analysis) do not include projects coded as "Official Investments" and "Military Aid without Development Intent." Although the 1.1 version of this database employed in this study covers information for 2012 as well, we decided to exclude these data from our analysis as the available information for 2012 is much lower as a result of limited time for media information to accumulate relative to previous years. The number of projects from more recent years is likely to increase in future updates of this database as more information becomes available.

[15] Pledges are informal agreements while commitments are defined as formal written, binding, contracts. Determinations are based on a set of key words discussed in our methodology document (Strange et al. 2014).

[16] As noted by Bräutigam (2009: 49), many "plump promises" reported in the media never materialize. By excluding pledges and focusing on flows that have at least reached the commitment stage, we follow a common practice in aid statistics and in empirical analyses on aid.

[17] The corresponding shares in US dollars are 79% (loans, loan guarantees and export credits), 0.24% (free-standing technical assistance), 0.004% (scholarships), and 5.5% (debt forgiveness).

value of a project is reported varies substantially. For example, 92% of loan projects have a reported monetary value, while only 9% of the (supposedly cheaper) projects of the category "Scholarships/training in the donor country" have a dollar amount. Classifying projects as ODA-like or OOF-like in Figure 2, the largest category in terms of project numbers is ODA-like grants (688 projects, amounting to US$ 5,100 million). This category includes, among many other things, donations of agricultural machinery and food aid. Concerning loans (including loan guarantees and export credits), we classify 108 projects as ODA-like (amounting to US$ 5,539 million), 49 as OOF-like (US$ 22,746 million), and 184 as Vague Official Finance (US$ 29,689 million). There are thus a significant number of loans for which we have no detailed financial information that prevents us from coding them as either ODA-like or OOF-like. 58 projects—57 of them coded as ODA-like—are classified as debt relief (debt rescheduling agreements and debt forgiveness). An additional 185 projects are classified as technical assistance and scholarships (151 of which receive the ODA-like designation).

Given the interest in China's role in Africa vis-à-vis Western donors, we also compare annual official financing flows from China with those from the United States and the entire OECD-DAC. Over the entire 2000-2011 period, China committed US$ 73 billion in official flows to Africa, which is more than a fifth of the total OECD-DAC flows (US$ 361 billion) and almost as much as committed by the United States (US$ 83 billion). Panel (a) of Figure 3 demonstrates that in the early-2000s China was already providing almost the amount of official finance commitments to Africa as the United States. At the peak in 2007, China was providing almost twice the amount of total US ODA and OOF, and almost half the amount of ODA and OOF to Africa from the entire OECD-DAC combined. All three trend upward over time. Official Chinese financing commitments to Africa can vary dramatically from year to year, often due to "megadeals:" multi-million dollar financing packages for large infrastructure projects or

other loans. The spike in 2007, for instance, is due to two large Chinese megadeals involving large loans to the Democratic Republic of Congo and Sudan.[18]

Panel (b) of Figure 3 restricts the analysis to Chinese and Western flows of official development assistance (or what we call ODA-like flows). Chinese flows to Africa identified as ODA have been much lower than those of Western donors. Over the entire decade China committed US$ 15 billion in ODA to Africa, which is 4% of the total OECD-DAC ODA flows (US$ 347 billion) and 19% of those of the United States (US$ 81 billion). However, an important caveat here is that our estimates of Chinese ODA are likely significantly devalued since a substantial chunk of Chinese official finance is labeled as "Vague Official Finance." These projects are cases that we are able to classify as official Chinese finance but do not have enough information to discern whether a project should be considered as OOF or ODA. The figure includes these flows as a separate item for comparison. Only in 2010, these combined flows exceed ODA by the United States.[19]

Table 2 presents the sectoral allocation of China's official projects in Africa. While we lack sufficient information to classify 214 projects, the most important sector according to DAC purpose codes is Government and Civil Society (Appendix B), with an overall number of 209 projects, amounting to US$ 1,718 million. While it might seem surprising at first that China is so active in this sector, most of Beijing's activities differ much from Western donors. Whereas DAC activities in this sector include strengthening public financial management systems, supporting anti-corruption institutions, and a wide variety of "good governance" initiatives, Chinese support to the sector includes, among other things, the construction of presidential estates and executive office suites.[20] Health (182 projects), Education (149),

[18] Appendix A-2 shows the 20 largest projects in our sample by commitment size. Very large projects with project size of US$ 1 billion are often called "megadeals." 13 projects in our sample would fall under this definition. Consistent with conventional perceptions in the literature, we observe a large share of loans and projects in the infrastructure and energy sectors in this sample.

[19] It should also be noted that as the dataset is missing financial values for 37% of Chinese projects, these project amounts are not captured in the comparative analysis. Thus, dollar amounts of Chinese Official Finance and ODA are both likely to be undercounted in comparison to OECD-DAC and US figures.

[20] Projects carried out by China include judicial training in Angola, the renovation of the Ministry of Foreign Affairs in Liberia, the construction of the National Assembly building in the Seychelles or a financial contribution to facilitate the last phase of the Somali National Reconciliation Conference.

and Transport and Storage (107) are on the following places. In terms of monetary amounts, Transport and Storage projects dominate (US$ 17,230 million), followed by Other Multisector (US$ 16,937 million) and Energy Generation and Supply (US$ 13,301 million).[21]

Over the entire 2000-2011 period, Zimbabwe received the largest number of projects (101), followed by Ghana (67) and Ethiopia (63). The smallest number went to Libya (2), South Sudan (5), and Chad (6).[22] It is not surprising that we did not track any Chinese official project in Burkina Faso, Swaziland, the Gambia, and São Tomé and Príncipe between 2000 and 2011, as none of these countries maintained diplomatic relations with the PRC and all of them recognized the Republic of China (Taiwan) instead.

Table 1 outlines the ten largest recipients of official finance from China, the United States, and the OECD-DAC as a whole, aggregating monetary flows from 2000-2011. Four of the top-ten recipient countries are consistent across all three (groups of) donors: the Democratic Republic of Congo, Ethiopia, Nigeria, and Sudan. By contrast, Zimbabwe is a top recipient of Chinese official finance but DAC flows are of low importance. Finally, Figure 4 shows China's official finance by recipient country as a share of the recipient's gross national income (GNI). This measure is a commonly used indicator for aid dependency. In general, Chinese official finance does not tend to be particularly high compared to African countries' economic size.[23] Given the increasing trend of Chinese activities in Africa, this is likely to change in the foreseeable future.

[21] Appendix A-3 shows the number of projects allocated to sectors over time. Appendices A-4 and A-5 report the sectoral distribution of Chinese projects identified as ODA-like for comparison.
[22] Since South Sudan was not an independent country until 2011, it is not surprising that this young country has received such a small number of projects over our study period. Appendix A-6 shows China's allocation of projects by country over time.
[23] There are a few exceptions such as Equatorial Guinea (4.8%) and Ghana (4.1%).

5. REVISITING THE AID-CONFLICT NEXUS

New data on a large donor allows for the reexamination of existing findings on the relationship between aid and other political variables of interest. The impact of development finance on the incidence, duration, and severity of armed conflict in recipient countries has been extensively studied (e.g., Grossman 1992; Collier and Hoeffler 2002; Esman and Herring 2003; De Ree and Nillesen 2009; Savun and Tirone 2011, 2012; Nunn and Qian 2013; Crost et al. 2014). Scholars continue to debate the precise impact of foreign aid flows on conflict in recipient states. For example, increases in aid might provide greater incentives for armed rebellion if the spoils of victory are perceived as larger, or may deter conflict by bolstering economic growth and state military capacity (Nielsen et al. 2011). While the contours of the aid-conflict nexus remain uncertain, scholars generally agree that volatility of incoming aid flows increases conflict in recipient states, whether through reductions in growth caused by greater uncertainty, increasing payoffs of war for rebels, or changes in the amount of resources governments can shift to deter violence or to buy off potential rebels (Lensink and Morrisey 2000; Arcand and Chauvet 2001; Bueno de Mesquita and Smith 2009).

The latter explanation, that aid volatility reduces the ability of governments to flexibly mobilize resources, is related to the fact that aid is sometimes fungible (Pack and Pack 1993). When aid is fungible, a recipient can effectively re-route incoming aid flows by reducing government spending in the sector receiving aid and spending more in other areas (Feyzioglu, Swaroop and Zhu 1998, Nielsen et al. 2011). Fungible aid could deter intrastate conflict by increasing a state's security capacity, or incite it by increasing the perceived rents for control of the state (Findley et al. 2011). Findley et al. (2011) argue that aid fungibility affects violence differently conditional on subnational location. It may deter conflict closer to state capitals where regimes enjoy substantial relative power advantages, but could catalyze local violence for aid rents further from the locus of state power. On the other hand, recipient regimes can leverage more fungible aid inflows by allocating them to "tenure extension activities" that promote state survival (Licht 2010). In other words, aid fungibility can provide regimes with agency and flexibility to

stabilize government spending in times of domestic vulnerability. A sudden aid shock, meanwhile, can jeopardize this flexibility.

The aid-conflict literature has been, however, largely dependent on development finance data from Western donors and multilateral institutions; nearly all published research ignores the possible impact of Chinese aid. Given the growing scale of Chinese aid, its inclusion might influence the results of previous studies. To the extent that China gives aid where "traditional" donors are absent and increases aid where "traditional" donors retreat, ignoring Chinese aid could severely bias the results of existing studies. In other words, aid fungibility may be relevant not simply in the sense that recipients can partially or wholly direct the use of incoming aid flows, but can also substitute for aid flows among different donors. And, while we do not take it up in this paper, if Chinese aid comes with fewer strings attached, then recipient governments will have even more flexibility in allocating for "tenure extension activities," so that one dollar of Chinese aid goes further in reducing conflict than one dollar of Western aid (Dreher et al. 2014).

To demonstrate the importance of including non-OECD donors, like China, when testing for relationships between aid and armed conflict, we replicate the analysis in Nielsen et al. (2011), including our data on Chinese aid. Nielsen et al. combine data on bilateral and multilateral aid (excluding China and other important non-DAC donors) with data provided by the Peace Research Institute Oslo (PRIO) to demonstrate the adverse effects of sudden foreign aid withdrawals on recipient conflict. They run a rare-event logit analysis of time-series, cross-sectional data on 2,627 conflict events across 139 states over the 1981-2005 period. They find (among other results) that aid shocks significantly increase the probability of armed conflict onsets.[24] We replicate this study, adding our new data on Chinese aid to their database. Importantly, note that the main result in Nielsen et al. (2011) holds when we restrict their sample to the post-2000 period and Africa. This is the reason why we have chosen their work to test our hypothesis,

[24] Nielsen et al. (2011) define foreign aid "shocks" as severe decreases in aid revenue. They measure it using a binary indicator that takes the value of one if the change in the aid-over-GDP ratio (averaged over the last two years) is below the 15th percentile of that variable's level. While the aid data employed in Nielson et al. also cover ODA flows from some non-DAC donors, the bulk of the financial flows covered there are provided by the group of "traditional" donors. Their data do not include Chinese aid.

rather than relying on other studies that also investigate the aid-conflict nexus, for which we could not replicate the main results in the post-2000 sample (e.g., Savun and Tirone 2011).

