On Government Borrowing Behavior

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Abstract

In this proposal, I argue that the observed variation in borrowing behavior by recipient countries in Africa can be explained by the dissonant conditionalities associated with Chinese and Western loans. Autocracies, who find it more costly to accept Western loans due to the West's historical emphasis on liberal political reforms, accept Western loans at an inefficiently low rate and forgo potentially lower conditions stemming from Chinese loan competition. I test the hypothesis that African autocracies have higher proportions of Chinese loans to World Bank loans but do not find support for the statistical importance of regime type. GDP per capita, though, seems to be inversely related with the ratio of Chinese loans to World Bank loans.

Keywords: Global Finance, China, World Bank, Africa, Regime Type

Introduction

Since engaging in a "going out" strategy around the turn of the century, the People's Republic of China (China) has successfully become the "lender of first resort" for developing countries (Dreher et al. 2022, p. 1).[1] There has been an abundance of scholarly work attempting to understand the potential effects of China's contemporary prominence in the global finance arena. Much of this literature focuses on how the international financing behavior of more traditional, Western donors have been affected (e.g., Humphrey and Michaelowa 2019; Kilama 2016) or how the effectiveness of their money has changed (e.g., Blair, Marty, and Roessler 2022; Gehring, Kaplan, and Wong 2022).

[1] All R code, data, and LaTeX code underlying my analysis can be found in the corresponding repository on GitHub at https://github.com/nnray.

Little of this work, however, has looked at how the behavior of recipients of international finance has updated since the availability of Chinese money. This lack of attention is despite recent work that implies that recipient countries may extract benefits from their loan choices in a more Chinese global finance environment. While the literature suggests that recipients stand to gain from receiving both Chinese and Western finance and the subsequently more competitive terms, observations of borrowing practices in Africa do not seemingly reflect that recipients are engaging in a strategy to leverage competition between lenders.

Understanding the debt composition of developing countries is an increasingly important issue as public debt continues to rise. This research could also shed light on literature concerned about China's interaction with the liberal international order (LIO) and spark a new research agenda studying recipient behavior.

In the next section I detail what observation is currently not explained and why it should be. My explanation and hypothesis follows. I then introduce my research design and present preliminary results before moving to a discussion of limitations and contributions of the paper.

What Demands Explanation and Why

There is evidence that African countries are offered fewer loan conditions from the World Bank (Hernandez 2017) and that Western aid is less sensitive to policy and institutional quality (Annen and Knack 2021) when they are recipients of Chinese finance. Although Dreher et al. (2021) did not find that the effectiveness of aid from the United States (U.S.) is negatively affected by the presence of Chinese aid, their results do suggest that U.S. aid effectiveness increases in the absence of Chinese aid. In sum, this evidence intimates that Western entities are changing their international financial behavior in response to China in a way that benefits recipients.

There is also tentative evidence that China reciprocates these actions. Dreher et al.

(2018) find that Chinese finance increases with Western development assistance, which they interpret as competitive behavior from China (p. 190). Taken together, the literature seems to imply that there is some financial competition between the West and China that recipients may be able to take advantage of to procure more favorable borrowing terms in the future. If recipients value better loan terms (i.e., lower conditionality) and are willing to take on more debt, it seems that it is optimal for recipients to borrow from both the West and China to stimulate competition and induce lower conditions from at least the West. While this logic stemming from the literature does not stipulate a precise proportion of Western to Chinese debt that optimizes recipient benefits, it should at least not be the case that countries borrow almost exclusively from one or the other. Interrogatively, do African countries borrow from the West and China in a way to benefit from their competition? Equivalently, do African countries have debt compositions largely comprised of both Chinese and Western loans?

A cursory view of African debt suggests that this is not universally the case. The proportion of Chinese loans to Western loans varies substantially between counties and, further, some countries almost entirely borrow from either China or the West when taking money from governments. For example, according to information from a charity focused on alleviating debt across the world, the estimated composition of public debt in Cabo Verde and Djibouti nicely reflects this relative reliance on either the West or China (Table 1 and 2, Jubilee Debt Campaign 2018). Cabo Verde owes only 1% of its estimated total debt to China while Djibouti can attribute 68% of its estimated debt to China, by contrast.

