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International institutions and credible commitment of non-democracies

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Abstract How do non-democratic countries credibly commit to policies in front of domestic and international audiences? Unlike democracies, non-democracies do not have functioning electoral systems and free presses to make their commitments costly thus credible. Yet, the need to credibly commit to a policy arises for non-democracies as well. In particular, when non-democratic leaders push for economic reforms, they need to coordinate the beliefs of domestic groups and attract international resources. How do non-democracies solve the commitment problem and succeed in achieving their policy goals? In this study, we argue that international institutions provide an important mechanism through which non-democratic countries could credibly signal their commitment to open economic policies. We test the argument with the involvement of IMF programs by post-communist countries from 1989 to 2005. We find that while IMF status is used as a credible commitment device for all countries, the effect is more significant for non-democracies.

Keywords Non-democracies · Credible commitment · Economic reforms · The IMF

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1 Introduction

Can international institutions change the behavior of non-democratic countries? If so, how? Studies on the influence of international institutions on state behavior have focused largely on democracies and democratizing countries (Cortell and Davis 1996; Dai 2005; Pevehouse 2002; Li and Resnick 2003). Specifically, it has been shown that international institutions can change the behavior of democratic leaders by revealing information to their voters, thus influencing the leaders' electoral prospects (Mansfield et al. 2002; Fang 2008). Such an electoral control mechanism does not exist in non-democracies, yet empirically, we observe that non-democracies pursue the memberships of prominent international institutions and often abide by their principles and rules. What explains such behavior? In this study we offer an explanation as to why non-democracies may be interested in participating in international economic institutions. Specifically, we argue that international economic institutions serve as a costly device by which non-democratic countries can credibly signal their commitment to an open economic policy to domestic and international audiences.

The need to credibly commit to a policy arises for all governments, including non-democracies. In particular, when non-democratic leaders push for economic reforms, they need to coordinate the beliefs of domestic groups and attract international resources by demonstrating their resolve to enact reforms. Domestic political institutions can be an important source of credibility for a government's commitment to liberal economic policy (North and Thomas 1976; North and Weingast 1989); free media and the electoral process in democracies, for instance, can generate significant costs for a government when it defects from declared policies, thus making its commitment credible. Lacking a similar device domestically, non-democratic regimes face the challenge of making their policy commitment credible through other means. Here lies the significance of international economic organizations as a signaling device for non-democracies.

An important feature of an agreement with an international institution is that it creates international audiences for the subsequent compliance behavior. It is more often the case that these audiences, rather than the institution itself, have a credible threat of punishing defections. Lohmann (2003) argues that an institutional commitment has bite only if it is made *vis-à-vis* an audience that can and will punish institutional defections. While international economic institutions, such as the International Monetary Fund (IMF), prefer some level of confidentiality, and do not publicize countries' economic conditions, some information regarding program conditionality and compliance are available from the IMF. Additionally, such information is often brought to light by the international media and credit rating agencies. Consequently, a country's

inability to uphold an international agreement is likely to have a lasting negative impact on the country's ability to borrow from international capital markets, attract foreign investments, and forge trade relationships with other countries. Tomz (2007) shows that reputational concerns are central in sovereign lending by private creditors and correspondingly, governments often use a reputational rationale for repaying their loans. Moreover, a poor track record with one international economic organization may reduce a country's ability to secure economic assistance from other states and international organizations (Bird and Rowlands 2007; Lawrence 2003; Maggi 1999). These effects taken together could do direct damage to a country's social and economic development and strengthen domestic political opposition, both of which are significant costs for a government that wishes to stay in power.

Significant international audience costs associated with noncompliance behavior could deter non-committed governments—the ones that have no incentive to abide by or do not have the capacity to fulfill the agreements—from making them in the first place. Thus, the anticipated noncompliance costs have the effect of separating the committed governments from non-committed ones, thus a policy commitment made through an international institution acquires the credibility that a non-democratic government desires. Such a mechanism is available to democracies and non-democracies alike, however, its importance to non-democracies is likely to be larger for the reason that there are no good domestic alternatives for such regimes.

The theory has important implications for our understanding of strategic incentives that all states face with regard to international institutions, and non-democracies in particular. First, while there is a growing literature that identifies electoral control in democracies as an impetus for their leaders to cooperate with international institutions, virtually no study exists that explores the motivation for non-democracies to join and comply with the institutions. This article helps fill the gap by offering a plausible causal mechanism for such decisions. That is, the informational role of international institutions, combined with the ability of international audiences to punish revealed bad behavior, provides a credible commitment device for non-democracies when they need one. Second, there are few theoretical and empirical studies of non-democracies compared to those of democracies.¹ Yet, the need to understand the logic of decision making in non-democracies has become increasingly important as interactions among all countries have exploded in the last few decades, particularly in the economic arena. Our study tackles a slice of the puzzle by examining the role of international institutions in providing the ability for non-democratic governments to make credible commitments in

¹The interest in non-democracies is growing in recent years, however, both in international relations and comparative politics studies. See for example, Bueno de Mesquita et al. (2003), Davenport (2007), Gandhi (2008), Vreeland (2008) and Weeks (2008).

the eyes of international audiences. Such a role can be of enormous importance in international politics if it leads to more cooperative behavior and more economic prosperity in these countries, which may ultimately lead to positive political changes.

In what follows, we first develop our theory more fully in reference to the IMF, one of the most prominent international economic organizations. We then test the logic of the argument using the involvement in IMF programs by post-communist countries from 1989 to 2005. The set of the countries underwent significant economic reforms during this period, and the credibility of the governments' commitments to the reforms became critical to eliciting desired responses from domestic and international actors. We test two hypotheses based on our theoretical argument. First, we hypothesize that all these countries have an incentive to use IMF programs to signal their commitment to reforms. Second, we hypothesize that the incentive is stronger for non-democracies because they lack domestic signaling mechanisms. Our empirical analysis suggests that indeed, while IMF status is used as a commitment device for all the countries, the effect is more significant for non-democracies.²

2 International Institutions and Credible Commitment

Commitments are often necessary in international politics to convince an audience that a government intends to carry out certain actions. A commitment, however, is not automatically believed if circumstances may arise in the future that give the government an incentive to renege. How do countries solve the problem of making a commitment credible? Fearon (1994, 1997) argues that in an international conflict a commitment may be credible if it creates the possibility that leaders will become locked into their position and will not be able to back down due to significant costs associated with reneging. In other words, for a government to credibly commit to a policy in front of domestic and international audiences, its ability to generate costs associated with reneging is critical.

