

Supplementary Appendix

IMF Programs, Chinese Lending, and Leader Survival

Contents

A1 Descriptive Statistics	2
A2 IMF Involvement	3
A2.1 IMF and Leader Survival	5
A3 Instrumental Variable and Selection Models: First Stages	7
A3.1 Instrumental Variable Diagnosis: Falsification tests	8
A4 Exile rates	10
A5 China Loans, IMF and Crises	11
A6 Contributions of China Loans and IMF Conditions on Leader Survival	12

A1 Descriptive Statistics

Table A1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Leader Duration (days)	2631.63	2925.644	1	16597	2085
Ongoing IMF Prog.	0.414	0.493	0	1	2085
log China Debt/GDP	0.506	0.817	0	4.164	2085
Growth	0.059	0.092	-0.348	0.818	2085
Polyarchy	0.482	0.229	0.017	0.913	2085
Log GDP per cap	8.679	1.15	6.219	11.958	2085
Resource Rents	10.421	13.248	0	82.53	2085
Civil Conflict	0.177	0.382	0	1	2085
log Debt/GDP	3.74	0.772	0.385	6.262	2085
IMF Prog. duration	2.089	1.515	1	6	2085
Executive Corruption	0.605	0.258	0.014	0.967	2085
Tax Haven deposits	0.417	0.224	0	0.968	2067
Tax Haven deposits (Andersen et al)	0.247	0.169	0	0.92	2067

A2 IMF Involvement

Knowing about these perverse incentives, the question arises as to why the IMF provides bailout funding? There are several reasons to believe as to why the Fund is playing along. First, IMF programs are not supply-side but demand-side driven. It is not the IMF that initiates the negotiations with a country in financial difficulties but a country has to approach the Fund if it seeks financial or technical assistance (McDowell, 2016). Given the outlined mechanisms above, we believe that Chinese borrowers have a natural incentive to turn to the IMF and initiate the negotiations for bailout funding. Second, given the consequences of full-fledged sovereign default,¹ the IMF is rarely declining bailout requests. In particular, when governments agree to a ‘what-ever-it-takes’ number of loan conditions, the Fund is not inclined to turn away authorities seeking financial relief (Bird, 2007; McDowell, 2016).² Given that governments need the IMF—amongst providing fresh capital—to clear their name, we expect them to agree to a substantially larger number of loan conditions. To illustrate this point, take for instance the case of Tajikistan. Seeking a financial bailout in 2007, a representative of the Tajik authorities “*repeated several times that Tajikistan would be ready to accept any conditions the Fund demanded.*”³ Finally, knowing about their likely departure, governments will engage in reckless fiscal spending while negotiating for a financial bailout with the IMF. To illustrate this point, consider the recent case of Zambia. Defaulting on its Eurobond obligations, the government was quick in reaching out for talks with the IMF for a financial bailout. The authorities nationalized one of the country’s largest copper mines owned by an SVP-type joint-venture registered in an offshore financial sink while not being able to serve its Eurobond debt. This behavior of the administration in Lusaka even left the most skeptical international observers

¹According to the IMF Articles of Agreement, members are allowed to purchase currency to address balance-of-payments needs, in accordance with the provisions of [the] agreement and adequate safeguards such as conditionality (Article V). With the exception of a few cases—such as the expulsion of Taiwan—countries have not been denied access to IMF credit (Lipsy and Lee, 2019). In the latter case, membership even had to be revoked to deny such access. In contrast, scholars have long been concerned about ‘moral hazard’ whereby countries anticipate that getting IMF bailouts is all too easy if they are aligned with major shareholders or are deemed systematically important by the IMF bureaucracy (Dreher and Jensen, 2007; McDowell, 2016).

²We have conducted numerous interviews with IMF staff related to this matter. They all confirmed the notion that the Chinese administration did not make any attempts to push for bailouts for borrowing countries relying on Chinese loans. Also, recent statements of the administration in Beijing confirm that China is attempting to resolve its foreign lending vows internally rather than relying on the IMF.