The inclusion of Chinese aid flows allows us to test our hypothesis: If "traditional" donors suddenly cut foreign aid flows, can recipient governments with close ties to other important donors, such as China, reduce the probability of violent conflict by offsetting aid shocks with alternative funding sources? In other words, does the presence of Chinese aid commitments increase the fungibility of aid that enables recipient governments to better withstand sudden outflows of "traditional" aid? We hypothesize that aid shocks do not translate into armed conflict onset if countries have access to sufficient funding from China to substitute for aid from "traditional" donors.

There are several possible explanations for this hypothesis. The availability of Chinese funds could enable governments to provide side-payments to (potential) rebels or make military investments that prevent (potential) rebels from challenging them. It could also be used by the recipient to invest in economic development activities that make the local population less sympathetic to the concerns and aims of (potential) rebels. Additionally, in the same way that aid flows from "traditional" donors are fungible and can free up resources for conflict deterrence purposes, Chinese aid flows could be used by some regimes to limit the risk of conflict during a negative aid shock. The conclusion of aid deals with Beijing could also serve as a signal to (potential) rebels that the recipient government can credibly commit to side-payments and thus prevent significant shifts in the distribution of power. This is particularly salient as China is said to be faster in delivering aid than other donors (e.g., Bräutigam 2009). In the remainder of this section, we test whether Chinese commitments to provide development finance in the aftermath of a shock in aid by other donors mitigates the effect of drastic changes in "traditional" aid flows on intrastate conflict.

(a) Baseline Regressions

We replicate Nielsen et al. (2011) as follows. We reproduce Model (1) of their Table 1 (2011: 226) with a sample that is restricted to Africa in the 2000-2005 period. As conflicts are more abundant in Africa than

in the worldwide sample (5.3% of all post-2000 observations), we run our models using logit regressions rather than rare-events logit.[25] We consider the following logit equation

$$Prob(conflict_{it}|x_{it}, t) = \frac{1}{1 + exp[-(x_{it}\beta + s(t_i))]}$$

where $conflict_{it}$ is a dummy variable that takes the value of one if a country *i* experienced an internal or internationalized internal conflict between government and rebel forces with at least 25 battle-related deaths in year *t* (as coded in Gleditsch et al. 2002); x_{it} represents a set of explanatory variables (including the aid shocks measure introduced above), while $s(t_i)$ are cubic splines.[26] With the exception of data on Chinese aid, we obtained these data from the replication dataset provided by Nielsen et al. (2011).

In order to analyze the impact of Chinese development activities on conflict onset, we add one of three measures of the intensity of Chinese development activities in a particular country at a time to the main regression. The first measure is the total number of China's official finance projects, the second is the total number of ODA-like projects and the third is the US$ amount of China's official finance directed to a particular country as a share of the recipient's GNI. The two measures based on project numbers have the advantage that they account for the entire universe of projects unveiled by the TUFF methodology. While the third measure based on monetary amounts has the drawback that it excludes those projects for which we could not identify the monetary value of the project, it has the advantage that it accounts for the size of the project and the recipient's economy.[27]

[25] This is in line with King and Zeng (2001) who recommend rare-events logit for events that are less frequent than 5%.

[26] In line with Nielson et al. (2011), we produce three spell-identification natural cubic spline variables (with three interior knots placed at equally spaced intervals). Following the suggestion of a referee, we also ran regressions with two continuous measures of non-Chinese (traditional) aid: logged aid commitments and the aid-over-GDP ratio. However, both variables do not turn out to have a statistically significant effect on conflict onset in our Africa post-2000 subsample. The relevant coefficient on the continuous aid measure is negative, as expected, in both cases but far from reaching statistical significance at conventional levels (p-values of 0.386 and 0.692, respectively). Such an approach is thus not applicable to our research question on whether Chinese aid has a mitigation effect on aid cuts by "traditional" donors.

[27] Note that we do not lag our measures of Chinese development activities even though Nielsen et al. (2011) lag the "aid shock" dummy in their estimations. This is crucial, as China and the recipient need time to react to a sudden drop in aid from other donors. By taking this approach, we assume the availability of Chinese funding to matter at the time of the (potential) outbreak of a conflict. We later test the robustness of our results to this choice.

We present the results of our empirical analysis in Table 3.[28] The first column replicates Model 1 from Table 1 of Nielsen et al. (2011). The second column repeats the same regression, but employs logit rather than rare-event logit for the reason explained above. Our third and fourth columns demonstrate that the main results of Nielsen et al. (2011) hold if we first restrict the period of analysis to the 2000-2005 period and then further reduce the sample to cover African countries only.

As a next step, we introduce our three measures of Chinese development activities and their interaction with the aid shock dummy in columns 5-7 of Table 3. As Ai and Norton (2003: 123) note, "[t]he magnitude of the interaction effect in nonlinear models does not equal the marginal effect of the interaction term, can be of opposite sign, and its statistical significance is not calculated by standard software." Figure 5 thus plots the average marginal effects of aid shocks on conflict onset at different levels of Chinese development finance (and the corresponding 90% confidence intervals). We find that aid shocks significantly increase the probability of armed conflict onset if no sufficient alternative funding from China is available. As can be seen in the figure, the effect of aid shocks on conflict remains statistically significant at conventional levels only at low levels of Chinese development activities. More precisely, we find that aid shocks do not significantly increase the likelihood of conflict onset if the number of Chinese projects exceeds roughly three (panels (a) and (b)). Accounting for the monetary value of the development projects and the size of the economy, panel (c) of Figure 5 shows that aid shocks do not translate into conflict if the amount of Chinese official finance as a share of recipient GNI amounts to 1% or more. These findings suggest that the availability of funding from China mitigates the impact of aid shocks from "traditional" donors on conflict onset. More generally, incoming aid flows appear to be fungible in the sense that withdrawals of aid from one or more donors can be at least partially substituted for by aid commitments from other donors previously not considered in aid-conflict scholarship.

As Nielsen et al. (2011) argue, incoming aid flows are often unstable despite the fact that many developing countries rely on them for a substantial portion of national expenditures. Instability resulting from sudden aid withdrawals are thus a major concern for developing states, making alternative sources

[28] We use robust standard errors clustered by country as in Nielsen et al. (2011).

of funding beyond "traditional" donors even more critical. Our results suggest that Chinese development finance may have a stabilizing effect in recipient states with weak governments. These findings also raise interesting questions about whether aid from China and other non-OECD donors, with arguably looser aid allocation and monitoring standards, is relatively more fungible or discretionary (Dreher et al. 2014; Bader forthcoming). Another possibility is that stabilizing aid from China—or other non-Western donors—in the aftermath of an aid shock reduces the ability of Western donors to intentionally weaken governments that have chosen to pursue policies which do not fall in line with Western policy preferences. More broadly, the findings highlight the importance of gathering better data on the development activities of China and other non-traditional donors to better understand the link between foreign aid and conflict.

(b) Robustness Checks

We perform several robustness checks to ensure the validity of our findings discussed above. Most importantly, the existing cross-country literature on conflict raises the possibility that our variables of interest are endogenous to armed conflict. We therefore make a (modest) attempt to address endogeneity. It is arguably difficult to find a suitable instrument for aid shocks (or aid flows in general). As Nielsen et al. (2011: Appendix A9) explain, they "abandoned the IV strategy because either the instruments were not significantly correlated with aid shocks or they violated the crucial exclusion restriction." We agree that it is difficult to find a suitable instrument for "traditional" aid flows, but suggest an instrument for the Chinese case: a binary indicator variable that takes the value of one if a country has established diplomatic relations with Taiwan (Republic of China) rather than (the People's Republic of) China in a given year (data from Rich 2009).[29] A country's stance towards the One-China Policy is an important determinant of access to Chinese funds (Dreher and Fuchs forthcoming). However, a valid instrument must also meet the exclusion restriction in addition to being relevant. The most obvious channel through

[29] Over the 2000-2005 period, Burkina Faso, Chad, Gambia, Liberia (until 2003), Malawi, Senegal and Sao Tomé and Principe recognize the Republic of China (Taiwan) as the one China.

which Chinese aid could potentially influence the onset of conflict is through its impact on trade (since an economic contraction could hasten the onset of a conflict and an economic expansion could forestall conflict, see Collier et al. 2002, Miguel et al. 2004, and de Ree and Nillesen 2009); however, recent research suggests that diplomatic recognition of Taiwan is not a statistically significant predictor of trade with African countries (Johnston et al. 2014). As it is hard to identify a channel other than Chinese funds through which the question of Taiwan recognition could affect conflict onset in African countries, we have strong reasons to believe that this dummy variable is a suitable instrument.

In order to run our interacted model with an instrumental-variables strategy, one would need at least three instruments (one for each variable). As we do not have a suitable instrument for aid shocks (and the interaction term), we rerun the linear probability model with aid shocks and Chinese funds without interaction. We then show that the Taiwan recognition variable is a relevant predictor of Chinese funds, as suggested by the Angrist-Pischke F test of excluded instruments for the specifications using the number of OF projects and ODA projects, respectively (F>10). Our results (reported in Table 4) show a significant negative effect of project numbers, instrumented by Taiwan recognition, on conflict onset.[30] This evidence is generally in line with a conflict-mitigating effect of Chinese funds under traditional aid shocks. We take this as evidence supporting the existence of an actual causal relationship driving our results.

Other scholars who study the relationship between aid and conflict have suggested using lagged aid flows as a (partial) solution to address potential endogeneity (Collier and Hoeffler 2002; Nielsen et al. 2011; Savun and Tirone 2011). While we chose not to lag our measures of Chinese development activities in our baseline estimations in order to reflect the availability of Chinese funding to matter at the time of the (potential) outbreak of a conflict, we now re-run our regressions with lagged variables of interest to test whether our previous results are driven by this choice.[31] Appendix E-1 replicates Figure 5 when we

[30] The specification using the OF-over-GNI ratio should be interpreted with more caution as the instrument are weaker (F<10).
[31] In order to not lose an additional year (2000), we extrapolate the Chinese aid values for 1999. Note that the logit regression did not converge when we alternatively excluded the year 2000 from the regression.

lag our measures of China's development activities by one year. Our results are robust to this modification of the empirical strategy.

Second, one might argue that controlling for "intermediate outcomes" like riots and instability, which might themselves have been affected by an aid shock, closes important transmission channels.[32] We thus test whether our results hold when we drop the control variables that are most likely to fall into this category (*Human Rights Violations*, *Assassinations*, *Riots*, *General Strikes*, *Antigovernment Demonstrations*, and *Instability*). As can be seen in Appendix E-2, we obtain a similar pattern as in Figure 5.

Third, while we use cubic splines in our baseline model in line with Nielsen et al. (2011), we now replace them by the time (in years) since the last conflict occurred and its squared and cubic term to test robustness. By doing so, we follow Carter and Signorino (2010) who show that this simplistic approach to account for time dependence outperforms time dummies and is not inferior to the usage of splines. As can be seen from Appendix E-3, our findings are robust when we replace cubic splines by t, t^2 and t^3.