I gathered observational data from the World Bank (The World Bank Group 2022b) and AidData (Custer et al. 2021) to look myself at the sum of loans received from both the World Bank and China for every African country from 2000-2017, as displayed in Table 3. I also provide information from the World Bank (The World Bank Group 2022a) on the public debt that each country carries. The table reveals a few apparent patterns. For one, World Bank loans seem to be much more common than those from China and, secondly, that the total amount of loans received from the World Bank is relatively constant across

Creditor grouping	Total debt owed	Percentage of external debt owed
China	$23 million	1%
Portugal	$168 million	10%
Other Paris Club	$43 million	3%
Other governments	$155 million	12%
World Bank	$346 million	21%
IMF	$0	0%
Other multilateral institutions	$408 million	24%
Private sector	$532 million	32%
Total	$1,675 million	

Table 1: Estimated Debt for Cabo Verde

Creditor grouping	Total debt owed	Percentage of external debt owed
China	$1.096 billion	68%
Paris Club governments	$0.047 billion	3%
Other governments	$0.139 billion	9%
World Bank	$0.131 billion	8%
IMF	$0.026 billion	2%
Other multilateral institutions	$0.165 billion	10%
Private sector	$0	0%
Total	$1.604 billion	

Table 2: Estimated Debt for Djibouti

countries per a few exceptions (e.g., Namibia). Thirdly, there is extensive variation in the total amount of loans received from China. Some countries take none (e.g., Sao Tome and Principe), while others only consume Chinese finance relative to that from the World Bank (e.g., Equatorial Guinea). In conclusion, when focusing only on the World Bank and China, there is indication that some African countries take finance entirely from the West, others entirely from China, and others still borrow substantially from both (e.g., Botswana).

Thus, the variance in debt composition and seeming failure of countries to stimulate and benefit from competition by borrowing in a more equal manner between China and Western entities must be explained. In other words, why do some African countries almost exclusively borrow from either the West or China? While there may be little reason to suspect strategy in the reception of foreign aid and grants, it is more puzzling why countries may not optimize their costly loan intake. Recipients presumably want to minimize the costs associated with borrowing money. Related literature, though, seems to not have fully considered recipient decision-making with regard to choosing a borrower, instead largely focusing on macroeconomic and political determinants of government debt in general (e.g., Bittencourt 2015 ; Swamy 2015) or the determinants of lender behavior (e.g., Dreher et al. 2018).

My Explanation

I argue that the variation observed in African borrowing practices is a result of strategic considerations on behalf of recipients, where countries borrow differently due to dissimilarities in the conditions of Western and Chinese loans and subsequent evaluations of loan value. Specifically, I argue that Western loans typically specify more political conditions and that, therefore, autocratic countries find it more preferable to borrow mostly from China despite the potential financial efficiency gains of incorporating more Western loans.

There is evidence to support the notion that conditionality differs between Chinese loans

