

# HEEDING THE SIRENS: THE POLITICS OF IMF PROGRAM PARTICIPATION

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**Extremely Preliminary. Please do not cite.**

January 2, 2009<sup>‡</sup>

## Abstract

Why do some states enter into IMF programs sooner than others after conventional warning signals indicate that the economy is in trouble while still others do not participate in IMF programs at all? Though there have been a number of IMF studies by political scientists in recent years, relatively little attention has been devoted to the question of IMF program participation. Instead, most political science studies of the IMF focus on either the consequences of IMF programs (on economic growth (Vreeland 2003), public services spending (Nooruddin and Simmons 2006), or the ability to attract foreign investment (Jensen 2004)) or variation in program conditions (Dreher and Jensen 2007; Dreher, Sturm, and Vreeland 2008). And due to this lack of attention paid by political scientists to the politics of the decision to enter an IMF program, most empirical studies of IMF program participation rely on economic conditions that require outside assistance (Vreeland 2003 is an important exception who argues that reform minded governments might use IMF programs strategically to tip the balance against domestic oppositions). As a result, a prominent IMF scholar concludes that our ability to predict IMF participation is quite limited (Bird 2003). In this paper, we explicitly focus on political incentives of the IMF and a borrowing country when they engage in IMF program negotiation. We develop a formal model that allows us to generate comparative statics for the importance of (a) sovereignty costs, (b) domestic regime type and veto players, and (c) international strategic considerations. We test the predictions of this model using a cross-national time-series data set of all IMF agreements.

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# Introduction

Why do some states participate in IMF programs while others do not? And why do some states enter into IMF programs more readily and willingly while others do so late and reluctantly? The International Monetary Fund regularly makes loan arrangements with countries facing balance of payment problems. The Articles of Agreement of the International Monetary Fund states that one of the purposes of the IMF is “to give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity (Article I, (v)).” What is commonly called an IMF program is the chief tool to meet this purpose. It is an arrangement between the IMF and a country with balance of payments and related economic problems, and specifies the schedule of possible withdrawal of financial resources and lists adequate safeguard measures called IMF conditionality.

But not all countries with balance of payment problems enter into IMF programs. Nor it is the case that all the participating countries follow a similar time-line to enter into IMF programs. Quite contrary, some countries participate in more willingly than others while still others do not participate in at all. For example, during and after the Asian Financial Crisis, countries in crises interacted with the IMF quite differently. Malaysia initially considered participation, yet ultimately chose not to participate in an IMF program. Instead Malaysia resorted to its own heterodox adjustment including imposition of tighter capital control. In comparison, Thailand, Indonesia, and South Korea all entered into IMF programs. However, all these countries did so more or less reluctantly. South Korea resisted to borrow from the IMF until the last minute and finally did so only after direct diplomatic pressure from the U.S. had constantly been applied. Quite contrary to these countries, there are countries who are willingly participate in IMF programs. (Vreeland 2003) reports countries that have participated in IMF programs even when there is little need for loans. For example, Turkey and Uruguay participated in one or more IMF programs in late 1960s and 70s even though they possessed extremely high foreign reserves at the time. For them, there was little need for IMF loans financially. Nonetheless, they participated.

This paper attempts to account for variations in both participation and the conditions under which this participation occurs. It does so by deriving the empirical implications of a theoretical model (EITM) of IMF participation. We first build a game theoretic model to capture political dynamics of IMF program participation. We deduce testable implications from the model and statistically examine them using maximum likelihood statistical techniques. The paper is organized in five sections. The next section starts with brief review of the extant literature on IMF program participation. Instead of reviewing the broader literature on IMF related research, we narrowly focus on specific question of IMF program participation<sup>1</sup>. In the following section, we introduce the theoretical model and deduce testable hypotheses. These hypotheses are subject to rigorous empirical testing in the ensuing section. In conclusion, we summarize our findings and suggest future research directions.

