Racing to the bottom?
Chinese development projects and trade union involvement in Africa

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Abstract: Chinese firms operating in Africa are often accused of violating international labour standards and not adhering with national labour laws. Considering China's tendency to maintain control over development projects throughout the entire implementation phase, using Chinese contractors for work performed in the recipient countries, the present paper investigates whether China impacts African labour practices in their capacity as a donor. Specifically, we use a new data material allowing for systematic quantitative analysis of Chinese development finance to investigate whether Chinese development projects affect trade union involvement. Matching geo-referenced data on the subnational allocation of Chinese development projects to Africa over the 2000-2012 period with 41,902 survey respondents across 18 African countries, our estimation strategy relies on comparing the trade union involvement of individuals who live near a site where a Chinese project is being implemented at the time of the interview to those of individuals living near a site where a Chinese project will appear in the future, but where implementation had yet to be initiated at the time of the survey. The results consistently indicate that Chinese development projects – unlike the projects of other major donors – discourage trade union involvement in the local area.

JEL classification: D71, F35, O10, O55

Keywords: China, aid, trade unions, Africa

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1 Introduction

In 2005 an explosion at a Chinese-owned factory in Chambishi, Zambia, killed 46 workers. The following year, riots over work conditions culminated in the shooting – allegedly by a Chinese manager – of at least five miners in the same town (Human Rights Watch, 2011). While clearly an extreme case, it illustrates that labour relations between Chinese management and African workers have been, to say the least, strained. Anecdotal evidence points to serious violations of international labour standards at Chinese investment sites in Africa (e.g. Jauch and Sakaria, 2009; Human Rights Watch, 2011; and Akorsu and Cooke, 2011), and a recent study suggests a 'Shanghai Effect', whereby African countries trading with China begin to reflect comparatively low Chinese labour protection standards (Adolph et al., 2017). This paper investigates a potential alternative channel through which China may impact African labour practices, namely in their capacity as a major donor.

The global economic landscape has changed dramatically since the turn of the millennium: low and middle income countries have been driving global economic growth, new sources of development finance have emerged and the development cooperation arena has seen continued diversification of actors, instruments and delivery mechanisms (Kharas and Rogerson, 2012; Mawdsley et al, 2014). In this process, the role of traditional official development assistance (ODA) in development cooperation is becoming less dominant. According to a recent estimate, non-ODA flows – including e.g. official export credits, FDI, private grants, private remittances and other private flows at market terms – accounted for over 80% of external resources received by developing countries (OECD, 2014). In parallel, the dominance of aid from the OECD-DAC countries is declining, with recent years seeing a sharp increase in development finance from non-Western donors, with China at the forefront (see e.g. Strange et al., 2015; Dreher et al., 2011; Dreher et al., 2015). The changing circumstances call for a renewed focus on the implications and challenges of development cooperation in general, and for an understanding of the implications of the rise of new actors and financial flows in particular. With commercial and concessional flows being increasingly intertwined, there is a need for a broader view when analyzing the impacts of aid, incorporating questions traditionally not studied within the aid framework.

The present paper examines the impact of Chinese development projects on labour union involvement in African recipient countries. China is well-known for being heavily involved throughout the implementation phase of development projects, mixing commercial interests with concessional flows e.g. by conditioning their funds on the use of Chinese contractors and

staff for work performed in the recipient countries (see e.g. Tull, 2006; Bräutigam, 2009; Tan-Mullins et al., 2010). Given this nature of Chinese development finance, criticisms over its donor practices go beyond issues of aid allocation and aid effectiveness.[1] In particular, concerns are often raised with regard to labour rights at Chinese production sites in Africa, with reports of labour abuses, poor health and safety standards, and anti-union activities (see e.g. Jauch and Sakaria, 2009, on Namibia; Human Rights Watch, 2011, on Zambia; and Akorsu and Cooke, 2011, on Ghana). However, as pointed out by Strange et al. (2013), there is a lack of statistical evidence to corroborate these allegations on a wider scale.

Until very recently, there has indeed been little systematic empirical evidence on the effects of, and principles guiding, Chinese development assistance in general. Unlike the OECD-DAC donors, the Chinese government does not release detailed, project-level financial information about its foreign aid activities (Strange et al., 2013). This lack of transparency has made evaluation of Chinese aid notoriously difficult, and as a result, China's aid to Africa is the subject of much speculation.

We use a new comprehensive data material (Strange et al., 2015) allowing for systematic quantitative analysis of Chinese development finance to investigate whether Chinese development projects affect trade union involvement in Africa. We ask whether the Chinese choose to establish their projects in areas with weaker trade unions, and whether they, through their presence, affect the degree of trade union involvement. The results are compared with those for other major donors.

To this end, we geographically match geo-referenced data on the subnational allocation of Chinese development projects to Africa over the 2000-2012 period with 41,902 respondents from rounds 2 and 3 of the Afrobarometer survey across 18 African countries. We compare the trade union involvement of individuals who live near a site where a Chinese project is being implemented at the time of the interview to those of individuals living near a site where a Chinese project will appear in the future, but where implementation had yet to be initiated once the Afrobarometer covered that particular area. This will control for unobservable time-invariant characteristics that may influence the selection of project sites.

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[1] While some praise China for being responsive to recipient needs and having the ability to get things done fast without placing an extensive administrative burden on the bureaucracies in partner countries, critics claim that they use their development finance to create alliances with (corrupt and undemocratic) leaders of developing countries in order to secure commercial advantages for their domestic firms and to gain access to their natural resource endowments (see the discussion in e.g. Tull, 2006; Kaplinsky et al., 2007; Naím, 2007; Penhelt, 2007; Bräutigam, 2009; Marantidou and Glosserman, 2015; Dreher et al., 2016).

The results consistently indicate that Chinese development projects discourage trade union involvement in the surrounding areas. These results do not translate to other forms of participation not directly connected to the workplace, seemingly indicating that the lower unionization rates observed near ongoing as compared to future Chinese project sites stem from direct anti-union policies rather than from more general institutional change. China clearly diverges from other donors in this respect. In particular, in line with World Bank efforts to promote civil society development and community participation, World Bank projects are found to stimulate rather than to discourage union involvement.

Investigating the effect of Chinese development projects on labour union involvement – a central aspect of labour relations as well as key form of civic engagement – our paper relates to several strands of literature. First, it clearly has bearing on the large literature exploring the impact of globalization on countries' regulatory standards in terms of e.g. labour protection. Recent contributions to this literature tend to emphasize the importance of with whom international relationships are established, as opposed to the level of international interconnectedness. Rather than trade resulting in regulatory races to the bottom, several studies propose a 'California effect' (Vogel, 1995) whereby the main export destinations – traditionally rich Western countries – project their high regulatory standards on less developed export partners (see e.g. Prakash and Potoski, 2006; Greenhill et al., 2009; and Cao, Greenhill, & Prakash, 2013). With the rise of China as a major player in Africa, however, this perspective may need rethinking. As noted, a recent study (Adolph et al., 2017) suggests a less optimistic 'Shanghai Effect', whereby African countries trading with China begin to reflect comparatively low Chinese labour protection standards.

Second, seeing that labour union involvement is a form of civic engagement, which Western donors have traditionally sought to encourage in partner countries, the paper relates to the literature on the impact of foreign aid on political institutions and governance (see e.g. Svensson, 2000; Alesina and Weder, 2002; Bräutigam and Knack, 2004; Djankov et al., 2008; Jones and Tarp, 2016). This strand of literature is wide in scope,[2] discussing both intended and unintended consequences of aid, and has, just as the aid effectiveness literature more broadly, had difficulties reaching a consensus. A reason for the inconclusive results is likely that the terms 'institutions' and 'governance' are used to refer to a broad range of factors,[3] coupled with the tendency to use cross-national data. Comparing across countries it is of

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[2] For a recent overview, see Bourguignon and Gunning (2016).

[3] Consider e.g. democracy, rule of law, corruption, executive constraints, judicial independence and political terror (see the discussion in Jones and Tarp, 2016).

course difficult to separate the impact of aid from the effects of problems that are common in aid receiving countries (see the discussion in Bräutigam and Knack, 2004). Considering the multitude of factors that could affect country level institutions over time, a better option is arguably to focus on the local effects of sub-national variation in aid disbursements. While aid may have important effects in targeted areas, these effects may not be sufficiently large (or may be obscured by omitted variable bias) to be measurable at the country level (see the reasoning on aid and regional growth in Dreher and Lohmann, 2015). Arguably, the aid vs. institutions literature would benefit from a more disaggregated approach, both in scope and in space. Focusing on local effects on a specific form of civic engagement, we will not attempt to draw any broad conclusions on the effects of aid on political institutions, but will on the other hand be able to interpret donor heterogeneity in the effects of aid on local citizen participation.

