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Chinese Contractors and Development Project Quality

Charles Kenny, Songtao Duan, Zack Gehan

Abstract

This paper tests the hypothesis that the growing proportion of World Bank contracts granted to Chinese firms, particularly in the infrastructure sector, may undermine results by exposing projects to lower standards of work. We find that such concerns are unfounded. We create a dataset of World Bank projects that merges data on contracts under the project and project features and outcomes. We examine the association between contracting features and outcomes including the proportion of contract values awarded to non-borrower firms from major supplier countries. We find that the share of project contract value awarded to Chinese firms is not a correlate with better or worse project outcomes. More broadly, borrower country features explain some variance in outcomes but indicators including sector, year, the proportion of contracts awarded competitively, and the proportion that are for goods or civil works have little explanatory value. This (non-causal) evidence is consistent with the idea that World Bank procurement rules broadly work to ensure poor contracting choices are not a major determinant of project outcomes.

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Replication data and code are available for download here.

CENTER FOR GLOBAL DEVELOPMENT

2055 L Street, NW Fifth Floor
Washington, DC 20036
202.416.4000

1 Abbey Gardens
Great College Street
London
SW1P 3SE

www.cgdev.org

1 Introduction

Chinese firms have been playing a growing role as suppliers on multilateral development bank-financed contracts. Some shareholders have expressed concern that Chinese firms may bid low to win these contracts but then deliver low quality results, reflecting a broader discomfort with China's growing role in infrastructure contracting across the developing world. Using a newly constructed dataset that links procurement with project outcome data for World Bank financed contracts and projects, this paper explores if outcomes do in fact vary by home location of supplier firms and if Chinese contractors appear consistently associated with worse or better project outcomes.

Chinese contractors are involved in a considerable proportion of large civil works projects in developing countries. In Africa, for example, they accounted for perhaps 31 percent of all construction projects with a value of $50 million or more in 2020.[1] There have been complaints by contractors, Western governments and media, and people in the countries where Chinese contractors are operating that Chinese firms deliver low-standard work and engage in corruption. A typical headline: "China's Global Mega-Projects Are Falling Apart." But the presented evidence is anecdotal and contested.[2]

At the same time, existing literature has suggested that even though Chinese aid is considerably driven by domestic over-capacity as well as central bank reserves volumes and is usually tied (in that materials and construction firms are Chinese), it is still associated with improved economic growth in recipient economies in the short term. Again, Chinese-financed infrastructure projects have a larger impact on night lights intensity than World Bank projects, even controlling for Chinese contractors winning bids under the World Bank project.[3]

[1]Kenny, C. (2022). Why Is China Building So Much in Africa? Center for Global Development. https://www.cgdev.org/blog/why-china-building-so-much-africa.

[2]Ryan Dube and Gabriele Steinhauser 'China's Global Mega-Projects Are Falling Apart' Wall Street Journal January 20 2023 Farrell, J. (2016). 'How do Chinese contractors perform in Africa? Evidence from World Bank projects' (No. 2016/3). Working Paper. The Economist (2022) 'How Chinese firms have dominated African infrastructure' February 19th.

[3]Dreher, Axel, Andreas Fuchs, Bradley Parks, Austin Strange, and Michael J Tierney, 'Aid, China, and

As suggested by this analysis, one source of contracts for Chinese firms is World Bank financed development projects. Procurement under World Bank-financed projects has to follow a set of rules designed to deliver value for money, including a strong preference for international competitive approaches for larger contracts. This means that a proportion of large World Bank financed contracts are won by international contractors (as opposed to domestic firms in the country to which the finance has been delivered). Farrell (2016) carried out a comparison of 72 transportation civil works contracts in Africa financed by the World Bank won by Chinese contractors with 36 won by OECD contractors between 2000-2007. The study looked at project implementation completion reports to score contract performance. The study concluded that there was no significant difference in quality between the OECD-contracted and China-contracted transport civil works.[4]

We take a broader approach to look at a similar question. For larger World Bank contracts, information is available from the World Bank on the project under which it is financed, the type of contract and the contractor delivering the work, including contractor country of origin. In addition, the World Bank provides considerable information on the projects that finance contracts, both information on the activities but also project outcomes. We link two data sets containing information on contracts and on project performance so that we can examine the impact of contracting variables including country of contractor on project outcomes across the full range of World Bank projects over the period 2000-2023.

This links the analysis to a series of recent studies of World Bank project outcomes that suggest a number of factors associated with success including:

- Measures of country-level policy and institutional quality (as measured by World-

growth: evidence from a new global development finance dataset', American Economic Journal: Economic Policy, 2021, 13(2), 135–74. See also; Mueller, Joris, 'China's Foreign Aid: Political Determinants and Economic Effects', Working paper, 2023. Chai, Q., & Tang, Z. (2023). 'The World Bank and China: Comparing the Impacts of Their Development Projects in Africa.' Available at SSRN 4598476.

[4] Farrell, J. (2016). 'How do Chinese contractors perform in Africa? Evidence from World Bank projects' (No. 2016/3). Working Paper.

wide Governance Indicators);

- Project size (in dollars) and length from approval to completion (larger, longer projects do worse);
- Projects with more co-financiers (fewer is better);
- Time between project approval and first disbursement (shorter is better);
- Project restructurings early in the life of a project in response to early warning flags (unrestructured projects in the presence of early implementation status flags do notably worse);
- Task team leader quality (as proxied by the average outcome rating on all the other projects managed by the same staff member) and country experience (other projects in the same country); and
- In country presence of staff and Country Director during preparation.[5]

However, this existing literature has not linked project outcomes with procurement outcomes, which is what we examine here.

2 Data and Research Design

For contracting data we use the World Bank's datasets on contracting awards in investment project financing for 2001-16 and 2017-23. This provides data on borrower country, World Bank project ID, procurement category (i.a. goods, civil works, consulting

[5] Denizer, Cevdet, Daniel Kaufmann, and Aart Kraay. 'Good countries or good projects? Macro and micro correlates of World Bank project performance.' Journal of Development Economics 105 (2013): 288-302 Geli, P., Kraay, A., & Nobakht, H. (2014). 'Predicting World Bank project outcome ratings.' World Bank Policy Research Working Paper, (7001). Winters, M. S. (2019). 'Too many cooks in the kitchen? The division of financing in World Bank projects and project performance.' Politics and Governance, 7(2), 117-126. Honig, D. (2020). 'Information, power, and location: World Bank staff decentralization and aid project success.' Governance, 33(4), 749-769. Heinzel, M., & Liese, A. (2021). 'Managing performance and winning trust. How world bank staff shapes recipient performance.' The Review of International Organizations, 16(3), 625-653.

services), procurement method (i.a. international competitive bidding, national competitive bidding, shopping, quality and cost based selection), contract signing date, supplier country, and contract amount.

We drop contracts with negative contract values. We create a new contract indicator 'home country supplier' for procurement where borrower country is the same as contract supplier country. We then create data for number and value of contract won by contractors from countries other than the borrower country. We sum this data to create project-level indicators for each project ID. Tables 1 and 2 demonstrate how contracts sharing a project ID are combined to create project level contracting data, using fictional entries for Afghanistan.