Fourth, as the interpretation of an interaction term in a non-linear model is non-trivial (as discussed above), we re-run our regressions using a linear probability model for comparison. Appendix E-4 shows a similar pattern as in the original regression. The only noteworthy difference is that the marginal effect of aid shocks becomes significantly negative, but only with a very high influx of Chinese official finance as a share of gross national income.

Finally, we run a linear fixed-effects model. Appendix E-5 shows the resulting marginal effects of an aid shock from "traditional" sources as a function of the availability of Chinese funding. It is reassuring that we still observe a negative slope, while it is not surprising that the fixed-effects results are only marginally significant given the low number of observations (39 African countries over six years).

[32] We would like to thank an anonymous reviewer for having made this suggestion.

6. CONCLUSIONS

As some Western governments scale back their development finance commitments, non-Western donors are rapidly expanding their overseas aid activities. The most important provider of official finance to Africa among these non-DAC donors is China. Yet many non-DAC donors, including China, lack either the capacity or the political will to provide detailed information about their aid activities. Scholars are increasingly handicapped in their ability to study aid allocation and the impact of non-Western finance on development, political, and conflict outcomes.

Based on insights from previous projects tracking conflicts, disasters, aid, investment and other political and economic phenomena through open source data collection techniques, we developed a systematic, transparent and replicable methodology that triangulates and curates information from a wide range of sources that are largely independent from each other. Apart from contributing to the literature on development finance, we pursued this project as a proof of concept exercise to test the viability of a web-based, open source data collection approach. This initial application has uncovered more than US$ 73 billion in commitments of official Chinese financing flows to Africa that were previously unrecorded—in a single location and with a single, consistent methodology—at the project level. US$ 15 billion could be identified as being similar to ODA according to the OECD definition.

Several important observations can be made about 21st-century Chinese official finance to Africa. First, with respect to the geographic distribution of China's official finance, we find that China's activities are spread all over the African continent. Only countries recognizing Taiwan do not show up among China's recipients of official finance flows. According to the dollar amounts we tracked, the largest recipient appears to be Ghana followed by the Democratic Republic of Congo and Ethiopia. Second, with respect to the sectoral distribution of development projects, we find that China is active in almost all sectors, with "General environmental protection" being a notable exception.[33] While conventional

[33] It seems that this is about to change. Albeit being small-scale and rather symbolic, the construction of a China-Algeria Friendship Park with the intension "to promote urban greening and environmental protection" can be

wisdom that infrastructure plays an important role has been confirmed by the TUFF approach, the sector "Government and Civil Society" plays the most important role in terms of project numbers. Unsurprisingly in the Chinese case, projects in this sector are about "Government" and not "Civil Society." Third, with respect to the trend over time, Chinese activities as a financier of development activities are increasing and are, at present, roughly comparable to the size of activities provided by the United States. When looking at ODA-like flows exclusively, however, China still is clearly behind the United States.

Moreover, the results presented in this paper suggest that Chinese development finance merits greater attention within the conflict studies literature. Extending the work of Nielsen et al. (2011), the empirical application of our dataset has shown that aid shocks from "traditional" sources are more likely to induce conflict onset only if insufficient alternative funding is available from China. As such, traditional debates about aid fungibility and conflict should be expanded to consider not only the degree to which recipient regimes have agency to redirect incoming aid flows, but also the extent to which they can mitigate the impact of negative aid shocks by substituting aid flows from different donors. This phenomenon is arguably most interesting when considering donors within a recipient country that are unlikely to increase and decrease aid commitments in concert with each other. As this paper has demonstrated, including the development activities of China and other "non-traditional" donors is an essential step for generating more accurate conclusions about the relationship between foreign aid and armed conflict in developing countries. Future research could explore a variety of avenues, such as whether non-Western aid has a uniform stabilizing effect or depends on recipient institutions (see Bader forthcoming). All of this underscores the more general necessity of creating, improving and utilizing new sources of information to understand the development activities of China and other non-DAC donors.

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interpreted as a first step towards a deeper engagement in environmental issues (see http://china.aiddata.org/projects/31758 for details; last accessed: 5 December 2014). The 2014 White Paper lists "Strengthening Environmental Protection" as one of its goals (State Council).

Finally, going forward, we hope to continue improving the accuracy, precision, and comprehensiveness of the TUFF methodology used to produce our project-level dataset of Chinese development finance. We have recently geocoded the precise latitude and longitude coordinates of all projects and analyze the spatial distribution of Chinese development finance (Dreher et al. 2014). Sub-nationally georeferenced data will help address a range of questions focused on the nature, scope and aims of Chinese development finance. Additional improvements to the TUFF methodology may include open source searches in languages other than English and Mandarin, vetting of project records by scholars with country-specific expertise, the publication of project-level scores that signal the reliability of the open source information used to build each record in the dataset, and supplementary data collection for the project records in our database that lack financial values. These activities are in addition to recent 'ground-truthing' efforts in recipient countries to field-test the accuracy of TUFF data (Muchapondwa et al. 2014). We also hope to extend and adapt the TUFF methodology to more effectively track development finance and cooperation activities from other non-DAC donor governments that do not publish detailed information about their overseas aid programs, such as Iran, Cuba, and Venezuela.

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Table 1. *Ten largest recipients of Official Finance to Africa (ODA and OOF), 2000-2011*

	China	United States	DAC
1.	**Ghana (US$ 11.6B)**	1. Egypt (US$ 7.6B)	1. Nigeria (US$ 28.8B)
2.	**DRC (US$ 7.8B)**	2. Ethiopia (US$ 6.9B)	2. DRC (US$ 21.9B)
3.	**Ethiopia (US$ 6.6B)**	3. Sudan (US$ 6.8B)	3. Tanzania (US$ 19.6B)
4.	**Sudan (US$ 5.3B)**	4. DRC (US$ 5.8B)	4. Mozambique (US$ 17.9B)
5.	**Angola (US$ 4.2B)**	5. Kenya (US$ 5.5B)	5. Egypt (US$ 16.5B)
6.	**Equatorial Guinea (US$ 3.7B)**	6. Nigeria (US$ 4.2B)	6. Ethiopia (US$ 16.1B)
7.	**Zimbabwe (US$ 3.5B)**	7. South Africa (US$ 3.6B)	7. Kenya (US$ 14.6B)
8.	**Nigeria (US$ 3.1B)**	8. Uganda (US$ 3.5B)	8. Sudan (US$ 14.0B)
9.	**Cameroon (US$ 3.0B)**	9. Tanzania (US$ 3.4B)	9. Morocco (US$ 12.6B)
10.	**South Africa (US$ 2.3B)**	10. Mozambique (US$ 3B)	10. Uganda (US$ 12B)

Source: AidData's Chinese Official Finance to Africa Dataset, Version 1.1 and OECD DAC Creditor Reporting System.

Table 2. *Sectoral Allocation of Official Finance to Africa (ODA and OOF), 2000-2011*

Sector name	**Number of projects**		**Amount in millions of 2009 US$**	
		Rank		*Rank*
Unallocated / Unspecified	214	1	3740	6
Government and Civil Society	209	2	1718	9
Health	182	3	1078	13
Education	149	4	239	15
Transport and Storage	107	5	17230	1
Agriculture, Forestry and Fishing	98	6	3520	7
Other Social infrastructure and services	87	7	1766	8
Communications	80	8	4324	4
Energy Generation and Supply	69	9	13301	3
Emergency Response	57	10	160	16
Action Relating to Debt	56	11	4099	5
Other Multisector	49	12	16937	2
Water Supply and Sanitation	39	13	1666	10
Trade and Tourism	35	14	1248	12
Industry, Mining, Construction	32	15	1521	11
Developmental Food Aid/Food Security Assistance	14	16	24	19
Population Policies / Programmes and Reproductive Health	11	17	36	18
Banking and Financial Services	10	18	313	14
Business and Other Services	5	19	41	17
Women in Development	4	20	0	23
Support to NGOs and Government Organizations	2	21	9	20
General Budget Support	1	22	1	21
Non-food commodity assistance	1	23	0	22

Table 3. *Aid shocks, Chinese development finance and conflict onset (regression results)*

	(1) **Rare-events Logit** **Full sample** **All countries**	(2) **Logit** **Full sample** **All countries**	(3) **Logit** **2000-2005** **All countries**	(4) **Logit** **2000-2005** **Africa only**	(5) **Logit** **2000-2005** **Africa only**	(6) **Logit** **2000-2005** **Africa only**	(7) **Logit** **2000-2005** **Africa only**
Aid shock	0.911***	0.937***	1.681***	4.063**	3.980*	4.109*	5.209**
	(0.001)	(0.001)	(0.006)	(0.017)	(0.057)	(0.057)	(0.048)
Number of OF projects					-2.761**		
					(0.039)		
Aid shock * Number OF					2.446		
					(0.139)		
Number of ODA projects						-6.637**	
						(0.040)	
Aid shock * Number ODA						6.384*	
						(0.055)	
OF amount/GNI							0.235
							(0.507)
Aid shock * OF amount/GNI							-2.233*
							(0.081)
Positive aid shock	0.154	0.150	0.406	-1.070	1.136	0.393	-1.252
	(0.672)	(0.683)	(0.585)	(0.349)	(0.551)	(0.797)	(0.405)
Human rights violations	0.607***	0.625***	0.557*	0.497	0.618	0.154	0.280
	(0.000)	(0.000)	(0.081)	(0.565)	(0.480)	(0.850)	(0.741)
Assassinations	0.136	0.123	0.428	-1.376	-1.851	-1.612	-2.034
	(0.168)	(0.216)	(0.183)	(0.312)	(0.105)	(0.229)	(0.169)
Riots	0.014	-0.009	-0.213				
	(0.917)	(0.944)	(0.717)				
General strikes	0.015	-0.019	-0.154				
	(0.944)	(0.927)	(0.819)				
Antigov. demonstrations	-0.053	-0.066	-0.510	-2.902	-1.882	-2.149	-3.062
	(0.672)	(0.598)	(0.175)	(0.151)	(0.292)	(0.283)	(0.217)
Infant mortality	0.003	0.004	-0.002	-0.002	-0.009	-0.003	-0.002
	(0.473)	(0.462)	(0.840)	(0.949)	(0.742)	(0.931)	(0.965)
Bad neighborhood	-0.038	-0.048	-0.095	0.725*	1.074**	0.860*	0.703
	(0.747)	(0.690)	(0.714)	(0.092)	(0.034)	(0.079)	(0.174)
Partial autocracy	0.230	0.231	-0.294	17.091***	24.386***	25.346***	17.519***
	(0.490)	(0.492)	(0.762)	(0.000)	(0.000)	(0.000)	(0.000)
Partial democracy	-0.669	-0.741	-1.212	15.878***	23.361***	24.271***	16.264***
	(0.157)	(0.120)	(0.244)	(0.000)	(0.000)	(0.000)	(0.000)
Factional democracy	0.681*	0.698*	0.061	16.127***	23.048***	23.948***	16.743***
	(0.077)	(0.073)	(0.959)	(0.000)	(0.000)	(0.000)	(0.000)
Full democracy	0.176	0.164	-2.653**				
	(0.747)	(0.766)	(0.032)				