³“Tajikistan Pleads for Help to Resolve Self-Inflicted Cotton Finance Crisis.” Wikileaks. Cable ID 08DUSHANBE86_a.

puzzled about the motives for this maneuver.⁴ We believe that these fiscal maneuvers around IMF program negotiations serve several purposes. Besides exerting additional pressure on the Fund to deliver financial relief, nationalizations allow governments and their cronies to siphon cash into their retirement accounts (Kern et al., 2021). At the same time, this behavior narrows any successor's fiscal breathing space and chances of succeeding in office (Alesina and Tabellini, 1990).

⁴"Zambia mortgages the future by taking over Glencore copper debt." The Africa Reporter, January 21, 2021.

A2.1 IMF and Leader Survival

Table A2 revisits the question of whether IMF programs affect leader survival without consideration for China loans. In model 1, we find that having a program in a given leader-year decreases the likelihood of leader exit. The coefficients of control variables are in line with expectations. Subsequent models unpack various forms of leader engagement with IMF programs. In model 2, we find that leaders' political benefit from IMF programs comes from starting a new program, not necessarily having an ongoing program shortens their time in office. Similarly, we find in model 3 that a leader starting a program for the first time decreases her hazard rate of failure.

In model 4, we establish that a leader benefits from starting a program of her own, but is not helped by inheriting programs. In the final two models, we allow for the effect of IMF programs to vary by regime type. In model 5, we find that “owning” an IMF program is significantly worse for democratic leaders. In model 6, inheriting an IMF is better for democratic leaders. Overall, these findings are consistent with existing work on the relationship between IMF programs and leader survival (Williams, 2012).⁵

⁵We also estimated these models on the 2000-2015 period to facilitate comparisons with our subsequent analysis with Chinese loan data that are available only for this shorter period. The results are substantively consistent.

Table A2: Cox models: IMF programs and leader survival

	(1)	(2)	(3)	(4)	(5)	(6)
Ongoing IMF Prog.	-0.274* (0.097)	0.176 (0.097)				
Started New IMF Prog.		-34.491* (0.147)				
Leader's 1st IMF Prog.			-0.461* (0.161)			
Leader's IMF Prog.				-0.625* (0.107)	-1.279* (0.227)	-0.616* (0.111)
Inherited IMF Prog.				0.622* (0.167)	0.637* (0.165)	1.650* (0.374)
Polyarchy	1.203* (0.293)	1.022* (0.293)	1.161* (0.294)	1.195* (0.302)	0.910* (0.318)	1.435* (0.333)
Leader's IMF × Polyarchy					1.285* (0.392)	
Inherited IMF × Polyarchy						-1.930* (0.695)
Growth	-2.443* (0.489)	-2.599* (0.481)	-2.457* (0.490)	-2.410* (0.466)	-2.414* (0.464)	-2.363* (0.456)
Log GDP per cap	-0.130* (0.057)	-0.096 (0.055)	-0.096 (0.055)	-0.136* (0.058)	-0.142* (0.057)	-0.127* (0.058)
Resource Rents	-0.013 (0.008)	-0.014 (0.008)	-0.012 (0.008)	-0.013 (0.008)	-0.015 (0.008)	-0.013 (0.008)
Civil Conflict	0.284* (0.106)	0.300* (0.108)	0.309* (0.107)	0.296* (0.107)	0.301* (0.108)	0.277* (0.105)
log Debt/GDP	0.058 (0.072)	0.065 (0.074)	0.045 (0.071)	0.067 (0.076)	0.067 (0.076)	0.075 (0.080)
LL	-3056.81	-2950.31	-3057.30	-3023.55	-3019.17	-3017.78
N	4035	4035	4035	4035	4035	4035

* $p < 0.05$; Standard errors clustered on countries reported in parentheses.

A3 Instrumental Variable and Selection Models: First Stages

Table A3 shows the complete first stage estimation for the instrumental variable models and selection models from the manuscript (these stages were only partially reported in the manuscript for space reasons). Model 1 shows the model instrumenting IMF programs, which corresponds to the results in model 3, Table 1 in the manuscript. Models 2 and 3 show the first stages that correspond to model 4, Table 1 in the manuscript. Model 2 in Table A3 instruments the additive effect of the IMF. Model 3 instruments the interaction between China loans and the IMF. Models 4 and 5 in Table A3 present the selection model stages, which correspond to models 5 and 6 in Table 1 in the manuscript. Model 4 models the selection into an IMF program and model 5 is the opposite (countries that avoid IMF programs). The variable Z is the endogenous regressor of the likelihood of leadership failure.