Table 1: Contract Level Procurement (Example) Data

Borrower	Supplier	Value	Procurement Category
Afghanistan	Afghanistan	10	Goods
Afghanistan	Afghanistan	20	Works
Afghanistan	China	30	Services
Afghanistan	US	40	Goods
Afghanistan	US	30	Works
Afghanistan	Afghanistan	20	Services
Afghanistan	US	10	Goods
Afghanistan	China	20	Works
Afghanistan	China	30	Services

Table 2: Aggregated Project Level Procurement (Example) Data

	Home Country	China	US	Goods	Works	Services
Number	3	3	3	3	3	3
Value	50	80	80	60	70	80
Contract Share	0.333	0.333	0.333	0.333	0.333	0.333
Value Share	0.238	0.381	0.381	0.285	0.333	0.380

We create project-level contract variables as follows:

- Percentage number of total contracts awarded to home country, supplier country A, country B, and so on for supplier countries. The category includes supplier coun-

try 'World', which (by value) is primarily contracts won by UN agencies, although it does also include a number of individual consultant contractors.

- Percentage value of total contract amount awarded to home country, supplier country A and so on.
- Percentage number of total contracts awarded using procurement method one, method two (and so on). Procurement methods include different approaches for goods, civil works and services as well as different levels of competition.
- Percentage value of total contract amount awarded using procurement method one, method two (and so on).
- Percentage number of and value of contracts awarded competitively, where we consider the following approaches 'competitive' and every other method 'not competitive': National Competitive Bidding; Quality And Cost-Based Selection; International Competitive Bidding; Limited International Bidding; Least Cost Selection; Fixed Budget Selection; Request for Bids; Request for Proposals.
- Average contract signing date, both unweighted and weighted by value of contracts.
- Total number and total value of contracts.
- Herfindahl–Hirschman Index (HHI) of contracts (a measure of concentration, where 1 reflects that the total value of contracts under the project is accounted for by one contract and low values reflect that total contract value is spread fairly evenly amongst multiple projects).

We take project variables from the archived IEG (Independent Evaluation Group) World Bank project performance ratings: project ID, country code, approval date, sector board (an indicator of the economic sector of the project, such as transport or human

development), economic rate of return estimated at project appraisal, economic rate of return estimated at project completion, and World Bank independent evaluation group outcome rating (a six point scale of overall project outcome from 'highly unsatisfactory', through 'unsatisfactory', 'moderately unsatisfactory', 'moderately satisfactory', 'satisfactory' and 'highly satisfactory', given numeric values 1 to 6).

The rating is developed by IEG staff on the basis of a review of the the World Bank project team's Implementation Completion and Results Report, written at project closing. The report is meant to be a complete and systematic account of the performance and results of each project, and includes the project team's own rating of the extent to which the project's development objectives were achieved. The IEG team then evaluates that rating against project documents including the Implementation Completion and Results Report and issues a confirmed or revised rating of its own, which is what we use here.

We merge IEG performance and project level procurement data, and drop all projects with: no procurement data; no project performance data; approval dates prior to 2000 (because our contract data only begins in 2001); and with more than one borrower country.

With the merged dataset, we create two additional variables: the unweighted and weighted average time between project approval and contract signing, where the weight is contract value. We also add an indicator of borrower country GDP growth in the seven years after project approval.

Table 3 displays summary statistics for the project-level data. Table 4 displays data on the top 20 supplier countries of overseas (non-home country) contracts for World Bank financed projects. Specifically, total contract value supplied, value supplied as a % of world total, total number of contracts, and % of world total contracts. Table 5 presents a correlation matrix of variables. Figure 1 displays distribution of project outcomes by main contract supplier country (i.e. the supplier country accounting for the largest percent by value of contracts under the project) by total number of projects.

Table 3: Summary Stats for all project-level variables

	Non-missing	Unique	Missing %	Mean	SD	Min	Median	Max
IEG Ratings	2687	6	0.0%	3.93	1.01	1	4	6
ERR At Appraisal	471	193	82.5%	28.75	21.42	4	23	223
ERR At Completion	451	222	83.2%	33.27	51.06	−10	23.8	747
Log Project Cost	2687	2686	0.0%	16.12	1.93	8.2	16.2	21.1
Weighted Signing Gap	2625	2619	2.3%	1102.43	537.08	1	1064.4	3477.4
HHI Contracts	2687	2586	0.0%	0.23	0.24	0	0.1	1
Goods Share	2687	1961	0.0%	0.29	0.33	0	0.1	1
Civil Works Share	2687	1456	0.0%	0.28	0.36	0	0	1
Mean Signing Gap	2625	2589	2.3%	1134.87	534.06	1	1081.5	3439.3
Method Share Comp	2687	2054	0.0%	0.51	0.38	0	0.6	1
Method Share Noncomp	2687	2054	0.0%	0.49	0.38	0	0.4	1
Approval Year	2687	16	0.0%	2005.90	3.77	2000	2006	2015
Value Share: Home Country	2687	2147	0.0%	0.61	0.36	0	0.7	1
Contracts Share Home Country	2687	846	0.0%	0.61	0.31	0	0.7	1

3 Results

In Table 6 column 1, we regress IEG outcome ratings on the value share of contracts by the top ten international supplier countries, home country share and borrower country fixed effects. The results suggest that moving from a zero to 100 percent share of contract values won by South Korean firms would be statistically significantly associated with moving +0.8 points on IEG's six point scale, a little less than a standard deviation. Moving from a zero to 100 percent share of contract values won by French firms would be statistically significantly associated with moving -0.5 points on IEG's six point scale. Other supplier country contractor shares, including China, are insignificant. These results are robust to adding sector board and approval year fixed effects, our measure of contract concentration, goods and civil works contract value shares, total project value, value share of contracts awarded competitively and seven year borrower country growth. Note that goods share enters positively and significantly and on occasion Italian supplier share also enters negatively and significantly.

One concern about these results might be use of linear regression to model our outcome which is, in reality, a categorical variable. Thus, we also fit ordered logistic re-

Table 4: Top 20 Suppliers' Overseas Contract Value & Contract Number

Supplier Country (Values)	Total Value Supplied	Value Supplied, % World Total	Supplier Country (Contracts)	Total Contracts Supplied	Contracts Supplied, % World Total
China	$ 27,218M	23.29%	France	3879	4.98%
Italy	$ 7,336M	6.28%	United States	3381	4.34%
Spain	$ 6,195M	5.30%	United Kingdom	3041	3.91 %
France	$ 5,930M	5.07%	Germany	2330	2.99%
India	$ 5,359M	4.59%	China	2175	2.79%
Turkiye	$ 5,027M	4.30%	India	1837	2.36%
Germany	$ 4,944M	4.23%	Canada	1553	1.99%
United Kingdom	$ 3,120M	2.67%	Italy	1294	1.66%
United States	$ 3,093M	2.65%	Netherlands	1197	1.54%
Korea, Republic Of	$ 2,811M	2.41 %	Spain	1078	1.38%
Brazil	$ 2,267M	1.94%	Australia	1017	1.31 %
Switzerland	$ 2,129M	1.82%	South Africa	885	1.14 %
Netherlands	$ 1,840M	1.57%	Ethiopia	823	1.06%
Greece	$ 1,682M	1.44%	Senegal	816	1.05%
Japan	$ 1,393M	1.19 %	Kenya	696	0.89%
Russian Federation	$ 1,294M	1.11 %	Switzerland	664	0.85%
Canada	$ 1,188M	1.02%	Tunisia	646	0.83%
Portugal	$ 1,165M	1.00%	Belgium	633	0.81 %
Austria	$ 1,103M	0.94%	Burkina Faso	625	0.80%
Sweden	$ 1,082M	0.93%	Denmark	617	0.79%

Note: All values are in millions of USD. Contracts for projects in the country itself are excluded.