ln(GDP per capita)	-0.200	-0.198	-0.182	0.182	0.384	0.243	0.112
	(0.401)	(0.410)	(0.654)	(0.786)	(0.655)	(0.780)	(0.912)
ln(Population)	0.090	0.100	0.212	-0.044	-0.234	-0.262	-0.013
	(0.283)	(0.238)	(0.359)	(0.904)	(0.639)	(0.524)	(0.978)
Oil	0.010***	0.009***	0.051***	0.679***	1.209***	1.376***	0.791***
	(0.001)	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Instability	0.225	0.224	-0.196	0.963	1.642**	1.620*	1.053
	(0.407)	(0.414)	(0.755)	(0.239)	(0.048)	(0.052)	(0.246)
Ethnic frac.	1.341**	1.405**	2.404	4.073*	5.129*	5.275*	2.789
	(0.022)	(0.017)	(0.166)	(0.062)	(0.073)	(0.091)	(0.283)
Religious frac.	-0.738	-0.771	-1.002	2.182	4.517	4.134	3.728
	(0.273)	(0.257)	(0.477)	(0.454)	(0.205)	(0.341)	(0.291)
Noncontiguous	0.985***	0.981***	1.137	0.907	4.593**	5.018**	0.629
	(0.002)	(0.002)	(0.117)	(0.662)	(0.020)	(0.045)	(0.780)
Mountains	0.086	0.091	0.076	-0.337	-0.351	-0.103	-0.315
	(0.359)	(0.338)	(0.672)	(0.352)	(0.425)	(0.811)	(0.488)
Cold War	0.163	0.176					
	(0.567)	(0.540)					
Constant	-5.797**	-6.148**	-7.655	-28.753***	-36.406***	-35.372***	-29.250*
	(0.046)	(0.036)	(0.133)	(0.007)	(0.008)	(0.006)	(0.065)
Cubic splines	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2627	2627	719	188	188	188	185
Number of countries	139	139	128	39	39	39	39
AIC	.	723.003	203.893	83.386	83.222	82.125	83.939
BIC	.	875.717	318.339	151.351	157.660	156.564	158.007

Note: Robust standard errors clustered by country are in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Table 4. *Aid shocks, Chinese development finance and conflict onset (IV regression results)*

	(1) **OLS 2000-2005 Africa only**	(2) **OLS 2000-2005 Africa only**	(3) **2SLS 2000-2005 Africa only**	(4) **OLS 2000-2005 Africa only**	(5) **2SLS 2000-2005 Africa only**	(6) **OLS 2000-2005 Africa only**	(7) **2SLS 2000-2005 Africa only**
Aid shock	0.162**	0.164**	0.182**	0.168**	0.203***	0.163**	0.054
	(0.028)	(0.027)	(0.012)	(0.025)	(0.007)	(0.028)	(0.680)
Number of OF projects		-0.008	-0.100*				
		(0.285)	(0.064)				
Number of ODA projects				-0.016	-0.120*		
				(0.247)	(0.053)		
OF amount/GNI						0.001	-0.348
						(0.950)	(0.112)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cubic splines	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	188	188	188	188	188	185	185
Number of countries	39	39	39	39	39	39	39
Kleibergen-Paap rk LM (p value)			0.020		0.010		0.079
Angrist-Pischke F test of excluded instruments			12.21		16.49		3.32

Note: Robust standard errors clustered by country are in parentheses. ***p<0.01, **p<0.05, *p<0.1.

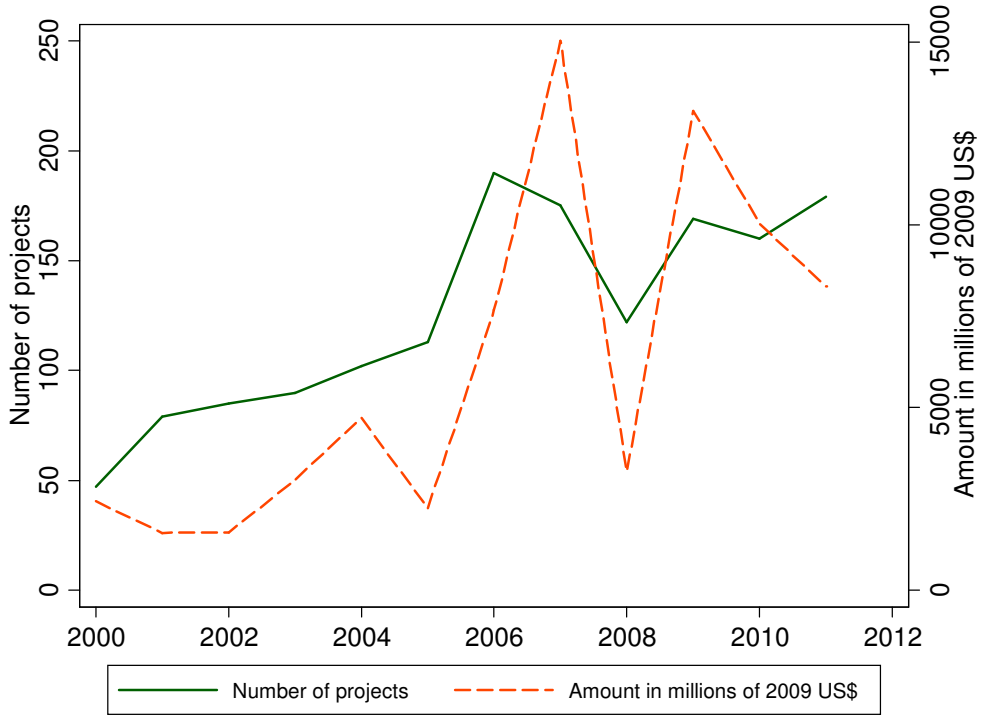

Figure 1. *Chinese official finance reported over time, 2000-2011*

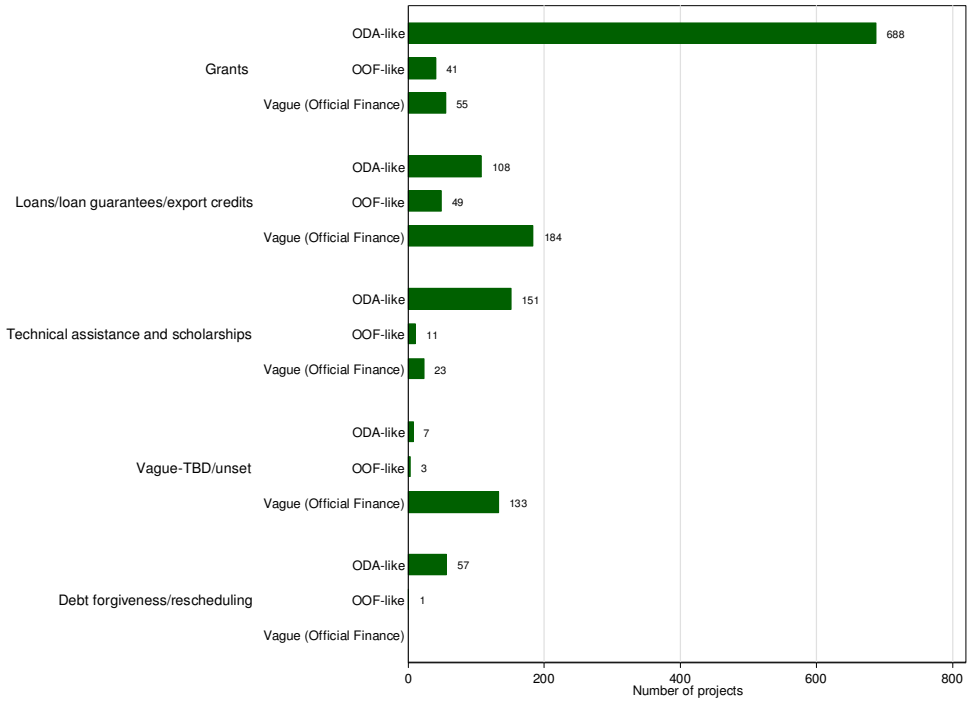

Figure 2. *Number of Chinese projects by flow type, 2000-2011*

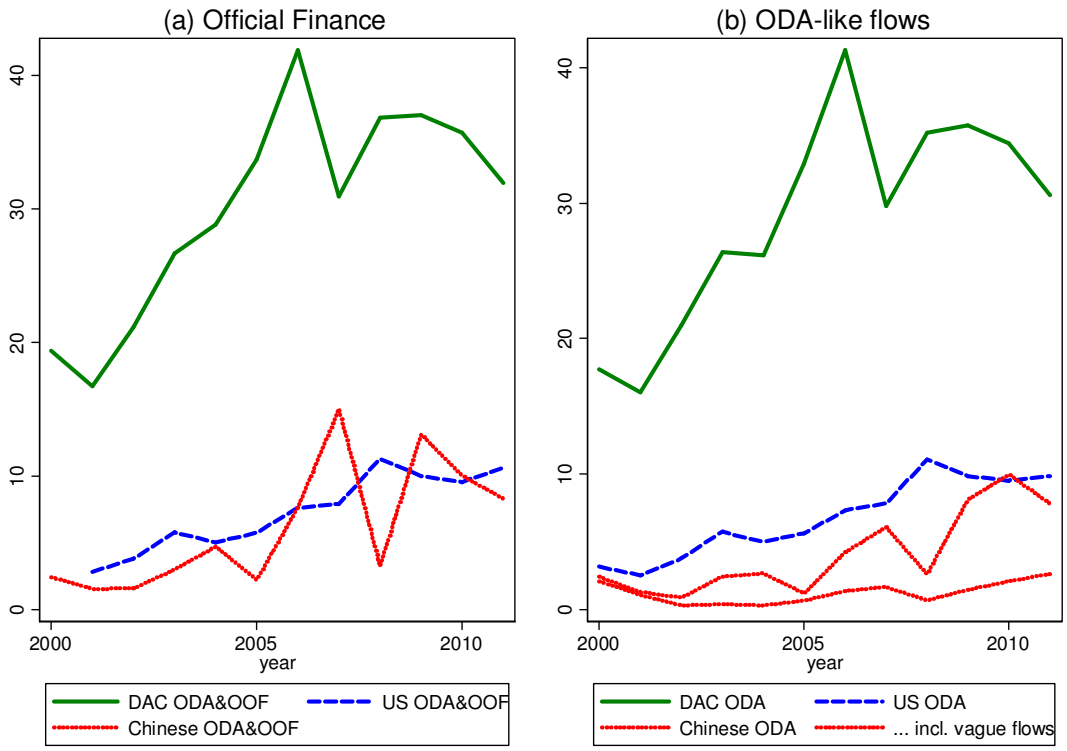

Figure 3. Chinese, OECD-DAC, and US official flows over time (in billions of constant 2009 USD)