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<sup>1</sup>For more comprehensive reviews of the IMF literature, see Stone and Steinwand (2008), Vreeland (2007)

## Literature Review

Why do some states enter into IMF programs sooner than others after conventional warning signals indicate that the economy is in trouble while still others do not participate in IMF programs at all? Though there have been a number of IMF studies by political scientists in recent years, relatively little attention has been devoted to the question of IMF program participation. Instead, most political science studies of the IMF focus on either the consequences of IMF programs (on economic growth (Vreeland 2003), public services spending (Nooruddin and Simmons 2006), or the ability to attract foreign investment (Jensen 2004)) or variation in program conditions (Dreher and Jensen 2007; Dreher, Stürm, and Vreeland 2008). And due to this lack of attention paid by political scientists to the politics of the decision to enter an IMF program, most empirical studies of IMF program participation rely on economic conditions due to which countries require outside assistance (Vreeland 2003 is an important exception who argues that reform minded governments might use IMF programs strategically to tip the balance against domestic oppositions). As a result, a prominent IMF scholar concludes that our ability to predict IMF participation is quite limited (Bird 2003).

As for the particular research question of IMF participation, a few factors are suggested and empirically supported as important predictors, but the overall model performance remains less than impressive (Bird 2003). To our judgement, this is due partly to inadequate attention to political dynamics in IMF program participation. And especially the inattention to domestic politics in borrowing countries restrains more comprehensive understanding of IMF program participation. In this admittedly brief review section, we survey extant studies of IMF program participation.

Existing studies find that three closely related economic variables are important predictors of IMF program participation. First of all, balance of payment (current account) is suggested as an important factor in program participation. And this should not be very surprising. As one of the IMF's main purposes is to help countries solve balance of payment problems, countries with serious balance of payment problems should be more likely to apply for IMF stand-by arrangements and the IMF should also be more willing to approve when the BOP problems seem acute. Thus a few of empirical studies find that lower current account balance generally increases the probability of IMF program participation (Nooruddin & Simmons 2006, Vreeland 2007, Bird & Rowlands 2001). (Yet, empirical support for the capital account balance falls short of consensus. While there are studies that find capital account balance has significant influence on IMF participation, there are other studies that do not support the logical conjecture.)

Related, the level of foreign reserves is also a considered influential in IMF program participation. When countries import or service foreign debts, they need hard currencies transacted internationally. But if for some reason a country has a low level of foreign reserves, it needs to replenish it before it runs out. Thus, the lower the level of foreign reserves, the more a country is likely to get a loan arrangement with the IMF. There seems a near consensus on this argument. Nearly all empirical research on IMF program participation finds that there exists statistically significant and substantively meaningful influence of the level of foreign reserve on the participation decision (Edwards 2006, Knight 1997, Bird & Rowlands 2001, Jensen 2004, Barro & Lee 2005, Vreeland 2007, Stone 2008).

Finally, the level of debt should also be a strong predictor of IMF participation. When a country is heavily indebted, it needs more foreign reserves to service its debt.

In addition, the country may be less likely to be able to attract foreign investment if the country is already in high debt. As the IMF seeks to restore confidence in a country, highly indebted countries are more likely to receive loans from the IMF (Edwards 2006, Jensen 2004, Vreeland 2003).

While these economic variables certainly account for some of IMF participation, they do not provide complete explanations. Indeed, the explanatory power of these economic indicators is still quite limited (Bird 2003). Thus, more political scientists and economists started to look for political explanations as they gradually recognize that IMF participation is as much political process as it is economic. And political explanations come from two different sources because participation decisions are made by two distinct political actors — the IMF and the borrowing government. We review political stories behind the IMF’s decision and domestic politics of borrowing governments in turn.

What makes the IMF more willing to offer and approve an IMF program to a country? Coming from the public choice perspective, Roland Vaubel argues that the bureaucratic interests of IMF staff members influence IMF’s decision to lend. Vaubel argues that “international bureaucrats...try to maximize their power in terms of budget size, staff and freedom of discretion and appreciate some leisure on the job (Vaubel 1986, 52).” To support his argument, Vaubel (1996) empirically demonstrates that there is a tendency of “hurry up lending” as the next quota review approaches. Since IMF resources come primarily from IMF quotas, every five year when members review the quotas, the IMF hurries up its lending so as to increase or maintain its pool of resources. IMF historian James Boughton confirms the tendency in the IMF lending. He states, “the main challenge for the future is safeguarding the IMF’s identity and its resources, so that it can continue to provide adequate support to its now universal membership<sup>2</sup>(?).”