In a parallel literature on international cooperation, international institutions are argued to serve as a commitment device for states (Keohane 1984). The argument implies that a defection from an institutional agreement is costly for a government (Vreeland 2003; Mansfield and Pevehouse 2006). Why does entering an international agreement make it costly for a government to renege? Intuitively, it seems to result from the ability of the institutions to impose direct costs on countries for noncompliance behavior. In the case of powerful international economic organizations, such as the IMF, the costs mainly come in the form of restricting future access to the financial resources

²Simmons and Danner (2010) make a similar argument in the context of the International Criminal Court.

under the control of these organizations. However, the sanctions are often not credible because political interests of donor countries interfere with the economic decisions by the institutions (Stone 2002). For instance, failing to complete one program does not appear to rule out negotiating another one (Bird 2002). If the institutions are to serve as a useful commitment device—and we believe they do—then the costs associated with renegeing have to stem from other significant sources as well.

We argue that the more important costs of renegeing on international commitments stem from the negative publicity of such behavior in the eyes of international audiences. In general, there are three types of audiences at the international level that will pay close attention to the information disseminated by prominent international economic institutions such as the IMF. First, market actors use the information regarding a country's compliance behavior to guide their investment decisions. Edwards (2005) finds that noncompliance with an IMF program leads to significant capital flight, even greater capital flight than that occurs in the absence of an IMF program. This suggests that market actors pay attention to not only economic fundamentals, but also signals from the IMF. Simmons (2000) goes so far as to argue that competitive market forces are a more likely mechanism of enforcement than IMF policy pressure.

A potential critique of the signaling theory of IMF lending is that the empirical studies have so far found mixed effects of IMF lending on capital flows. A closer examination of the findings, however, suggests that the so-called catalytic effect may be conditional—it depends on a variety of factors surrounding a country's economic and political circumstances, and private investors may well draw “different inferences from apparently similar signals” (Steinwand and Stone 2008). Market actors that look for profitable investment opportunities have a strong incentive to collect information about countries in need of capital, and thus it will not be surprising if they are able to distinguish between different circumstances that lead to an IMF program. For instance, Ukraine's decision to sign an IMF agreement in 1998 was undertaken in a time of dire financial conditions, and the response of investors depended “on whether foreign investors see the IMF programme as a milestone, signaling the beginning of Ukraine's economic recovery, or as a buffer on the country's foreign currency reserves...” (Cloverin and Tkach 1998). Indeed, if there is a possibility that IMF lending deters foreign investments due to concerns about a country's fundamentals, it is all the more remarkable that the Ukrainian government would choose to enter an IMF agreement; it suggests that the country believed that the reform signal would overcome the signal of a weak economy. More broadly, Bird and Rowlands (2007) find that Extended Fund Facility agreements (EFF),³ which entail reform conditions, lead to

³EFF programs are three years in length and are aimed at overcoming balance of payments difficulties resulting from macroeconomic and structural problems. EFF programs should be distinguished from Stand-by arrangements (SBA) that are designed to help countries address short-term balance of payments problems.

an increase in investment flows to middle income, but not poor countries. Mody and Saravia (2006) also suggest that IMF programs have positive effects when they are viewed as likely to lead to economic reforms. More recently, Biglaiser and DeRouen (2010) find that IMF involvement positively influences U.S. investment flows, but the effects are not uniform for different programs.

Second, other states may take into account the information revealed by major international economic institutions when making decisions regarding bilateral cooperation or financial assistance. Bird and Rowlands (2007) find strong evidence of a historically positive association between IMF involvement and bilateral foreign aid inflows. For a recent example, in September 2008, the IMF approved a US \$750 million SBA to assist Georgia's recovery from the dual shocks of an armed conflict with Russia earlier in August and the global economic downturn. At about the same time, the United States proposed a \$1 billion aid package, while the European Union pledged additional 500 million euros for the rebuild. A plausible explanation for the relationship is that a country's agreement with the IMF signals the resolve of the government to implement necessary policy measures to turn around its economy, which then increases the willingness of other countries to participate in the effort.

Third, a poor track record with one international economic institution may reduce a country's ability to secure economic assistance from other international institutions. Countries generally have ongoing relationships in multiple spheres (Lawrence 2003, 92); other international institutions can join the efforts to punish a country's unruly behavior by linking issues. Economic assistance from the Group of Seven, Paris and London Clubs and others has been linked to IMF programs. For instance, Ukraine's 1994 IMF program was expected to "pave the way for Ukraine to receive 4 billion dollars in financial assistance offered at the Group of Seven meeting" (Barshayand and Freeland 1994). Similarly, Egyptian officials hoped that a new standby credit agreement with the IMF would lead to the release of a final tranche of debt relief by the Paris Club creditors that had been delayed (Whittington 1996).

These international audiences of an institutional commitment provide a mechanism through which a government could credibly commit to an economic reform policy in addition to, or *in the absence of*, a corresponding domestic mechanism. Key to a successful economic reform is the convergence of expectations from all relevant actors so that the risk associated with investment and production is minimized. A commitment made to an international institution not only coordinates the expectations of international actors, but also domestic actors whose long-term investments in material and human resources are critical to successful economic reforms. While the logic of the argument applies to any government that seeks to make its commitment credible, the mechanism could be particularly valuable for non-democracies. Unlike democracies, non-democracies do not have functioning electoral systems and free presses to make their commitments costly thus credible. Therefore, non-democracies have to rely on external sources more than democracies to generate costs necessary for a credible commitment.

