Do IMF and World Bank programs induce government crises? An empirical analysis

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Abstract

In this paper we explore the role that the two major international financial institutions, IMF and World Bank, play in the occurrence of major government crises. We find that past loans from the World Bank significantly increase the likelihood of a crisis while the IMF does not seem to play a role. This finding is based on a sample of 104 countries for the period of 1970 to 2003.

Keywords: Government Crises, IMF, World Bank

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1. Introduction

There is substantial anecdotal evidence that programs by the World Bank and, even more so, the International Monetary Fund (IMF) face severe resistance by those groups in society fearing to be among the losers of these programs' consequences.[1] In some cases IMF and World Bank involvement led to government crises, cabinet changes, or the replacement of whole governments.[2] However, there is also evidence that governments that have undertaken adjustment programs will not necessarily suffer for it (Nelson 1992). According to Killick (1995: 104), governments which concluded IMF programs prior to elections got re-elected in the majority of the cases examined. Dreher (2004) shows that conclusion of an IMF arrangement prior to national elections increases re-election probabilities when GDP growth is low, but reduces the chance to win election with high growth rates. He attributes this to the signal associated with the Fund's program: When growth rates are low, voters accept the necessity to involve the Fund. In comparably good economic environments, however, only incompetent governments need to involve the Fund – and consequently lose office in the next election. Extending the work in Dreher (2004), Smith and Vreeland (2003) find that the survival rate of political leaders who inherited an IMF program increases, as these politicians can blame their predecessor for the existence of the arrangement.

While there is thus some evidence on whether Fund involvement affects the incumbent's time in office, whether and to what extent IMF involvement does – on average – increase the probability of riots or government crises has not been analyzed in a systematic fashion. As has been shown in Sidell (1988), correlation between IMF involvement and instability is rather low. However, we do not know whether this still holds once controlled for other relevant factors. More systematic analysis is needed. Still worse, related evidence for the World Bank is completely lacking. This paper aims to fill the gap. Specifically, we employ panel data to evaluate the impact of IMF and World Bank programs on various indicators of instability, among them !!!. Taking the endogeneity of the IFIs involvement into account, our results show that !!!

We continue as follows. The next section develops our hypotheses. Section 3 presents our data and method of estimation, while results are presented in Section 4. Finally, Section 5 concludes.

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[1] Among the more prominent examples are the general strikes against the IMF's austerity policy in Argentina in 1992 and 1994.

[2] As one example, the Marcos government in the Philippines in 1985 followed the IMF's austerity policy in spite of severe domestic resistance (Montes 1987). Marcos was finally overthrown by the military. See Dreher (2002) for further anecdotal evidence.

2. The Hypotheses

Political costs to negotiate IMF and World Bank programs might be substantial. Regarding the IMF, the empirical literature shows that governments expect its programs – on average – to reduce their standing with its citizens (e.g. Vreeland 1999). This could be because governments and their electorate have different expectations regarding the effects of the program. Whereas voters expect a worsening of their personal situation, governments expect benefits from the arrangement to prevail. These different expectations on the results of IMF programs might emerge because some groups protected by the government derive benefits from IMF money or conditions attached to it although the population as a whole is worse off (Vreeland 2001). Another explanation is that voters are more shortsighted than are politicians. During the adjustment period the economy might on average perform worse. In the longer run, however, the government and the IFIs probably expect their policies to improve the situation.[3] These different expectations might lead the politicians to conclude arrangements, even when the majority of the voters expect net losses. Dreher (2004) provides another explanation. Under certain circumstances IMF programs help a countries' citizens in deriving the type of their government. According to the model in Dreher (2004), if the economy performs moderately, competent politicians do not have to turn to the Fund. They signal their competence by borrowing from the market or other countries and get re-elected. Incompetent politicians turn to the IMF and lose their job. These considerations imply:

> **Hypothesis 1a: IMF and World Bank involvement increase the probability of crises in the recipient countries.**