Others investigate the influence of “principals” of the IMF who are behind the Executive Board of the IMF. These studies emphasize the role of the United States and other major shareholders of the IMF. Going deeper, newer studies extend the arguments and include those standing behind the U.S. government. In the first systematic large-N study of the influence of the U.S. on the IMF, Thacker(1999) finds that countries moving toward favorable to the U.S. foreign policy are more likely to get loans from the IMF than those moving away from the U.S.’s foreign policy position. For instance, Bessma Momani(2004*a*, 2004*b*) finds that the U.S.’s geopolitical interest intervened in IMF decision making procedures. She argues that “two IMF-Egyptian agreements were facilitated by the United States in 1987 and 1991, in order to protect the Egyptian regime from tough conditions and to reward the regime for its participation in the Persian Gulf War (Momani 2004*a*, 881).”

In sharp contrast to the decision making of the IMF, the other actor — the borrowing government — garners much less attention than it deserves. The important exception is Vreeland(2003). Vreeland (2003) argues that there may be other reasons to participate in an IMF program than mere financial needs. He argues that borrowing governments may want to lend from the IMF not because they are in dire needs of financial resources but because they need to tip the balance with IMF conditionality. Especially those reform minded governments want to reform but face strong domestic opposition. In this case, bringing the IMF can strengthen governments’ reform drives as having the IMF on their sides can increase costs of rejection for domestic opposition. Thus, domestic opposition

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<sup>2</sup>This is cited in (Vreeland 2007).

is less likely to resist governments reform initiatives. His empirical findings suggests that this is plausible. He finds that log of the number of veto players increases the probability of the government to enter into an IMF program.

## Theoretical Model

In this section, we outline a game-theoretic model of the interaction between the IMF and a sovereign government to gain deeper insight into the politics of IMF program participation.

The IMF program participation game is a simple, complete information game with two players: the IMF and the government. Upon observing a realization of the economic crisis ( $r$ ), the IMF decides whether or not to extend an IMF program offer to a country. The payoffs of having no IMF program (*i.e.*, when there is no offer made by the IMF in the first place) for both players are normalized to zero.

When the IMF makes an offer  $L$  (size of the loan), then the government gets to decide whether it wants to accept the offer. If the government accepts the offer, an IMF program is signed. In that case, the government enjoys the economic benefits of the loan, but suffers domestic political cost resulting from reform (conditionality) measures included in the program. The political cost (*i.e.*, vote loss) is an increasing function of the scope of the reform measures ( $C$ ) and the degree of sensitivity to electoral pressure or the democracy parameter. The political cost may be offset by the government's own utility from the reform measures. This is the case when the government is committed to the reform measures ( $\alpha > 0$ ). The political cost is then compensated with the government's own utility from the reform measures. On the other hand, when the government opposes the reform measures, the political cost of implementing the reform measures further increases.

When there is an IMF program agreed, then the IMF enjoys the benefit ( $B$ ) from the program (*i.e.*, increased bureaucratic incentives, service to principals, etc.) proportional to the size of the realization of the economic crisis. We assume that when a country is in a deeper crisis, the potential benefit is higher. We also assume that the bigger the borrowing country's economy is and the closer the political relationship between the borrowing country and the U.S., the larger the benefit is. The IMF program also brings potential cost to the IMF. The potential cost is proportional to the size of the loan multiplied by the probability of default ( $\beta$ ).

When the government rejects the offer from the IMF, the government suffers different kind of political cost - what we call an incompetence cost. The incompetence cost is an increasing function of the economic crisis and the democracy parameter. Thus, we assume that as the economic crisis worsens, the government suffers larger incompetence cost when it fails to make an IMF program. The cost is also larger for democratic countries than autocratic countries. For the IMF, when the offer is extended but rejected by the government, the IMF pays a nominal administrative cost ( $c$ ).

The payoff structure defined by this simple game is as follows:

**Government:**

No offer: 0

Rejection:  $-v\gamma$

Acceptance:  $L + C\alpha - C\gamma$

**IMF:**

No offer: 0

Rejection:  $-c$

Acceptance:  $Br - L\beta$

## Solution

As the game assumes complete information, the subgame perfect Nash equilibrium is used as the solution concept. The game can be solved with simple backward induction starting from the government's decision.