3 The IMF as a Signaling Device: A Research Design

In this section, we propose a research design that tests the logic of our argument with respect to a set of countries' involvement in IMF programs. We choose the IMF as a representative international economic institution to test our signaling theory because the theory highlights the importance of publicity at the international level in generating audience costs, and such capacity is more naturally associated with prominent international institutions, one of which is the IMF.

There are two main arguments in the existing literature regarding why countries may participate in IMF programs: to address poor economic conditions, such as a balance of payments problem, or to push through unpopular reforms in the face of domestic veto players (Vreeland 2003). We offer a third explanation—a signaling theory of IMF participation. Gould (2003, 556) notes that between 1952–1995, in the majority of the cases where countries borrowed from the IMF to address a current account deficit, the deficit was larger than the amount of the entire Fund loan agreement. Furthermore, because Fund loans are delivered in segments, even for the rest of the cases, the country's financing needs might have exceeded the Fund loan disbursements. Given the significant disparity between the size of the IMF loans and the actual need of a country, it is quite plausible that the purpose of participating in IMF programs is to send signals to the international private investors.

While all three arguments are plausible, the explanatory power of each may be conditional on domestic and international circumstances. This means that we should not expect one particular theory to explain IMF program participation at all times for all countries. For instance, economic variables are good predictors of IMF programs in other parts of the world, but not in Africa (Stone 2004). We believe that our signaling theory is most applicable to countries that are undergoing serious policy changes; therefore, we expect that it provides an explanation for the behavior of the reformed-minded countries in our data set for the period that we examine.

Our data set consists of 25 post-communist countries for the years from 1989 to 2005. The post-communist countries provide an excellent sample on which to test our hypotheses. First, these countries underwent significant economic reforms in a fairly short period of time, while their political institutions did not make a full transition to democracy. Therefore, there is a good mixture of democracies and non-democracies in the dataset to test our hypotheses. Second, the international capital market was not truly international until the fall of the Soviet Union and the rise of the internet, which corresponds well with the time span of the study. The expansion of the capital market is a significant event for our theory because one of the main reasons that countries may use the IMF as a signaling device is to attract foreign investments. Finally, transitioning economies generally have less access to the international market because the market had little information about these new regimes, so the incentive to signal their commitment to reforms through participating in IMF programs may be particularly strong for these countries.

We test two hypotheses implied by our theory. The most straightforward implication of our theory is that countries that undergo serious economic reforms will have an incentive to participate in IMF programs to signal their resolve. Both the international audience costs for defection and IMF conditionality—prior actions as well as the conditions imposed during a program—serve to deter non-committed governments from entering into the agreements. This signaling incentive, however, may not grow monotonically as the level of reform deepens. A country not only needs to make a credible commitment in order to launch successful reforms, it also needs to distinguish itself as a successful reformer after a certain period of time in order to continue to attract international resources. The logic is that countries that are able to successfully implement reforms are likely to not need IMF programs well into the future. Therefore, there could be a countervailing incentive for countries to signal a clear forward trajectory of their reforms by *graduating* from IMF programs as the reforms make significant progress.

How do these two incentives add up? We hypothesize that at lower levels of reforms the incentive to signal commitment dominates the incentive to signal the progress of the reforms, while the opposite is true at higher levels of reforms. These arguments lead to two closely related hypotheses to be tested in the remainder of the study. The first hypothesis identifies a behavioral pattern of all countries undergoing economic reforms:

Hypothesis 1 *As the depth of its economic reform increases, a country is more likely to enter a higher phase of IMF involvement to signal to international audiences its commitment to reform and the success it has achieved.*

Furthermore, given that democracies have other costly mechanisms available to credibly commit to economic reforms, we have a second hypothesis that suggests a comparison between democracies and non-democracies:

Hypothesis 2 *Non-democracies are more likely to be participants of IMF programs than democracies at a given level of economic reforms.*

There are compelling theoretical reasons to believe that signaling incentives may be weaker for democracies with respect to the IMF: It is costly to participate in IMF programs, so those that have other mechanisms for communicating their resolve may be less inclined to use participation in the programs for the signaling purpose. The costs include a loss of sovereignty by submitting to IMF conditions (Vreeland 2003, 38), prior actions, and conditions that must be met during a program. According to our signaling theory, countries do not necessarily wish to implement the reforms that the IMF recommends, but they nevertheless meet the conditions in order to signal their resolve to implement the reforms of their choice.

We now turn to the measurement of the dependent and independent variables. Our dependent variable is IMF STATUS, which measures the level of involvement in IMF programs for a country. It is coded 0 if a country is

an applicant, 1 if a country is a participant in an IMF program, and 2 if a country has graduated from the IMF.⁴ A country is an applicant for an IMF program if it has not yet participated in an IMF program, or it is between programs—that is, it may have in the past participated in an IMF program but is not currently. Countries are participants in IMF programs during the years when they have programs in place and have received disbursements.⁵ Finally, we code a country as a “graduate” of IMF programs if it satisfies two criteria. First, there must be at least 5 consecutive years of no program participation after the last, during the period covered by our data. Second, a country must have repaid its IMF loan early. Early loan repayment can only be undertaken by countries in which the economy has improved dramatically; this is typically the result of sound economic policies.

The three-category measurement of IMF status is a clear departure from the existing studies on IMF participation, and is one of the empirical contributions of our paper to the literature. In almost all the existing studies on countries' involvement in IMF programs, countries are coded as either a participant or a non-participant;⁶ however, among the non-participants, there are countries that are interested in participating in another program in the near future, and then there are countries that do not see further needs to participate in the foreseeable future. Grouping these two types of countries together and assuming that they remain non-participants for the same reasons is problematic theoretically as well as empirically. For instance, this would involve grouping a country like Poland, which participated in the IMF's programs (and joined the EU), with a country like Turkmenistan, which did not have a program during the period in our data set. We thus make the distinction between an applicant and a graduate, and argue that becoming a graduate can potentially send a signal of reaching a higher level of economic reform by a country.