Note: Panel (b) displays Chinese ODA both including vague flows (upper dotted line) and excluding these flows that cannot be identified as either ODA or OOF (lower dotted line)

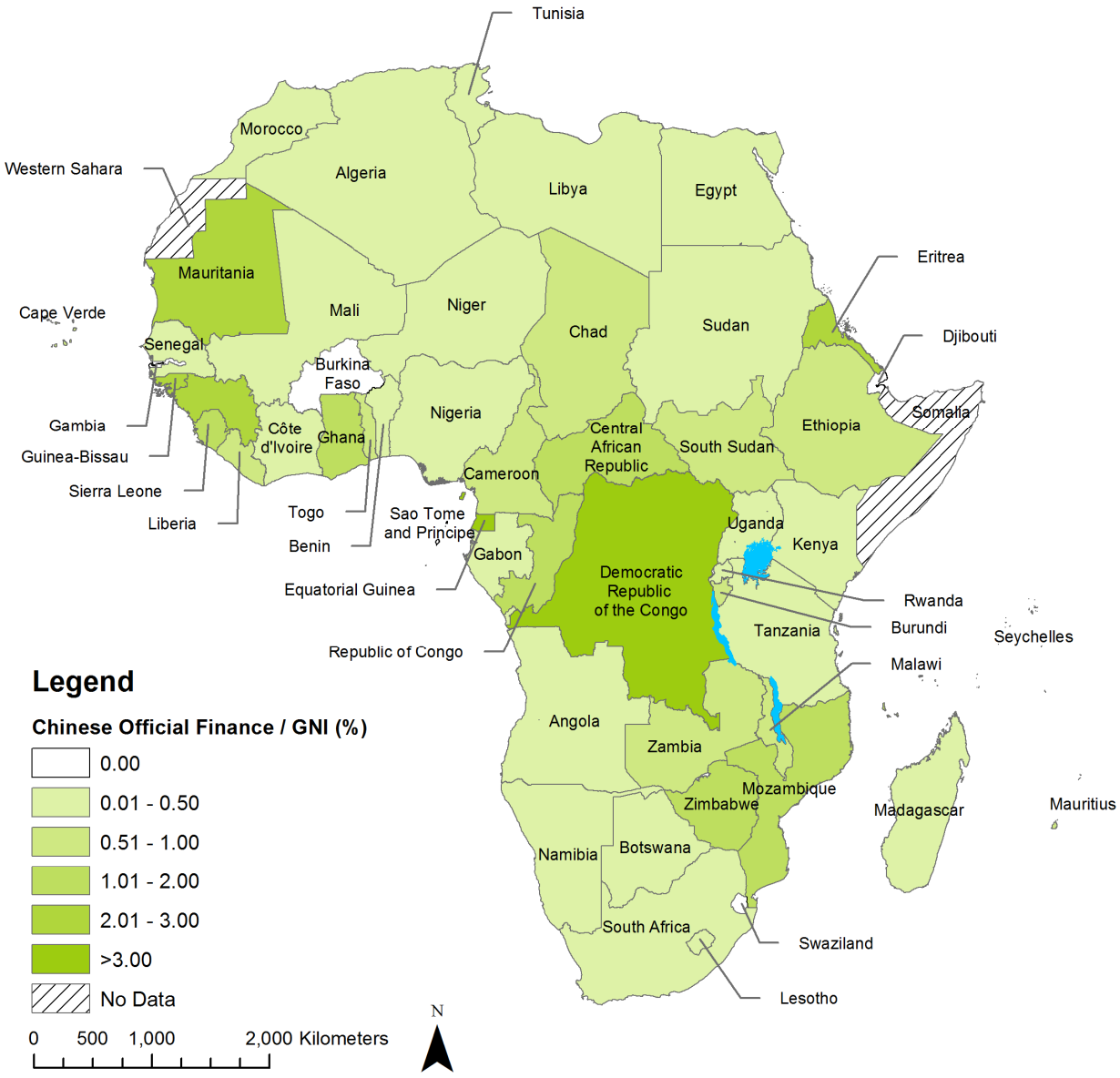

Figure 4. China's official finance to Africa by recipient country as percentage of GNI, 2000-2011 average

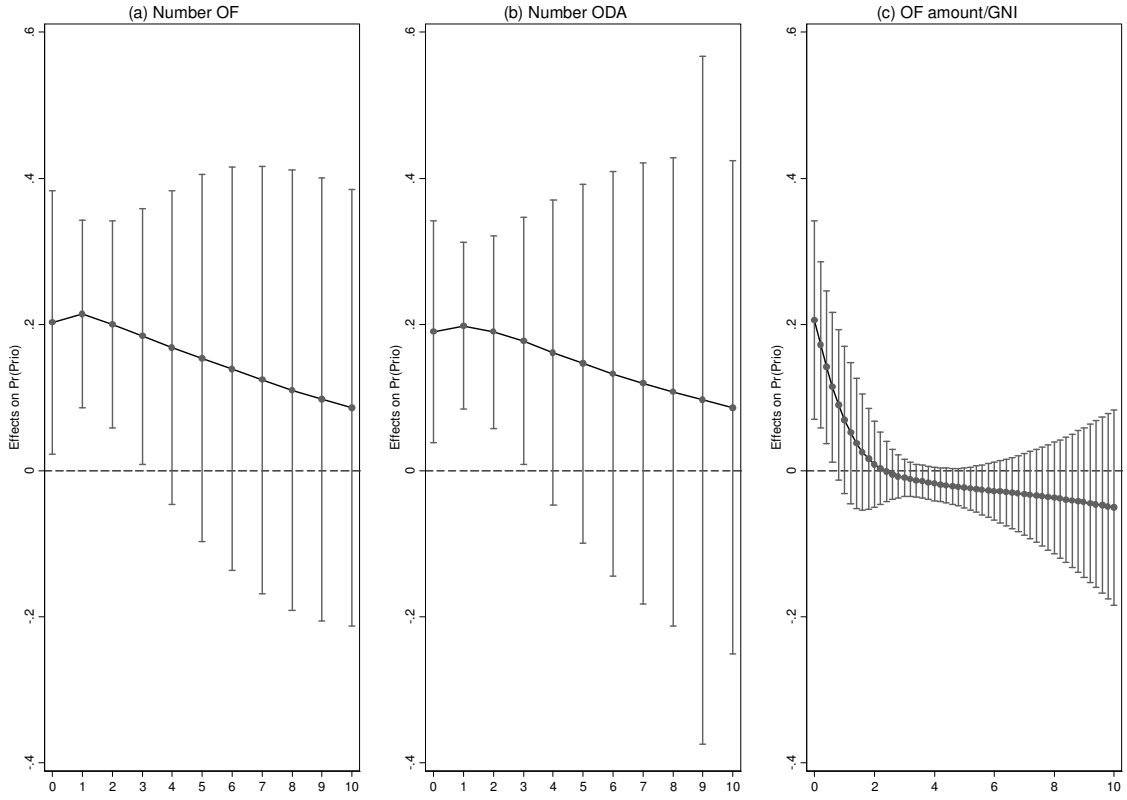

Figure 5. Aid shocks, Chinese development finance and conflict onset (average marginal effects)

APPENDIX

Appendix A-1. *Estimates of Chinese development finance to Africa*

Source	**Year**	**Amount per year**	**Flow type**
Bräutigam (2011b)	2009	US$ 1.4B	ODA disbursements
Wang (2007)	2004-2005	US$ 1-1.5B	ODA
The Economist (2004)	2002	US$ 1.8B	Development aid
Lum et al. (2009)	2007	US$ 17.96B	PRC aid (largely provided as concessional Exim Bank loans)
Christensen (2010)	2009	US$ 2.1B	Aid (external assistance and Exim Bank loans)
Lancaster (2007)	2007	US$ 582-875M*	Aid
He (2006)	1956-2006	US$ 109.8M	Aid
Kurlantzick (2006)	2004	US$ 2.7B	Aid
Fitch Ratings (2011)	2001-2010	US$ 6.72B	Exim Bank loans
Alden and Alves (2009)	2006	US$ 12-15B	Exim Bank loans
Harman (2007)	2006	US$ 12.5B	Exim Bank loans
Christensen (2010)	2009	US$ 375M	Debt relief

* Authors' calculations based on mid-point of the estimated range of total Chinese aid ($1.5-2B), and the estimated range of Africa financing (33%-50%).

Sources:

