

IMF Working Paper

How Does Conditional Aid (Not) Work?

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Abstract

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Does policy conditionality worsen domestic welfare, as governments are forced to attempt unpopular reforms resulting in damaging protests, or does conditionality help implement reforms that otherwise would have been impossible? This paper analyzes these questions. Using a game-theoretic framework, it argues that the impact of conditional aid on welfare is nonmonotonic. Sufficiently conditioned aid can enhance the signaling power of reform announcements, thereby deterring protest and enabling reform. In contrast, inadequately conditioned aid may induce a “weak” government to mistakenly attempt reform, resulting in protest and a worsening of domestic welfare relative to the status quo.

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I. INTRODUCTION

“...we believe that the revised fiscal target remains consistent with our objective of containing recurrent expenditures within the strict limits of the program and improving the underlying fiscal balance.” Republic of Yemen Supplementary Memorandum of Economic and Financial Policies (2001)

“The program is meant to reduce uncertainty in the external front and to allay concerns about the stance of macroeconomic policies following the upcoming presidential election, and thus providing a bridge to the new administration starting in 2003.” Brazil’s Letter of Intent 2002 to the IMF

“Indonesians took to the streets in May 1998 to protest energy prices proposed by the Suharto regime. In March 2000, there were renewed protests against a proposed hike in fuel prices.” Manual on Best Practices in Price Subsidy Reform, IMF 2000

International Monetary Fund (IMF) and World Bank (WB) conditional lending—loans in exchange for policy reform and structural adjustment—has significantly increased over the last two decades. As the first two quotations highlight, the practical impact of conditional lending is much greater than the mere supply of credit. Providing discipline to contain recurrent expenditures in order to protect a country’s fiscal balance or allaying concerns about the macroeconomic stance of a government dramatically reveal conditionality’s much more substantial political economy role. But conditionality as a means of securing policy reform has met with mixed results² and has been much criticized. A notable line of criticism, vividly illustrated by the third quotation, contends that weak governments are often forced to attempt unpopular reforms, leading to costly protest and a worsening of domestic welfare.³ While in other cases, after aid is disbursed some countries have little incentive to attempt the reforms. Responding in part to such arguments, the IMF⁴ and the World Bank have moved toward reforming conditionality.

However, this policy debate raises several important questions. Most generally, how does conditional aid influence the political economy of policy reform? In particular, does IFI involvement worsen domestic welfare by prompting weak governments to announce unpopular

² Assessing conditionality’s economic impact raises difficult econometric questions. However, both the anecdotal and the more formal evidence suggests that its impact has been limited. For example, see Barro and Lee (2002), Burnside and Dollar (2000), Boone (1995, 1996), Ivanova et al. (2001), and Khan and Haque (1998).

³ Stiglitz (2002) makes this case for several East Asian countries.

⁴ IMF (2001 a, b, and c) and Boughton and Mourmouras (2002) discuss the direction of these reforms.

reforms, leading to reform failure amid damaging protests? Or does conditionality provide governments with political cover, helping them implement reforms that otherwise would not have been possible? Building on the themes of heterogeneity across actors and uncertainty over payoffs,⁵ this paper develops a simple framework for analyzing these complex questions.⁶ The framework implies that conditioned aid's impact on domestic welfare is nonmonotonic. While strong conditionality can improve welfare, inadequate conditionality can make matters much worse; indeed, aid without conditions may be preferable to inadequate conditionality.

In the framework's social choice mechanism, the opposition—the reform loser—can protest in order to prevent the implementation of the announced reform; however, protest negatively affects the payoffs of both the opposition and the government—the reform winner. Moreover, both actors are uncertain about the impact of protest on the other's payoffs. That is, the opposition is unsure about the government's relative sensitivity to protest, or alternatively, its relative commitment to reform, and the government is uncertain about the opposition's cost of opposing reform. Both these assumptions seem reasonable.⁷ As a result, reform announcements can be costly, and common beliefs about the government's commitment to reform determine whether a weak government announces reform, and in turn, whether the opposition chooses to protest against reform. Indeed, for a privately weak government, if perceptions about its commitment to reform are low enough, then it will be optimal for such a government to preserve the status quo rather than risk damaging protest. Conversely, if perceptions of the government's commitment are large enough, then rather than risk a costly fight trying to reverse reform announcements, not protesting against reform will be an optimal strategy for the opposition.