Our main independent variable is the LEVEL OF REFORM (REFORM). In the economics literature it is customary to use the difference in the level of an economic freedom index as measure of reform implemented each year (Gassebner et al. 2011; Bjørnskov and Potrafke 2011). In our theory, however, it is the level or depth of economic reform that matters. This is because the effect of a change in reform on the probability of being an applicant, participant or graduate is likely different for those starting at a low level of reforms versus countries that have already implemented deep reforms. For example, Poland and Belarus may each implement reforms in a given year that lead to a *change* of 1 unit in the level of economic reform, but Poland can have a much higher starting point for the change. As a result, we do not expect Belarus to have a greater probability of being a graduate than Poland in a given

⁴The variable is coded using information from the IMF webpage for each country (<http://www.imf.org/external/country/index.htm>).

⁵Some countries may have program approved, but do not draw on the committed funds because they do not need it.

⁶An exception is Stone (2002), but he does not treat participation and graduation as ordered categories.

year. Therefore, we use the depth of economic reform rather than the reform each period in our analysis.

There are two broad categories of economic reform identified in the literature: Those intended to address macroeconomic imbalances, and structural reforms intended to strengthen weak institutions. “Stabilization consists of short-term measures designed to slow down inflation, reduce the balance-of-payments deficit and cut the government deficit,” while structural adjustments and privatization are meant to make the economy more competitive (Przeworski 1991, 144). Referring to the former as macroeconomic reform and the latter microeconomic reform, we can distinguish between the two as follows: Macroeconomic reforms are those which are intended to restore stability through fiscal, monetary and exchange rate policies, while microeconomic reforms consist of liberalization policies aimed at structural and institutional reform and growth—for example, the removal of relative-price distortions and the reduction of state intervention (Rodrik 1996). Because we are interested in states’ long-term commitment to economic policies, we choose to use measures of structural reforms. The appropriateness of the measure is further underscored by the fact that structural reforms are harder to reverse.

However, it is inherently difficult to measure both the depth and breadth of structural economic reforms. More specifically, the passage of a reform package does not mean that all of the reforms are implemented. Therefore, evaluating the implementation of reforms, especially structural, often requires expertise in a particular country or region. As a result, many reform indexes tend to be subjective, and thus difficult to replicate and extend through time or to other countries. Accepting that there is no perfect measure of economic reform, we use the European Bank for Reconstruction and Development (EBRD) Transition Indicators which covers the post-communist countries of Central and Eastern Europe (CEE) and the former Soviet Union (FSU). It is a cumulative index of structural reform created from several individual components for the period 1989–2005. The scores for each component range from 1 to 4.33. There are eight composite indicators of economic reform. We sum the indicators for the following categories: large and small scale privatization, enterprise restructuring, price liberalization, trade and foreign exchange system, competition policy, banking reform and interest rate liberalization, and securities and non-bank financial institutions. The minimum possible score is 8.00, and the maximum possible score is 34.64.⁷

A breakdown of the IMF STATUS according to tertiles of REFORM can be found in Table 1. A χ^2 test suggests that there is a statistically significant relationship between the level of economic reform and the IMF status.

Another key independent variable for our hypotheses is regime type, NON-DEMOCRACY (NONDEM). We use a dummy variable equal to one for non-democracies and equal to zero for democracies. We define a non-democracy

⁷To interpret the results more easily, we rescale the variable so that it ranges from 0 to 26.64.

Table 1 Cross tabulation of IMF status and level of reform (in number and percentage)

IMF status		Level of reform			Total
		Low	Medium	High	
Applicant	<i>N</i>	9	14	0	23
	%	12.68	20.29	0.00	10.55
Participant	<i>N</i>	51	46	11	108
	%	71.83	66.67	14.10	49.54
Graduate	<i>N</i>	11	9	67	90
	%	15.49	13.04	85.90	39.91
Total	<i>N</i>	71	69	78	218
	%	100.00	100.00	100.00	100.00

as a country with a Polity score (Jagers and Gurr 1995) less than or equal to 6. We then interact the dummy variable with the reform variable to create an interaction term, REFORM \times NON-DEMOCRACY (REFORM \times NONDEM), in order to capture the conditional nature of Hypothesis 2. In line with the existing literature, we include the lagged values of several economic variables to take account of economic factors that may affect a country's participation in IMF programs. The first of these is BALANCE OF PAYMENTS (BOP), measured as a percent of GDP. Additionally, we include FOREIGN RESERVES (RESERVES), which is the ratio of the level of reserves to monthly imports, and LEVEL OF DEBT (DEBT), measured as a percentage of exports of goods, services and income. Finally, we control for the level of development by including GDP per capita (GDPPC).⁸ The results of our analysis are presented in the next section.

An important concern regarding our subsequent analysis is that there is a potential endogeneity problem: Structural reforms were implemented as the result of participation in IMF programs, rather than as the result of voluntary decisions of the country. To address this concern, we include the lagged value of the reform value, as well as a variable, YEARS IN PROGRAM, in the empirical model. YEARS IN PROGRAM is the sum of the number of previous years during which a country was an IMF program participant. More importantly, we have substantive reasons to believe that the bulk of the reforms that we observe are unlikely the outcome of IMF conditionality. First, evidence on program compliance and implementation suggests that a majority of non-prior action structural benchmarks (the kinds of reforms that we examine) required by IMF agreements are not implemented. Mercer-Blackman and Unigovskaya (2004) find that only 17 of 33 transition economies implemented more than 50 percent of the structural benchmarks included in programs between 1993 and 1997. Thus, we might expect that it is not IMF programs in and of themselves leading to economic reforms. Second, while IMF programs for the countries of the former Soviet Union (excluding the Baltics) had the most prior actions—the conditions that must be met in order for a program to be approved, they also have worse than average

⁸All data for economic variables were taken from the World Development Indicators 2007.

implementation (Thomas and Ramakrishnan 2006). Finally, recent research on IMF conditionality suggests that in terms of the types of conditions that the IMF imposes on program participants, macroeconomic benchmarks are both more common and more specific. For instance, monetary policy benchmarks are present in 53% of country-month observations for all programs between 1992–2002, while the most common structural benchmark, imposed on banking reforms, is present in only 17% of the observations (Stone 2008). Between these facts and the inclusion of the two control variables mentioned above, we do not expect that endogeneity is a major threat to our inference.