The government accepts the offer if and only if the payoff of acceptance is larger than the payoff of rejection. Mathematically, this is

$$L + C\alpha - Cv\gamma > -v\gamma$$

Solving the equation with respect to the size of the loan, we get

$$L > Cv\gamma - C\alpha - rv\gamma$$

Thus, given the political constraints, the government prefers to accept the loan when it is larger than the threshold,  $L^* = Cv\gamma - C\alpha - rv\gamma$ . Conversely, when the loan offered by the IMF is smaller than the threshold, the government rejects the offer.

Moving up to the decision by the IMF, when does the IMF extend the offer  $L$ ? First, note that the IMF always prefers to offer the smallest  $L$  which is going to be accepted by the government. This is because the larger the size of the loan, the more costly it is. Thus, when the IMF extends an offer, it always offers  $L^*$ . When the IMF expects rejection of the offer by the government, the IMF prefers not to extend an offer. Thus, the choice for the IMF is between offering  $L^*$  or not offering and getting zero.

IMF makes an offer  $L^* = Cv\gamma - C\alpha - rv\gamma$  if and only if the payoff of having an IMF program is larger than the status quo payoff. Mathematically this is

$$Br - L\beta = Br - (Cv\gamma - C\alpha - rv\gamma)\beta > 0$$

Solving the equation with respect to the size of the benefits, we get

$$B > -\frac{1}{r}\beta (C\alpha - Cv\gamma + rv\gamma)$$

Thus, the IMF is willing to make an offer if and only if the expected benefit of the program exceeds the cutpoint  $B^* = -\frac{1}{r}\beta (C\alpha - Cv\gamma + rv\gamma)$ . Conversely, when the benefit is smaller than  $B^*$ , then the government prefers not to make an offer. The benefit is a function a number of endogenous variables as well as exogenous variables such as the size of the economy of a potential borrowing country and borrowing country's political relationships with principal countries of the IMF. Thus the cutpoint  $B^*$  increases or decreases depending on the changes in endogenous variables as well as exogenous variables. When the benefit increases (*i.e.*, bigger economy, U.S. allies), a program is more likely. When the cutpoint  $B^*$  increases, the more benefit needs to be guaranteed in order for the IMF to make an offer, thus the less likely a program is. Several comparative statics are available for the endogenous variables.

*Proposition:* When  $C$  increases, the  $B^*$  increases. When  $r$  increases and when  $\alpha$  increases, the  $B^*$  decreases. When  $\gamma$  increases, the  $B^*$  increases if  $r$  is smaller ( $C > r$ ). When  $\gamma$  increases, the  $B^*$  decreases if  $r$  is larger ( $C < r$ ).

*Simple proof:*

$$\text{Let } B^* = -\frac{1}{r}\beta (C\alpha - Cv\gamma + rv\gamma) = W$$

$$\frac{\partial W}{\partial \gamma} = \frac{1}{r}\beta v (C - r) \begin{cases} > 0 & \text{if } C > r \\ < 0 & \text{if } C < r \end{cases}$$

$$\frac{\partial W}{\partial r} = \frac{C}{r^2}\beta (\alpha - v\gamma) < 0$$

$$\frac{\partial W}{\partial C} = -\frac{1}{r}\beta (\alpha - v\gamma) > 0$$

$$\frac{\partial W}{\partial \alpha} = -\frac{C}{r}\beta < 0$$

$$\frac{\partial W}{\partial \beta} = -\frac{1}{r} (C\alpha - Cv\gamma + rv\gamma) > 0$$

From here, we generate the following hypotheses.

*Hypothesis 1:* When the crisis is less serious, the more democratic a country is, the less it is likely to participate in an IMF program. However, when the crisis is more serious, the more democratic a country is, the more it is likely to participate in an IMF program.

*Hypothesis 2:* When the crisis gets more serious, the more the IMF and a country are likely to arrange an IMF program.

*Hypothesis 3:* The more conditionality is needed, the less the IMF and a country are likely to arrange an IMF program.

*Hypothesis 4:* The more reform minded a country is (the more political will a government has), the more the IMF and the country are likely to arrange an IMF program.

*Hypothesis 5:* The more risk of default is, the less the IMF and a country are likely to arrange an IMF program.