By altering the government's payoff structure,⁸ conditional aid—the denial of future aid or some other punitive action by the IFI if reforms are not implemented—changes beliefs about

⁵ Some seminal works in this literature include Alesina and Drazen (1994), Drazen and Grilli (1995), and Fernandez and Rodrik (1994). Drazen (2000) provides an excellent survey of this literature.

⁶ Apart from political economy considerations, the failure of conditional aid has often been attributed to poor program design, where issues such as administrative capacity and other second-best considerations have been ignored. See Collier and Gunning (1999) for a discussion of these topics.

⁷ For example, the government may be new and untested, and thus the opposition may be quite uncertain about the government's actual commitment to policy reform. Likewise, the government may be unsure about the opposition's ability to organize itself in order to oppose reform. Olson (1965).

⁸ The benefits from an IFI program can be enormous. Aside from concessional loans itself, bilateral donors are reluctant to provide aid without active IMF involvement. And for the 50 most aid-dependent countries, the mean value of aid as a share of central government expenditures for the period 1975–1995 was 53.8 percent (World Bank, 1998). Beyond aid flows,

the government's commitment to reform. That is, by making not reforming costly, conditional aid strengthens the signaling power of reform announcements, thereby providing political cover to governments.⁹ Specifically, because it increases common beliefs about a government's commitment to reform, conditionality can embolden a weak government to announce policy reform—something it otherwise would not have done. At the same time, the increased beliefs about the government's commitment can also deter protest, allowing successful reform implementation. In contrast, inadequate conditionality may only work half way, prompting a weak government to announce reforms, but leaving protest an optimal response for the opposition. Hence, such conditionality worsens domestic welfare relative to the status quo, as the government retreats on reform amid damaging protest. Indeed, because it preserves the status quo without the losses from protest, IFI involvement with minimal or no conditionality is superior to such involvement with inadequate conditionality.

Given these costs, why would the IFI provide inadequate conditionality? Instead of focusing on issues of time consistency and the Good Samaritan's Dilemma,¹⁰ this paper assumes that while the IFI benefits from domestic reform, it suffers disutility from actually punishing reform failure—denying aid or some other punitive measure. Hence, with uncertainty over the domestic actors' payoffs from protest, the IFI's optimal level of conditionality—its own cost if reforms fail—positively depends on its own benefit if the country successfully reforms. Therefore, since this benefit from economic reform determines optimal conditionality, it also determines the impact of IFI involvement on the political economy of reform. One interpretation of this framework is that if international political considerations are paramount, so that the IFI's benefit from actual domestic economic reform is low relative to its need to provide aid and reward an ally, then the resulting level of conditionality may be inadequate; and somewhat perversely, IFI involvement may worsen the domestic welfare of the political ally, as reform is not implemented amid protest.

While the literature on aid is substantial, this paper is most closely related to the recent flowering of analytic work on IFI aid: Federico (2001), Mayer and Mourmouras (2001), Svensson (2000), Vreeland (1999), and especially Drazen (2001). However, this paper differs from the existing literature in both its approach and emphasis. By focusing on how conditional aid affects the domestic policy reform game, the apparatus offers a novel mechanism to explain why conditionality is sometimes associated with damaging protests and reform failures, while in

an IMF program is often a necessary condition for debt relief and a valuable source of technical assistance.

⁹ Recently, Vreeland (1999) has suggested that IFI involvement in Brazil during 1999 was mainly aimed at providing political cover to the government as it tried to enact unpopular reforms.

¹⁰ See Svensson (2000) and Federico (2001) for an analysis of IFI conditionality and the Good Samaritan's Dilemma.

other cases, it helps to facilitate policy reform. Although different in emphasis and conclusions, this general focus on aid and the domestic policy reform game is also related to earlier work by Rodrik (1994), and Casella and Eichengreen (1996). This paper is organized as follows. Section II develops the basic interaction between the government—modeled as an interest group, rather than a social welfare maximizer—and the potential losers from policy reform. Section III then models the impact of IFI involvement on the policy reform outcome. Section IV considers some extensions to the framework, while Section V concludes, discussing some policy implications and limitations of the model.