This brings us to the third strand of literature to which the present paper contributes, namely the recently increasing number of studies using subnational geocoded aid data to examine the determinants and impacts of the allocation of foreign aid within countries.[4] Focusing on the subnational allocation of Chinese aid for a large number of recipient countries, within this category our paper is closest to that of Dreher et al. (2016), who find that Chinese aid is disproportionately allocated to the birth regions of African leaders, and to that of Isaksson and Kotsadam (2016), who find that Chinese aid projects fuel local corruption in recipient countries.

To the best of our knowledge, this is the first paper systematically investigating the impact of Chinese development projects on trade union involvement in a wide selection of African recipient countries. As such, the paper contributes to the above strands of literature as well as to an emerging quantitative literature on the effects and determinants of China's aid allocation (Dreher and Fuchs, 2015; Dreher et al., 2015; Dreher et al., 2016; Isaksson and Kotsadam, 2016). Considering China's increased presence in Africa and the mounting

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[4] See e.g. Findley et al. (2011) on aid and conflict; Francken et al. (2012) on relief aid allocation in Madagascar; Nunnenkamp et al. (2012) on the distribution of World Bank aid in India; Powell and Findley (2012) on donor coordination; Dionne et al. (2013) on aid allocation in Malawi; Briggs (2014) and Jablonski (2014), both on political capture of aid in Kenya; Öhler and Nunnenkamp (2014) on factors determining the allocation of World Bank and African Development Bank aid; Briggs (2015) on the allocation of aid to richer subnational regions; Dreher and Lohmann (2015) on aid and growth at the regional level; Kelly et al. (2016), on the relationship between Chinese aid and perceptions of corruption in Tanzania; and Berlin et al. (2017) on the effects of aid on gender outcomes in Malawi and Uganda.

criticism concerning Chinese aid practices, empirical evidence on the effects of their involvement is central.

2 Related literature

2.1 Globalization and the diffusion of regulatory standards

Earlier globalization studies often focused on the impact of the level of international interconnectedness (in terms of e.g. trade or FDI) on regulatory standards, with inconclusive results. Globalization sceptics argued that trade gives rise to a race to the bottom in terms of regulatory standards, the argument with respect to labour rights being that since developing countries can create a comparative advantage by keeping labour costs low, both governments and exporting firms have incentives to suppress labour rights. Globalization optimists, on the other hand, suggested that increased levels of trade will lead to gains in regulatory standards, since trade openness is associated with economic growth and development, and economic development in turn can spur political reform (see e.g. Richards et al., 2001; Mosley and Uno, 2007; and the discussion in Greenhill et al., 2009),

More recent studies in this field argue that the important factor is not how much a country trades, but with whom (see e.g. Greenhill et al., 2009). They highlight that trade relationships are not homogenous, and that a given exporter may well face conflicting pressures from different importing countries with different regulatory standards. Disaggregating overall exports, they find that export-led regulatory diffusion tends to reflect the standards of the destinations to which countries' goods are exported. Since the largest export destinations have traditionally been rich countries with relatively high regulatory standards, these studies tend to have an optimistic view on trade-based diffusion of regulatory standards, suggesting that rather than trade resulting in regulatory races to the bottom, firms and consumers in importing countries will project their high regulatory standards on less developed export partners. The proposed mechanism is the influence exercised by pressure groups (e.g. environmental groups and trade unions) in importing countries, compelling importing firms to improve on these counts and thus to influence their suppliers abroad to do so as well.

This so called 'California effect', first formulated in the context of environmental protection in the US automobile industry (see Vogel, 1995 and 1997),[5] has been applied to different regulatory settings, including environmental issues (Prakash and Potoski, 2006), human rights (Cao, Greenhill, & Prakash, 2013) and, most relevant for our purposes, labour relations (Greenhill et al., 2009). Proponents of a California effect argue that Western firms bring their 'best practices' to developing nations, and that attention to labour rights within their supply chains tend to spill over to local firms as well (Greenhill et al., 2009).

With the rise of China as a major player in Africa, however, this perspective may, as noted, need rethinking. In a recent study Adolph et al. (2017) suggest a less optimistic 'Shanghai Effect', whereby African countries trading with China begin to reflect their low labour standards. The authors argue that China's non-interference policy implies that the Chinese government does not exert any pressure on African governments to uphold any form of labour standards, that the fact that China does not have independent labour union means that there are no activist groups to put pressure on exporters to China (or Chinese firms importing from abroad) regarding labour practices, and finally, that absent a free press, firms do not face the same kind of reputational vulnerability, even if activist groups were to protest. Their empirical findings, based on a panel of 49 African countries for the period 1985–2010, indeed indicate that increasing exports to China comes with a small negative influence on African labour practices, the net effect depending on the labour practices of other export destinations compositionally displaced by exports to China.

Hence, just as proponents of a California effect argue that Western firms from strong regulatory environments bring their 'best practices' to developing nations, and that these tend to spill over to local firms (Greenhill et al., 2009), one can make the parallel argument that the practices of foreign firms from weak regulatory environments can spill over to local firms through competitive pressures.

Collective labour rights − including union involvement, the focus of this paper − are important for production costs and thus sensitive to competitive pressures. By restricting collective labour rights, referring to the regulation of union formation, collective bargaining, and the right to strike (Caraway, 2009), firms and governments can reduce demands for wages and nonwage benefits and thus lower production costs (Mosley and Uno, 2007).

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[5] As described in Vogel (1997), the 1970 Clean Air Act Amendments permitted California to enact stricter emissions standards than the rest of the United States. And instead of states with laxer standards undermining those with stricter ones, California influenced other states to make their mobile emissions standards stronger, the proposed mechanism being that automobile producers had a strong incentive to produce vehicles that complied with California's stricter standards so that they could continue to sell their cars in this large and important market.

In the present paper we focus on the potential influence of China in their capacity as a major donor rather than in their role as a trading partner. Incorporating aid in a globalization framework is of course not new. Richards et al. (2001), for instance, use the wider measure 'foreign economic penetration', including foreign aid, foreign direct investment, portfolio investment, and long-term debt, to capture the broad array of ways in which foreign capital can penetrate the economy of a developing country. What is striking when studying Chinese 'aid' is how intertwined these aspects are.

2.2 Chinese aid and labour relations in Africa

Chinese firms have little tradition of unions and organized labour at home. While a detailed survey of labour relations in China is beyond the scope of this paper, we can note that the International Trade Union Confederation (ITUC) call attention to 'severe restrictions on trade union rights', with China not having ratified the core ILO conventions of freedom of association and collective bargaining (ITUC, 2010). In particular, workers are not free to form or join trade unions of their choice, only the All China Federation of Trade Unions (ACFTU), which is part of the government and party bureaucracy, is recognized in law. In a study comparing labour right in East Asia, China scores at the bottom on both de jure and de facto rights. De facto rights are considered particularly fragile due to weaknesses in terms of political rights and rule of law, with reports of the use of arrests, detention, and violence to harass labour activists and suppress labour rights (Caraway, 2009).

As noted, labour relations between Chinese management and African workers have often been strained, with anecdotal evidence pointing to serious violations of international labour standards at Chinese investment sites in Africa (e.g. Jauch and Sakaria, 2009; Human Rights Watch, 2011; and Akorsu and Cooke, 2011). A report on Chinese investments and labour relations in Namibia (Jauch and Sakaria, 2009) highlight unfair competition resulting from Chinese companies not adhering with national labour laws. Interview respondents from the construction industry argue that the playing field in the sector is not level when it comes to what is legally required from Chinese and other construction companies, and that companies adhering to the applicable laws and minimum conditions of employment are not able to compete with the Chinese. As one respondent quoted in the report puts it, 'They [the Chinese companies] win tenders by stealing workers' pension funds, social security and minimum wages' (Jauch and Sakaria, 2009, p. 17). To the same effect, a chief executive officer of Namibia Construction notes that "It has become common knowledge that Chinese contractors

operating in the Republic of Namibia do not regard themselves to be subject to the laws of this country and to that end have been allowed to break the law with impunity". Furthermore, the report points to negative attitudes towards trade unions in Chinese firms, and to several instances where Chinese companies have come into conflict with organized labour as they attempted to prevent trade unions from organizing their employees. Case study evidence from a Chinese firm operating in Ghana indicate that whereas the employees are not prevented from unionizing, and while they are covered by a collective bargaining agreement, the agreements reached are ignored by management (Akorsu and Cooke, 2011).

These testimonies highlight the importance of competitive pressures in this context, i.e. that unfair competition resulting from Chinese companies not adhering with labour laws might induce local companies to do the same in order to be able to compete, resulting in a race to the bottom in terms of labour standards. This is central as it reveals that the presence of Chinese firms could impact labour standards in the recipient country, over and above their effect on the conditions facing their own employees, meaning that the presence of Chinese firms could have ripple effects on the labour standards of other firms active in the area.

