Correction to: Emulate or Differentiate? Chinese development finance, competition, and World Bank infrastructure funding

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Correction to: The Review of International Organizations
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Zeitz (2021) argues that the World Bank responds to Chinese development finance by emulating China’s approach in recipient countries. The paper reports that the World Bank allocates a greater share of projects to infrastructure-intensive sectors when a recipient country receives a greater amount of Chinese development finance. There was an error in the paper in the calculation of the share of World Bank projects in infrastructure-intensive sectors. Correcting this error alters the results published in the original paper. After correcting the error, the main results hold, but only if the definition of infrastructure-intensive projects is altered to only include those World Bank infrastructure projects that *do not* have a governance component. This erratum explains the mistake in the original publication and reports revised analyses.

Since the focus of the paper is how the World Bank responds to China’s focus on infrastructure, I identified what share of World Bank projects are in infrastructure-intensive sectors. The World Bank’s internal classification system allows projects to be assigned to multiple sectors. For instance, the World Bank classified a community nutrition project in Madagascar in 1998 as being 70% in the health sector, 19% in primary education, 10% in central government administration, and 1% in agriculture. To address the fact that World Bank projects can be in multiple sectors, I defined World Bank projects as being in a “hard sector” if the *largest* sector associated with a project was one of the six infrastructure-intensive sectors identified in the paper. These six sectors are (1) water supply and sanitation, (2) transport and storage,

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(3) communications, (4) energy, (5) agriculture, forestry & fishing, and (6) industry, mining & construction.

I made an error in identifying which was the largest sector for each World Bank project. To categorize World Bank projects, I used the AidData World Bank Geocoded Research Release, Version 1.4.2, which assigns sector codes from the OECD Creditor Reporting System (CRS) to World Bank projects in the dataset (AidData 2017). These CRS sector codes make it possible to compare World Bank projects to the AidData data on Chinese-financed projects, which have also been assigned CRS sector codes (Dreher et al. 2021). I made the error of treating the CRS code listed *first* as the *largest* sector for an individual World Bank project. However, as I realized when I checked the codes against the OECD CRS classification, sector codes for projects in the AidData World Bank Geocoded Research Release are not listed in order of sector size. Instead, sector codes are listed in quasi-alphabetical order by sector name (e.g. the sector code for “government and civil society” (151) appears ahead of the sector code for “transport” (210) even when the World Bank designated “government and civil society” to be a smaller portion of the project). This means I did not always correctly identify the largest sector for individual World Bank projects and in several cases incorrectly classified projects.

The error led to an *undercounting* of World Bank hard sector projects. This is because many World Bank projects contain a public administration component in addition to the main sectoral focus. Because the CRS sector code for “government and civil society” often appeared ahead of the codes for other sectors, projects that had a hard sector as their largest sector but also had a governance component were mistakenly not classified as being a hard sector project. When I correct the classification error and treat World Bank projects as hard sector projects if the largest sector is one of the six hard sectors, the share of World Bank projects in hard sectors is considerably higher than reported in the original paper (see the mean values of different measures in Table 1). If the analysis in the paper is re-run with this corrected variable, the results *do not hold*.

Table 1 Comparing original to corrected dependent variables

	Variable	Mean	Std. Dev.	Min.	Max.	N
Country	WB hard sector share - original, erroneous	0.139	0.257	0	1	1,646
	WB hard sector share - corrected, all	0.265	0.334	0	1	1,646
	WB hard sector share - corrected, no governance	0.148	0.266	0	1	1,646
ADM1	WB hard sector share - original, erroneous	0.049	0.203	0	1	39,914
	WB hard sector share - corrected, all	0.089	0.269	0	1	39,914
	WB hard sector share - corrected, no governance	0.05	0.205	0	1	39,914
ADM2	WB hard sector share - original, erroneous	0.012	0.106	0	1	508,606
	WB hard sector share - corrected, all	0.024	0.149	0	1	508,606
	WB hard sector share - corrected, no governance	0.012	0.107	0	1	508,606

Fig. 1 **Corrected** Figure 4 in the original paper: Share of projects in “hard” sectors (World Bank measure includes only projects *without* a governance component)

The originally published results *do hold* if World Bank hard sector projects are defined as those projects where the largest sector is an infrastructure-intensive sector *and* the project has *no governance* component. This definition has the benefit of more closely capturing the argument tested in the paper, i.e. the extent to which the World Bank is *emulating* China’s approach to development finance, since Chinese-financed

Fig. 2 **Original** Figure 4: Share of projects in “hard” sectors (erroneous World Bank measure)

Table 2 Revised main results. Share of World Bank projects in hard sectors *without* governance component

	(1) Probit	(2) OLS	(3) First Stage	(4) CF-Second	(5) 2SLS-Second
Chinese commitments (log)	0.032* (0.018)	0.008** (0.003)		0.208 (0.140)	0.078*** (0.026)
Instrument			1.509*** (0.216)		
Residuals				-0.179 (0.142)	
WB commitments (log)	0.327*** (0.030)	0.045*** (0.004)	-0.007 (0.034)	0.326*** (0.029)	0.045*** (0.005)
Constant	-2.881*** (0.201)	-0.060*** (0.021)	-1.348*** (0.294)	-2.681*** (0.446)	-0.001 (0.065)
Observations	1,646	1,646	1,646	1,646	1,646
F-stat			30.828		
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Nr. of bootstraps	NA	NA	1000	1000	NA