Table 5: Correlation Matrix, all numeric variables used in IEG Ratings Regressions.

	Goods Share	Civil Works Share	Borrower 7y Avg. Growth Rate	Method Share: Competi-tive	Log(Project Cost)	HHI of Contracts	IEG Ratings
IEG Ratings	0.06**	0.02	0.14 ***	0.07**	0.05*	−0.05*	1
HHI of Contracts	−0.04	−0.12 ***	−0.10 ***	−0.17 ***	−0.40***	1	
Log(Project Cost)	0.06*	0.50***	0.15 ***	0.54***	1		
Method Share: Competitive	0.34***	0.59***	0.22***	1			
Borrower 7y Avg. Growth Rate	0.06**	0.13 ***	1				
Civil Works Share	−0.39***	1					
Goods Share	1						

p-value: *** < 0.001, ** < 0.01, * < 0.05. Pearson correlations, Holt adjustment.

gression models which appropriately treat the outcome as a bounded, ordered set of qualitative categories. Taking all non-fixed effect covariates except growth rate, then re-introducing borrower country and finally sector board fixed effects into the ordered logit model yields more or less the same results as the linear model.[6] While the raw coefficients from these regressions are not directly interpretable in magnitude like those from linear models, Figure 2 shows the sign and confidence interval of the estimates from the full model. Table 7 reports the predicted average marginal effect of each variable.[7]

This confirms the association between French contracting share and project outcome, as well as the lack of significance of other country-contractor shares. Table 8 runs the full

[6]With no fixed effects, value share France is negative and strongly significant, while value share S. Korea is positive and significant. Introducing borrower country fixed effects cuts the magnitude of both coefficients, bringing S. Korea just shy of the 5% level. Adding sector board yields the complete model—value share France and S. Korea hold steady, and value share Italy comes in just above the 10% threshold with a negative coefficient. Each subsequent model yields modest improvements in Akaike Information Criterion and residual deviance. Likelihood ratio tests unsurprisingly confirm that the added variables add significantly to the model.

[7]Values represent the change in probability of being in a given rating category for a 1-unit change in the explanatory variable, predicted for each observation's explanatory variable values and then averaged over all observations. Because the model is not linear, the effect that any variable has on the outcome depends on the values of *all* variables. Thus, you can only estimate marginal effects for specified sets of explanatory variables. Here, we use the sets present in our dataset—the observations—and average over them.

Table 6: Regressing IEG Ratings on Value Supplied by top suppliers, with various controls.

	IEG Ratings *(6-point scale)*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Value Share: Home Country	0.110	0.105	-0.008	-0.027	-0.018	-0.017	0.018	-0.028	0.024
	(0.097)	(0.097)	(0.103)	(0.103)	(0.103)	(0.104)	(0.106)	(0.105)	(0.106)
Value Share: China	0.122	0.094	-0.086	-0.098	-0.118	-0.119	-0.068	-0.134	-0.047
	(0.225)	(0.222)	(0.233)	(0.233)	(0.234)	(0.234)	(0.236)	(0.235)	(0.237)
Value Share: United States	-0.031	-0.052	-0.119	-0.123	-0.081	-0.097	-0.061	-0.079	-0.049
	(0.231)	(0.234)	(0.242)	(0.244)	(0.243)	(0.245)	(0.248)	(0.245)	(0.247)
Value Share: S. Korea	0.828***	0.613**	0.686**	0.714**	0.657**	0.680**	0.669**	0.672**	0.687**
	(0.244)	(0.271)	(0.289)	(0.288)	(0.291)	(0.289)	(0.278)	(0.291)	(0.281)
Value Share: Italy	-0.412	-0.424	-0.514*	-0.486	-0.516*	-0.499*	-0.494	-0.496	-0.432
	(0.329)	(0.316)	(0.307)	(0.302)	(0.307)	(0.303)	(0.305)	(0.303)	(0.311)
Value Share: Turkiye	0.225	0.188	0.086	0.078	0.083	0.056	0.099	0.064	0.107
	(0.522)	(0.494)	(0.474)	(0.473)	(0.468)	(0.470)	(0.475)	(0.467)	(0.502)
Value Share: Spain	-0.364	-0.401	-0.278	-0.270	-0.311	-0.287	-0.258	-0.305	-0.258
	(0.357)	(0.358)	(0.335)	(0.339)	(0.333)	(0.338)	(0.334)	(0.337)	(0.334)
Value Share: France	-0.468*	-0.447*	-0.551**	-0.560**	-0.563**	-0.558**	-0.552**	-0.568**	-0.557**
	(0.251)	(0.249)	(0.246)	(0.247)	(0.245)	(0.246)	(0.243)	(0.245)	(0.242)
Value Share: India	0.305	0.283	0.170	0.158	0.136	0.151	0.132	0.129	0.126
	(0.313)	(0.309)	(0.319)	(0.321)	(0.320)	(0.321)	(0.319)	(0.322)	(0.319)
Value Share: Germany	-0.019	-0.051	0.032	0.039	0.037	0.030	0.066	0.038	0.074
	(0.304)	(0.319)	(0.303)	(0.304)	(0.302)	(0.305)	(0.306)	(0.305)	(0.315)
Value Share: United Kingdom	-0.110	-0.105	-0.093	-0.081	-0.067	-0.068	-0.039	-0.055	-0.030
	(0.242)	(0.241)	(0.247)	(0.248)	(0.245)	(0.246)	(0.248)	(0.246)	(0.252)
Value Share: World	-0.077	-0.117	-0.103	-0.109	-0.056	-0.085	-0.049	-0.060	-0.044
	(0.144)	(0.145)	(0.148)	(0.149)	(0.153)	(0.150)	(0.150)	(0.153)	(0.150)
Borrower 7y Avg. Growth Rate									0.023*
									(0.014)
Log(Project Cost)						0.015	0.017	0.008	0.015
						(0.015)	(0.017)	(0.016)	(0.017)
Goods Share							0.167**		0.177**
							(0.079)		(0.079)
Civil Works Share							-0.066		-0.057
							(0.093)		(0.094)
HHI of Contracts				-0.142		-0.102	-0.092	-0.113	-0.088
				(0.092)		(0.104)	(0.106)	(0.105)	(0.106)
Method Share: Competitive					0.095			0.072	
					(0.068)			(0.074)	
Fixed Effects:									
Borrower fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓
Approval Year fixed effects		✓	✓	✓	✓	✓	✓	✓	✓
Sector Board fixed effects			✓	✓	✓	✓	✓	✓	✓
Observations	2,687	2,687	2,604	2,604	2,604	2,604	2,604	2,604	2,588
R^2	0.133	0.147	0.169	0.170	0.170	0.170	0.173	0.170	0.175
Adjusted R^2	0.082	0.091	0.104	0.105	0.105	0.105	0.108	0.105	0.109
Within Adjusted R^2	0.004	0.003	0.001	0.002	0.002	0.002	0.005	0.002	0.006

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

model only on projects where civil works make up 50 percent or more of project value. The only (weakly) statistically significant result is that projects with greater involvement of Italian contractors are associated with worse results. Condensing the six IEG Rating levels to a binary outcome, satisfactory (rating ≥ 4) or not (rating ≤ 3), again yields the same results, reported in Table 13.