But where does Chinese aid fit into this picture? A number of features of Chinese development finance arguably make it relevant for labour relations in Africa. To begin with, and at the most basic level, the fact that China claims to follow a policy of non-interference in the domestic affairs of recipients (see e.g. Tull, 2006; Bräutigam, 2009; Tan-Mullins et al., 2010; Dreher et al., 2016) arguably implies that they are unlikely to use their funds to promote civil society development and citizen participation. The principle, which is clearly spelled out in official Chinese documents (see e.g. State Council, 2014), is controversial[6] and contrasts with that of Western donors, who often tie their aid to economic and political reforms in recipient countries, and whose visions on African development tend to focus on improvements in democracy, human rights and governance (see e.g. Jacobs, 2011). The non-interference principle is furthermore reflected in the sectoral focus of China's development finance. Whereas many Western donors have shifted their focus toward social sectors, often with a clearly expressed ambition to promote democratization and civil society development in recipient countries, the Chinese instead tend to emphasize infrastructure projects and productive activities (see e.g. Bräutigam, 2009). Hence, China's non-interference policy coupled with the sectoral focus of their development finance seem to imply that, unlike what

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[6] While recipient country governments tend to see it as a sign of China respecting their countries' sovereignty, critics view it as a convenient rationale for economic involvement in undemocratic and corrupt regimes (see e.g. Tull, 2006; Kaplinsky et al., 2007; Naím, 2007; Pehnelt, 2007; Marantidou and Glosserman, 2015).

is true for many Western donors, stimulating citizen participation is not high on China's development policy agenda.

Second, and importantly, since China tends to maintain control over development projects throughout the entire implementation phase, using Chinese contractors and to some extent also Chinese staff for work performed in the recipient countries (see e.g. Bräutigam, 2009; Dreher et al., 2015b), their presence could reasonably exert an influence on local labour market institutions. As discussed above, Chinese firms have little tradition of unions and organized labour at home, and the fact that Chinese development projects are often implemented by Chinese contractors could thus arguably imply that Chinese labour relations are transplanted to the recipient countries. The idea that the Chinese presence is felt in the local area is in line with the results of Isaksson and Kotsadam (2016), which indicate that Chinese development projects, unlike the projects of other major donors, fuel local corruption in Africa.

Finally, and related, the fact that Chinese development finance to a great extent mixes commercial interests with concessional flows (see e.g. Tull, 2006; Bräutigam, 2009; Tan-Mullins et al., 2010) likely implies that cost cutting, e.g. with respect to labour expenses, is an important dimension at the project implementation phase. As with the non-interference principle, China explicitly states that their development policy should result in a win-win situation for both sides (Tull, 2006). The blurring of concessional finance with other financial flows means that it is difficult to distinguish between China's commercial interests and transfers with a development intent; their projects tend to contain elements of both. To illustrate, consider China's role in financing African infrastructure projects (see Liu and Stocken, 2012). China's concessional loans to Africa, which today are on a scale rivaling the World Bank and the International Monetary Fund in terms of development finance outreach, are often tied to agreements that the public tenders for construction contracts will be awarded to Chinese state-owned enterprises and that a great share of the procurement in terms of equipment, materials, technology or services must come from China.[7] A large share of China's development finance indeed cannot be classified as aid in the traditional ODA-sense (Bräutigam, 2009). This fact, coupled with the lack of transparency in China's financial reporting, has resulted in Chinese development finance being poorly understood (Dreher et al., 2015). The newly available data on Chinese aid flows allows us to consider both ODA-

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[7] For an account of China's impact on African manufacturing, see Bräutigam and Tang (2014).

like and other official flows. However, given China's win-win approach to foreign assistance, commercial interests are relevant for both types of projects.

Against this background, it seems plausible that Chinese firms implementing development projects in African countries could transplant anti-union institutions from China. Considering the described features of Chinese development finance, coupled with testimonies of Chinese labour practices in Africa and the recently suggested 'Shanghai Effect' on African labour standards, it is interesting to investigate whether China's proposed negative influence on labour rights in Africa also translates to the work they carry out in their capacity as a donor. We ask whether the Chinese choose to establish their development projects in areas with weaker trade unions to begin with, and whether they, through their presence, affect local trade union involvement. To explore whether the potential effect of Chinese development projects on unionization rates is part of a broader phenomenon of China transplanting authoritarian institutions discouraging civic participation, or whether it concerns direct measures to discourage union involvement specifically, we investigate whether the result for trade union involvement translates to other forms of participation. The results are compared with those for other major donors.

3 Data and Empirical strategy

To analyze the effects of Chinese aid on trade union involvement in Africa, we geographically match new spatial data on China's official financial flows to the continent over the period 2000-2012 with 41,902 respondents from 18 African countries[8] obtained from rounds 2 and 3 of the Afrobarometer survey.

The data on Chinese aid projects is obtained from geo-referenced project-level data of AidData's Chinese Official Finance to Africa dataset, introduced by Strange et al. (2015) and geocoded by Dreher et al. (2016). Since the Chinese government does not release official, project-level financial information about its foreign aid activities, this data is based on an open-source media based data collection technique, synthesizing and standardizing a large amount of information on Chinese development finance to African countries (described in detail in Strange et al., 2013 and 2015).

Dreher and colleagues (2015b) geocoded the data, assigning latitude and longitude co-ordinates, and providing information about the precision of the location identified (for details

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[8] Namely Benin, Botswana, Cape Verde, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.

about the methodology used, see Strandow et al., 2011). While some development projects are implemented in a limited geographical area, such as a village or city, others are realized at more aggregate levels, such as a district or greater administrative region. Hence, project locations are coded into different categories depending on the degree of precision of the specified location, ranging from category 1 for coordinates to an exact location to 8 when the location is estimated to be a seat of an administrative division or the national capital (see Strandow et al. 2011). Since this paper focuses on local effects of Chinese development projects, we focus on projects with recorded locations coded as corresponding to an exact location or as 'near', in the 'area' of, or up to 25 km away from an exact location (precision categories 1 and 2 in Strandow et al. 2011).

The Chinese development projects are divided into three categories: 'ODA-like', 'OOF-like' and 'vague official finance'. In order to qualify as overseas development assistance (ODA), according to the OECD-DAC definition, an aid flow must be provided by official agencies to developing countries on the DAC list of ODA recipients. Moreover, it should be concessional, with a grant element of at least 25 percent, and its main objective should be the promotion of economic development of developing countries. Transactions which do not qualify as ODA, either because they are not primarily aimed at development or because they have a grant element of less than 25 per cent, are labelled 'other official flows', or OOF (OECD-DAC glossary, 2016). Due to the lack of official reporting on Chinese foreign aid activities, the classification used here is based on coders' defining a project as 'ODA-like' or 'OOF-like'. When there is insufficient information to classify the project as either OOF- or ODA-like, it is labelled 'vague official finance' (see Strange et al., 2015). In the benchmark setup we consider all projects jointly. However, in a separate estimation we analyse 'ODA-like' flows separately.[9]

We use the point coordinates in the aid data to link aid projects to local survey respondents in the Afrobarometer, geocoded by Knutsen et al. (2016).[10] The coordinates of the surveyed Afrobarometer clusters, consisting of one or several geographically close villages or a neighborhood in an urban area, are used to match individuals to aid project sites for which we have precise point coordinates. We measure the distance from the cluster center

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[9] After restricting our sample to to include only projects with precise geocodes and start-dates, there are unfortunately too few OOF-like projects – only 29 in total – to analyse them separately.

[10] For a detailed description of the methodology used, see their paper. See also Nunn and Wantchekon (2011) who used geo-referenced data from Wave 3 of the Afrobarometer when studying effects of the slave trade on trust levels in Africa, and Deconinck and Verpoorten (2013), who replicated the analysis of Nunn and Wantchekon using Wave 4 of the Afrobarometer survey.

points to the aid project sites and identify the clusters located within a cut-off distance of at least one project site.

Restricting our sample to projects with precise geocodes and start-dates we cover 403 Chinese project sites. Figure 1 shows a map including the aid projects along with 50 km buffer zones around each Afrobarometer cluster. While we have a good spread of both projects and survey data, some countries are not covered by the Afrobarometer. Focusing on the countries included in the Afrobarometer, we cover 209 project sites. Furthermore, in some cases, aid projects are too far away from any survey cluster even if we have both types of information in the same country.

Our main dependent variable focuses on individual trade union involvement. As noted, union involvement captures a central dimension of collective labour rights, which in turn are important for production costs (Mosley and Uno, 2007; Caraway, 2009). Importantly, union involvement should reflect de facto as opposed to de jure labour rights, i.e. enforcement of and compliance with labour regulations rather than merely their content. Considering that we seek to examine local influences of a more informal nature – we expect that a Chinese presence in a locality can influence local firm practices on the unionization of staff rather than the content of actual labour law – this focus appears reasonable. It is furthermore important to note that union involvement is not only an expression of de facto collective labour rights; it is also a central form of citizen engagement. Being interested in whether a potential Chinese influence on union involvement also translates to other form of political participation, thus capturing wider institutional change, we will for comparison explore a range of other participatory outcomes.