To examine the robustness of our results, as well as to take into consideration other possible “political” explanations of IMF program involvement, we include two additional variables in our analysis. First, some countries, like Poland and Hungary, likely implemented reforms due to a desire to join the EU, rather than because they had an IMF program. We include an EU STATUS variable to control for this factor in our robustness analysis. This is coded 1 if a country is in accession negotiations with the EU, and 0 otherwise. Second, there is a growing literature that suggests that US interests play an important role in determining which countries get IMF programs and how they are implemented. Close allies of the US (and other G7 countries) are more likely to have IMF programs approved and these programs are likely to have fewer conditions (Dreher and Jensen 2007). Similarly, Stone (2002) finds that countries that are important to the United States receive shorter punishment periods. Therefore we control for the closeness of a country’s votes in the UN General Assembly to those of the United States using the Affinity score created by Erik Gartzke (Gartzke 2010).

4 Empirical Analysis

Given the ordinal nature of the dependent variable, IMF STATUS, we use an ordered probit model. Because our data is time-series cross-section, with each observation being a country-year, we use panel-corrected standard errors (PCSEs) to adjust for correlation within each panel. Our main model is as follows:

$$Y_t^* = \beta_1 \text{REFORM}_{t-1} + \beta_2 \text{NONDEM}_{t-1} + \beta_3 \text{REFORM}_{t-1} \times \text{NONDEM}_{t-1} \\ + \beta_4 \text{DEBT}_{t-1} + \beta_5 \text{BOP}_{t-1} + \beta_6 \text{RESERVES}_{t-1} + \beta_7 \text{GDPPC}_{t-1} \\ + \beta_8 \text{YRSINPROG}_{t-1} + \epsilon$$

where $\epsilon \sim N(0, \sigma^2)$. In applying an ordered probit analysis, it is assumed that the government has an unobservable continuous utility function that affects the government’s decision to commit to economic reforms through involvement in the IMF. As researchers, instead of observing the utility function, we observe a categorical variable, the level of involvement in the IMF. Define threshold parameters $\tau_j (j = 1, 2)$, such that $\tau_1 < \tau_2$. These two parameters

group Y_t^* into three categories. Although the realization, y_t^* , is unobserved, we do know which of the three categories that y_t^* belongs to by observing IMF STATUS_t. That is,

$$\text{IMF STATUS}_t = \begin{cases} 0 & \text{if } y_t^* \leq \tau_1 \\ 1 & \text{if } \tau_1 < y_t^* \leq \tau_2 \\ 2 & \text{if } y_t^* > \tau_2 \end{cases}$$

Thus, the random utility model suggests that non-democracies will signal commitment to economic reform through costly involvement only when the utility to do so is greater than the utility of not taking that action, which is represented by a threshold, $\tau_j(j = 1, 2)$.

We present two sets of results in Table 2. Model 1 provides the results from our baseline model, and Model 2 presents the results controlling for additional variables that may influence the dependent variable. Both models correctly predict about 74% of IMF status, which amounts to nearly a 50.0% improvement over the modal or naive prediction. We first analyze the results of Model 1, and then discuss the robustness of the results by examining

Table 2 The maximum likelihood estimates of the ordered probit model of all countries

Independent variables	Model 1	Model 2
Reform _{t-1}	0.224* (0.057)	0.234* (0.054)
Non-democracy _{t-1}	2.442* (1.060)	2.008* (0.998)
Reform × non-democracy _{t-1}	-0.167* (0.071)	-0.147* (0.066)
Debt service _{t-1}	0.007 (0.020)	0.008 (0.019)
Balance of payments _{t-1}	-3.010 (2.135)	-1.440 (1.774)
Reserves _{t-1}	-0.086 (0.125)	-0.063 (0.120)
GDP per capita _{t-1}	0.0003* (0.0001)	0.0003* (0.0001)
# years in program _{t-1}	-0.114 (0.76)	-0.185* (0.075)
Accessions open _{t-1}		0.581 (0.426)
Affinity to US		-1.275 (0.675)
Threshold 1	1.475 (0.760)	1.321 (0.726)
Threshold 2	3.581 (0.762)	3.438 (0.717)
χ^2	117.23	187.27
Log likelihood	-145.77	-141.30
N	218	218
Correctly predicted (%)	74.1	74.3
Modal prediction (%)	49.5	49.5
Reduction of error (%)	48.2	49.1

PCSEs in parentheses.
* $p < 0.05$

Model 2. It is straightforward to see that our first hypothesis, that there is a positive relationship between the level of economic reform and IMF status, is supported—level of reform has a positive and statistically significant effect on the dependent variable. That is, as the level of economic reform increases, a country is more likely to be at an advanced phase of IMF status. Moreover, the coefficients of the other two key independent variables, NON-DEMOCRACY and the interaction term REFORM \times NON-DEMOCRACY, are also statistically significant and in the direction that our second hypothesis would suggest. That is, non-democracies are more likely to be participants, thus less likely to be graduates at a given level of reform.

However, the regression coefficients do not tell us how the changes in the independent variables affect the probabilities of countries' transition from one IMF status to another. Moreover, in non-linear models the interpretation of interaction terms and their components require particular care—even the direction and the level of significance can be misleading (Ai and Norton 2003). Therefore, we must look beyond the significance level of our interaction term to analyze its effects. Below we use figures to investigate the effects of our main independent variables at different levels of economic reform.