As an alternate measure of project success, with a smaller sample, looking at the change in project economic rate of return between appraisal and completion (Table 9 column 6), a higher French share is once again associated with worse outcomes, as is contract concentration.

Looking at the time taken to sign contracts (Table 10), it appears that it takes considerably longer to sign contracts after project approval where home country supplies or Chinese contractors take a large share of project contract values, while projects with a few large contracts see more rapid contract signature.

4 Discussion

It is worth noting the low R-squared values of our regressions, largely accounted for by borrower country fixed effects. This might be taken as a sign of success for World Bank procurement policies: apparently they largely preserve World Bank project outcomes from the effects of varied project designs and contractors (although projects made up largely of purchasing goods do appear easier to complete successfully).

This evidence does not appear to support allegations that Chinese firms under-deliver on World Bank projects, although it may take longer to sign contracts with Chinese firms. For what it is worth, nor does the evidence on firm debarment, where the World Bank prevents firms from bidding on future Bank-financed contracts on the basis of past (detected) malfeasance.

We examine the World Bank list of sanctioned firms on World Bank projects as of

1/31/2023 (minus cross-debarments due to malfeasance on other MDB projects and debarments of affiliates). Table 11 provides a count per country and a count divided by the total number and value of contracts won by suppliers from those countries since 2015 (at home and abroad, not just contracts won overseas) to create an index of debarments per contract and debarments per one million dollars of contract value awarded. Most OECD countries look considerably worse than China on this measure (although France looks better). Between 2014 and 2019, Chinese firms accounted for 17 percent of the World Bank's active debarments and 22 percent of the World Bank's total contracts by value.[8]

To be sure, many Chinese contractors bidding on World Bank contracts are state-owned and may benefit from subsidies and support to work overseas when Chinese domestic demand lags. Of the World Bank's top 10 Chinese contractors in 2020, accounting for nearly 60 percent of the contracts won, eight were owned or controlled by the Chinese state.[9] But this may help account for why Chinese contractors can help deliver good project outcomes while winning bids: wage rates are lower and bids may be subsidized.

Perhaps Chinese firms outside World Bank safeguards don't perform well, but apparently they still have a comparative advantage when they perform well under World Bank project supervision. Outside World Bank operations, it is worth noting that in rankings based on surveys of recipient country policymakers and other partners, China is ranked between Ireland and Switzerland in terms of the helpfulness of its partnership, at 32nd place (the Global Fund, the WHO and UNICEF take top spots). France comes in at 44th, and Italy at 48th.[10].

[8]Morris, S., Rockafellow, R., & Rose, Sarah. (2021). 'Mapping China's Multilateralism: A Data Survey of China's Participation in Multilateral Development Institutions and Fund.' Center for Global Development. https://www.cgdev.org/publication/mapping-chinas-multilateralism-data-survey-chinas-participation-multilateral-development

[9]Ibid.

[10]Custer, S., & et al. (2021). 'Listening to Leaders: A Report Card for Development Partners in An Era of Contested Cooperation.' AidData. Available at https://docs.aiddata.org/reports/listening-to-leaders-2021.html

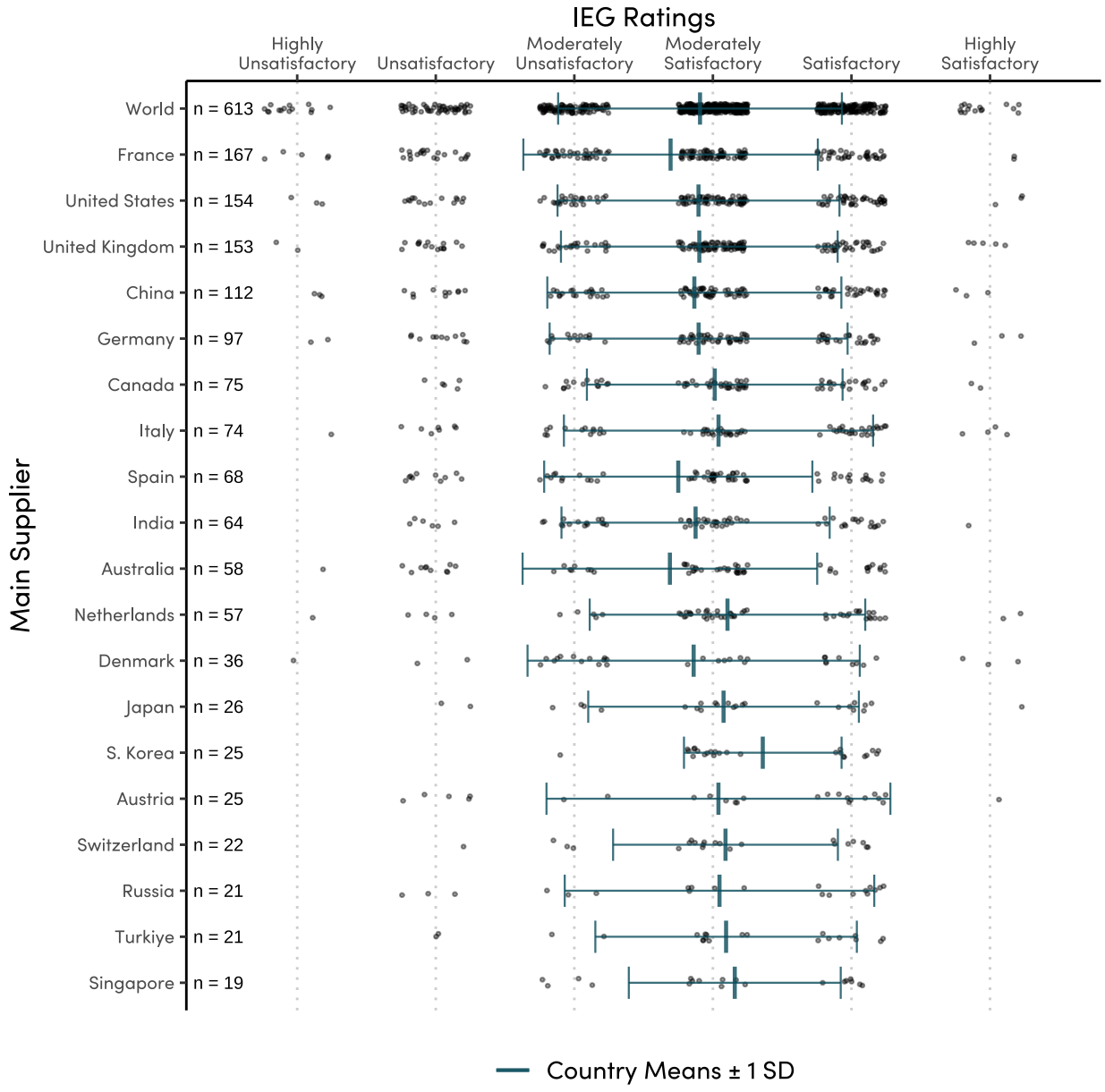
Note this evidence on country of origin of contractors cannot address the surely considerable within-country variation of the quality of contractors –and so cannot speak to the broader extent or impact of poor-quality contractors working on World Bank financed projects.