The first hypothesis is particularly interesting. The degree of democracy has a conditional effect on the probability of an IMF program. When the crisis is deemed manageable, democracy is less likely to participate in an IMF program than autocracy. This is because a democratic government demands a larger loan to the IMF in order to compensate the domestic political cost of an IMF program. Thus all other things equal, the IMF is less likely to make an acceptable offer to a democratic country than to an autocratic country. Alternatively, we can say that given the same offer, it is less likely to be accepted by a democratic country than an autocratic country. But as the crisis worsens, democracies are more likely to participate in an IMF program than their autocratic counterparts. This is because a democratic government is willing to accept a smaller loan in order to eschew the backlash of the incompetence cost in case it cannot make an IMF program. Relatively, an autocratic government is freer from such a political backlash. Given lower bar for a democratic government, then the IMF and the democratic government are more likely to enter into an IMF agreement than a combination of an autocratic government and the IMF.

The other hypotheses match our intuitions. When the crisis gets more serious, the government is more willing to accept an IMF program while the IMF is also more willing to offer an IMF program. Thus the probability of IMF program arrangement gets higher. Similarly, if the government is more reform minded, the government is more willing to accept and this lowers the threshold of the size of a loan. All other things equal, then

the IMF is more likely to make an acceptable offer. When more reforms are needed, the more resistant a government is as more reforms politically cost more, thus the less it is likely for the IMF and the government to arrange an IMF program.

Further, we control for the exogenous variables that are highlighted in the IMF participation literature.

*Hypothesis 6:* The bigger the economy is, the more a program is likely.

*Hypothesis 7:* The closer a borrowing country is to the U.S., the more a program is likely.

Given these comparative statics, we now turn to the empirical analysis.

## Empirical Test

The theoretical model developed in the previous section confirmed the conventional wisdom of IMF program participation, but adds one important hypothesis. Previous scholarship suggests suggest that the only domestic considerations relevant to governments are whether or not they get punished for the austerity measures associated with IMF programs, and, given such punishment, whether the government has sufficient ‘political will’ to push through much-needed-but-painful economic reforms. But this way of thinking ignores the conditions under which the government comes to be in conversation with the IMF in the first place. The IMF is the lender of last resort internationally, meaning that states are most likely to be in conversation with the IMF when they are facing a potential crisis. In such a situation, governments feel pressure to act. Citizens demand that their governments protect them from economic turmoil, and the last thing a government can afford to appear being doing is nothing at all. The government must therefore weigh the competing costs of the domestic unpopularity it might suffer on account of the economic reforms that will be required in exchange for the loans with the backlash it would suffer if it did nothing at all and the economic crisis worsened.

Democratic governments are most sensitive to such domestic concerns on account of their formal accountability mechanisms. This has led previous scholars to suggest that democracies should always be more reluctant to pay the ‘sovereignty costs’ associated with IMF programs and therefore always to be less likely to enter IMF programs. But our model makes clear that such reasoning, while sound, misses an important dimension to this decision process: namely that democratically-elected government will also feel greater pressure to act decisively to head off economic crisis. The hypothesized relationship between democracy and the probability of IMF program participation is thus non-linear and conditional on the state of the economy.

## Data

To test this novel hypothesis, as well as others derived from the model that follow conventional explanations, we estimate a series of logistic models predicting whether or not an IMF program is signed between a government and the IMF in a given year. Our data cover all countries for which information on IMF programs is available. Data for IMF program participation till 2004 come from Vreeland (2003), and we have updated his data through 2006.



As per our model, we collect data on three types of independent variables: economic risk indicators, IMF considerations, and domestic political factors. To capture the objective risk of an economic crisis that might necessitate an IMF program, we gather data on five separate indicators of economic performance that are commonly identified in the existing literature. Current account balance (as a share of GDP) is the most common theoretically-indicated measure of economic trouble, though the empirical evidence for this measure is mixed. More certain, by contrast, is that countries facing foreign exchange shortages are likely to turn to the IMF for loans that ease their liquidity. We therefore collect data on the size of the country's foreign exchange reserves in terms of the number of months of imports they can cover. Third, Vreeland identifies a government's budget deficit as a predictor of IMF program participation. The intuition here is that, as deficits increase, they become less sustainable and more likely to be financed by borrowing, thereby worsening the country's balance-of-payments situation. Fourth, the country's debt service burden (as a share of its exports) is an important indicator of the country's need for liquidity. As the debt burden grows, states must borrow even more to meet their obligations, and the risk of them defaulting on their loans increases. Finally, we also create a variable for whether the country had negative GDP per capita growth in a particular year. Together these five indicators paint a comprehensive picture of the country's economic risk profile.