Figures 1 and 2 show how the predicted probability of being in each category of IMF status changes as the level of economic reform (lagged one year) increases for non-democracies and democracies, respectively. First, for both types of regimes, as the level of economic reform increases, the probability of remaining an applicant decreases. This suggests that countries increasingly

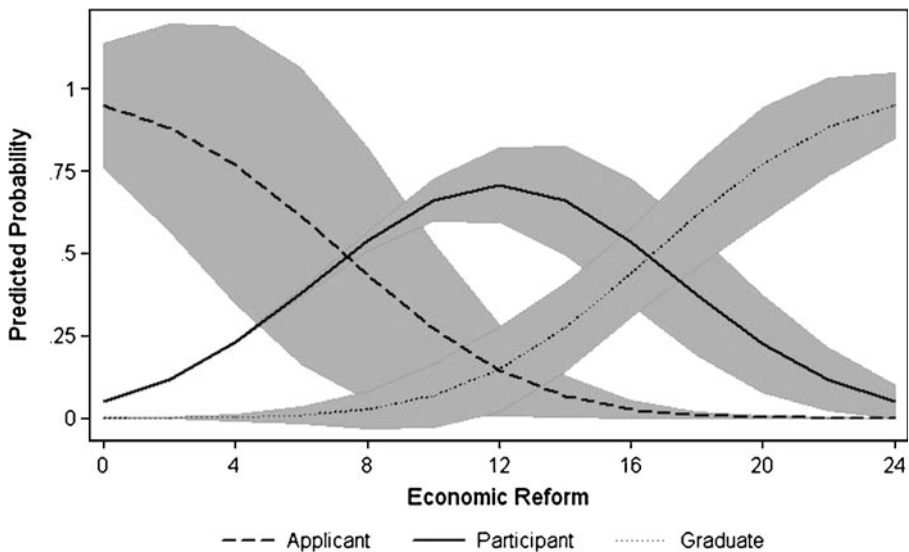


Fig. 1 Predicted probability (with 95% confidence interval) of IMF status for democracies as a function of the level of economic reform

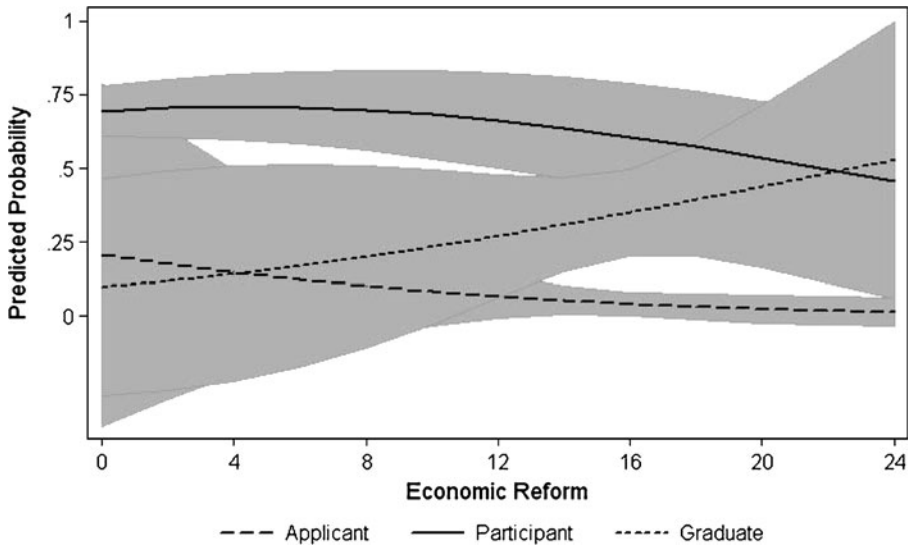


Fig. 2 Predicted probability (with 95% confidence interval) of IMF status for non-democracies as a function of the level of economic reform

move on to higher phases of IMF status as the reforms deepen. Second, as the level of economic reform increases, for democracies the probability of participating in an IMF program increases initially, and then decreases. The effect for non-democracies is less dramatic: The probability stays flat initially, and then decreases as the level of reform increases. This implies that there is a threshold level of reforms after which countries are more likely to be graduates. We argue that this is because the incentive to signal the success of the reforms starts to dominate the incentive to signal commitment to the reforms. Finally, as the level of economic reform increases, the probability of being a graduate increases monotonically for both democracies and non-democracies. These patterns are consistent with our first hypothesis regarding the signaling effect of different phases of IMF status as a country is going through different levels of economic reforms. Comparing Figs. 1 and 2, we can see that the relationship is more *pronounced* for democracies than non-democracies. In other words, it appears that democracies are more likely to have different levels of IMF involvement for different levels of economic reforms. Thus a more direct comparison of the expected level of IMF involvement between democracies and non-democracies is needed, as suggested by our second hypothesis.

In Figs. 3 and 4, we present side by side, respectively, the predicted probabilities of being a participant and a graduate for democracies and non-democracies. The comparison allows us to discern if the different patterns for the two regime types predicted by our second hypothesis hold more generally across all levels of reform. The intuitions from the previous figures emerge in these figures—non-democracies are more likely to be participants at all levels of reforms than democracies, and less likely to be graduates at high