5 Conclusion

Measured World Bank project success is linked to simple design as well as staff experience and engagement. Historically, projects were on average a little more successful in countries with strong institutions, although, recently, World Bank IDA-financed projects focused on the poorest countries have performed very similarly on average to IBRD-financed projects in middle income countries.[11] The fact that so little regarding outcomes can be explained by available contract, project and country-level factors all together might suggest that World Bank project management systems broadly work to insulate projects from these factors as measured, though note the measures at all three levels are partial at best.

[11] https://ieg.worldbankgroup.org/ieg-data-world-bank-project-ratings-and-lessons

Figure 1: IEG Ratings by Main Foreign Supplier Country.



'Main supplier' for a project is defined here as the largest non-home country supplier.

Table 7: Predicted Average (Ungrouped) Marginal Effects, with Borrower Country and Sector Board fixed effects

	Highly Satisfactory	Highly Unsatisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Satisfactory	Unsatisfactory
HHI Contracts	-0.000675	0.000419	0.000343	0.002728	-0.004925	0.002110
	(0.00426)	(0.00265)	(0.00217)	(0.01724)	(0.03115)	(0.01335)
Log Project Cost	0.000713	-0.000443	-0.000363	-0.002881	0.005203	-0.002229
	(0.00073)	(0.00046)	(0.00040)	(0.00293)	(0.00529)	(0.00227)
Method Share Comp	-0.000698	0.000434	0.000355	0.002822	-0.005096	0.002183
	(0.00480)	(0.00298)	(0.00245)	(0.01936)	(0.03496)	(0.01498)
Value Share: China	-0.002045	0.001269	0.001040	0.008263	-0.014921	0.006393
	(0.01009)	(0.00627)	(0.00515)	(0.04079)	(0.07364)	(0.03156)
Value Share: France	-0.025278**	0.015691**	0.012855*	0.102139**	-0.184431**	0.079024**
	(0.01047)	(0.00668)	(0.00780)	(0.04045)	(0.07310)	(0.03151)
Value Share: Germany	0.003991	-0.002478	-0.002030	-0.016127	0.029120	-0.012477
	(0.01179)	(0.00732)	(0.00608)	(0.04755)	(0.08588)	(0.03679)
Value Share: Home Country	-0.000121	0.000075	0.000061	0.000488	-0.000881	0.000378
	(0.00455)	(0.00285)	(0.00234)	(0.01857)	(0.03352)	(0.01431)
Value Share: India	0.009148	-0.005678	-0.004652	-0.036962	0.066742	-0.028598
	(0.01365)	(0.00849)	(0.00724)	(0.05495)	(0.09922)	(0.04254)
Value Share: Italy	-0.021287*	0.013214*	0.010825	0.086012*	-0.155311*	0.066547*
	(0.01245)	(0.00781)	(0.00780)	(0.04914)	(0.08853)	(0.03813)
Value Share: S. Korea	0.030769*	-0.019100*	-0.015647	-0.124326*	0.224494*	-0.096190*
	(0.01750)	(0.01104)	(0.01082)	(0.06930)	(0.12461)	(0.05381)
Value Share: Spain	-0.012137	0.007534	0.006172	0.049041	-0.088553	0.037943
	(0.01402)	(0.00873)	(0.00766)	(0.05631)	(0.10171)	(0.04361)
Value Share: Turkiye	0.010297	-0.006392	-0.005236	-0.041605	0.075127	-0.032190
	(0.02205)	(0.01371)	(0.01140)	(0.08899)	(0.16066)	(0.06887)
Value Share: United Kingdom	-0.004519	0.002805	0.002298	0.018260	-0.032971	0.014127
	(0.00963)	(0.00596)	(0.00498)	(0.03868)	(0.06981)	(0.02994)
Value Share: United States	-0.005257	0.003263	0.002673	0.021242	-0.038357	0.016435
	(0.01054)	(0.00653)	(0.00544)	(0.04240)	(0.07651)	(0.03283)
Value Share: World	-0.003365	0.002089	0.001711	0.013595	-0.024549	0.010519
	(0.00645)	(0.00400)	(0.00340)	(0.02599)	(0.04694)	(0.02011)

Note:
Values represent predicted change in probability of being in a given IEG Rating category, given a 1-unit change in the explanatory variable, *averaged across all observations*.

Table 8: Full model results in Civil Works Share > 50% subset

	IEG Ratings *(6-point scale)* (1)
Value Share: Home Country	-0.021 (0.229)
Value Share: China	-0.375 (0.323)
Value Share: United States	1.02 (1.28)
Value Share: S. Korea	-0.152 (0.455)
Value Share: Italy	-0.715 (0.436)
Value Share: Turkiye	-0.033 (0.741)
Value Share: Spain	-0.147 (0.542)
Value Share: France	-0.499 (0.470)
Value Share: India	0.089 (0.573)
Value Share: Germany	0.265 (0.436)
Value Share: United Kingdom	0.488 (0.446)
Value Share: World	0.986 (1.02)
Borrower 7y Avg. Growth Rate	-0.055** (0.024)
Log(Project Cost)	0.031 (0.046)
Goods Share	0.254 (0.573)
Civil Works Share	-0.074 (0.549)
HHI of Contracts	-0.180 (0.298)
Method Share: Competitive	0.057 (0.301)
Fixed Effects:	
Borrower fixed effects	✓
Approval Year fixed effects	✓
Sector Board fixed effects	✓
Observations	734
R^2	0.329
Adjusted R^2	0.135
Within Adjusted R^2	-0.007

Table 9: Economic Rate of Return (ERR) models ('Change' refers to (ERR at Completion minus ERR at Appraisal))