To measure union involvement, we employ an Afrobarometer question, available in waves 2 and 3 of the survey, asking if the respondent is an official leader, an active member, an inactive member, or not a member of a trade union or farmers association.[11] In our baseline estimations we use a dummy variable simply indicating if the respondent is a union member. In alternative specifications, however, we use an ordinal variable also capturing the individual's extent of involvement (i.e. whether he or she is an inactive or active member or a leader). Our main explanatory variables, which will be described in greater detail below, focus on living near a Chinese project site – either a site where a project is being implemented

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[11] Considering the somewhat ambiguous formulation, making no distinction between trade unions and farmers associations, in alternative estimations we restrict the sample to urban areas and to people employed outside of the farm sector, with no change in the interpretation of our results.

at the time of the survey or a site where a project will be opened but where implementation had not yet been initiated at the time of the survey.

3.1 Estimation strategy

Our spatial-temporal estimation strategy resembles that used in and Knutsen et al. (2016).[12] In particular, we distinguish between sites where a Chinese development project is actually under implementation and sites where a project will be opened but where implementation had not yet been initiated at the time of the survey. While the fact that the Afrobarometer does not have a panel structure hinders us from following specific localities over time, before and after the arrival of a Chinese project, with this estimation strategy we can still compare areas selected as project sites before and during project implementation, thus making use of the time variation in the data.

Assuming that union involvement is affected within a cut-off distance of a project, our main identification strategy includes three groups of individuals, namely those 1) within 50 km of at least one site with an ongoing Chinese project, 2) within 50 km of a site where a Chinese project will start, but where implementation was yet to start at the survey date, but not close to any ongoing projects, and 3) more than 50 km from any Chinese project site. Our baseline regression is:

(1) $\quad Union_{ivt} = \beta_1 \cdot project\_ongoing + \beta_2 \cdot project\_future + \alpha_s + \delta_t + \gamma \cdot \mathbf{X}_i + \varepsilon_{ivt}$

That is, the union involvement of an individual i in cluster v at year t is regressed – in the benchmark setup using easy-to-interpret OLS and linear probability models[13] – on a dummy variable *project_ongoing* capturing whether the individual lives within 50 kilometers of an ongoing Chinese development project, and a dummy *project_future* for living close to a site where a Chinese project is planned but not yet implemented at the time of the survey. To control for variation in average unionization rates across time and space, the regressions include spatial fixed effects (α_S) – in the benchmark setup 217 sub-national region dummies – and year fixed effects (δ_t). To control for individual variation in union involvement, we include a vector ($\mathbf{X}_i$) of individual-level controls from the Afrobarometer. Our baseline set of

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[12] See also Kotsadam and Tolonen (2016) and Isaksson and Kotsadam (2016).

[13] Instead calculating marginal effects after probit regressions does not change the interpretation of any results.

individual controls are age, age squared, gender, urban/rural residence.[14] To account for correlated errors, the standard errors are clustered at the geographical clusters (EA, town or neighborhood). For variable descriptions and summary statistics, see Tables A1-A2.

As described in detail in Isaksson and Kotsadam (2016), interpreting the coefficient on *project_ongoing* (β_1) in isolation as capturing an effect of Chinese development projects on union involvement would necessitate that the location of Chinese development projects is not correlated with pre-existing rates of unionization. Considering that Chinese project location decisions most likely are influenced by the pre-existing characteristics of project sites, such as the rate of union involvement and other factors correlated with unions (consider e.g. population density, economic activity and infrastructure access), this assumption appears unreasonable ex-ante. However, including *project_future* allows us to compare sites with ongoing projects to other areas selected as locations for Chinese projects, but where the project were yet to be initiated at the time of the survey. That is, we can compare areas before a project has been implemented with areas where a project is currently under implementation, and not only areas close to and far away from project sites. For all regressions, we therefore provide test results for the difference between *project_ongoing* and *project_future* (i.e. $\beta_1 - \beta_2$), giving us a difference-in-difference type of measure[15] that controls for unobservable time-invariant characteristics that may influence selection into being a Chinese project site.

Moreover, for a restricted sample of areas that have observations from both before and after a Chinese aid project started – while the Afrobarometer survey does not have a panel structure, in some cases it happens to revisit the same localities in different survey waves – we run project fixed effects estimations investigating the changes over time at a given place.

Being interested in whether Chinese development projects leave a footprint on local institutions, we need to make an assumption about the geographical reach of this mark. Ultimately, this should depend on the mechanisms by which we believe Chinese projects impact unionization rates. If anti-union policies at Chinese firms implementing development projects result in competitive pressures inducing local companies to enter a race to the bottom in terms of labour standards, one may expect wider implications, both in terms of scope and geographical reach. If, on the other hand, they primarily affect those directly involved at the Chinese project sites, the effects would naturally be more limited. As discussed in Knutsen et

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[14] The results are robust to altering this set of controls, e.g. leaving out the control variables entirely or adding potentially endogenous controls for education, employment and economic standing.

[15] Comparing the difference between post-treatment individuals (with an ongoing Chinese project within 50 km) and control individuals (with no Chinese project – ongoing or future – within 50 km) with the difference between pre-treatment individuals (with a future Chinese project within 50 km) and control individuals within the same country/region and year (due to country/region and year fixed effects).

al. (2016), the appropriate cut-off distance from a project – within which an individual will be considered treated – is a trade-off between noise and size of the treatment group. With a too small cut-off distance, we get a small sample of individuals linked to ongoing and future project sites. On the other hand, a too large cut-off distance would include too many untreated individuals into the treatment group, leading to attenuation bias. Following Knutsen et al. (2016), we use a 50 km cut-off in the main specification, but also present results using alternative cut-offs (25 and 75 km).

4 Results

4.1 Main results

The results indicate that Chinese development projects tend to decrease the rate of union involvement. Table 1 presents the results of our baseline estimations, which focus on the union involvement of respondents living within 50 kilometers of project sites and include the baseline individual controls, year fixed effects and country or 217 sub-national region dummies (in Columns 1 and 2, respectively). Looking at the coefficients on *project_ongoing*, we can note that living within 50 kilometers of sites where Chinese projects are currently being implemented is associated with a smaller probability of being a union member. The point estimates are sizeable; compared to individuals in the same country who do not live close to any Chinese project site, respondents with an ongoing project in their vicinity are approximately 7 percentage points less likely to be a member of a union.

As noted, however, interpreting the coefficient on *project_ongoing* in isolation as capturing an effect of Chinese development projects on union involvement requires that the location of Chinese development projects is not correlated with pre-existing unionization rates. In order to account for the likely endogenous placement of projects we use a difference-in-difference type of approach, comparing union involvement in areas close to sites where a Chinese project is currently being implemented (*project_ongoing*) with equivalent rates in areas close to sites where a Chinese project will take place but where implementation was yet to be initiated at the time of the survey (*project_future*). Looking at the coefficient on *project_future* in Column 1 it seems that Chinese projects tend to be located in areas with lower pre-existing unionization rates. Hence, if not accounting for this tendency we would overestimate the effect of the Chinese presence. Accounting for sub-national regional

variation (Column 2) this parameter is no longer statistically significant. Nonetheless, we should account for the strong possibility that sites selected for Chinese development projects differ from other areas in respects relevant for labour relations.

As it turns out, however, the difference-in-difference estimates ($\beta_1 - \beta_2$) and associated test results presented in the bottom rows of Table 1 clearly indicate lower rates of union involvement close to ongoing as compared to future Chinese project sites. In the country dummy specification, the difference is around 4 percentage points. In the more restrictive setup controlling for sub-national regional variation (henceforth used), this difference becomes larger; in comparison with people in the same region/province living close to future Chinese project sites, individuals living near sites where Chinese projects are currently being implemented are 7 percentage points less likely to be a union member. The difference is highly statistically significant.

4.2 Sensitivity analysis

The results are remarkably stable across a wide range of different specifications. In Table 2, we first test whether altering the cut-off distance from project sites changes our results, using a 25 kilometer cut-off in Column 1 and a 75 kilometer cut-off in Column 2. In both cases, the results still indicate lower union involvement near ongoing as compared to future Chinese project sites. And again, the differences are both sizeable and highly statistically significant. Furthermore, and as might be expected, the estimated difference between the two is larger when using a smaller cut-off, i.e. when considering the more immediate surrounding of the project site rather than a wider area, seemingly suggesting that the observed effects wear off with distance. We can also note that when using the 75 kilometer cut-off, people living near future Chinese project sites are actually more likely to be union members than people living near no Chinese project site, highlighting the importance of controlling for selection into being a project site.

In the benchmark setup we exclude respondents who live within the cut-off distance of a site where a Chinese project has been completed prior to the interview date (approximately 15 percent of respondents). The argument is that this may otherwise bias the effect of having an ongoing project nearby, e.g. by lowering union involvement among supposedly untreated individuals or by interfering with the effect of treated individuals living close to ongoing or future project sites. In Column 3, however, we instead keep these individuals in the regression, but include a dummy variable to control for having a completed project within the

cut-off distance. The results remain unchanged. Moreover, we can note that the negative coefficient on the dummy for having a completed project nearby is, while statistically different from living near an ongoing project, not quite statistically different from zero, seemingly suggesting that after a Chinese project has been completed, its negative effect on union involvement wears off.