Table A3: First stages of Instrumental Variable Model

	IMF Program	IMF Program	IMF Program × China Loans × Corruption	Into IMF Sample	Avoid IMF Sample
	(1)	(2)	(3)	(4)	(5)
Pr(IMF)*IMF liquidity	-0.134* (0.051)	-0.136* (0.051)	-0.044 (0.055)	0.470* (0.029)	-0.469* (0.029)
China Loans × IV			0.164* (0.008)		
log China Debt			-0.024 (0.027)	-0.264* (0.042)	0.264* (0.042)
Pr(IMF)	-0.370 (0.643)	-0.352 (0.642)	-0.448 (0.674)		
log IMF liquidity	0.057 (0.111)	0.059 (0.111)	-0.166 (0.114)		
Democracy	0.680* (0.133)	0.676* (0.133)	0.351* (0.137)	1.221* (0.213)	-1.239* (0.214)
Executive Corruption	-0.258* (0.115)	-0.263* (0.116)	0.005 (0.120)	0.626* (0.168)	-0.636* (0.168)
Growth	0.077 (0.100)	0.076 (0.100)	0.215* (0.103)	0.203 (0.396)	-0.217 (0.397)
Log GDP per cap	-0.553* (0.068)	-0.552* (0.068)	-0.249* (0.072)	-0.326* (0.040)	0.330* (0.040)
Resource Rents	-0.001 (0.002)	-0.001 (0.002)	0.002 (0.002)	0.001 (0.003)	-0.000 (0.003)
Civil Conflict	0.034 (0.033)	0.033 (0.033)	0.083* (0.034)	-0.056 (0.090)	0.057 (0.090)
log Debt/GDP	-0.007 (0.021)	-0.006 (0.021)	-0.003 (0.022)	0.182* (0.051)	-0.180* (0.051)
Z				-0.029 (0.015)	0.028 (0.015)
Constant	4.719* (0.989)	4.699* (0.989)	2.991* (1.026)	-0.266 (0.530)	0.231 (0.530)

* $p < 0.05$

A3.1 Instrumental Variable Diagnosis: Falsification tests

The manuscript uses an instrumental variable model to address potential confounders. Instruments have two requirements. First, instruments must be correlated with the endogenous regressor, which is demonstrated in Table A3. The second requirement of a valid instrument is that the instrument is not correlated with the error term of the outcome equation of the estimation. This means that the instrument cannot be associated with an observable or unobservable confounder of leader survival and IMF programs. Ideally, the IV would behave as it was “as-if” randomly assigned across observations, which would ensure that the IV is unrelated to the outcome and any potential confounder. While the interaction of IMF liquidity and a leader’s likelihood of participating in an IMF program are not randomly assigned, we argue that it is plausibly “as-if” random to the states potentially entering an IMF program.

This second requirement of a valid IV cannot be tested. Theoretically, we cannot identify a plausible connection between the interaction instrument and the error term of the outcome equation. We can imagine that some global economic conditions associated with IMF liquidity levels may be associated with leadership survival. For example, global economic shocks such as the Great Recession may affect both liquidity and political stability. Controlling for both unit and year fixed effects, along with our chosen covariates, should block these confounding pathways.

While we cannot show this empirically, we can use falsification tests to rule out some potential confounders. Falsifications tests cannot prove the validity assumptions hold but can test conditions under which we expect them not to hold. The first falsification test examines whether the control variables in our main models are associated with the interaction instrument. A lack of empirical association does not prove our assumptions. However, any empirical association would call those assumptions into doubt.

To test whether the controls are empirically associated with the instrument, we regress each of the covariates on the instrument interaction, the additive components of the interaction (not shown), while controlling for country and year fixed effects (not shown). To show the IV interaction has no linear and non-linear relationship with these covariates, we split the IV into quantiles. We then compare the 2nd, 3rd, 4th, and 5th quantities to the baseline category of quantile 1.