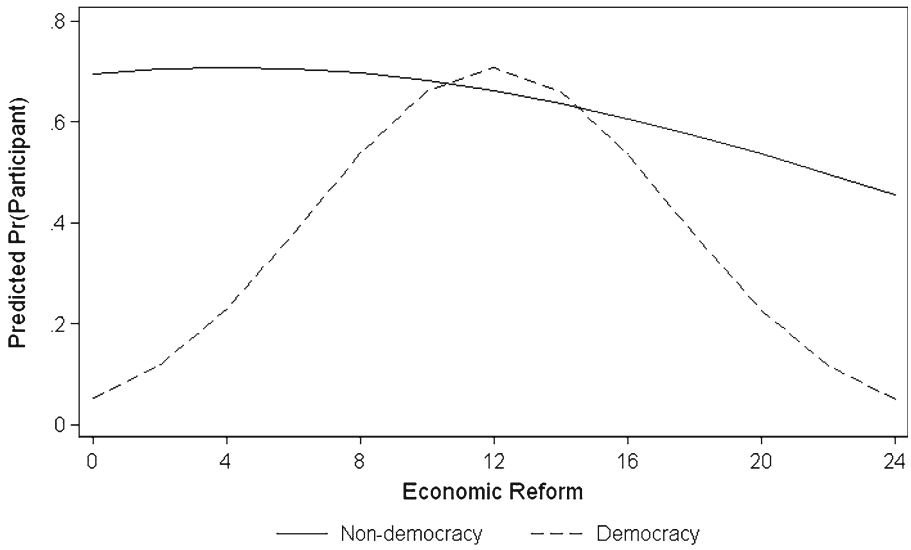


Fig. 3 Predicted probability of participant status for non-democracies and democracies

levels of reforms. Our second hypothesis about a stronger incentive for non-democracies to participate in the IMF thus receives support. A critical question remains, however, as to whether these effects are statistically significant.

We calculate the significance levels of the differences in predicted probabilities for both participants and graduates at all levels of reform and present them

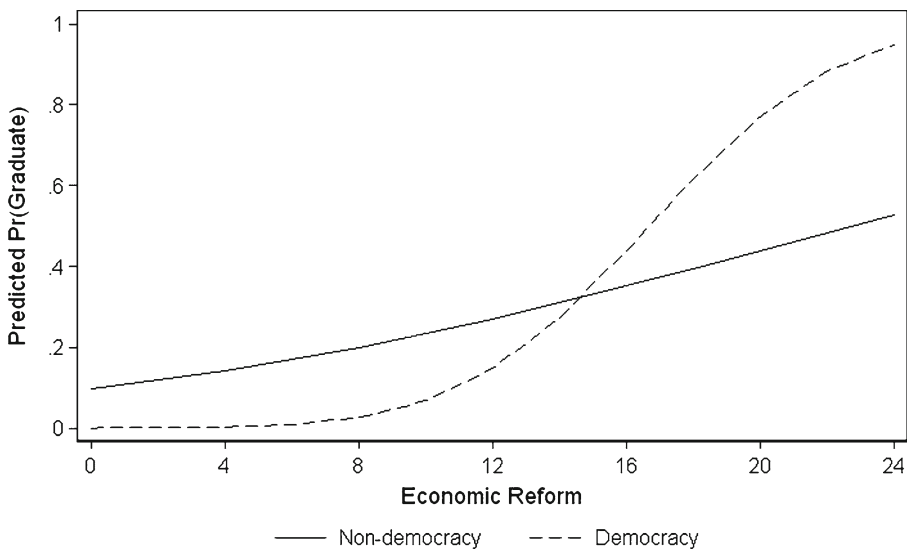


Fig. 4 Predicted probabilities of graduate status for non-democracies and democracies

in Fig. 5. The horizontal lines represent the conventional levels of significance at 0.1 and 0.05. Figure 5 shows that there are significant differences in the likelihood of participating in IMF programs between democracies and non-democracies at both low and high levels of economic reform. At both high and low levels of economic reform, non-democracies are more likely to participate in IMF programs than are democracies. For the predicted probability of choosing to be a graduate, Fig. 4 shows that when the level of economic reform increases, there is an increasing gap in the probabilities that non-democracies and democracies would choose to be graduates. Figure 5 shows that this difference is significant at higher levels of economic reform. Democracies are significantly more likely to be graduates than non-democracies at higher levels of reform, while at the lower levels of reform the differences are not statistically significant. The intersections between the two varying significance levels and the 10% line are around 17 for both participant and graduate status. These figures thus provide further evidence supporting our second hypothesis: The incentive to signal commitment to economic reforms appears stronger for non-democracies at both high and low levels of economic reform than for democracies, while countries in the middle of economic reforms are equally likely to be participants regardless of regime type.

Most of our economic controls do not achieve statistical significance. As we mentioned earlier, while some studies find that economic factors, such as large balance of payments imbalances and low levels of reserves, lead to an increase in the likelihood of participating in an IMF program, others find no such effect, perhaps with a different set of countries. In our model, only GDP per capita has a statistically significant effect on IMF status. Countries that are more

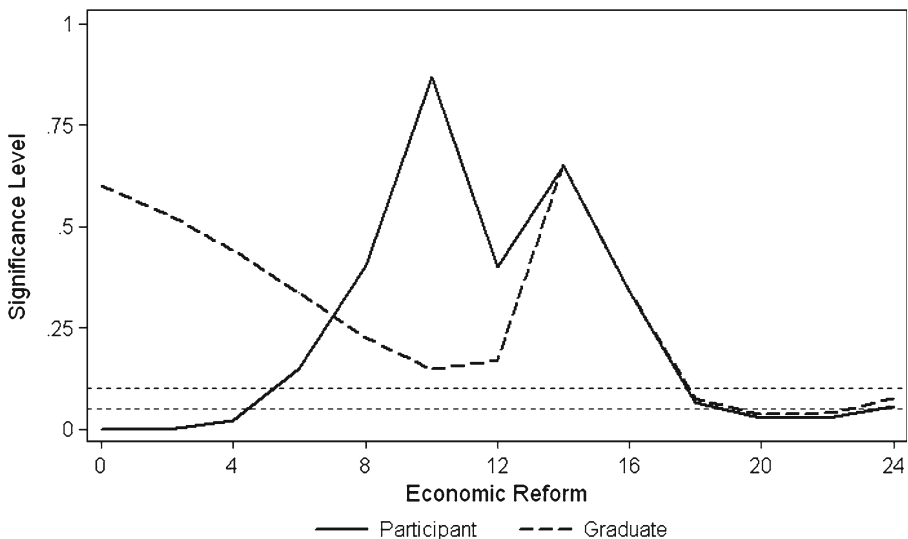


Fig. 5 The significance levels of the difference between predicted probabilities for non-democracies and democracies

developed in terms of GDP per capita are more likely to have higher levels of IMF involvement. These findings, or lack thereof with respect to economic variables, suggest that these countries seek participation in the IMF for reasons other than their economic needs.