Calculating the marginal effects from a probit estimation rather than using LPM (Column 4) does not change the interpretation of the results. Furthermore, the results are robust to altering the set of baseline control variables by adding potentially endogenous controls for education, employment and economic standing (Column 5). In our baseline estimations our dependent variable is a dummy simply indicating if the respondent is a union member. As can be seen in Column 6, however, instead using an ordinal dependent variable also capturing the individual's extent of union involvement (i.e. whether he or she is an inactive or active member or a leader) does not change the result that Chinese development projects tend to decrease the rate of union involvement. In particular, the difference between *ongoing* and *future* is 0.13, which is quite sizeable in relation to the sample mean of 0.33 on the ordinal dependent variable. Moreover, and as seen in Column 7, restricting the sample to include only countries that had both ongoing and future Chinese aid projects at the time of the Afrobarometer survey rounds (Ghana, Kenya, Mali, South Africa, Tanzania and Uganda) does not change our findings. In the benchmark setup we considered 'ODA-like' and 'OOF-like' projects jointly. One might suspect anti-union policies to be stronger in projects of a commercial as opposed to projects of a concessional character. However, analyzing 'ODA-like' flows separately (Column 8), the results remain unchanged, highlighting China's tendency to mix commercial interests with concessional flows discussed in Section 2. If anything, the difference in union involvement between respondents living near *ongoing* and *future* Chinese projects is actually larger than in the benchmark setup.

Moreover, we can note that the results hold in both urban and rural sub-samples (Columns 9-10). This is reassuring seeing that the question our dependent variable is based on is somewhat ambiguous in that it asks if the respondent is a member of a 'trade union or farmers association'. The results also hold both in a sub-sample of respondent claiming to have a job that pays cash income and in a sub-sample that do not (Columns 11-12). As might be expected, the effect is seemingly larger in the former. That we also find an effect among those who claim not to have a job that pays cash income is not necessarily surprising considering that the question could be interpreted as referring to a permanent position while a large share of respondents are likely to only have experience of temporary employment.

Similarly, we split the sample into two groups depending on their sector of employment. We classify all people working with farming (subsistence farmers, peasant farmers, commercial farmers, and farm workers) as farmers and we see that there is an effect of in both samples (Columns 13 and 14).

4.3 Exploring threats to identification: Project timing

While the year dummies included in all regressions will control for general differences across years in union involvement, there may be timing effects relating specifically to the evolution of Chinese aid. Here it is important to note that there is no direct correspondence between time of project implementation and ongoing/future project status. Both Afrobarometer survey waves covered contain observations connected to both ongoing and future Chinese project sites, meaning that we have variation in project status for both projects implemented earlier and projects implemented later. Hence, a project implemented comparatively early may well be coded as a future project, all depending on at what point in time the Afrobarometer surveyed that particular area. That said, however, there are somewhat more respondents connected to ongoing project sites in the later survey wave.[16] And perhaps more importantly, since the aid project data reaches until 2012 and the Afrobarometer data used covers 2002-2006, all projects starting after 2006 will be coded as *future*. With this in mind, a potential concern is that projects starting later differ systematically from projects starting earlier.

The fact that the coefficient on *future* is not statistically significant when controlling for regional variation suggests that, on average, areas selected for Chinese project sites do not stand out in terms of pre-existing levels of union involvement. Nonetheless, it is reasonable to explore whether our results are affected by a different character of Chinese aid projects implemented, or project sites selected, early and late in the covered period.

To address these concerns, we first run our baseline regressions focusing on the individual survey wave sub-samples (Columns 1-2 in Table 3). The negative effect of Chinese aid projects on union involvement is present in both sub-samples. Notably, though, it is larger in the earlier sub-sample – with a parameter difference of 13 percentage points between *ongoing* and *future* to be compared with an equivalent difference of 5 percentage points in the later sub-sample – providing some suggestive evidence of improvements in the control of

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[16] In particular, in the earlier survey wave (Afrobarometer wave 2) 8 percent of respondent are connected to an ongoing project within 50 kilometres and 22 percent to a future project. In the later survey wave (Afrobarometer wave 3), the equivalent figures are 12 and 17 percent, respectively.

labour practices in Chinese firms implementing development projects. Furthermore, in neither of the sub-samples is the coefficient on *future* statistically significant, suggesting that the pattern observed in the full sample – i.e. that areas selected for Chinese project sites do not stand out in terms of pre-existing levels of union involvement – has not changed markedly over the period.

However, we still cannot rule out that the results are driven by a changing character of the projects starting after 2006, all of which are coded as *future* in our benchmark estimation. For instance, if later projects tend to locate in areas with greater trade union involvement to begin with, this would inflate the negative difference between *ongoing* and *future*. To investigate if the results withstand excluding the post-2006 projects we run an estimation focusing on projects starting in 2006 or earlier (Column 3). The results remain unchanged, the estimated difference between *ongoing* and *future* in fact being very similar to in the benchmark setup (Table 1). Furthermore, the parameter on *future* is still not statistically different from zero, suggesting that it was not the inclusion of post-2006 projects that drove this relationship.

Finally, we run project fixed effects estimations, meaning that we restrict the sample to areas that have observations from both before and after a Chinese aid project started and investigate the changes over time at a given place. Although the Afrobarometer survey does not have a panel structure, in some cases it happens to revisit the same localities in different survey waves. In total, there are 60 project locations for which we have data on union membership from both before and after a Chinese aid project started. While losing a large share of our sample, the advantage of this approach is of course that it allows us to evaluate variation in trade union involvement occurring around a project site before and after a project was initiated. In column 4 we present the results (note that since we now focus on variation over time in specific project sites, we can directly interpret the coefficient on *ongoing*), which indicate that unionization went down significantly after the implementation of a Chinese aid project commenced in the area. The implied effect is sizeable, suggesting a 20 percentage point lower probability of the respondent being a trade union member after project implementation started.

Hence, while Chinese development finance may have evolved over time, our results are not driven by a distinct shift in Chinese aid practices or in the character of sites selected for Chinese aid projects.

4.4 Exploring heterogeneity across sub-samples

In Table 4 we explore possible heterogeneities across different sub-samples. First we consider whether the strength of pre-existing labour rights in recipient countries affects to what extent Chinese projects impact local union involvement. Presumably, countries with more well specified labour rights are better able to control possible labour violations of Chinese contractors. We use the country level labour rights indicator of Mosley and Uno (2007), which focuses on the rights of workers to act collectively – to form unions, to bargain collectively, and to strike – in the period up to 2002,[17] and split our countries at the sample median score into two groups, one with comparatively stronger and one with comparatively weaker labour rights (Columns 1 and 2, respectively).[18] As might be expected, the results are stronger in the latter sub-sample. In the sample consisting of the nine sample countries with comparatively weaker labour rights in 2002, the difference in union involvement near ongoing as compared to future Chinese project sites is big – ten percentage points – and highly statistically significant. In the sub-sample with relatively stronger labour rights in 2002, the difference is – while still in the expected direction – smaller and not quite statistically significant at conventional levels, possibly suggesting that these countries are better able to enforce labour regulations and maintain domestic labour relations among Chinese contractors.

Next, we consider whether the amount of Chinese development finance received affects the extent to which Chinese projects impact local union involvement. Reasonably, larger projects should impact local labour relations more than smaller projects. The estimated aid volumes going to specific projects, obtained through the open-source media based data collection technique described in Section 3, are likely to contain some measurement error. Nonetheless, we use each country's estimated total volume of Chinese development finance to roughly distinguish countries with a greater Chinese presence from countries with a more limited Chinese involvement (Columns 3-4).[19] As expected, the results are stronger in the

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[17] In order not to capture the possible impact of Chinese aid on labour rights we purposively use an indicator from before the main surge in Chinese development finance to Africa.

[18] The former group consists of Cape Verde, Ghana, Lesotho, Mali, Mozambique, Namibia, Senegal, South Africa and Zambia, and the latter group consists of Benin, Botswana, Kenya, Madagascar, Malawi, Nigeria, Tanzania, Uganda and Zimbabwe.

[19] The former group contains Ghana, Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zambia and Zimbabwe, and the latter group contains Benin, Botswana, Cape Verde, Lesotho, Madagascar, Malawi, Mali, Namibia and Senegal.

sample containing countries receiving relatively more Chinese aid, where they indicate a highly statistically significant difference of six percentage points between the union involvement of respondents living near ongoing and future Chinese project sites. In the sub-sample with comparatively limited Chinese involvement, the difference is – while again in the expected direction – not statistically significant. However, we should note that this rough distinction does not take into account the size of countries, neither in terms of population nor surface area, and that smaller countries tend to receive less aid in absolute terms.

Taken together, we thus get some indications of heterogeneity across sub-samples. In particular, the observed negative effect of Chinese development projects on labour union involvement appears stronger in countries with weaker labour rights to begin with and in countries that receive more Chinese aid.