However, IMF and World Bank involvement can also *reduce* government instability. Dreher and Vaubel (2004) have shown that IMF and World Bank loans are abused by national governments to secure their power. This is because governments can use the money paid out by the IFIs directly for this purpose. Votes gained with the help of IFI credit could outweigh the loss of votes due to program conclusion. Vreeland (1999) and Smith and Vreeland (2003) provide a related argument. They argue that governments can use IMF conditionality as

[3] However, empirical evidence on the results of IMF involvement is mixed. For example, Killick, Malik and Manuel (1995), Schadler et al. (1993) and Dicks-Mireaux et al. (2000) found a positive correlation between IMF programs and growth, while Przeworski and Vreeland (2000), Barro and Lee (2001), Dreher (2006) and Atoyan and Conway (2007) report a negative influence. Boockmann and Dreher (2003) do not find a significant correlation between IMF involvement in a country and its economic freedom; Dreher and Rupprecht (2006) even find that market-liberal reforms become less likely with IMF involvement.

scapegoat under certain circumstances, so that participation in IMF arrangements would be rewarded by longer tenure in office. Therefore:

Hypothesis 1b: IMF and World Bank involvement reduce the probability of crises in the recipient countries.

The analyses in Dreher (2004) and Smith and Vreeland (2003) suggest that the effect of the IFIs involvement is likely to depend on the circumstances under which a program came to effect. In particular, Dreher shows that that governments who conclude IMF arrangements prior to a national election generally increase their re-election probability. This increased probability of getting re elected after program conclusions decreases, however, with rising GDP growth. The likelihood of loosing an election is also higher when other countries in the same region experience higher GDP growth. According to the empirical analysis in Smith and Vreeland (2004), government survival positively depends on whether the program has been into existence before the current government came into power. In this case, citizens do not blame their government for the existence of the program. The incumbent government can abuse the IFIs as a scapegoat – consequently, instability decreases. To summarize the arguments:

Hypothesis 2: The effect of IMF and World Bank involvement on crisis probability depends on economic growth.

Hypothesis 3: The effect of IMF and World Bank involvement on crisis probability depends on whether the arrangement had been in effect before the government came to power.

3. Method and Data

The regression is a pooled time-series cross-section analysis (panel data). Our annual data cover the years 1970-2003 and extend to 104 developing countries. Since some of the data are not available for all countries or years, the panel data are unbalanced and the number of observations depends on the choice of explanatory variables. All variables, their precise definitions and data sources are listed in the appendix.

We estimate our model employing conditional fixed effects Logit. In case of binary choice variables with panel data we observe:

$$\begin{aligned} y_{it} &= 1 \quad if \quad y_{it}^{*} > 0 \\ y_{it} &= 0 \quad if \quad y_{it}^{*} \leq 0 \end{aligned} \tag{1}$$

where: $y_{it}^{*} = x'_{it}\beta + \alpha_i + \nu_{it}$. This function can be interpreted as probability that a crisis occurs, which is dependent on observed variables (*x*), unobserved individual (country) characteristics (α) and a random error term (ν). The probability that we observe a crisis is:

$$P(y_{it} = 1) = P(y_{it}^{*} > 0) = P(\nu_{it} > -x'_{it}\beta - \alpha_i) = F(x'_{it}\beta + \alpha_i) \qquad (2)$$

In a fixed effects context, the number of parameters increases with the number of countries. This is known as the incidental parameters problem. Chamberlain (1980) shows that it is impossible to estimate the parameters of this binary choice model consistently and he therefore proposes a method to circumvent this problem, i.e. conditional Logit estimation. The idea of this approach is to condition the likelihood function on a minimal sufficient statistic for the fixed effects. Chamberlain argues that $\sum_{t=1}^{T} y_{it}$ is such a minimum sufficient statistic. The conditional likelihood function can now be written as:

$$L = \prod_{i=1}^{N} P(y_{i1}, \cdots, y_{iT} \mid \sum_{i=t}^{T} y_{it}) \qquad (3)$$

The probability of the observed crisis no longer depends on the fixed effects (by construction) and hence the coefficients of the variables of interest can be estimated consistently. In essence, the conditional fixed effects Logit estimator compares all observations within a given country when there is a crisis with all the observations when there is none.