II. ANALYTICAL FRAMEWORK

This paper uses a highly stylized framework to analyze these complex issues, no doubt ignoring many important institutional details. For example, it is assumed that the economy produces a single consumption good with labor as the only input. The labor force is fixed, and without loss of generality, is normalized to one. Moreover, agents are endowed with a single unit of labor, and the consumption good is produced using a simple constant returns to scale technology. Thus, with these normalizations on population and labor, maximum output is fixed at one:

$$Y = 1, \tag{0.1}$$

with labor earning its marginal product. It is assumed further that the price of the consumption good is fixed and normalized to one. To motivate the discussion, assume that this good is subsidized at a *specific* rate s_0 . Thus, the effective price of the consumption good is:

$$p = 1 - s_0. \tag{0.2}$$

The subsidy is explicitly financed from the government's budget, where abstracting from the well-known costs of subsidies, including pricing distortions and issues of fiscal sustainability, I assume that the government prefers a lower subsidy to a higher subsidy.¹¹ Specifically, as part of policy reform, subsidy rate s_i is a possible alternative to the existing subsidy s_0 , where $s_i < s_0$. Let G_i denote the government's payoff from providing subsidy s_i , where $G_i > G_0$. Likewise, agents are assumed to be risk neutral, where the representative agent's indirect utility from subsidy s_i is:

$$V^o(s_i) = \frac{1}{1 - s_i}, \tag{0.3}$$

Therefore in this setup, the two groups—the government, or the interest group it represents, and the opposition, which can be thought of as a separate interest group belonging to a different social or economic class—disagree over the size of the subsidy. The government is sensitive to

¹¹ For example, a lower subsidy may provide the government with greater freedom to redistribute to its own preferred groups.

political pressure emanating from the opposition. To model simply this concept of political pressure, it is assumed that corresponding to new subsidy level s_1 , is a commonly known unique level of political protests, $\alpha > 0$ perhaps expressed in the form of street demonstrations or parliamentary machinations that the opposition can apply. But applying protest is costly to the opposition, and in its most basic form it takes away time from otherwise productive activity. Hence, let $\rho\alpha$ denote the opposition's cost from applying protest, α , where the parameter $0 \leq \rho \leq 1$ captures the opposition's disutility from protests. Intuitively, because the wage is normalized to one, $\rho\alpha$ can be thought of as the output loss owing to protest. The government is assumed to be risk neutral and protest is assumed to linearly affect its payoffs. Let $\theta > 0$ denote the government's sensitivity to protest, or alternatively, this parameter can be thought of as a measure of the government's relative commitment to policy reform; then for a government of type θ the payoff to implementing policy s_1 in the face of protest is:

$$V^G(s_1, \alpha; \theta) = G_1 - \theta\alpha, \quad (0.4)$$

and without protest, implementing s_1 yields:

$$V^G(s_1) = G_1, \quad (0.5)$$

However, if the government announces s_1 but fails to implement the announced policy because of protest, then it still pays a political price—though less than if the reform was actually implemented despite protests. Let $\frac{\alpha}{a}$ denote the government's cost from these so called policy reversals, where $a > 1$; then the government's net payoff from a failed attempt at reform is:

$$V^G(s_0, \alpha; \theta) = G_0 - \frac{\theta\alpha}{a} \quad (0.6)$$

Correspondingly, the welfare of the representative agent in the event of protest is.¹²

$$V^O(s_i, \alpha_i) = \frac{(1 - \rho\alpha_i)}{1 - s_i} \quad (0.7)$$

¹² By ignoring the details surrounding the financing of the subsidy, it is assumed that the opposition always prefers a larger subsidy to a smaller one. That is, for this interest group, the cost of financing the subsidy is everywhere less than the subsidy's welfare benefits. Moreover, because distributional conflicts are essential to the argument, I assume away the existence of Pareto efficient transfers that may mitigate against those conflicts.

Given these payoffs, the interaction between the government and the opposition is as follows. First, the government decides whether to announce subsidy reform. Second, agents then choose whether to protest against the new policy. Third, if agents do protest against the policy, the government then decides whether to reverse its policy, or implement the subsidy reform. The timing of the game is summarized in Table 1.