Next we turn to the IMF's considerations. We expect the IMF to be more sensitive to large economies whose troubles are more likely to ripple across the global economy. We therefore control for the size of the country's Gross Domestic Product. Further, following recent scholarship by Dreher and colleagues, we include a measure of a country's affinity to the United States. We use the country's UN voting record-based s-score to measure this affinity, and the expectation is that countries closer to the United States should be more likely to get IMF programs as the United States uses its considerable clout at the Bank on behalf of its friends. Finally, we measure the IMF's budget considerations by calculating the number of IMF programs it has in place simultaneously in a given year, with the expectation being that the IMF should be less eager to conclude new programs when it already has a large number in place.

Lastly we account for two domestic political factors.<sup>3</sup> A country's sensitivity to sovereignty costs is modeled by an indicator for whether the country has had a previous IMF program or not. *Ceteris paribus*, the expectation is that a government finds it hardest to justify the austerity measures of an IMF program if it has never had to endure them previously. However, once a country has had an IMF program, it is easier to return to the IMF's fold (Bird, Hussain, and Joyce 2000). The government's sensitivity to domestic political pressures is captured by a dichotomous indicator for democracy, where we code countries as democratic if they score 7 or higher on the combined Polity regime type scale (Jagers and Gurr 1995).

Data for the economic variables come from the World Bank's World Development Indicators and the IMF's Government Finance Statistics. Data on IMF program participation are from Vreeland and our own coding. Data on affinity to the United States are

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<sup>3</sup>We also considered the government's ideological orientation by using a measure developed by the World Bank's Database of Political Institutions. However, this variable has significant missing data, and reduced our usable sample significantly. Therefore, we omit that variable from our empirical models for now. We welcome suggestions on alternative measures that might allow us to get at a government's 'reform-mindedness'.

generated using EUGene (Bennett and Stam 2004), and data on regime type are from Polity (Marshall et al 2006). Summary statistics for all variables used in the empirical analysis are provided in Table 1.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Signed an IMF Program	0.115	0.319	0	1	8483
Under an IMF Program	0.246	0.431	0	1	8483
Current Account Balance (% GDP)	-4.268	10.355	-240.496	58.553	3404
Reserves in Months of Imports	3.487	3.04	-0.092	40.238	4384
Budget Balance (% GDP)	-3.282	5.833	-64.493	58.713	3132
Debt Service Burden (% Exports)	16.975	14.238	0	152.267	3093
Negative Growth Year	0.276	0.447	0	1	6187
GDP (Log)	23.024	2.335	17.055	30.057	6233
Affinity to US	0.317	0.397	-0.714	1	8329
Number of Countries Under IMF Program	40.057	20.959	0	76	8483
Previous IMF Program	0.486	0.5	0	1	8483
Democracy	0.342	0.474	0	1	6272

## Results

We begin by estimating a baseline model of IMF program participation. To account for the dynamic properties of the data-generating process, we separate the sample by whether or not the country was under an IMF program in the previous year. The results are presented in Table 2. Results in the ‘No IMF’ column are from a model of the probability of signing an IMF program if one was not under an IMF program in the previous year. Those in the ‘Under IMF’ column are for the sample of country-years in which the country was under an IMF program in the previous year.

The results in Table 2 confirm our basic intuitions of what leads countries into IMF programs. Consider first the results of the model when countries were not in an IMF program in the previous year. As with previous research, we find that a strong foreign exchange reserves position is the best prophylactic against IMF programs. Conversely, increasing debt burdens are positively linked to IMF program participation and a negative growth year is a strong predictor of entering an IMF program. The indicators for current account balance and overall budget balance are not statistically significant, but both are correctly signed, suggesting to us that the relationship between these factors and IMF participation is likely non-linear and that we might gain from identifying the critical thresholds for these factors. The results also provide weak statistical support for the claim that countries more closely aligned with the United States are likely to get IMF programs, and that prior experience with IMF programs is likely to ease a country’s return into the IMF’s arms.