Our dependent variable is a dummy taking the value of one if there is a government crisis in a particular year and country and zero otherwise. DESRIBE IN MORE DETAIL. The data cover 702 crises.

As one obvious problem with the analysis, crises and program conclusions might be jointly determined. IMF and World Bank programs are often concluded when the economy performs badly. There might thus be a selection problem and the IFIs' arrangements could be endogenous.[4] How to account for this endogeneity is, however, not obvious when both dependent and independent variables are binary. In spite of theoretical problems, we follow

[4] Vreeland (2003) provides an extensive discussion of the selection problem in the context of IMF programs.

Angrist (2001) who suggested a linear 2SLS procedure.[5] In a first step, we replicate the analysis of Dreher (2003a) with the dummy for conclusions of IMF and, respectively, World Bank programs as dependent variable. The second step is to instrument program conclusions with the independent variables employed in the first step.

We employ the following (lagged) variables as instruments:

- a pre-election variable,
- the rate of monetary expansion,
- the change in the overall budget deficit relative to the previous year,
- general government consumption relative to GDP,
- the change in real GDP growth relative to the previous year,
- the share of foreign short-term debt in total foreign debt,
- the rate of inflation,
- the change in international reserves (in months of imports) relative to the previous year and
- the current account balance as a percent of GDP.

Whether demand for the IFIs' credit rises prior to elections depends on the trade-off between the interest rate subsidy provided by the IMF and its conditionality. Prior to elections, supply credit could differ from non-election time as well. The reasons are discussed at length in Dreher and Vaubel (2004). Most importantly, the IMF (or its major shareholders) might be supportive of the incumbent. Therefore, the Fund lends more freely – and without tough conditionality. On the other hand, especially if election outcomes are uncertain, the Fund might only support a program receiving support from all possible future chief executives which makes conclusions less likely. The IMF could also want the incumbent to loose. Then, he would either not lend prior to the election at all – or only with tough conditionality.

Supply and demand for the IFIs' programs are also likely to be influenced by the potential borrowers' economic performance. We also allow for two additional variables which are not, or hardly, affected by a country's policies but might influence program conclusions: A rise of LIBOR raises the interest rate subsidy, i.e., the demand for IMF credit. Moreover, it indicates a tightening of monetary conditions abroad which puts pressure on the exchange rate and increases the supply and demand for IMF credit. At the time of a quota review, the IMF

[5] We therefore have to assume that crisis probabilities depend linearly on the independent variables, which is quite unrealistic. Moreover, the error term is heteroskedastic. It is nevertheless acceptable to present standard t-statistics (Wooldridge 2000: 236). If a probit model is estimated instead, the estimator is inconsistent (Angrist 2001).

might supply more credit because its staff hopes to obtain a larger quota increase when its resources are exhausted (Vaubel 1991).

6. Empirical Results

a) Conditional Logit results: impact of IMF/WB on crises

	(1)	(2)
years after last crises	-0.589	-0.598
	(5.67)***	(5.76)***
crises_spline1	-0.033	-0.034
	(3.59)***	(3.70)***
crises_spline2	0.013	0.014
	(2.86)***	(2.96)***
crises_spline3	-0.001	-0.001
	(1.37)	(1.45)
lagged GDP p.c. growth	-0.035	-0.035
	(3.62)***	(3.62)***
demonstrations (log)	0.944	0.942
	(8.34)***	(8.33)***
strikes (log)	0.560	0.563
	(2.96)***	(2.98)***
purges (log)	1.396	1.376
	(5.68)***	(5.61)***
lagged number of World Bank adjustment loans	0.217	
	(2.61)***	
lagged World Bank adjustment dummy		0.305
		(1.90)*
lagged IMF program dummy	0.050	0.082
	(0.33)	(0.54)
Observations	2801	2801
Number of countryies	104	104

Absolute value of z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Looking at the regression results we see that the covariates are all highly significant and have the correct sign. The time dependency variables are highly significant and show the time dependency. The three spines are jointly significant at the 1%-level. The presence of demonstrations, strikes and purges significantly increase the likelihood of a government crises. Turning to our variables of interest we see that the number of World Bank loans in the last period significantly increases the likelihood of a crises. The marginal effect of a World Bank loan - when assigning all variables their mean values and setting the country fixed effects to zero – is an increase of the likelihood of a crises of 5.3%. We also estimate the effect when inserting a dummy variable that takes on the value of one when at lease one World Bank adjustment loan was present in the last year. The resulting coefficient is still

significant at the 10%-level. The corresponding marginal effect is an increase in the likelihood of 7.5%.