	ERR at Appraisal		ERR at Completion		ERR Change	
	(1)	(2)	(3)	(4)	(5)	(6)
Value Share: Home Country	-8.18	-9.35	-8.80	-21.7	0.692	-7.97
	(7.43)	(11.6)	(11.0)	(16.9)	(6.49)	(7.42)
Value Share: China	-5.80	-7.64	-14.2	-30.2	-8.17	-19.6
	(10.4)	(15.1)	(13.2)	(23.7)	(7.94)	(14.5)
Value Share: United States	11.3	-15.9	-20.4	-53.6	-51.8*	-72.3
	(17.4)	(42.0)	(33.2)	(69.8)	(29.4)	(59.3)
Value Share: S. Korea	-56.9*	-40.8	-88.3*	-103.8*	-41.9	-52.5
	(29.7)	(28.4)	(47.3)	(58.0)	(33.4)	(45.6)
Value Share: Italy	-13.9	-5.20	-24.1*	-38.3	-4.10	-21.1
	(11.2)	(15.3)	(14.0)	(24.8)	(8.47)	(15.5)
Value Share: Turkiye	-13.5	-9.72	-28.3	-105.9**	-4.00	-61.8
	(11.7)	(24.5)	(22.9)	(49.9)	(14.0)	(41.0)
Value Share: Spain	-11.2	24.4	-24.6**	19.5	-3.82	23.3
	(10.4)	(24.5)	(12.3)	(21.4)	(5.90)	(19.4)
Value Share: France	-12.3	-12.6	-18.5	-33.8*	-7.28	-24.9*
	(9.47)	(14.7)	(14.1)	(20.3)	(7.92)	(14.3)
Value Share: India	-8.01	-0.413	8.85	12.5	12.9	7.65
	(11.4)	(16.1)	(18.1)	(24.2)	(15.0)	(16.7)
Value Share: Germany	-18.2	-29.6	-13.8	6.49	-5.37	11.7
	(20.6)	(24.0)	(17.4)	(43.1)	(15.7)	(37.2)
Value Share: United Kingdom	2.78	-23.9*	-2.85	-23.0	9.72	-8.22
	(20.7)	(13.5)	(15.6)	(28.4)	(12.7)	(19.0)
Value Share: World	10.5	-4.69	11.8	-23.2	4.35	3.59
	(12.8)	(18.6)	(25.4)	(37.9)	(13.3)	(21.0)
Log(Project Cost)	-0.018	-0.861	0.005	-2.16	0.548	-1.65
	(0.541)	(1.10)	(0.845)	(1.62)	(0.717)	(1.34)
Goods Share	0.570	5.64	19.4	27.6*	7.33	17.2
	(12.8)	(12.5)	(22.5)	(15.9)	(15.6)	(16.4)
Civil Works Share	-0.550	2.61	13.6	29.5*	-0.347	17.4
	(13.2)	(13.0)	(21.5)	(16.6)	(16.8)	(18.0)
HHI of Contracts	-5.21	-6.29	-15.9**	-24.2***	-12.5**	-18.6**
	(3.71)	(6.36)	(6.63)	(8.85)	(6.22)	(8.40)
Method Share: Competitive	1.06	3.88	-5.85	-8.92	0.468	-7.93
	(12.4)	(12.7)	(20.7)	(14.5)	(16.6)	(16.7)
Constant	35.8***		34.4**		-5.18	
	(10.9)		(16.8)		(13.4)	
Fixed Effects:						
Borrower fixed effects		✓		✓		✓
Approval Year fixed effects		✓		✓		✓
Sector Board fixed effects		✓		✓		✓
Observations	471	463	353	345	353	345
R^2	0.026	0.398	0.025	0.615	0.022	0.571
Adjusted R^2	-0.011	0.120	-0.024	0.372	-0.028	0.301
Within Adjusted R^2		-0.024		-0.004		-0.026

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 10: Log(Weighted Signing Gap) models

	(1)	(2)	(3)	(4)	(5)	(6)
Value Share: Home Country	0.175**	0.227***	0.131*	0.146**	0.122*	0.122*
	(0.076)	(0.077)	(0.072)	(0.072)	(0.074)	(0.074)
Value Share: China	0.228**	0.345***	0.289***	0.255**	0.232**	0.227**
	(0.111)	(0.112)	(0.107)	(0.109)	(0.109)	(0.109)
Value Share: United States	0.068	0.067	0.029	0.071	0.084	0.097
	(0.157)	(0.160)	(0.163)	(0.165)	(0.167)	(0.167)
Value Share: S. Korea	0.147	0.190	0.340*	0.288	0.283	0.277
	(0.239)	(0.219)	(0.198)	(0.198)	(0.199)	(0.199)
Value Share: Italy	-0.387*	-0.368	-0.239	-0.258	-0.264	-0.259
	(0.227)	(0.227)	(0.231)	(0.231)	(0.232)	(0.229)
Value Share: Turkiye	-0.047	0.024	0.002	-0.033	-0.025	-0.023
	(0.254)	(0.260)	(0.284)	(0.278)	(0.282)	(0.282)
Value Share: Spain	-0.201	-0.263	-0.204	-0.237	-0.252	-0.265
	(0.220)	(0.219)	(0.191)	(0.195)	(0.196)	(0.196)
Value Share: France	0.178	0.251	0.195	0.193	0.191	0.180
	(0.257)	(0.188)	(0.169)	(0.169)	(0.169)	(0.169)
Value Share: India	0.060	0.014	-0.045	-0.058	-0.084	-0.091
	(0.217)	(0.217)	(0.216)	(0.221)	(0.225)	(0.224)
Value Share: Germany	-0.085	-0.045	-0.021	-0.039	-0.035	-0.031
	(0.180)	(0.189)	(0.171)	(0.170)	(0.173)	(0.171)
Value Share: United Kingdom	-0.314**	-0.339**	-0.279*	-0.263*	-0.243	-0.240
	(0.159)	(0.159)	(0.156)	(0.157)	(0.159)	(0.159)
Value Share: World	-0.285**	-0.207*	-0.247**	-0.210*	-0.198*	-0.177
	(0.114)	(0.120)	(0.112)	(0.115)	(0.116)	(0.118)
Log(Project Cost)				0.024**	0.014	0.013
				(0.011)	(0.013)	(0.012)
Goods Share					0.074	0.017
					(0.055)	(0.083)
Civil Works Share					0.105*	0.041
					(0.058)	(0.089)
HHI of Contracts			-0.713***	-0.653***	-0.674***	-0.673***
			(0.074)	(0.082)	(0.084)	(0.084)
Method Share: Competitive						0.082
						(0.079)
Fixed Effects:						
Borrower	✓	✓	✓	✓	✓	✓
Approval Year	✓	✓	✓	✓	✓	✓
Sector Board		✓	✓	✓	✓	✓
Observations	2,625	2,543	2,543	2,543	2,543	2,543
R^2	0.186	0.233	0.288	0.290	0.291	0.292
Adjusted R^2	0.132	0.172	0.231	0.233	0.234	0.234
Within Adjusted R^2	0.023	0.025	0.094	0.097	0.098	0.098

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 11: Sanctioned Individuals and Firms by country (as of Jan 31, 2023)

	Country	N	Ratio		Country	N	Ratio
1.	Taiwan, China	1	0.46128	42.	Austria	2	0.008858
2.	Guatemala	5	0.19524	43.	Netherlands	7	0.008711
3.	Virgin Islands, British	2	0.14552	44.	Denmark	1	0.008702
4.	Bolivia	28	0.07211	45.	Laos	1	0.008623
5.	Sweden	12	0.06601	46.	Papua New Guinea	1	0.008408
6.	Cambodia	12	0.06413	47.	Togo	1	0.007877
7.	Peru	21	0.06389	48.	Azerbaijan	5	0.007845
8.	Honduras	4	0.06143	49.	Viet Nam	25	0.006864
9.	Bulgaria	5	0.05901	50.	Kenya	8	0.006675
10.	Liberia	7	0.05512	51.	Colombia	2	0.006229
11.	Vanuatu	2	0.04687	52.	Ecuador	2	0.005205
12.	Georgia	11	0.04406	53.	Iran, Islamic Republic of	1	0.005137
13.	United Kingdom	40	0.04321	54.	Benin	1	0.005098
14.	Tajikistan	7	0.04157	55.	Congo, Dem. Repub. of	4	0.005088
15.	Thailand	3	0.02905	56.	Bangladesh	13	0.005063
16.	Kyrgyz Republic	5	0.02904	57.	Japan	3	0.004960
17.	Uzbekistan	14	0.02656	58.	Burkina Faso	3	0.004897
18.	Mauritius	1	0.02293	59.	Argentina	8	0.004783
19.	Uganda	12	0.02277	60.	Tanzania	2	0.004527
20.	Tonga	1	0.02242	61.	Brazil	23	0.004440
21.	Botswana	2	0.02094	62.	Hong Kong SAR, China	1	0.004180
22.	Canada	6	0.02027	63.	Germany	4	0.004153
23.	Nigeria	40	0.02012	64.	United Arab Emirates	2	0.004020
24.	Ireland	1	0.01962	65.	Armenia	1	0.003867
25.	Sierra Leone	1	0.01725	66.	Tunisia	3	0.002777
26.	Nicaragua	6	0.01708	67.	Belgium	1	0.002684
27.	Ukraine	10	0.01583	68.	Kazakhstan	1	0.002428
28.	Moldova	2	0.01567	69.	Spain	5	0.002361
29.	Somalia	2	0.01556	70.	Pakistan	3	0.002186
30.	Nepal	5	0.01520	71.	Sri Lanka	1	0.002024
31.	Singapore	2	0.01459	72.	China	40	0.001739
32.	Madagascar	5	0.01446	73.	Belarus	1	0.001486
33.	Russian Federation	13	0.01426	74.	India	24	0.001421
34.	Iraq	5	0.01331	75.	Korea, Republic of	1	0.001381
35.	United States	17	0.01279	76.	Greece	1	0.001282
36.	Mongolia	3	0.01262	77.	Philippines	9	0.001237
37.	Indonesia	19	0.01084	78.	Afghanistan	2	0.001219
38.	Congo, Republic of	2	0.01072	79.	Senegal	1	0.001193
39.	El Salvador	1	0.00952	80.	Turkiye	4	0.001011
40.	New Zealand	1	0.00910	81.	France	1	0.000447
41.	Haiti	3	0.00909				