Table A4 shows that these quantiles are mostly not statistically different from the baseline. Of the 24 tests, only two show statistical significance, which would be expected by chance given the logic of hypothesis testing (88 percent change of 2 or more statistical significant results). While we cannot definitively rule out that the IV interaction is not associated with some unobservable confounder, the balance tests in Table A4 lend support to our expectation that the IV meets the exclusion restrictions. A valid instrument acts as if the treatment has been randomly assigned across observations. If true, we should accept no empirical differences across values of the IV. The control variables in our main models represent the most obvious confounders between the IMF and leadership survival. If the IV is not associated with these variables, it is less likely that the IV has a strong enough association with another variable to undermine our main inferences. If we observed differences in the control variable means across the different quantiles of the IV interaction, our assumptions would be implausible.

Table A4: Regression Balance Tests

	(1)	(2)	(3)	(4)	(5)	(6)
	Growth	Polyarchy	GDP per cap	Natural Resources	Civil War	Debt burden
2nd Quantile	0.017 (0.060)	-0.137 (0.117)	-0.023 (0.017)	-1.466* (0.510)	0.068 (0.060)	25.724* (9.450)
3rd Quantile	0.061 (0.070)	-0.124 (0.119)	0.035 (0.038)	-2.372 (1.306)	-0.054 (0.123)	17.165 (15.504)
4th Quantile	0.085 (0.071)	-0.123 (0.118)	0.073 (0.066)	-1.844 (2.054)	-0.097 (0.131)	6.323 (25.194)
5th Quantile	0.093 (0.073)	-0.125 (0.119)	0.042 (0.080)	-1.409 (2.409)	-0.047 (0.143)	-4.641 (27.925)
R2	0.23	0.91	0.99	0.89	0.61	0.65
N	2420	2542	2245	2321	2596	2314

* $p < 0.05$; Standard errors clustered on countries reported in parentheses.

A4 Exile rates

Table A5: Leaders' Post-Tenure Exile Rates

Exile Rates	17.1 %	0.0 %	5.6 %	0.0 %	14.3 %	7.5 %	7.3 %	4.9 %
IMF Program	Yes	Yes	No	No	Yes	Yes	No	No
China Loans	Yes	Yes	Yes	Yes	No	No	No	No
Corrupt	Yes	No	Yes	No	Yes	No	Yes	No

A5 China Loans, IMF and Crises

One concern about our inferences about the interaction of China Loans and IMF programs is that IMF are proxying for financial crises. So it is not that IMF programs are reversing the political benefits of China lending for leaders. Instead, financial crises are forcing leaders out of office. In additional analysis, we rule out of this possibility that it is underlying economic conditions – and not the IMF – which are driving our results. Following Shea and Poast (2018) we derive a measure of crisis risk by calculating the predicted probability of experiencing a crisis using a logit model. Crisis data are drawn from Reinhart and Rogoff (2008, updated to 2016). The dependent variable is coded as 1 if a country is experiencing a debt, bank, currency, or systematic crises in a given year. The covariates include variables that are commonly thought to predict crisis level: growth, democracy, development levels (GDP per capita), debt-to-GDP levels, natural resource rents, internal conflict, and a time trend from the previous crisis (with squared and cubic components). This model produces probability predictions for each country year for a crisis, ranging from near zero to 74 percent. A Receiver Operating Characteristic (ROC) produces an area-under-the-curve (AUC) of 0.90, suggesting a highly predictive model. See Table A6 for these results.

Table A6: Predicting Crises

Dependent Variable: Crisis	
	(1)
Electoral democracy index	-0.324 (0.235)
GDP growth	-0.049* (0.010)
ln(GDP per cap)	0.126* (0.053)
Civil War	0.208 (0.112)
ln(debt-to-GDP)	0.202* (0.061)
Resources rents	-0.013* (0.006)
Time since crisis	-0.219* (0.012)
Time since crisis ²	0.000* (0.000)
Time since crisis ³	-0.000* (0.000)
Constant	-1.309* (0.492)
LL	-1461.92
AUC	0.90
N	4405

A6 Contributions of China Loans and IMF Conditions on Leader Survival

In the main analysis, the interaction between China loans and IMF programs imposes a symmetric conditional effect. While the study focuses on how IMF programs reduce the benefits of China lending for leaders, the opposite holds as well: China loans reduce the benefits of IMF programs. By themselves, these interaction models cannot determine which conditional component –China loans or IMF programs– contribute more to the leadership survival changes. These section expands the analysis to attempt to disentangle these results more.