7. Summary

We find that World Bank loans in the past year significantly increase the likelihood of a major government crises.

References

Barro, R. J. and J.-W. Lee, 2001, IMF-Programs: *Who Is Chosen and What are the Effects?*, Paper presented at the IMF Annual Research Conference November 29-30, 2001.

Beck, T. et al., 2001, New tools in comparative political economy: The Database of Political Institutions, *World Bank Economic Review* 15, 1, 165-176.

Boockmann, B. and A. Dreher, 2003, The Contribution of the IMF and the World Bank to Economic Freedom, *European Journal of Political Economy*, forthcoming, June.

Dreher, A., 2002, *Die Kreditvergabe von IWF und Weltbank: Ursachen und Wirkungen aus politisch-ökonomischer Sicht*, unpublished Ph.D. dissertation, Mannheim University.

Dreher, Axel, 2004, The Influence of IMF Programs on the Re-election of Debtor Governments, Economics & Politics 16, 1: 53-76.

Killick, T., 1995, IMF Programmes in Developing Countries - Design and Impact (Routledge, London).

Montes, Manuel (1987), Macroeconomic Adjustment in the Philippines, 1983-85, Philippine Institute for Development Studies, Working Paper Series 8701.

Nelson, J. M., 1992, Poverty, Equity, and the Politics of Adjustment, in: S. Haggard and R. R. Kaufman, eds., *The Politics of Economic Adjustment: International Constraints, Distributive Conflicts, and the State* (Princeton University Press, Princeton, N.J.) 221-269.

Przeworski, A. and J. Vreeland, 2000, The Effect of IMF Programs on Economic Growth, *Journal of Development Economics* 62, 385-421.

Sidell, Scott R. (1988), The IMF and Third World Instability: Is there a Connection? Basingstoke, MacMillan.

Smith, Alastair and James R. Vreeland, 2003, The Survival of Political Leaders and IMF Programs: Testing the Scapegoat Hypothesis, in: Gustav Ranis, James Vreeland and Stephen Kosack, Globalization and the Nation State: The Impact of the IMF and the World Bank, Routledge, forthcoming.

Vaubel, R., 1991, The Political Economy of the International Monetary Fund: A Public Choice Approach, in: Roland Vaubel, Thomas D. Willett, eds., *The Political Economy of International Organizations* (Boulder, Westview) 205-245.

Vreeland, J. R., 1999, *The IMF: Lender of Last Resort or Scapegoat?*, Yale University.

Vreeland, J. R., 2001, *The effect of IMF programs on labour*, Yale University.

Table 5: Conclusion of IMF programs (panel data, 54 countries, 1976-97, probit)

explanatory variables	
part of a year which is within six months prior to an election	-0.887 (-2.24**)
part of a year which is within six months after an election	0.253 (0.67)
monetary expansion (t-1)	0.0001 (0.20)
expansion of overall budget deficit (t-1)	-0.016 (-0.82)
government consumption relative to gdp (t-1)	0.028 (1.75^{o})
change in real gdp growth (t-1)	-0.009 (-0.76)
short-term debt relative to total debt (t-1)	0.003 (0.33)
rate of inflation (t-1)	-0.0001 (-0.36)
change of international reserves in months of imports (t-1)	-0.14 (-3.63*)
current account balance (t-1)	-0.002 (-0.22)
quota review	-0.23 (-1.09)
libor (t-1)	0.02 (0.79)
log likelihood	-258.74
correct predictions (percent)	86.09
number of observations	508

Notes:

t-statistics in parentheses:

*: significant at the 1 percent level

**: significant at the 5 percent level

^{o}: significant at the 10 percent level.