	country	Mean Debt	Max Debt	Total China Loans	Total World Bank Loans
1	Algeria	0.000	0.00	56.54	300.3
2	Angola	0.000	0.00	132.71	358.9
3	Benin	0.000	0.00	193.00	362.0
4	Botswana	10.368	21.63	131.10	309.5
5	Burkina Faso	0.000	0.00	0.00	371.0
6	Burundi	0.000	0.00	114.36	355.6
7	Cabo Verde	0.000	0.00	131.07	349.6
8	Cameroon	0.000	0.00	148.47	366.6
9	Central African Republic	0.000	0.00	94.40	335.2
10	Chad	0.000	0.00	71.93	366.6
11	Comoros	0.000	0.00	36.18	324.5
12	Cote d'Ivoire	0.000	0.00	206.51	376.5
13	Democratic Republic of the Congo	0.000	0.00	108.88	380.6
14	Djibouti	0.000	0.00	106.54	337.1
15	Egypt	4.766	85.79	127.74	396.0
16	Equatorial Guinea	0.000	0.00	111.73	0.0
17	Eritrea	0.000	0.00	107.55	356.7
18	Eswatini	0.000	0.00	0.00	298.5
19	Ethiopia	6.929	30.10	175.76	390.8
20	Gabon	0.000	0.00	185.64	316.2
21	Gambia	0.000	0.00	19.69	335.4
22	Ghana	0.000	0.00	176.29	391.9
23	Guinea	0.000	0.00	122.22	367.4
24	Guinea-Bissau	0.000	0.00	50.79	340.8
25	Kenya	0.000	0.00	182.70	396.3
26	Lesotho	0.000	0.00	82.42	352.8
27	Liberia	2.336	21.73	53.40	319.5
28	Libya	0.000	0.00	19.62	0.0
29	Madagascar	0.000	0.00	82.67	380.5
30	Malawi	18.446	55.16	106.25	365.4
31	Mali	0.000	0.00	141.16	374.5
32	Mauritania	0.000	0.00	95.62	357.4
33	Mauritius	29.861	58.08	248.19	341.7
34	Morocco	23.254	59.27	101.29	395.2
35	Mozambique	9.558	93.26	223.67	381.5
36	Namibia	8.041	117.52	172.64	0.0
37	Niger	0.000	0.00	109.89	363.7
38	Nigeria	0.000	0.00	143.66	396.3
39	Republic of the Congo	4.762	60.23	229.66	343.5
40	Rwanda	0.000	0.00	119.42	363.8
41	Sao Tome and Principe	0.000	0.00	0.00	308.6
42	Senegal	0.000	0.00	201.18	379.8
43	Seychelles	38.306	176.92	47.76	0.0
44	Sierra Leone	0.000	0.00	103.05	351.2
45	Somalia	0.000	0.00	0.00	359.8
46	South Africa	2.202	39.64	251.43	336.0
47	South Sudan	0.000	0.00	59.81	0.0
48	Sudan	0.000	0.00	152.81	379.1
49	Tanzania	0.000	0.00	188.85	396.5
50	Togo	0.000	0.00	159.01	327.6
51	Tunisia	35.263	56.72	96.85	385.5
52	Uganda	0.000	0.00	88.94	387.0
53	Zambia	15.311	52.28	219.64	371.8
54	Zimbabwe	0.000	0.00	245.66	373.9

Table 3: Summary Table of Debt and Loans in Africa

and those from the West. China seems simultaneously strict on economic conditions (e.g., Dreher et al. 2018; The Economist 2022) while being more lax about the political conditions imposed (e.g., Dreher et al. 2018). Western loans, by contrast, seem at least equally strict on the political dimension versus the economic (Hernandez 2017).

All else equal (*ceteris paribus*), rational recipient countries should prefer to accept loans that have less strict conditions. Further, *ceteris paribus*, more autocratic countries should prefer loans that attach fewer political conditions relative to their democratic counterparts. It should therefore be more costly for autocratic countries to accept loans from the West compared to democratic countries.

I argue that, in the short term, this cost outweighs the expected benefit for autocrats of accepting more competitive Western loans and that, subsequently, autocratic countries should have a higher ratio of Chinese loans to those Western compared to democratic countries. This argument generates the following hypothesis:

$$H_1: \text{ Autocracies have a higher ratio of Chinese loans to Western loans}$$

Anecdotally, this story fits with the motivating examples of Cabo Verde and Djibouti, who have Polity scores of 10 and 3 in 2020, respectively (Marshall 2018). This explanation might also corroborate Dreher et al.'s (2018) finding that Chinese loans seem to flow to more corrupt countries and those with poorer political institutions.

Research Design

To test this hypothesis I collected observational data on all African countries from the years 2000 to 2017. This includes previously discussed data used for Table 3 (government debt, The World Bank Group 2022a; Chinese loans, Custer et al. 2021; and World Bank loans, The World Bank Group 2022b), data on regime type from Polity (Marshall 2018), and gross

domestic product (GDP) per capita (United Nations Statistics Division 2019). A summary of these variables can be found in Tables 4 and 5.

To create a ratio of Chinese loans to Western loans, my dependent variable, I divided logged amounts of Chinese loans by logged amounts of loans from the World Bank. Values less than one for this variable indicate more World Bank loans than Chinese, while higher values than one indicate the opposite. Polity score is my main explanatory variable while GDP per capita is a potential confounder. I regressed this ratio on the Polity score and GDP per capita for each country in the sample, choosing a two-way fixed effects model after finding it superior to a pooled or random effects model. Clustered standard errors by country were also used. The results are presented in Table 6.