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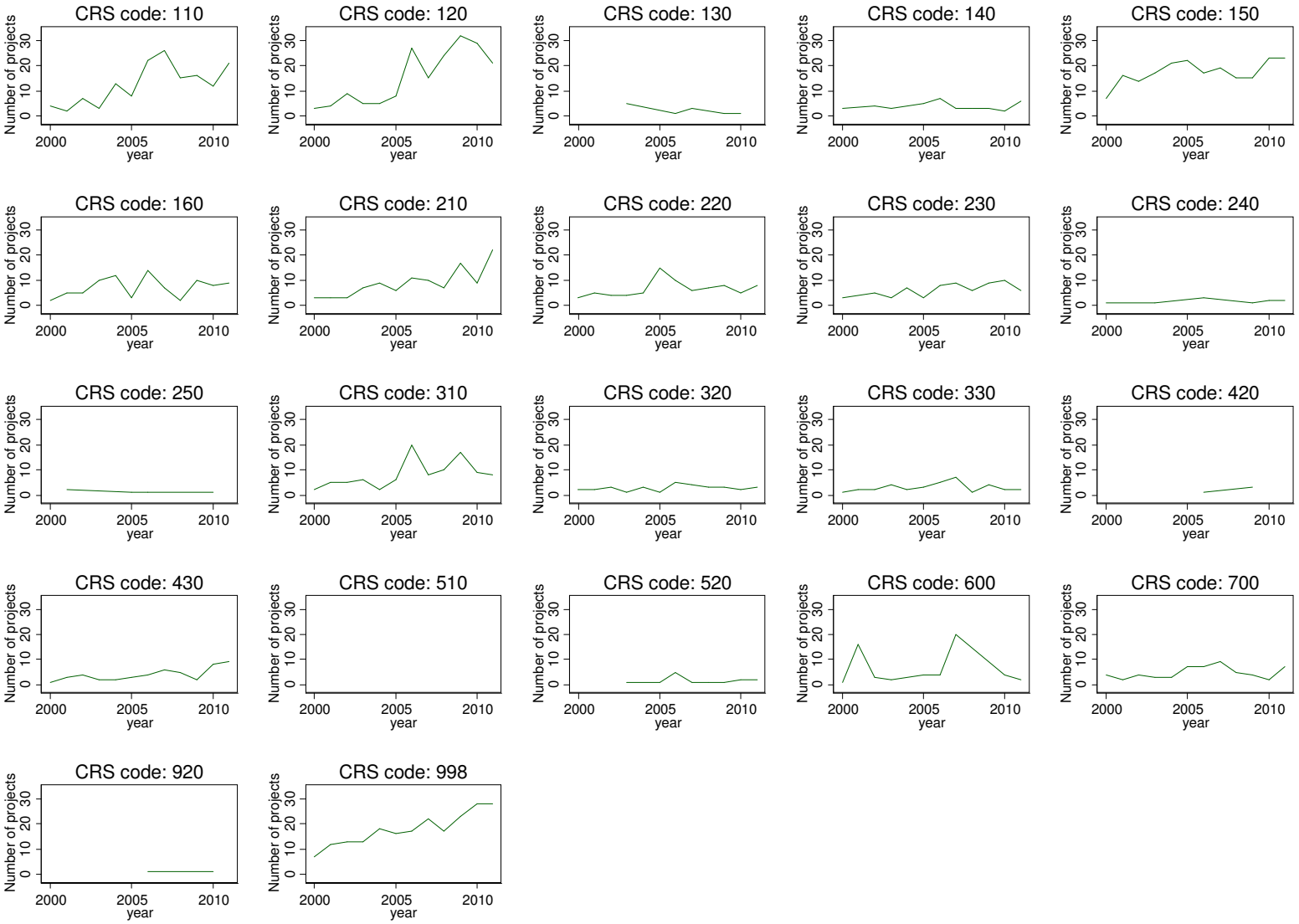
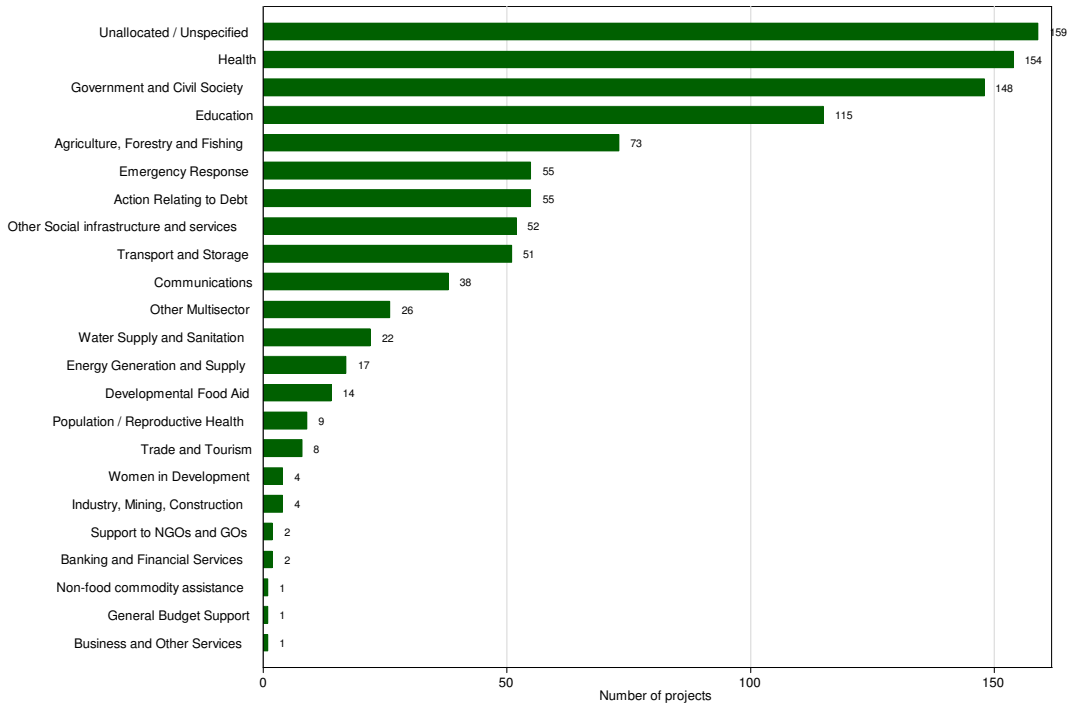
Appendix A-2. *List of the 20 largest projects (in millions of US$), 2000-2011*

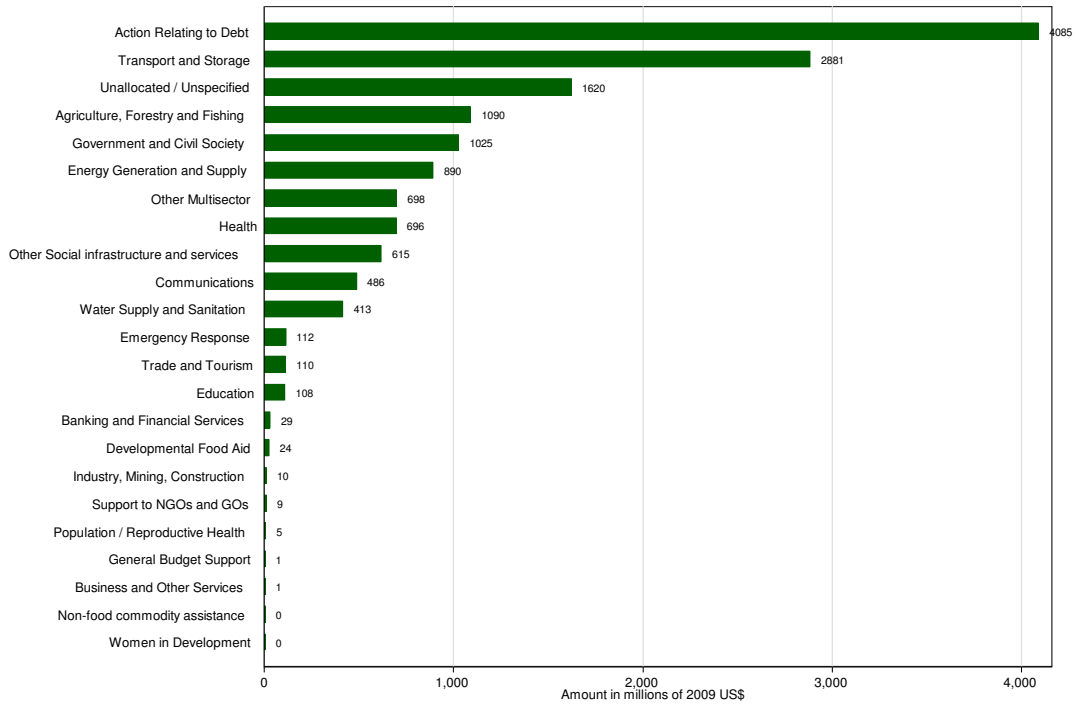
Recipient	Year	Project	Flow Class	Flow	Status	Value
Congo, Dem. Rep.	2007	Infrastructure for mines barter deal (Sicomines)	OOF-like	Loan	Implementation	7160
Ghana	2010	China offers 6 billion USD concessionary loan	Vague (OF)	Loan	Implementation	5485
Ghana	2009	3 billion USD loan from China Development Bank for oil project, road project, others	OOF-like	Loan	Implementation	3000
Equatorial Guinea	2006	$2b oil-backed loan	OOF-like	Loan	Completion	2692
Ethiopia	2009	Concessional Ex-Im Bank Loan for Dam Construction	Vague (OF)	Loan	Pipeline: Commitment	2249
South Africa	2011	Financial Cooperation Agreement	Vague (OF)	Vague	Pipeline: Commitment	2072
Africa, regional	2000	$1 billion of African debt cancelled; may not be bilateral	ODA-like	Debt forgiveness	Completion	1697
Angola	2004	Phase 1 of National Rehabilitation Project	OOF-like	Loan	Implementation	1507
Sudan	2007	Construction of railway from Khartoum to Port Sudan	OOF-like	Export credits	Completion	1377
Angola	2009	1.2 billion USD loan for agricultural development	OOF-like	Loan	Implementation	1200
Zimbabwe	2004	ZESA Secures Funding for Lake Kariba Power Plant	Vague (OF)	Loan	Pipeline: Commitment	1010
Zambia	2010	Chinese firm to build Kafue Gorge power plant	Vague (OF)	Loan	Implementation	930
Sudan	2003	Loan for Hydro-Mechanic Components of the Merowe hydroelectric power station	Vague (OF)	Loan	Completion	836
Mauritius	2009	East-West Corridor, Ring Road, Bus Way, and Harbour Bridge	Vague (OF)	Loan	Implementation	782
Cameroon	2009	Loan for water distribution project	Vague (OF)	Loan	Implementation	775
Mozambique	2009	China builds Agricultural Research Center/Agriculture Station	ODA-like	In-kind Grant	Completion	700
Cameroon	2003	Memve'ele Dam	Vague (OF)	Loan	Implementation	674
Nigeria	2006	Light Rail Network	Vague (OF)	Loan	Implementation	673
Ethiopia	2006	Master Loan Program for Development Projects Phase I	Vague (OF)	Loan	Implementation	673
Egypt	2006	Cairo International Convention Center Loan	Vague (OF)	Loan	Pipeline: Commitment	673



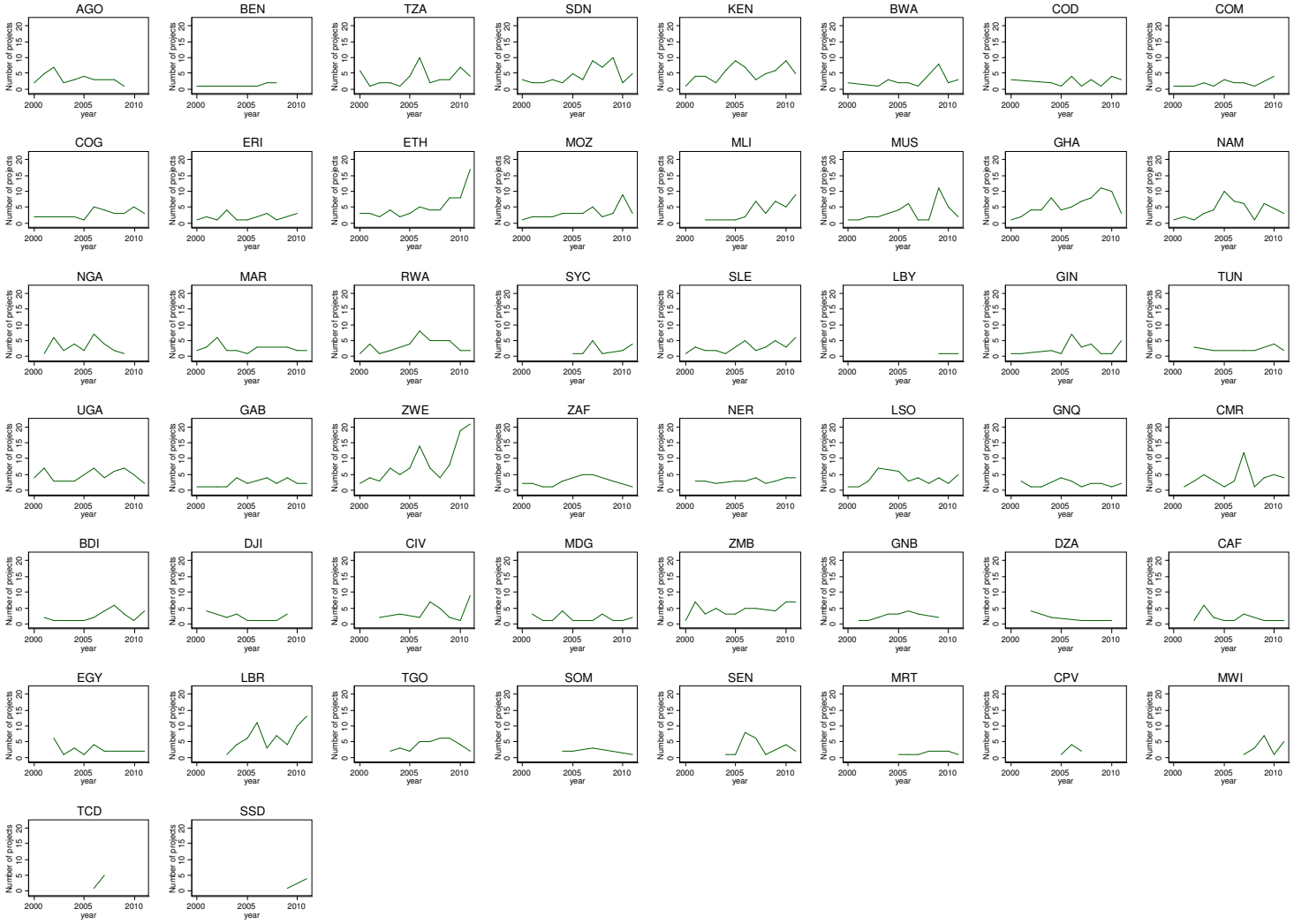
Appendix A-3. *Chinese official finance over time by sector, 2000-2011*
Note: See Appendix B for list of aid sectors