N refers to the count of sanctioned individuals and firms by country. Ratio is the number of sanctioned individuals and firms divided by the value of the contract won by country since 2015, in millions.

6 Supplementary Regressions

Figure 2: Coefficients and 95% Confidence Intervals for Ordered Logit model with borrower country and sector board fixed effects.

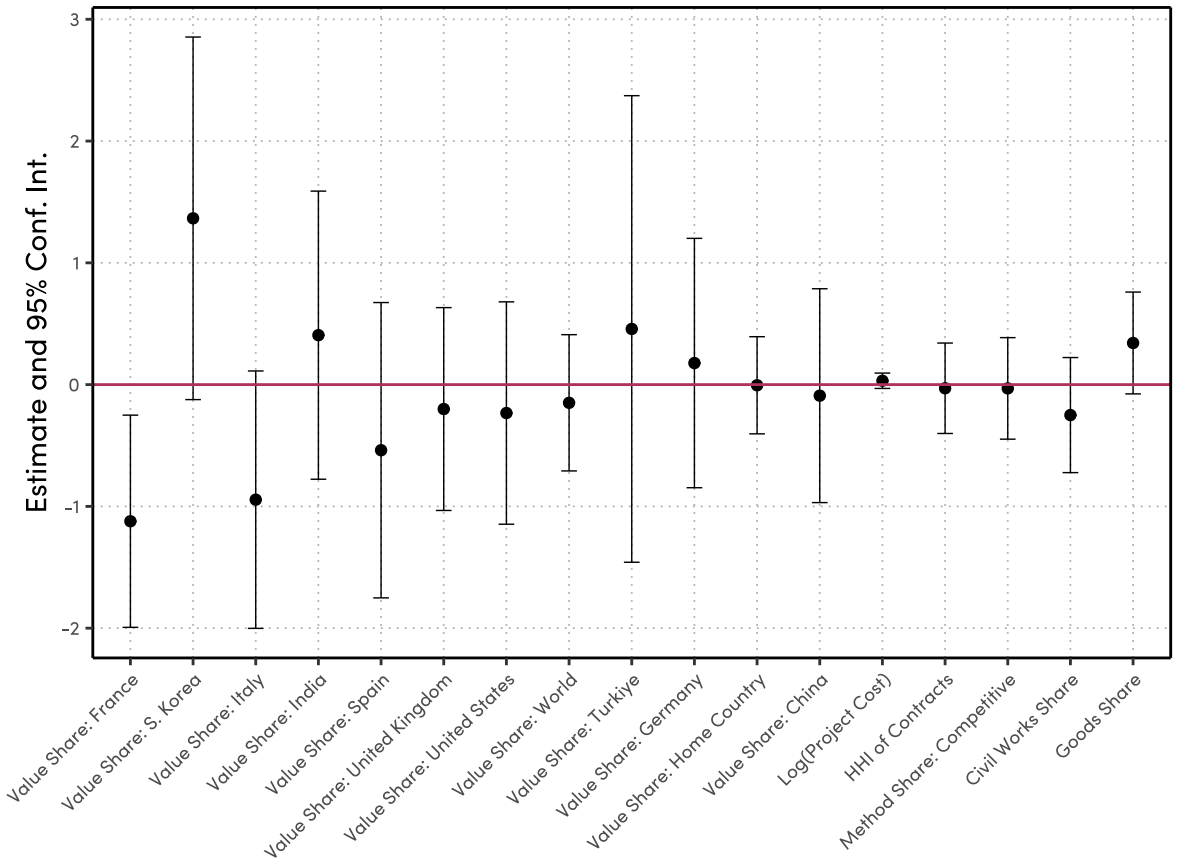


Figure 3: Fitted Values vs Actual IEG Ratings, OLS and Ordered Logit Comparison.

n = **2588**

[1] IEG Ratings ~ Value Share: China + Value Share: United States + Value Share: S. Korea + Value Share: Italy + Value Share: Turkiye + Value Share: Spain + Value Share: France + Value Share: India + Value Share: Germany + Value Share: United Kingdom + Value Share: World + Value Share: Home Country + HHI Contracts + Log Project Cost + Goods Share + Civil Works Share + Borrower 7y Avg. Growth Rate | Borrower Country + Approval Year + Sector Board

[2] All variation around the integer ratings on the y-axis are purely for visibility.

n = **2604**

[1] IEG Ratings F ~ Value Share: China + Value Share: United States + Value Share: S. Korea + Value Share: Italy + Value Share: Turkiye + Value Share: Spain + Value Share: France + Value Share: India + Value Share: Germany + Value Share: United Kingdom + Value Share: World + Value Share: Home Country + HHI Contracts + Log Project Cost + Method Share Comp + Civil Works Share + Goods Share + Borrower Country + Sector Board

[2] All variation around the integer ratings are purely for visibility.

Table 12: Regressing IEG Ratings on Value Supplied by top suppliers, with various controls, and with average 7-year GDP growth rate after project approval.