Turning to the model of immediate recidivism (since these are countries that are signing a new IMF program in spite of being in one in the previous year), the relationships between the independent variables and the probability of signing an IMF program change subtly. Interestingly none of the risk indicators that were significant in the ‘No IMF’ model are significant in the ‘Under IMF’ model, but one that was not becomes so.

Table 2: Baseline Models of IMF Participation

	No IMF	Under IMF
Current account balance (% of GDP)	0.02 (0.02)	0.01 (0.01)
Total reserves in months of imports	-0.17*** (0.05)	-0.05 (0.04)
Budget balance (% of GDP)	-0.02 (0.01)	0.03* (0.02)
Total debt service (% of exports)	0.03*** (0.01)	0.01 (0.01)
Negative Growth Year	1.02*** (0.23)	0.26 (0.18)
Log of GDP (constant 2000 US \$)	-0.02 (0.07)	-0.07 (0.06)
Affinity to US	0.76* (0.46)	0.47 (0.30)
L.Number of IMF Programs In Place	0.01 (0.01)	-0.02*** (0.01)
L.Previous IMF Program	0.50* (0.28)	0.14 (0.40)
Democracy	-0.22 (0.26)	0.28* (0.17)
Constant	-2.98* (1.54)	1.56 (1.27)
No. of Observations	748	767
No. of Countries	87	83
AIC	587.27	956.53
BIC	638.06	1007.59

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Standard errors are corrected for clustering by country.

Specifically, the budget balance variable is significant, albeit weakly so, and positively signed, which suggests that countries are more likely to enter a new IMF program to succeed a previous one when their budget balance is improving. The only other factors that are statistically significant are the number of other IMF programs in place, which is negatively related to the probability of this country signing a new program, suggesting that the IMF itself is less likely to promote recidivism when its budget is being stressed by having a large number of programs on-going; and whether or not the country is a democracy, with democracies in particular being more likely to sign a new IMF program as they come out of a previous one.

Taken as a whole, the baseline model appears to fit our expectations quite well. Table 3 therefore adds five interaction terms to the baseline. Each of the five risk indicators is interacted with the dichotomous indicator of democracy. What does this model tell us? Since none of the results from the baseline variables change with the addition of the interaction terms, we focus our discussion on the evaluation of hypothesis 1 only.

Beginning with the ‘No IMF’ column then we see that the only interaction term that is significant is the one with whether the country had negative economic growth that year. The uninteracted negative growth year variable is also significant and positively-signed, which means that while negative growth is more likely to lead non-democracies to sign a new IMF program, its effect is even more pronounced in democracies. The other interaction terms are not statistically significant, which indicates that sensitivity to them does not depend on the country’s regime type. Thus, the data make clear that democratically-elected leaders are especially sensitive to poor economic performance, and need to respond to growth crises by being seen to act even if it requires drinking the bitter medicine of an IMF austerity program.

Turning to the ‘Under IMF’ column in Table 3, the only interaction term that is statistically significant is the one with the size of the country’s budget balance. This interaction is positively-signed which means that the effect uncovered in the baseline model that countries are likely to remain in an IMF program as their budget balances improve is especially pronounced in democracies. Interestingly, however, the interaction term with the size of the country’s foreign exchange reserves is negatively signed and only just outside conventional levels of statistical significance ( $p = 0.11$ ). This suggests that democracies are more likely to leave IMF programs (or, put differently, less likely to sign a new agreement to succeed an on-going one) as their foreign exchange positions improve.

The results thus appear to provide strong support for our principal hypothesis. Democracies appear more sensitive to extremely severe economic crises (negative economic growth), but are also loathe to pay the costs of austerity programs once their conditions improve sufficiently to justify exiting the IMF program (foreign exchange reserves increase).

However, the inherent non-linearities of logistic models in addition to the complexities of the interaction terms suggests that a little more attention be paid to interpreting these effects. Table 4 reports the predicted probabilities of signing an IMF program using the estimated coefficients from Table 3 for three different risk profiles. The ‘low risk’ profile uses the 5<sup>th</sup> percentile values for each of the five risk indicators while holding the other independent variables at their mean values. The ‘mean risk’ profile uses the mean values of the risk indicators, and the ‘high risk’ profile uses their 95<sup>th</sup> percentile values.