Appendix A-4. *Number of Chinese ODA projects by sector, 2000-2011*



Appendix A-5. *Monetary amount of Chinese ODA by sector, 2000-2011*



Appendix A-6. *Chinese official finance over time by recipient country, 2000-2011*

Note: See Appendix C for list of countries. AidData did not track any project in Burkina Faso, the Gambia, São Tomé and Príncipe, and Swaziland over the 2000-2011 period.

Appendix B. *List of aid sectors*

Code	**Sector**
110	Education
120	Health
130	Population policies/Programmes and reproductive health
140	Water supply and sanitation
150	Government and civil society
160	Other social infrastructure and services
210	Transport and storage
220	Communications
230	Energy generation and supply
240	Banking and financial services
250	Business and other services
310	Agriculture, forestry and fishing
320	Industry, mining and construction
330	Trade and tourism
410	General environmental protection
420	Women
430	Other multisector
510	General budget support
520	Developmental food aid/Food security assistance
530	Non-food commodity assistance
600	Action relating to debt
700	Emergency response
920	Support to (non-)governmental organisations
998	Unallocated/Unspecified
110	Education
120	Health
130	Population policies/Programmes and reproductive health
140	Water supply and sanitation

Source: OECD-DAC website.

Appendix C. *List of countries*

Code	**Country**	**Code**	**Country**
AGO	Angola	MDG	Madagascar
BDI	Burundi	MLI	Mali
BEN	Benin	MOZ	Mozambique
BFA	Burkina Faso	MRT	Mauritania
BWA	Botswana	MUS	Mauritius
CAF	Central African Rep.	MWI	Malawi
CIV	Cote D'Ivoire	MYT	Mayotte
CMR	Cameroon	NAM	Namibia
COD	Congo, Dem. Rep.	NER	Niger
COG	Congo, Rep.	NGA	Nigeria
COM	Comoros	RWA	Rwanda
CPV	Cape Verde	SDN	Sudan
DJI	Djibouti	SEN	Senegal
DZA	Algeria	SHN	Saint Helena
EGY	Egypt	SLE	Sierra Leone
ERI	Eritrea	SOM	Somalia
ETH	Ethiopia	SSD	South Sudan
GAB	Gabon	STP	Sao Tome and Principe
GHA	Ghana	SWZ	Swaziland
GIN	Guinea	SYC	Seychelles
GMB	Gambia	TCD	Chad
GNB	Guinea-Bissau	TGO	Togo
GNQ	Equatorial Guinea	TUN	Tunisia
KEN	Kenya	TZA	Tanzania
LBR	Liberia	UGA	Uganda
LBY	Libya	ZAF	South Africa
LSO	Lesotho	ZMB	Zambia
MAR	Morocco	ZWE	Zimbabwe

APPENDIX D. *Comparing TUFF with existing data sources.*

In order to preliminarily gauge the comprehensiveness of our data, we compared the records contained in *AidData's Chinese Official Finance to Africa Dataset, Version 1.1* with four existing data sources of Chinese official finance. First, to determine the extent to which our data match the (admittedly limited) data on Chinese aid from official sources, we cross-checked our project records with the project records reported in China's MOFCOM Yearbooks from 2000-2005 (with the exception of 2002 when no data were reported). Matching our data to MOFCOM Yearbooks proved difficult, as the Yearbooks report project completion years while our database records project commitment years and then follows up on whether projects have been implemented and/or completed. That said, the results from the matching exercise suggest that our database contains more projects listed in MOFCOM Yearbooks for more recent years. This makes sense because commitment years for earlier projects have a higher probability of occurring before 2000—our data collection cut-off date. We matched 13% of MOFCOM projects completed in 2000, 20% in 2001, 55% in 2003, 66% in 2004, and 50% in 2005.

Second, we cross-checked our database with humanitarian aid data recorded in the Financial Tracking Service (FTS) of the UN Office for Coordination of Humanitarian Affairs (OCHA). While our dataset contains 94 official finance projects coded as "Developmental Food Aid/Food Security Assistance" and "Emergency response" in the 2000-2012 period, FTS contains only 26 humanitarian assistance project records that would plausibly meet our database inclusion criteria. Of the 21 FTS records that contain sufficient information for our comparison, 14 (66%) can be matched to a specific project in our dataset. This suggests that we are collecting more comprehensive and detailed Chinese humanitarian assistance data than FTS.

Third, we have compared our dataset with the Food Aid Information System (FAIS), an online database provided by the UN World Food Programme (WFP) that tracks international food aid flows. Results were mixed. On one hand, we found that FAIS reported over 40 recipient-year pairings with food aid from China that did not exist in our database. But we also found 12 pairings in our dataset that were

not in the FAIS database. There were 17 pairings that showed up in both databases. However, FAIS only reports Chinese food aid to 30 African states, excluding a substantial number of recipients for which AidData has food aid records. The AidData-FAIS matching results suggest that our methodology may not be as effective for collecting food aid data as it is for tracking Chinese foreign aid in other sectors. But FAIS also seems to suffer from substantial data gaps in reporting Chinese food aid to African countries. Taken together, these comparisons with MOFCOM Yearbooks, FTS and FAIS suggest that open source data are no substitute for official data but a viable second-best solution, particularly when official data are largely incomplete.

Fourth, we cross-checked a database of incoming aid flows managed by Malawi's Ministry of Finance. Malawi's Aid Management Platform contains data from 30 donor agencies and US$ 5.3 billion in commitments (current US$), representing approximately 80% of all external funding reported to the Ministry of Finance since 2000. Out of 2,584 projects in the AMP Malawi database, only two records (2008 and 2009 project) list the People's Republic of China as the donor entity, totaling US$ 133 million (current US$). Both of these projects are included in our dataset. However, our dataset includes 21 additional Chinese official finance projects in Malawi, totaling US$ 195 million in commitments. Collectively, these projects more than double the amount of recorded commitments of Chinese official finance in Malawi. This comparison illustrates the added value of using TUFF as another method to track aid flows in the absence of official project records.

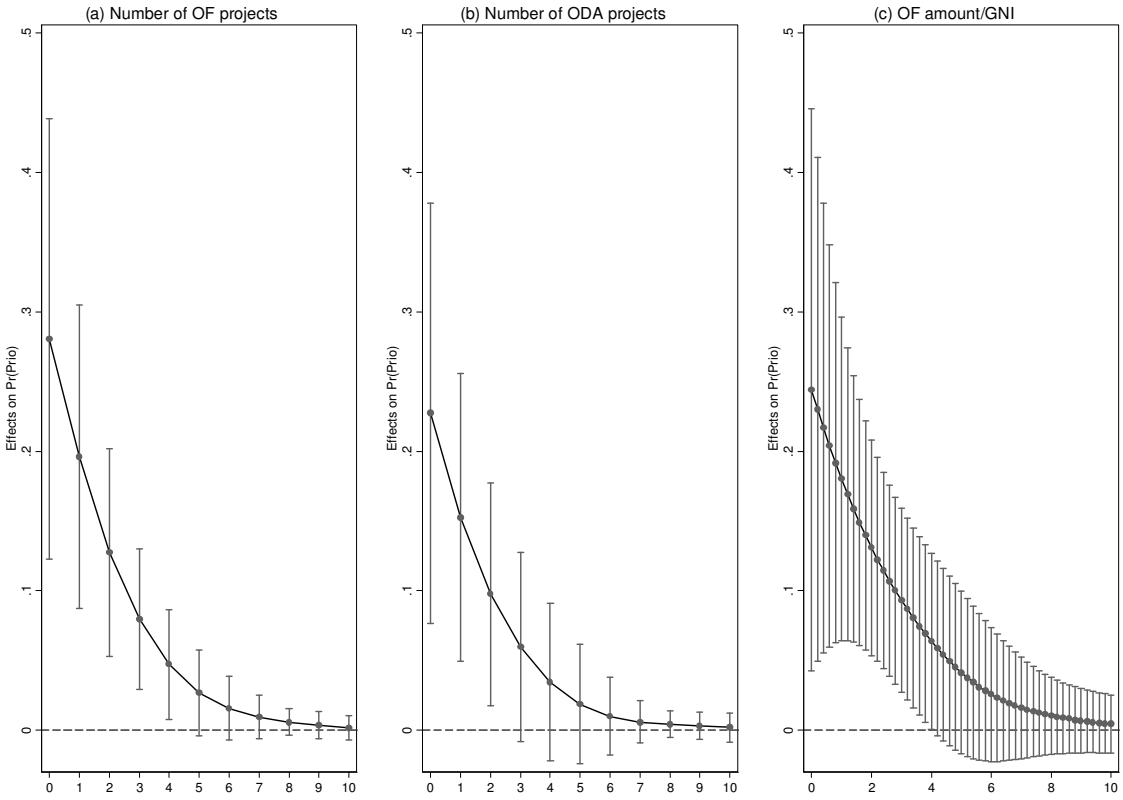
In addition to comparisons with these four official databases, we compare the annual amount of total Chinese aid to Africa, as represented by our new dataset, and estimates from previous studies (see again Table 1). Our dataset contains 1128 "ODA-like" project IDs with an aggregate value of US$ 24.05 billion (in constant 2009 US$). The 1128 figure includes projects identified as being in the "Commitment," "Implementation," or "Completion" stages, and excludes projects with a status of "Pledge." This is an average of less than US$ 1.85 billion of Chinese ODA to Africa per annum during the thirteen year study range. This is roughly comparable to previous studies such as Bräutigam (2011),

Wang (2007) and The Economist (2004) that estimated Chinese ODA to Africa to be somewhere between US$ 1 and US$ 2 billion for a particular year in our study's time range. More broadly, our database contains 1,687 projects that have been classified as "Chinese Official Finance," which includes projects labeled as "ODA-like," "OOF-like" and "Vague Official Finance," for a total of US$ 84.8 billion between 2000-2012, or US$ 6.52 billion per year. This estimate falls in between previous wide-ranging estimates such as the CRS/NYU Wagner School study that placed 2007 Chinese "aid and related activities" at US$ 18.0 billion (Lum et al. 2009), and Christensen (2010), who estimated 2009 Chinese "aid" to Africa at US$ 2.1 billion.