4.5 Exploring mechanisms

First of all, one may ask if the observed lower union involvement close to Chinese project sites is the result of changing labour market involvement. While arguably somewhat counter-intuitive, if people near Chinese project sites are less likely to be employed, this could explain why they are also less likely to be trade union members. Rather than creating job opportunities, one could argue that the competition from Chinese contractors may push local companies out of business. The results in Table 5, focusing on the effect of living near a Chinese aid project on the probability of having wage employment and of being a farmer, respectively, do not support this story. We can note that whereas people living near ongoing as compared to future Chinese project sites do not stand out in terms of the probability of engaging in farming, they are 15 percentage points more likely to be in wage employment. This result provides suggestive evidence that Chinese aid projects do in fact stimulate employment, making the lower trade union involvement in these same areas even more noteworthy.

Second, one may ask if the observed negative effect of Chinese development projects on unionization rates is part of a broader phenomenon. Presumably China could, by their very presence, transplant authoritarian institutions discouraging civic participation in a wider sense. Alternatively, the suggested use of direct measures to discourage union involvement at Chinese investment sites could, through competitive pressures on the local economy, affect local labour rights specifically. Whereas the former should imply that the Chinese presence

has a negative impact on different forms of civic engagement, and not only trade union involvement, the latter should first and foremost affect unionization.

To investigate whether the result for trade union involvement translates to other forms of participation, Table 6 presents the results of estimations focusing on being a member of voluntary organizations / community groups, attending community meetings, joining with others to raise an issue and taking part in demonstrations. As it turns out, there is no consistent pattern for these types of political participation that are not directly tied to people's employment. In line with the results for union membership, individuals living close to ongoing as opposed to future Chinese project sites are less likely to be members of voluntary organizations (Column 1), again suggesting a negative effect on collective organization. However, we observe no equivalent difference in community meeting attendance (Column 2) or in the tendency to take part in demonstrations (Column 4), and people living near ongoing as compared to future Chinese project sites are actually more likely to have joined with others to raise an issue (Column 3). A possible interpretation of the latter is that it indicates the use of informal substitutes to formal organization in areas with Chinese involvement. Overall, though, the fact that we do not find the equivalent influence of a Chinese presence on participation not directly connected to the workplace seems to indicate that the lower unionization rates observed near ongoing as compared to future Chinese project sites stem from direct anti-union policies at Chinese-led investment sites rather than from more general institutional change.

4.6 Comparing with other donors

Our results consistently indicate that Chinese development projects have a negative impact on union involvement. Do the Chinese stand out from other donors in this respect? Indeed, we have argued that China's non-interference policy, their tendency to use Chinese contractors and staff to implement their projects, and their inclination to mix commercial interests with concessional flows make them different from traditional donors. In contrast, many Western donors have a clearly expressed ambition to promote good governance and citizen engagement in recipient countries. The aid branch at the World Bank, for instance, has 'Governance and Institutions' as one of its central pillars, and emphasizes the goal to promote citizen participation to hold governments and private sector partners accountable (IDA, 2016). Furthermore, they reward governance improvements in their aid allocation, having a performance based allocation rule that gives significant weight to country performance ratings

in terms of institutional development and governance (Bourguignon and Gunning, 2016). In this section we compare the Chinese results to those obtained for World Bank development projects, for which there is also geo-referenced data available for a large multi-country African sample, as well as for other bilateral donors for a sub-sample of countries.

As it turns out, the equivalent results for World Bank projects display a very different pattern (see Table 7). There is indeed a statistically and economically significant difference in union involvement between people living close to ongoing World Bank projects and people living in areas where the World Bank project was yet to be initiated at the time of the survey. However, in contrast to the results for Chinese development projects, the difference is positive, suggesting that World Bank projects stimulate union involvement. The literature on trade based regulatory diffusion, recently emphasizing that an exporting developing country is likely to face conflicting pressures from different importing countries with different regulatory standards (e.g. Greenhill et al., 2009; Adolph et al., 2017), is relevant in this context. Considering the effect of different donors on union involvement, we arguably observe the equivalent of a positive 'California effect' of World Bank aid, and of a negative 'Shanghai effect' of Chinese aid. Hence, just as previous studies have suggested heterogeneous trade based regulatory diffusion, the results arguably speak in favor of heterogeneous aid driven regulatory diffusion.

Furthermore, the results for World Bank projects seemingly reflect a broader pattern, in line with World Bank efforts to promote civil society development and community participation. Looking at Column 2, we can note World Bank projects also seem to encourage membership in other voluntary organizations. As for Chinese projects, the effects on union membership and membership in other organizations thus go in the same direction, seemingly indicating that these two variables capture some common element of collective organization. Whereas we for Chinese projects find that this effect is negative, discouraging collective organization, World Bank projects instead seem to encourage the same. The estimated parameter of having an ongoing World Bank project nearby is positive and statistically significant for both community meeting attendance (Column 3) and joining with others to raise issues (Column 4). However, the fact that there is no statistically significant difference between *ongoing* and *future* suggests that the result is driven by a tendency to locate World Bank projects in areas with higher political participation to begin with, rather than it being an effect of the projects themselves. On the other hand, World Bank projects appear to make people in the local area less inclined to attend demonstrations and protest marches (Column 5), possibly indicating that their presence help reduce social unrest (or discontent).

Chinese development finance to Africa is often suggested to focus on infrastructure investments (Bräutigam, 2009), a sector that has been singled out as particularly problematic in terms of Chinese violations of African labour laws (Jauch and Sakaria, 2009). Could this be what drives the different effects of Chinese and World Bank development projects on union involvement? Considering that the geographical coding precision tends to reflect the sectoral composition of aid (Dreher and Lohmann, 2015), the mere fact that we focus on projects with equally precise geocodes arguably makes the selection of Chinese and World Bank projects more comparable. Moreover, inspecting the sectoral shares of our sample of Chinese and World Bank projects, we can note that while 'Transport and storage' indeed receives the largest share of our Chinese sample projects – 21 percent – this is in fact true for World Bank projects as well. Indeed, the share of projects going to the transport sector is even larger – 34 percent – for World Bank projects. Nevertheless, we want to explore if World Bank projects have a negative effect on union involvement if focusing on the transport sector alone. As it turns out, they do not. The results of estimations including only World Bank projects to the transport sector are presented in Table A3, and suggest no statistically significant effect. If anything, the difference between *ongoing* and *future* is still positive. Looking at projects to the transport alone we unfortunately do not have enough variation to run the corresponding estimations for Chinese projects. In particular, only one country – Uganda – had ongoing Chinese transport projects at the time of the survey, and they have no observations connected to future projects.

Do the contrasting results – with Chinese development projects discouraging and World Bank projects encouraging union involvement – simply reflect differences in the impact of bilateral and multilateral aid? Indeed, a common argument is that bilateral aid is often tied to the political agenda of the donor country and that it is less focused on promoting good governance in the recipient country (see e.g. Charron, 2011). To investigate if the bilateral-multilateral distinction is what drives the observed differences among donors, in a next step we compare the Chinese results to those of other bilateral donors. As of yet, there is little geocoded aid data for bilateral donors other than China. However, for a small selection of African countries, namely Nigeria, Uganda, Malawi and Senegal, bilateral aid project data has been geocoded on a wider scale.

The estimation in Table 8, Column 1, suggests no effect of other bilateral aid on union involvement in these countries. If anything, the difference between *ongoing* and *future* is

positive – i.e. in line with the World Bank results rather than the Chinese results.[20] Considering other forms of participation (Columns 2-5), in contrast with Chinese projects and in line with World Bank projects, other bilateral projects seem to encourage membership in voluntary organizations. We find no effects on the other outcomes. While the limited sample prevents us from drawing any far reaching conclusions with respect to the effect of other bilateral aid on union involvement, we can note that the results for Chinese projects stand out from both World Bank and other bilateral aid.

5 Conclusions

While testimonies from Chinese investment sites in Africa point to serious violations of international labour standards, there is a lack of statistical evidence to corroborate these allegations on a wider scale. Considering that China tends to be heavily involved throughout the implementation phase of development projects, using profit-seeking Chinese contractors for work performed in the recipient countries, the present paper examined whether China impacts African labour practices in their capacity as a donor.

Specifically, we used a new data material allowing for systematic quantitative analysis of Chinese development finance to investigate whether Chinese development projects affect local trade union involvement. Matching geo-referenced data on the subnational allocation of Chinese development projects to Africa over the 2000-2012 period with 41,902 survey respondents across 18 African countries, our estimation strategy relies on comparing the trade union involvement of individuals who live near a site where a Chinese project was being implemented at the time of the interview to those of individuals living near a site where a Chinese project will appear in the future, but where implementation had yet to be initiated at the time of the survey.