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3 Revised subnational results. Subnational: Share of World Bank projects in hard sectors *without* governance component

	ADM1			ADM2		
	(1) OLS	(2) 2SLS-First	(3) 2SLS-Second	(4) OLS	(5) 2SLS-First	(6) 2SLS-Second
Chinese commitments (log)	-0.001 (0.002)		0.083** (0.037)	0.002 (0.002)		0.100*** (0.031)
Instrument		1.143*** (0.257)			1.680*** (0.303)	
WB commitments (log)	0.058*** (0.006)	-0.002 (0.005)	0.058*** (0.006)	0.120*** (0.007)	-0.001 (0.002)	0.120*** (0.007)
Constant	0.011*** (0.004)	-0.363*** (0.101)		0.001* (0.001)	-0.065*** (0.013)	
Observations	39,914	39,914	39,914	508,606	508,606	508,606
F-stat		19.733			30.681	
ADM1 FE	Yes	Yes	Yes	—	—	—
ADM2 FE	—	—	—	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4 **Original** main results (Table 2 in original paper). Share of World Bank projects in infrastructure-intensive hard sectors (erroneous)

	(1)	(2)	(3)	(4)	(5)
	Probit	OLS	First stage	CF-Second	2SLS-Second
Chinese commitments (log)	0.027 (0.017)	0.007** (0.003)		0.278** (0.137)	0.081*** (0.025)
Instrument			1.509*** (0.216)		
Residuals				-0.254* (0.141)	
WB commitments (log)	0.339*** (0.029)	0.043*** (0.004)	-0.007 (0.034)	0.339*** (0.029)	0.042*** (0.005)
Constant	-2.988*** (0.193)	-0.070*** (0.021)	-1.348*** (0.294)	-2.704*** (0.478)	-0.047 (0.060)
Observations	1,646	1,646	1,646	1,646	1,646
F-stat			30.828		
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Nr. of bootstraps	NA	NA	1000	1000	NA

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

infrastructure projects do not include a governance component. Moreover, it closely tracks the data in the originally published paper, since that data accidentally excluded a number of projects with a governance component (compare Fig. 1 showing the corrected data to the Fig. 2 showing the data published in the paper). The sentence on page 271 in the original paper that compares Chinese and World Bank sectoral allocations should read, “Over the 2000-2014 period, 14.04% of World Bank projects were infrastructure-intensive projects with no governance component, while 27.44% of Chinese-financed projects were in the same sectors”.

When the dependent variable is defined as the share of World Bank projects in hard sectors with no governance component, the results are similar in direction, magnitude, and statistical significance to those reported in the original paper (see Tables 2 and 3 and compare these to the results reported in the published paper in Tables 4 and 5).¹ These results indicate that the conclusion in the originally published paper is sound: when a country or region receives more Chinese finance, the World Bank subsequently allocates more “Chinese-style” projects, namely infrastructure-intensive projects with no governance component.

¹The results of the additional analyses in the Supplementary Materials are also largely consistent when they are re-run with the alternate measure. These results are available from the author upon request.

Table 5 **Original** subnational results (Table 3 in original paper). Subnational: Share of WB projects in infrastructure-intensive hard sectors (erroneous)

	ADM1			ADM2		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	2SLS-First	2SLS-Second	OLS	2SLS-First	2SLS-Second
Chinese commitments (log)	0.001 (0.002)		0.066** (0.029)	0.002 (0.001)		0.092*** (0.025)
Instrument		1.212*** (0.221)			1.680*** (0.303)	
WB commitments (log)	0.056*** (0.005)	−0.002 (0.005)	0.057*** (0.005)	0.118*** (0.007)	−0.001 (0.002)	0.117*** (0.007)
Constant	0.011*** (0.004)	−0.391*** (0.087)		0.001* (0.001)	−0.065*** (0.013)	
Observations	39,914	39,914	39,914	508,606	508,606	508,606
F-stat		30.049			30.681	
ADM1 FE	Yes	Yes	Yes	–	–	–
ADM2 FE	–	–	–	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

References

- AidData (2017). World Bank geocoded research release, Version 1.4.2. <https://www.aiddata.org/data/world-bank-geocoded-research-release-level-1-v1-4-2>.
- Dreher, A., Fuchs, A., Parks, B., Strange, A.M., Tierney, M.J. (2021). Aid, China, and growth: Evidence from a new global development finance dataset. *American Economic Journal: Economic Policy*, 13(2), 135–174.
- Zeitz, A.O. (2021). Emulate or differentiate? Chinese development finance, competition, and World Bank infrastructure funding. *The Review of International Organizations*, 16, 265–292. <https://doi.org/10.1007/s11558-020-09377-y>.

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