The robustness of the results are examined in Model 2. Our results are robust to the inclusion of two additional controls, AFFINITY and EU STATUS, which take into consideration possible alternative explanations for IMF involvement. We again find support for Hypothesis 1, that as the level of reform deepens, IMF involvement increases. We also find support for Hypothesis 2: at both low and high levels of economic reform, non-democracies are more likely to be participants than democracies. At high levels of economic reform, democracies are more likely to be graduates than non-democracies. Among the economic controls, again only GDP per capita has a significant effect on the level of IMF involvement. The number of YEARS IN PROGRAM has a negative and statistically significant effect on the level of IMF involvement in Model 2; countries that have participated in more IMF programs are less likely to graduate from the IMF. AFFINITY is significant at the 90 percent level and has a similar effect. Countries that are more closely aligned with the United States in terms of UN voting are less likely to graduate from the IMF.

5 Conclusion

In international politics, it is commonplace that countries express their intentions to carry out challenging policy tasks. However, the announcements are often met with skepticism because all governments have an incentive to claim that their commitments are credible when they are not held accountable for their words later on. Yet making a commitment credible, in the eyes of international audiences can be a precondition for the success of the policies, whether they are peace agreements or economic reforms. Countries that are sincere about their policy announcements, therefore, are confronted with the dilemma that, on the one hand, their pledges may not be believed; on the other hand, without the trust and cooperation of the intended audiences, the policies indeed cannot be implemented successfully. How do countries, democracies or non-democracies, break the vicious cycle when they must?

Drawing on the finding in the economics literature that costly actions can be informative (Spence 1973), international relations scholars have explored costly mechanisms that allow countries to establish credibility of their commitment, particularly in the context of international crises. The idea of audience costs first emerged in this literature (Fearon 1994), with the source of the costs identified to be electoral competition in democracies. In the international political economy literature, on the other hand, while the need for countries to make credible commitment is recognized, it is often argued that the legal nature of international agreements is the primary source of the constraints on countries' subsequent behavior. There are a few exceptions, such as

Mansfield et al. (2002) and Dai (2005): In line with the conflict literature, these studies argue that the audiences of such agreements are the primary source of credible commitment; however, as in the conflict literature, these studies also focus on the audiences in democracies.

An important question is thus largely unanswered: What are the mechanisms for non-democracies to make credible commitments? Building on previous studies, but extending the logic to a broader set of actors, we argue in this article that international institutions provide a credible commitment device for all countries because of the international audiences they command that can and will punish defections. Furthermore, we argue that the importance of the device differs for democracies and non-democracies. While enjoying more freedom in choosing policies due to the lack of domestic constraints, nondemocratic governments also have more difficulty making their commitment credible as a result. International institutions are therefore a more central commitment device for non-democracies, and non-democracies are more likely to make institutional commitments than democracies.

Our theories are tested with a data set of countries going through economic reforms, a task that requires credible commitments by these countries in order to generate favorable responses from international economic players. Specifically, we examine whether these countries signal their intentions to stay on the reform path by participating in IMF programs, and then signal their success by graduating from the programs. We also examine whether non-democracies display stronger incentives to participate in IMF programs because they have fewer domestic mechanisms to effectively signal their resolves. Our empirical findings largely support the two hypotheses.

First, we find that all countries undergoing economic reforms use their IMF status to signal their commitment to the reforms, and then as the reforms deepen, signal the progress they have achieved by becoming graduates. Signaling reform success, however, requires leaving IMF programs behind, thus becoming free of institutional constraints, which could undermine the need to signal continued commitment to reforms. Given the incentive to convey two messages that entail two contradictory actions through one device, countries are forced to choose one action over the other. We have conjectured that at this juncture non-democracies will make a different choice than democracies because non-democracies have fewer domestic mechanisms to generate costs for credible commitments. Indeed, our second main finding is that as the level of economic reforms increases, non-democracies are more likely than democracies to signal their continued commitment to reforms by remaining as participants rather than becoming graduates.

Different domestic conditions present different challenges for states in international relations; therefore, it is quite plausible that states have diverse interests in utilizing such institutions (Fang 2010). In particular, while it has been argued that international institutions can serve as commitment devices for states, it is not obvious that the incentive is similarly strong for all states. Our study suggests indeed that is not the case. The institutions are more

valuable commitment devices for non-democracies, which have fewer mechanisms to credibly communicate their resolves to international audiences.

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Appendix

Table 3 Data summary

Country	Years in sample
Albania	1989–2005
Armenia	1992–2005
Azerbaijan	1992–2005
Belarus	1992–2005
Bosnia and Herzegovina	1993–2005
Bulgaria	1989–2005
Croatia	1992–2005
Czech Republic	1989–2005
Estonia	1992–2005
Macedonia, FYR	1994–2005
Georgia	1992–2005
Hungary	1989–2005
Kazakhstan	1992–2005
Kyrgyz Republic	1992–2005
Latvia	1992–2005
Lithuania	1992–2005
Moldova	1992–2005
Poland	1989–2005
Romania	1989–2005
Russia	1989–2005
Serbia and Montenegro	1989–2005
Slovak Republic	1993–2005
Slovenia	1992–2005
Tajikistan	1992–2005
Turkmenistan	1992–2005
Ukraine	1992–2005
Uzbekistan	1992–2005

Table 4 Descriptive statistics of independent variables

	Mean	Std. dev.	Minimum	Maximum
Economic reform	11.390	7.001	0	23.66
Democracy	0 (median)			
Debt service	14.560	13.602	0.028	78.446
Balance of payments as percent GDP	0.046	0.076	−0.013	0.739
Reserves-to-imports	3.200	1.623	0.375	10.900
GDP per capita	2,203.4	2,019.6	139.26	11,382.4

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