Preliminary Results

The results suggest that GDP per capita is inversely related to the ratio of China loans to World Bank loans, implying that richer countries have smaller ratios of Chinese loans to World Bank loans. The main explanatory variable, Polity scores, is not significant at conventional levels, but does have the hypothesized sign (i.e., countries that are more autocratic and with lower Polity scores should be observed to have larger ratios of Chinese loans to World Bank loans). Therefore, there is no support for H_1 in the preliminary analysis.

	country	Mean Log China Loans	SD Log China Loans	Mean Log WB Loans	SD Log WB Loans
1	Algeria	3.141	7.292	16.68	5.04051
2	Angola	7.373	9.570	19.94	0.36137
3	Benin	10.722	8.856	20.11	0.55960
4	Botswana	7.283	8.407	17.19	1.25032
5	Burkina Faso	0.000	0.000	20.61	0.28961
6	Burundi	6.354	8.218	19.76	0.87197
7	Cabo Verde	7.282	8.408	19.42	0.31234
8	Cameroon	8.249	9.546	20.37	0.63231
9	Central African Republic	5.245	7.641	18.62	1.51809
10	Chad	3.996	7.713	20.37	0.63688
11	Comoros	2.010	5.855	18.03	1.01743
12	Cote d'Ivoire	11.473	8.457	20.92	1.07948
13	Democratic Republic of the Congo	6.049	8.895	21.14	0.49073
14	Djibouti	5.919	8.686	18.73	0.27366
15	Egypt	7.097	9.296	22.00	0.40854
16	Equatorial Guinea	6.207	9.131	0.00	0.00000
17	Eritrea	5.975	8.712	19.82	0.39581
18	Eswatini	0.000	0.000	16.58	0.73274
19	Ethiopia	9.764	10.159	21.71	0.67480
20	Gabon	10.313	8.597	17.57	0.71497
21	Gambia	1.094	4.642	18.63	0.71852
22	Ghana	9.794	10.158	21.77	0.51050
23	Guinea	6.790	8.953	20.41	0.96204
24	Guinea-Bissau	2.822	6.503	18.93	0.88185
25	Kenya	10.150	9.400	22.01	0.14830
26	Lesotho	4.579	7.619	19.60	0.06787
27	Liberia	2.967	6.869	17.75	4.51997
28	Libya	1.090	4.624	0.00	0.00000
29	Madagascar	4.593	7.672	21.14	0.35247
30	Malawi	5.903	8.612	20.30	1.00726
31	Mali	7.842	9.121	20.81	0.44913
32	Mauritania	5.312	8.827	19.86	0.46856
33	Mauritius	13.788	6.403	18.98	0.48978
34	Morocco	5.627	8.208	21.95	0.19913
35	Mozambique	12.426	9.186	21.19	0.36622
36	Namibia	9.591	8.960	0.00	0.00000
37	Niger	6.105	8.969	20.21	0.62065
38	Nigeria	7.981	10.378	22.02	0.41522
39	Republic of the Congo	12.759	9.445	19.09	0.56413
40	Rwanda	6.635	8.598	20.21	0.66320
41	Sao Tome and Principe	0.000	0.000	17.14	0.93104
42	Senegal	11.177	9.244	21.10	0.41183
43	Seychelles	2.654	6.136	0.00	0.00000
44	Sierra Leone	5.725	8.444	19.51	0.65601
45	Somalia	0.000	0.000	19.99	0.09859
46	South Africa	13.968	9.044	18.67	2.23320
47	South Sudan	3.323	7.658	0.00	0.00000
48	Sudan	8.489	9.807	21.06	0.10045
49	Tanzania	10.492	9.823	22.03	0.42284
50	Togo	8.834	9.144	18.20	4.82695
51	Tunisia	5.381	7.857	21.41	0.19933
52	Uganda	4.941	8.241	21.50	0.54094
53	Zambia	12.202	8.983	20.66	0.84578
54	Zimbabwe	13.648	8.826	20.77	0.09579