The results consistently indicate that Chinese development projects discourage trade union involvement in the local areas. These results do not translate to other forms of citizen participation, seemingly indicating that the lower unionization rates observed near ongoing as compared to future Chinese project sites stem from direct measures to discourage union involvement rather than from more general institutional change. The relatively wide geographical reach of the observed effect arguably provides suggestive evidence that

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[20] Again, there is unfortunately too little variation in project status to be able to run estimations for Chinese projects on the same sub-sample of countries.

restrictions in collective labour rights at Chinese project sites affect the labour practices of other firms active in the area, pointing to the importance of competitive pressures.

Interestingly, the negative effect of Chinese development projects on union involvement clearly diverges from the observed effects of aid projects of other bilateral and multilateral donors. In particular, in line with World Bank efforts to promote civil society development and community participation, World Bank projects are found to stimulate rather than to discourage union involvement as well as membership in other voluntary organizations. The paper thus provides suggestive evidence in support of effective institutional/governance aid to encourage citizen participation, while at the same time highlighting important donor heterogeneity in outcomes. Further research is needed to explore aid effectiveness disaggregated by sector and donor.

In line with the literature suggesting heterogeneous trade based regulatory diffusion, the results speak in favor of important donor variation in what can be seen as a corresponding aid driven regulatory diffusion, pointing to a positive 'California effect' of World Bank aid and a negative 'Shanghai effect' of Chinese aid on African union involvement. Hence, while the recently suggested Shanghai effect refers to the role of Chinese trade for African labour rights, the results of this paper highlight an alternative channel through which China impacts African labour practices, namely in their capacity as a major donor. As such, the paper contributes to the literature on the impact of globalization on countries' regulatory standards, to the emerging quantitative literature exploring the until recently poorly understood Chinese aid, and to the growing number of studies using subnational geocoded aid data to examine the determinants and impacts of the allocation of foreign aid within countries.

Our findings corroborate anecdotal evidence of collective labour rights restrictions at Chinese production sites in Africa, and in doing so, point to the relevance of monitoring Chinese contractors implementing developing projects to make sure that they abide by national labour laws and international labour standards. The international donor community could play a role in this context; for donor to be able to cooperate and coordinate effectively, and to get all major players to abide by common regulations, there is a need for a serious effort to invite China to the table.

On a more general level, the changing global economic landscape call for a renewed focus on the implications and challenges of development cooperation in general, and for an understanding of the implications of the rise of new actors and financial flows in particular. The results of the present paper demonstrate that with commercial and concessional flows being increasingly intertwined, there is a need for a broader view when analyzing the impacts

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of aid. The changing aid landscape warrants both the question 'what constitutes aid' and 'within what analytical framework do we best study new aid actors and practices'.

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Figures and tables

Figure 1
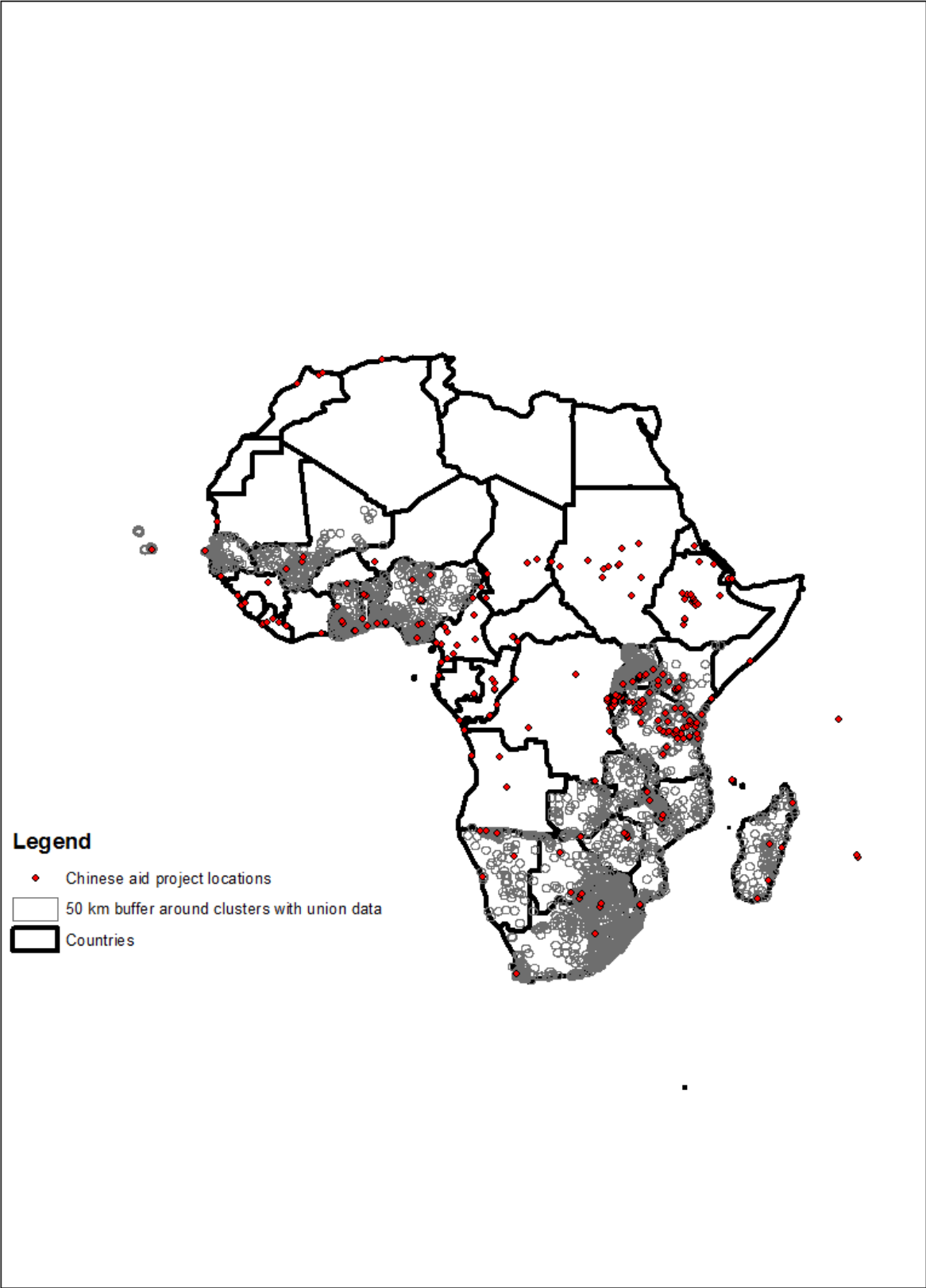
Table 1: Chinese aid and union involvement – main results

VARIABLES	(1) Union member	(2) Union member
Ongoing50	-0.070***	-0.068***
	(0.012)	(0.016)
Future50	-0.030***	0.003
	(0.009)	(0.012)
Baseline controls	YES	YES
Year FE	YES	YES
Country FE	YES	NO
Region FE	NO	YES
Diff-in-diff ongoing-future	-0.0395	-0.0710
F test: ongoing-future=0	8.493	13.32
P value of F test	0.00359	0.000267
Observations	33,212	29,954
R-squared	0.062	0.101

Robust standard errors(clustered by the survey clusters) in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 2: Robustness checks

VARIABLES	(1) 25 km cutoff	(2) 75 km cutoff	(3) Completed	(4) Probit	(5) More controls	(6) Ordinal	(7) Small sample[a]	(8) ODA projects	(9) Urban	(10) Rural	(11) A job	(12) No job	(13) Farmer	(14) Not Farmer
ongoing25	-0.074*** (0.016)													
future25	-0.001 (0.012)													
ongoing75		-0.032** (0.016)												
future75		0.026** (0.012)												
ongoing50			-0.069*** (0.014)	-.064*** (0.012)	-0.077*** (0.016)	-0.117*** (0.031)	-0.057*** (0.015)	-0.090*** (0.018)	-0.075*** (0.018)	-0.077*** (0.023)	-0.081*** (0.022)	-0.060*** (0.019)	-0.092*** (0.031)	-0.054*** (0.015)
future50			0.005 (0.012)	.002 (0.011)	0.004 (0.013)	0.012 (0.024)	-0.003 (0.024)	0.008 (0.011)	-0.031** (0.014)	0.014 (0.016)	-0.002 (0.017)	0.004 (0.014)	0.006 (0.019)	-0.003 (0.012)
suspended50			-0.017 (0.014)											
Diff-in-diff ongoing-future	-0.0724	-0.0573	-0.0739	-.066	-0.0808	-0.129	-0.0537	-0.0975	-0.0439	-0.0907	-0.0798	-0.0639	-0.0985	-0.0502
F test: ongoing-future=0	12.32	9.069	14.55	15.69	15.38	10.46	3.866	20.58	4.639	10.19	10.02	7.708	8.904	8.104
P value of F test	0.000454	0.00262	0.000138	0.0001	8.97e-05	0.00123	0.0495	5.94e-06	0.0314	0.00144	0.00156	0.00553	0.00288	0.00444
Observations	29,242	30,880	35,388	29910	29,635	29,954	10,807	28,680	13,270	16,684	11,141	18,718	8,144	21,606
R-squared	0.101	0.100	0.095		0.109	0.101	0.085	0.100	0.074	0.119	0.105	0.124	0.134	0.081

Robust standard errors (clustered by the survey clusters) in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; Note that column 4 presents marginal effects from a probit estimation, the presented difference in difference here refers to the difference between the concerned marginal effects, and the test-statistic and associated p-value to a chi2 distribution. All regressions control for the baseline controls as well as year and region fixed effects. [a] In column 7 the sample is to include only countries that had both ongoing and future Chinese aid projects at the time of the Afrobarometer survey rounds (Ghana, Kenya, Mali, South Africa, Tanzania and Uganda).