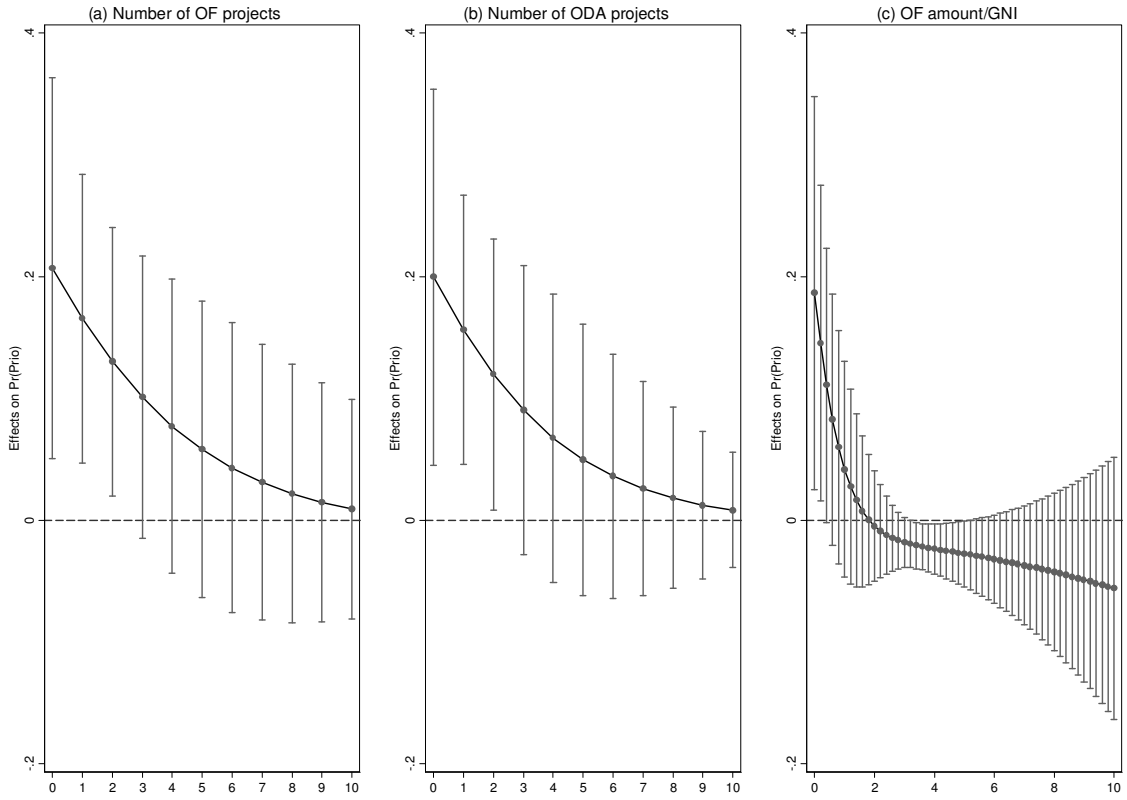
AidData's aggregate estimates must be considered in light of two important caveats. First, our estimates not only include data for completed Chinese aid projects, but also for projects in the commitment stage that have been announced or remain in the preparation/design phase but have not necessarily broken ground, as well as for projects for which implementation is underway but that have not been reported as completed. The total values for Chinese official finance are considerably smaller when we exclude projects that lack information that they have been finalized (US$ 22.04 billion over the 2000-2012 period) or have at least been started (US$ 41.9 billion). Second, 36% of the official finance records in our database lack financial values. It therefore stands to reason that we may have under-estimated Chinese official development flows to Africa in this paper as a result. We hope to fill in as many of these missing financial values as possible in future updates to the dataset.[34] To obtain more accurate estimations of the total monetary value of China's development finance, future research should elaborate ways to impute missing monetary values of individual projects based on their observed characteristics.

[34] To this end, we have created a web-based platform available online at china.aiddata.org to solicit better information about Chinese aid and investment projects and programs.

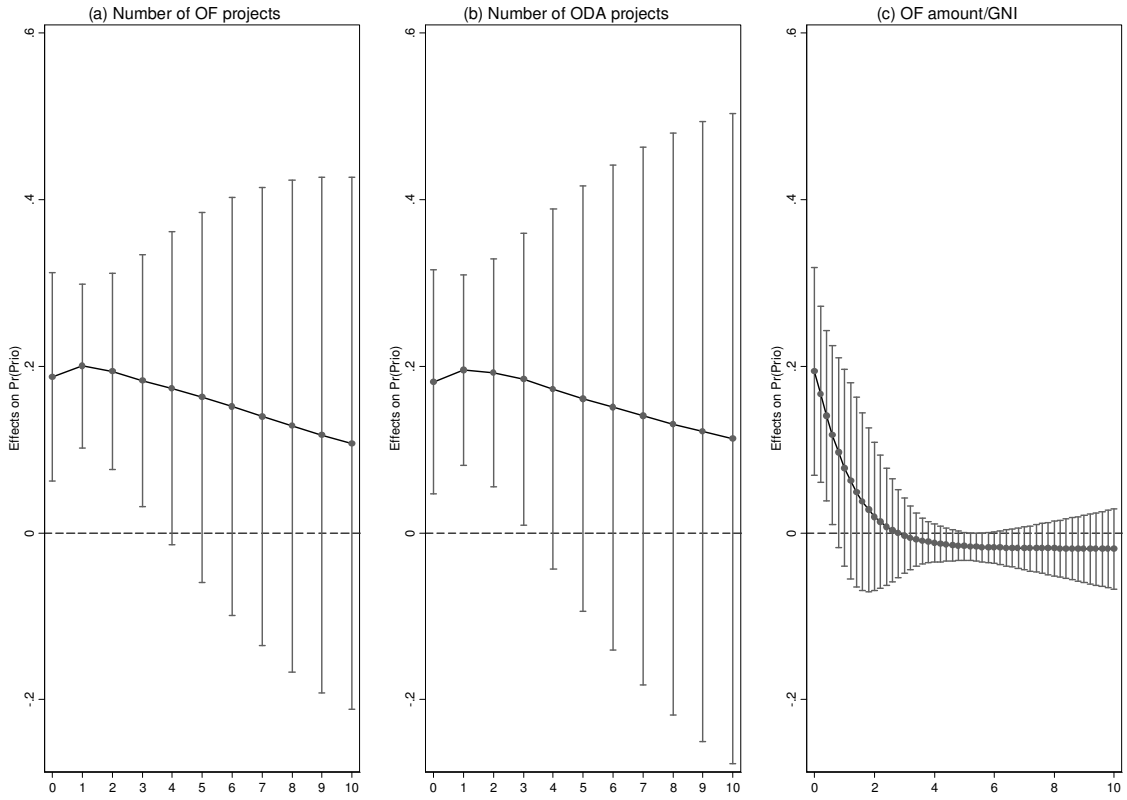
APPENDIX E-1. *Aid shocks, Chinese development finance and conflict onset (average marginal effects, robustness check with lagged Chinese aid variables)*



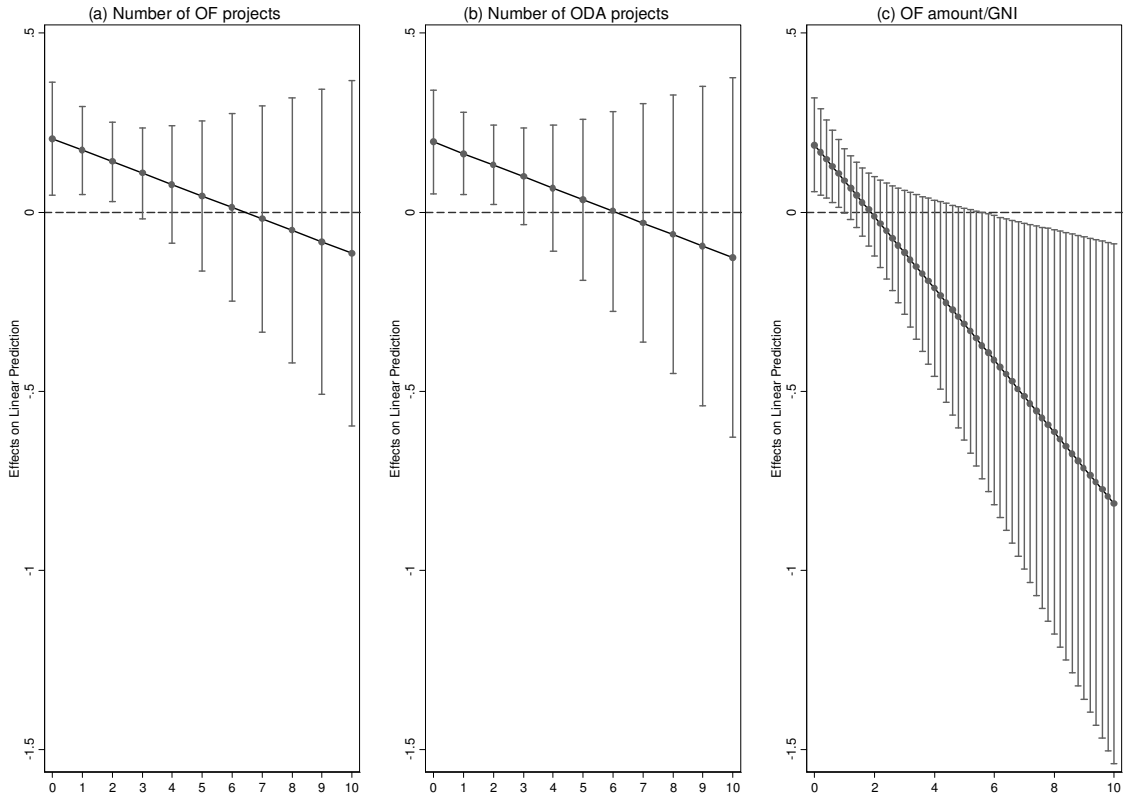
APPENDIX E-2. *Aid shocks, Chinese development finance and conflict onset (average marginal effects, robustness check with omitted intermediate variables)*



APPENDIX E-3. *Aid shocks, Chinese development finance and conflict onset (average marginal effects, robustness check with t, t² and t³)*



APPENDIX E-4. *Aid shocks, Chinese development finance and conflict onset (average marginal effects, linear probability model)*



APPENDIX E-5. *Aid shocks, Chinese development finance and conflict onset (average marginal effects, linear probability model with country-fixed effects)*