As predicted, when conditions are good, democracies are less likely to sign an IMF

Table 3: Conditional Models of IMF Participation

	No IMF	Under IMF
Current account balance (% of GDP)	0.01 (0.02)	0.02 (0.01)
Total reserves in months of imports	-0.19** (0.08)	-0.01 (0.05)
Budget balance (% of GDP)	-0.01 (0.01)	0.01 (0.01)
Total debt service (% of exports)	0.03*** (0.01)	0.01 (0.01)
Negative Growth Year	0.73*** (0.26)	0.22 (0.19)
Log of GDP (constant 2000 US \$)	-0.03 (0.08)	-0.06 (0.06)
Affinity to US	0.83* (0.46)	0.47 (0.31)
L.Number of IMF Programs In Place	0.02* (0.01)	-0.02*** (0.01)
L.Previous IMF Program	0.50* (0.28)	0.12 (0.39)
Democracy	-1.19* (0.64)	0.86** (0.37)
Democracy X Curr Acct Balance	0.07 (0.05)	-0.01 (0.02)
Democracy X Reserves	0.02 (0.10)	-0.11 (0.07)
Democracy X Budget Balance	-0.03 (0.06)	0.07** (0.03)
Democracy X Neg Growth	1.03** (0.49)	0.18 (0.43)
Democracy X Debt Service	0.02 (0.02)	-0.01 (0.01)
Constant	-2.60 (1.71)	1.03 (1.32)
No. of Observations	748	767
No. of Countries	87	83
AIC	588.80	961.24
BIC	662.68	1035.52

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Standard errors are corrected for clustering by country.

Table 4: Predicted Probabilities

<b>No IMF Program in Previous Year</b>		
<i>Risk Profile</i>	<i>Non-democracy</i>	<i>Democracy</i>
Low	0.025	0.009
Mean	0.102	0.038
High	0.466	0.706
<b>IMF Program in Previous Year</b>		
<i>Risk Profile</i>	<i>Non-democracy</i>	<i>Democracy</i>
Low	0.336	0.315
Mean	0.324	0.426
High	0.370	0.416

*Source:* Author's calculations from Table 3

program, but when conditions are bad (specifically when the country experiences negative growth in a given year), democracies are considerably more likely to sign an IMF program than their non-democratic counterparts. These differences persist, albeit much less dramatically, in recidivism as well, with democracies being slightly less likely than non-democracies to be recidivists when their risk is low and slightly more likely when their risk is high. Of course, the probability of signing in a new program is elevated across all conditions when the country was in an IMF program in the previous year, consistent with what we know about the high rates of recidivism in IMF programs.

## Conclusion

This paper develops a political explanation for IMF program participation that is rooted in the domestic political incentives of governments. Democratic governments prefer not to pay the high costs of IMF programs because these are politically unpalatable. Therefore, when they can avoid having to do so, they do. But as economic conditions worsen, democratic leaders fear being labeled incompetent for doing nothing to avert a full-blown extended crisis and are therefore spurred to action. Thus, when conditions are particularly dire, democracies are more likely to sign IMF programs than their non-democratic counterparts. Empirical evidence from a global sample of countries covering 1945-2006 supports this hypothesis.

While obviously preliminary, we believe that the argument and finding reported in this paper are important for our understanding of IMF program participation and therefore of the IMF's effects. Till now the dominant explanation for how a country's domestic politics affected IMF program participation was either to make a country less likely to sign an IMF agreement or to use the IMF as an aegis behind which to push through politically-difficult economic reforms. We do not disagree with these explanations, and in fact agree that such considerations do affect states' decision-making *but only* when economic conditions allow them to do so. When economic conditions get more dire, however, the domestic political calculus shifts in favor of action. Democratically-elected leaders are especially to this pressure to want to appear decisive, and are therefore more likely to enter IMF programs when the domestic economy is in serious trouble. The implication of this analysis therefore is that democratic leaders might often wait longer

than their non-democratic counterparts to seek help from the IMF, and that this instinct might have the unintended consequence of making the situation worse in the long-run.

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