To begin, we examine the effect of China loans on leaders without an IMF programs in model 1 in Table A7. As expected – and consistent with the main analysis – we find that more China loans decrease leaders' hazard. This translates in to longer leader tenures. We then examine the potential for non-linear effects of China loans by taking the squared value of China loans in model 2. The purpose of this model is to examine the possibility that countries with higher Chinese debt burden suffer greater political consequences. We find no evidence that this is the case, as the coefficient associated with the polynomial term is small and statistically insignificant. We then replicate models 1 and 2 in country-years with IMF programs. As expected the political benefits of China loans reverse (model 3) but there are no non-linear effect of China loans in this sample (model 4).

We then shift focus on the effect of IMF programming. In the main analysis (and in models 1-4 in Table A7) we focus on whether a state has an IMF program or not. Here we extend the focus to the number of conditions that a state faces in a given year. Model 5 in Table A7 examine the effect of IMF conditions on leadership survival for countries with no China debt. We observe no effect. When we include the squared term of IMF conditions in model 6, we find a positive effect for the polynomial coefficient and a negative coefficient for the additive coefficient. This means that the effect of conditions is initial negative (lengthens leaders' tenure) but turns positive (decreases leaders' tenure) as IMF conditions increase. We then replicate these models for states with China debt and do not find the same non-linear effect. We interpret these results as evidence that (1)

Table A7: Contributions of China Loans and IMF Conditions on Leader Survival

	No IMF Program		IMF Program		No China Loans		China Loans	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log China Debt	-0.5698*	-0.5661	0.0403	0.1786				
	(0.139)	(0.369)	(0.120)	(0.299)				
log China Debt ²		-0.0019		-0.0608				
		(0.165)		(0.112)				
# IMF conditions					-0.0105	-0.0398*	-0.0055	0.0044
					(0.007)	(0.013)	(0.007)	(0.024)
# IMF conditions ²						0.0007*		-0.0003
						(0.000)		(0.001)
Democracy	1.4806*	1.4800*	1.3144	1.3210	2.0378*	2.0723*	0.8972	0.8575
	(0.636)	(0.643)	(0.861)	(0.862)	(0.804)	(0.809)	(0.584)	(0.597)
Growth	-2.7852*	-2.7852*	-3.9019*	-3.8910*	-2.9590*	-3.0507*	-3.1803*	-3.2111*
	(1.018)	(1.019)	(0.894)	(0.888)	(1.103)	(1.138)	(0.884)	(0.896)
Log GDP per cap	-0.3065*	-0.3063*	0.1373	0.1453	-0.1324	-0.1660	-0.0374	-0.0248
	(0.110)	(0.111)	(0.106)	(0.103)	(0.113)	(0.109)	(0.112)	(0.117)
Resource Rents	-0.0138	-0.0138	0.0022	0.0029	-0.0044	-0.0046	-0.0147	-0.0149
	(0.012)	(0.012)	(0.011)	(0.011)	(0.010)	(0.011)	(0.015)	(0.015)
Civil Conflict	0.0643	0.0643	-0.1517	-0.1640	0.1972	0.1886	-0.0445	-0.0430
	(0.266)	(0.265)	(0.278)	(0.274)	(0.309)	(0.314)	(0.221)	(0.221)
log Debt/GDP	0.0492	0.0493	-0.0999	-0.0941	-0.0642	-0.0643	0.2700+	0.2770+
	(0.103)	(0.104)	(0.148)	(0.150)	(0.113)	(0.113)	(0.148)	(0.152)
Executive Corruption	0.4871	0.4869	0.1858	0.1846	0.8241	0.7947	0.1790	0.1526
	(0.491)	(0.493)	(0.638)	(0.641)	(0.655)	(0.646)	(0.484)	(0.496)
LL	-720.32	-720.32	-521.71	-521.61	-757.21	-754.99	-492.85	-492.69
N	1221	1221	864	864	1044	1044	1041	1041

China loans benefit leaders without IMF programs (model 1); (2) more China debt does not hinder (or benefit) leaders (models 2 and 4); (3) the benefits of China loans disappear with IMF programs (model 3); and (4) that more IMF conditions can hinder leaders (model 6).

Supplementary Online Appendix: References

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