Table 4: Summary Table of Variables

	country	Mean Polity	SD Polity	Mean Ratio (Chinese/World Bank)	SD Ratio	Mean GDP	SD GDP
1	Algeria	0.88889	2.1390	0.18177	0.4474	3784.1	1350.66
2	Angola	-2.44444	1.2935	0.37279	0.4838	3062.4	1636.96
3	Benin	6.66667	0.4851	0.53363	0.4401	775.8	268.48
4	Botswana	8.00000	0.0000	0.44595	0.5153	5849.9	1537.78
5	Burkina Faso	0.83333	2.4793	0.00000	0.0000	563.6	184.36
6	Burundi	3.66667	3.0679	0.32756	0.4251	195.4	74.75
7	Cabo Verde	9.88889	0.4714	0.37230	0.4297	2867.0	799.42
8	Cameroon	-4.27778	0.4609	0.40851	0.4717	1167.0	288.29
9	Central African Republic	0.94444	2.8794	0.28174	0.4148	398.4	91.96
10	Chad	-1.72222	0.4609	0.19643	0.3791	711.3	299.14
11	Comoros	7.05556	3.2625	0.11531	0.3376	1250.2	215.57
12	Cote d'Ivoire	2.00000	2.0580	0.55463	0.4130	1289.0	498.84
13	Democratic Republic of the Congo	2.88889	2.9082	0.28508	0.4201	324.5	125.40
14	Djibouti	2.00000	0.7670	0.31540	0.4627	1544.6	781.70
15	Egypt	-4.05556	1.3492	0.31884	0.4165	2108.2	849.69
16	Equatorial Guinea	-6.00000	0.0000	620.71375	913.0635	12979.2	6769.90
17	Eritrea	-6.94444	0.2357	0.30201	0.4399	469.6	159.46
18	Eswatini	-8.44444	0.9218	0.00000	0.0000	NA	NA
19	Ethiopia	-1.88889	1.8436	0.45004	0.4692	333.4	209.35
20	Gabon	-0.50000	3.6015	0.59285	0.4942	7473.6	2120.63
21	Gambia	-4.50000	2.1213	0.05929	0.2515	737.6	113.77
22	Ghana	7.33333	1.5339	0.45450	0.4709	1461.0	601.52
23	Guinea	0.72222	2.2177	0.33248	0.4439	638.2	127.92
24	Guinea-Bissau	4.50000	2.5495	0.14842	0.3423	520.2	139.49
25	Kenya	7.66667	1.4951	0.46242	0.4280	978.5	392.33
26	Lesotho	7.77778	0.6468	0.23350	0.3884	870.3	312.64
27	Liberia	4.50000	2.4555	0.15774	0.3671	346.9	143.66
28	Libya	-4.27778	3.5114	108.97876	462.3577	9082.1	3019.78
29	Madagascar	5.33333	2.4254	0.21763	0.3640	428.8	96.84
30	Malawi	5.72222	0.6691	0.29696	0.4337	380.6	92.83
31	Mali	5.50000	1.6891	0.37769	0.4393	615.7	199.70
32	Mauritania	-3.16667	2.5495	0.27051	0.4497	1310.4	446.42
33	Mauritius	10.00000	0.0000	0.72964	0.3396	7340.9	2259.74
34	Morocco	-5.22222	1.0033	0.25591	0.3733	2490.6	666.54
35	Mozambique	5.00000	0.0000	0.58826	0.4340	477.1	125.99
36	Namibia	6.00000	0.0000	959.12049	895.9674	4162.2	1347.73
37	Niger	5.00000	2.1420	0.30824	0.4527	408.7	119.13
38	Nigeria	4.50000	1.1504	0.36150	0.4695	1850.1	852.70
39	Republic of the Congo	-4.16667	0.5145	0.67453	0.5007	2324.8	1043.71
40	Rwanda	-3.33333	0.4851	0.32866	0.4261	514.1	211.63
41	Sao Tome and Principe	NA	NA	0.00000	0.0000	1097.4	455.97
42	Senegal	7.38889	0.5016	0.53038	0.4386	1143.9	287.91
43	Seychelles	NA	NA	265.35521	613.5630	11545.0	2193.78
44	Sierra Leone	5.77778	1.9869	0.29591	0.4377	413.6	160.86
45	Somalia	NA	NA	0.00000	0.0000	152.1	52.70
46	South Africa	9.00000	0.0000	0.73779	0.4782	5489.2	1598.60
47	South Sudan	NA	NA	332.28454	765.7858	NA	NA
48	Sudan	NA	NA	0.40228	0.4647	NA	NA
49	Tanzania	-0.33333	1.5339	0.47254	0.4421	NA	NA
50	Togo	-2.55556	0.9218	99.40834	419.8499	540.3	178.21
51	Tunisia	0.05556	5.0582	0.25188	0.3678	3532.5	736.76
52	Uganda	-1.83333	1.3827	0.23278	0.3879	608.8	256.17
53	Zambia	5.77778	1.5168	0.59735	0.4424	1119.0	525.53
54	Zimbabwe	-0.61111	3.5503	0.65630	0.4245	950.4	381.99