Table 3: Evaluating identification: project timing

VARIABLES	(1) Wave 2	(2) Wave 3	(3) Projects before 2007	(4) Project fixed effects
ongoing50	-0.128***	-0.048**	-0.062***	-0.199***
	(0.026)	(0.021)	(0.019)	(0.075)
future50	0.005	0.003	0.001	
	(0.019)	(0.018)	(0.013)	
Baseline controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES
Project FE	NO	NO	NO	YES
Diff-in-diff ongoing-future	-0.133	-0.0506	-0.0624	
F test: ongoing-future=0	17.33	2.923	9.323	
p value of F test	3.38e-05	0.0875	0.00228	
Observations	8,672	19,141	24,412	10,958
R-squared	0.076	0.113	0.104	0.112

Robust standard errors (clustered by the survey clusters) in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Dependent variable is *Union member*.

Table 4: Chinese aid and union involvement – sub-sample heterogeneity

VARIABLES	(1) stronger labor rights	(2) weaker labor rights	(3) More chinese aid	(4) Less Chinese aid
ongoing50	-0.043*	-0.085***	-0.065***	-0.036
	(0.023)	(0.022)	(0.015)	(0.083)
future50	-0.006	0.012	-0.003	0.014
	(0.014)	(0.015)	(0.015)	(0.014)
Baseline controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES
Diff-in-diff ongoing-future	-0.0368	-0.0961	-0.0620	-0.0504
F test: ongoing-future=0	2.507	12.50	11.18	0.359
p value of F test	0.113	0.000423	0.000839	0.549
Observations	15,643	14,311	18,172	11,782
R-squared	0.100	0.102	0.094	0.116

Robust standard errors (clustered by the survey clusters) in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 5: Chinese aid and labour market involvement

VARIABLES	(1) Wage worker	(2) Farmer
Ongoing50	0.130***	-0.010
	(0.025)	(0.026)
Future50	-0.020	-0.013
	(0.020)	(0.024)
Baseline controls	YES	YES
Year FE	YES	YES
Country FE	NO	NO
Region FE	YES	YES
Diff-in-diff ongoing-future	0.149	0.00252
F test: ongoing-future=0	24.32	0.00459
p value of F test	8.52e-07	0.946
Observations	29,859	29,750
R-squared	0.183	0.307

Robust standard errors (clustered by the survey clusters) in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 6: Chinese aid and other forms of participation

VARIABLES	(1) Member of other organisation	(2) Attend community meetings	(3) Raised issue	(4) Demonstrated
ongoing50	-0.042**	0.009	0.051***	-0.011
	(0.021)	(0.017)	(0.017)	(0.013)
future50	0.026*	0.022*	0.004	0.006
	(0.015)	(0.012)	(0.012)	(0.008)
Baseline controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES
Diff-in-diff ongoing-future	-0.0681	-0.0135	0.0470	-0.0167
F test: ongoing-future=0	6.645	0.533	5.523	1.312
p value of F test	0.00998	0.465	0.0188	0.252
Observations	29,954	29,765	29,687	29,328
R-squared	0.116	0.157	0.128	0.074

Robust standard errors (clustered by the survey clusters) in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 7: World Bank aid projects

VARIABLES	(1) Union member	(2) Member of other organisation	(3) Attend community meetings	(4) Raised issue	(5) Demonstrated
Ongoing50	0.045***	0.112***	0.048***	0.039**	-0.031**
	(0.016)	(0.020)	(0.015)	(0.019)	(0.014)
Future50	0.001	0.023	0.029	0.028	0.015
	(0.014)	(0.018)	(0.020)	(0.020)	(0.015)
Difference in difference	0.0432	0.0891	0.0190	0.0106	-0.0463
F test: ongoing-future=0	6.377	17.63	1.015	0.234	8.135
p value	0.0116	2.75e-05	0.314	0.629	0.00437
Observations	30,517	30,517	30,362	30,279	29,913
R-squared	0.092	0.114	0.162	0.129	0.069

Robust standard errors (clustered by the survey clusters) in parentheses; *** p<0.01, ** p<0.05, * p<0.1; All estimations include baseline controls, region- and year fixed effects.

Table 8: Bilateral aid projects to Nigeria, Uganda, Malawi and Senegal

VARIABLES	(1) Union member	(2) Member of other organisation	(3) Attend community meetings	(4) Raised issue	(5) Demonstrated
Ongoing50	-0.019	-0.023	-0.004	-0.022	-0.006
	(0.028)	(0.028)	(0.030)	(0.028)	(0.023)
Future50	-0.053*	-0.077**	-0.014	-0.011	-0.014
	(0.031)	(0.033)	(0.030)	(0.031)	(0.023)
Diff-indiff ongoing-future	0.0339	0.0537	0.0108	-0.0109	0.00797
F test: ongoing-future=0	2.675	4.045	0.491	0.254	0.616
p value of F test	0.102	0.0446	0.484	0.614	0.433
Observations	9,762	9,762	9,717	9,687	9,602
R-squared	0.087	0.078	0.183	0.145	0.051

Robust standard errors (clustered by the survey clusters) in parentheses; *** p<0.01, ** p<0.05, * p<0.1; All estimations include baseline controls, region- and year fixed effects.

Appendix

Dependent variables, union involvement

Union member: Dummy variable equal to one if the respondent reports to be a member of a trade union or farmers association; zero if not a member.

Union ordinal: ranging between 0 and 3, capturing the response categories 0=Not a Member, 1=Future Member, 2=Ongoing Member, 3=Official Leader, respectively, given in response to the question of whether the respondent is a member of 'A trade union or farmers association'.

Proximity to Chinese project sites

Ongoing50: Dummy variable equal to one if the respondent lives within 50 km of a site where a Chinese aid project is being implemented at the time of the interview, zero otherwise.

Ongoing25: Same as Ongoing50 but using a 25 km cut-off.

Ongoing75: Same as Ongoing50 but using a 75 km cut-off.

Future50: Dummy variable equal to one if the respondent lives within 50 km of a Chinese projects site where the implementation of the project had not yet started at the time of the interview and do not have any ongoing or completed project within this same distance, zero otherwise.

Future25: Same as Future50 but using a 25 km cut-off.

Future75: Same as Future50 but using a 75 km cut-off.

Completed50: Dummy variable equal to one if the respondent lives within 50 km of a completed Chinese project and do not have any active project within this same distance, zero otherwise.

Completed25: Same as Completed50 but using a 25 km cut-off.

Completed75: Same as Completed 50 but using a 75 km cut-off.

Individual control variables

Female: Dummy variable equal to one if the respondent is female; zero otherwise.

Urban: Dummy variable equal to one if the respondent lives in an urban area; zero otherwise.

Age variables: Age in years and age squared.

Year dummies: Dummies for interview year, 2002-2006

Country dummies: Dummies for the 18 countries in the sample

Sub-national region dummies: Dummies for the 264 sub-national regions (first-order administrative division, indicated region or province in the Afrobarometer) in the sample

Table A2: Summary statistics

Variable	N	Mean	SD
Outcome variables			
Member union (dummy)	29,954	0,192	0,394
Union activity (ordinal)	29,954	0,334	0,738
Aid variables			
Distance to closest project (km)	29,954	141,518	134,761
ongoing50	29,954	0,125	0,331
future50	29,954	0,241	0,428
ongoing25	29,954	0,090	0,286
future25	29,954	0,154	0,361
ongoing75	29,954	0,136	0,342
future75	29,954	0,295	0,456
Control variables			
age	29,954	36,459	14,758
age2 (divided by 100)	29,954	15,470	13,225
female	29,954	0,498	0,500
urban	29,954	0,443	0,497

Summary statistics for the baseline estimation sample from the regression with sub-national region dummies in Table 1 (Column 2)

Table A3: World Bank transport projects and union involvement

VARIABLES	(1) Member union	(2) Member union
ongoing50	-0.004	-0.006
	(0.022)	(0.021)
future50	-0.028	-0.029
	(0.024)	(0.024)
Observations	9,744	7,735
R-squared	0.101	0.095
Baseline controls	YES	YES
Year FE	YES	YES
Region FE	YES	YES
Difference in difference	0.0238	0.0235
F test: ongoing50-future50=0	1.238	1.202
p value	0.266	0.273

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1