	IEG Ratings *(6-point scale)*							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Value Share: Home Country	0.119	0.108	-0.001	-0.019	-0.011	-0.010	0.024	-0.021
	(0.097)	(0.097)	(0.103)	(0.104)	(0.103)	(0.105)	(0.106)	(0.105)
Value Share: China	0.148	0.108	-0.064	-0.076	-0.096	-0.097	-0.047	-0.111
	(0.225)	(0.223)	(0.234)	(0.234)	(0.235)	(0.235)	(0.237)	(0.235)
Value Share: United States	-0.022	-0.034	-0.107	-0.111	-0.070	-0.086	-0.049	-0.068
	(0.231)	(0.233)	(0.241)	(0.243)	(0.242)	(0.244)	(0.247)	(0.244)
Value Share: S. Korea	0.851***	0.631**	0.705**	0.732**	0.678**	0.700**	0.687**	0.692**
	(0.247)	(0.278)	(0.292)	(0.291)	(0.294)	(0.293)	(0.281)	(0.294)
Value Share: Italy	-0.352	-0.367	-0.446	-0.430	-0.454	-0.445	-0.432	-0.445
	(0.343)	(0.326)	(0.316)	(0.311)	(0.317)	(0.313)	(0.311)	(0.313)
Value Share: Turkiye	0.208	0.190	0.095	0.087	0.092	0.066	0.107	0.074
	(0.545)	(0.524)	(0.502)	(0.501)	(0.495)	(0.498)	(0.502)	(0.495)
Value Share: Spain	-0.354	-0.406	-0.278	-0.271	-0.310	-0.287	-0.258	-0.304
	(0.357)	(0.357)	(0.335)	(0.339)	(0.333)	(0.337)	(0.334)	(0.336)
Value Share: France	-0.470*	-0.455*	-0.559**	-0.567**	-0.570**	-0.565**	-0.557**	-0.574**
	(0.251)	(0.247)	(0.245)	(0.246)	(0.244)	(0.245)	(0.242)	(0.245)
Value Share: India	0.304	0.266	0.165	0.153	0.133	0.147	0.126	0.126
	(0.314)	(0.310)	(0.319)	(0.321)	(0.320)	(0.321)	(0.319)	(0.322)
Value Share: Germany	-0.006	-0.034	0.041	0.047	0.047	0.038	0.074	0.046
	(0.311)	(0.328)	(0.312)	(0.313)	(0.311)	(0.314)	(0.315)	(0.314)
Value Share: United Kingdom	-0.106	-0.100	-0.085	-0.074	-0.060	-0.061	-0.030	-0.048
	(0.245)	(0.245)	(0.251)	(0.252)	(0.249)	(0.250)	(0.252)	(0.250)
Value Share: World	-0.065	-0.114	-0.098	-0.104	-0.053	-0.082	-0.044	-0.057
	(0.144)	(0.145)	(0.148)	(0.149)	(0.153)	(0.150)	(0.150)	(0.153)
Borrower 7y Avg. Growth Rate	0.014	0.028**	0.025*	0.025*	0.025*	0.025*	0.023*	0.024*
	(0.013)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Log(Project Cost)						0.014	0.015	0.007
						(0.015)	(0.017)	(0.016)
Goods Share							0.177**	
							(0.079)	
Civil Works Share							-0.057	
							(0.094)	
HHI of Contracts				-0.134		-0.096	-0.088	-0.107
				(0.093)		(0.104)	(0.106)	(0.105)
Method Share: Competitive					0.091			0.070
					(0.068)			(0.074)
Fixed Effects:								
Borrower fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
Approval Year fixed effects		✓	✓	✓	✓	✓	✓	✓
Sector Board fixed effects			✓	✓	✓	✓	✓	✓
Observations	2,671	2,671	2,588	2,588	2,588	2,588	2,588	2,588
R^2	0.134	0.148	0.170	0.171	0.171	0.171	0.175	0.172
Adjusted R^2	0.082	0.092	0.105	0.106	0.106	0.106	0.109	0.106
Within Adjusted R^2	0.004	0.004	0.002	0.002	0.002	0.002	0.006	0.002

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 13: Logit Regression, IEG Rating Satisfactory or Unsatisfactory on Value Supplied by top suppliers, with various controls.

	IEG Rating - Satisfactory (1) or Not (0)
	(1)
Value Share: Home Country	-0.004
	(0.275)
Value Share: China	-0.392
	(0.586)
Value Share: United States	0.249
	(0.588)
Value Share: S. Korea	7.49**
	(3.50)
Value Share: Italy	-1.38**
	(0.632)
Value Share: Turkiye	0.256
	(1.58)
Value Share: Spain	-0.633
	(0.782)
Value Share: France	-0.840
	(0.527)
Value Share: India	-0.331
	(0.734)
Value Share: Germany	-0.234
	(0.683)
Value Share: United Kingdom	0.186
	(0.566)
Value Share: World	-0.346
	(0.364)
Borrower 7y Avg. Growth Rate	0.083**
	(0.038)
Log(Project Cost)	0.056
	(0.042)
Goods Share	0.188
	(0.201)
Civil Works Share	-0.145
	(0.231)
HHI of Contracts	-0.340
	(0.235)
Observations	2,489
Borrower fixed effects	✓
Approval Year fixed effects	✓
Sector Board fixed effects	✓

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table 14: Regressing IEG Ratings on Main Supplier.

	IEG Ratings *(6-point scale)*				
	(1)	(2)	(3)	(4)	(5)
Main Supplier: Home Country	0.028	0.015	0.033	0.035	0.022
	(0.140)	(0.140)	(0.142)	(0.142)	(0.144)
Main Supplier: France	-0.318	-0.316	-0.300	-0.298	-0.305
	(0.208)	(0.209)	(0.209)	(0.208)	(0.211)
Main Supplier: Germany	0.003	0.018	0.029	0.036	0.025
	(0.228)	(0.229)	(0.228)	(0.228)	(0.233)
Main Supplier: India	0.151	0.155	0.163	0.158	0.149
	(0.245)	(0.246)	(0.246)	(0.246)	(0.246)
Main Supplier: Italy	-0.443*	-0.417*	-0.416*	-0.407*	-0.400*
	(0.231)	(0.228)	(0.229)	(0.229)	(0.231)
Main Supplier: S. Korea	0.470*	0.500**	0.484*	0.485*	0.474*
	(0.247)	(0.249)	(0.249)	(0.248)	(0.250)
Main Supplier: Spain	-0.470	-0.448	-0.449	-0.451	-0.462
	(0.329)	(0.334)	(0.330)	(0.328)	(0.329)
Main Supplier: Turkiye	-0.084	-0.082	-0.075	-0.065	-0.165
	(0.319)	(0.319)	(0.315)	(0.314)	(0.346)
Main Supplier: United Kingdom	0.015	0.025	0.047	0.060	0.051
	(0.204)	(0.205)	(0.205)	(0.205)	(0.208)
Main Supplier: United States	-0.013	-0.005	0.020	0.035	0.023
	(0.208)	(0.209)	(0.210)	(0.211)	(0.212)
Main Supplier: World	0.061	0.059	0.083	0.103	0.091
	(0.157)	(0.157)	(0.159)	(0.161)	(0.162)
Borrower 7y Avg. Growth Rate					0.012
					(0.014)
Log(Project Cost)			0.016	0.011	0.010
			(0.015)	(0.017)	(0.017)
HHI of Contracts		-0.149	-0.100	-0.109	-0.104
		(0.103)	(0.115)	(0.116)	(0.116)
Method Share: Competitive				0.062	0.063
				(0.076)	(0.076)
Fixed Effects:					
Borrower fixed effects	✓	✓	✓	✓	✓
Approval Year fixed effects	✓	✓	✓	✓	✓
Sector Board fixed effects	✓	✓	✓	✓	✓
Observations	2,365	2,365	2,365	2,365	2,353
R^2	0.187	0.188	0.189	0.189	0.190
Adjusted R^2	0.118	0.119	0.119	0.119	0.119
Within Adjusted R^2	0.003	0.004	0.004	0.004	0.003

Heteroskedasticity-robust standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*