Table 5: Summary Table of Variables

Table 6: Accounting for Variation in the Ratio between Chinese and World Bank Loans

	Dependent variable:
	Ratio (China/World Bank)
GDP per capita	-0.030^{***}
	(0.007)
Polity	-1.379
	(4.243)
Observations	874
R^2	0.024
Adjusted R^2	-0.059
F Statistic	9.792^{***} (df = 2; 805)
Note:	*p<0.1; **p<0.05; ***p<0.01

Limitations and Future Improvements

There exist numerous improvements that must be made to this article. Theoretically, my proposed relationship is intimately related with time, though this is not yet operationalized in my hypothesis or fully included in the theoretical specification. I also need to develop more implications to empirically evaluate and discuss alternative explanations for the alleged unexplained observation of extreme debt composition variation.

Empirically, I need to specify a better measure for the dependent variable. As it stands, the proposed ratio has two main drawbacks: Firstly, it does not have an upper-bound and thus over-emphasizes countries that receive more Chinese loans than Western loans (i.e., when World Bank loans are close to zero for a particular country, the ratio may go to infinity); Secondly, it only compares loans in single years, not across all the years observed. This means that a country can have a high ratio in a single year (i.e., more Chinese loans accepted than World Bank loans) but in reality have a low ratio over all years observed (i.e., in sum they accepted more World Bank loans than those from China). Further, there is an abundance of missing data for different measures that I need more time to deal with,

perhaps via imputation.

In addition, the main explanatory variable (Polity scores) does not have much variance across the years observed. Thus, it is not surprising that it does not account for much of the variation in the dependent variable (loan ratio), which itself has unnecessary variation built-in (since it can have extremely large values with comparatively little meaning). I would like to specify multiple measures of regime type and engage in numerous robustness checks for all variables.

Discussion and Conclusion

While treated trivially in the past, I have argued that the evolving international financial competition in Africa has rendered recipient strategy an important question due to possible, unprecedented benefits they can receive from such competition. Autocracies, who find it more costly than democracies to take loans from the West due to traditionally high political conditions, continue to inefficiently diversify their debt composition between the West and China and do not actualize the potentially lower conditions that recent loan competition has induced. However, my early empirical results do not support the hypothesis that autocracies have larger loan ratios (i.e., China loans/World Bank loans) than democracies.

Ideally, this article would be among the first to detail the importance of recipient behavior in the global finance literature. Understanding recipient behavior, instead of only engaging with the study of lenders and powerful countries, may shed light on the political and economic complexity unfolding in Africa and give clues to those concerned about the rising public debt occurring across the continent. Scholars must pay attention to the recipient motivations for accepting loans in addition to lenders' geopolitical motivations in offering them.

I also contribute to the literature on the liberal international order (LIO), which is engaged in a debate on how China's recent prominence will affect the current LIO (e.g., Weiss and Wallace 2021). China seems focused on increasing its global influence via growing its

politico-economic ties with developing countries dissatisfied with the LIO (e.g., Broz, Zhang, and Wang 2020), and understanding which developing countries have incentives to cooperate with China could be an important piece in calculating China's ability to build its influence and undermine the LIO, should that be what its true aim is.

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