Table 1. The Interaction Between the Government and the Opposition

- Government announces $s_i \in \{s_0, s_1\}$
- After observing s_i , agents decide whether to protest or accept s_i
- Government either implements or reverses s_i

In this setup, if both the government's commitment to reform, θ , as well as the opposition's reaction to policy announcements, as captured by its disutility from protests, ρ , are commonly known, then inefficient policy reversals and political protests, with their attendant output losses, are never observed in equilibrium. To see this clearly, suppose that the government is strong with respect to new subsidy policy s_1 : even with protests, the government prefers to implement the reform rather than reverse itself:

$$\theta < \frac{a(G_1 - G_0)}{\alpha(a-1)} = \theta^w \quad (0.8)$$

then because protests are both ineffective and costly to the opposition, not protesting is a strictly dominant strategy. Conversely, suppose a government of type θ is weak: with protests it reverses its policy announcement s_1 :

$$\theta \geq \theta^w, \quad (0.9)$$

then announcing policy s_1 will lead to protest only if the opposition's cost of protesting, ρ , is sufficiently small: the opposition's disutility from protesting in order to maintain the status quo is less than its loss in utility if the new subsidy regime is implemented:

$$\tilde{\rho} = \frac{s_0 - s_1}{\alpha(1 - s_0)} > \rho \quad (0.10)$$

If conditions and hold, then because protest is a credible response to reform, a weak government will not announce s_1 , and policy reversals, as well as protests will not be observed in equilibrium; only strong governments reform.

A. Uncertainty

In practice, there is always uncertainty over both a government's commitment to reform—will political protest change the government's mind?—and the opposition's reaction to policy announcements: will the people protest? Thus, beliefs about a government's strength or commitment with respect to a particular policy, θ , can play an important role in determining whether reform is attempted and protest is observed. Likewise, a government's expectations about the population's response to policy reform, as captured by the disutility of effort, ρ , often determines whether reforms are actually announced at all. In general, these beliefs often depend on the observed benefits that accrue from the particular actions. For example, if it is known that a proposed subsidy reform yields great benefits to the government—fiscal sustainability is secured—then the government may be perceived as being able to withstand a substantial degree of political opposition in the form of protests and other activities in order to achieve that aim; since such action is costly to the public, this belief in turn may prove self-fulfilling, preempting protests and enabling reform.

To make these idea's precise, suppose that the government's commitment to reform is unknown, but for simplicity, is instead distributed over the interval: $[0, \bar{\theta}]$, where $F(\theta)$ is the corresponding cumulative distribution function. Similarly, assume also that the public's cost of reacting to the government's policy announcement, ρ , is unknown to the government, but is characterized by a cumulative distribution function $G(\rho)$ over the interval: $[0, \bar{\rho}]$. Therefore, before formally announcing policy s_1 , the prior probability that the government will reverse reform because of opposition protest—a weak government—is given by:

$$p = 1 - F(\theta^*), \quad (0.11)$$

hence, *ceteris paribus*, the prior probability that a government is weak with respect to s_1 declines as the benefit, G_1 , from that reform becomes larger: $p_{G_1} < 0$. In addition, for a given assessment of government weakness, let $\hat{\rho}$ denote the opposition type indifferent between protest and acquiescence:

$$V^o(s_1) = p(G_1)V^o(s_0, \alpha; \hat{\rho}) + (1 - p(G_1))V^o(s_1, \alpha; \hat{\rho}), \quad (0.12)$$

then the prior probability of protest is $G(\hat{\rho})$ where $G_p(\hat{\rho}(p)) > 0$. Intuitively, because a large perception of weakness, p , makes protest appear more profitable, the probability of observing

protests, $G(\hat{\rho}(p))$, rises with the public's perception of the government's weakness or lack of commitment to reform. Assume further that the timing of the reform process is as in the previous section: the government first announces reform; agents decide whether to protest or accept the reform; lastly, the government decides whether to implement or reverse the announced reform.

Since they can elicit protests, reform announcements can be costly to a government, revealing information about its weakness. For example, because strong governments reform with certainty, by announcing s_0 —not attempting reform—a government reveals weakness with certainty. More generally agents update their beliefs about a government's weakness according to Bayes Rule:

$$\begin{aligned} P(\theta \geq \theta^w | s_i = s_1) &\equiv z(p) = \frac{P(s_i = s_1 | \theta \geq \theta^w) P(\theta \geq \theta^w)}{P(s_i = s_1 | \theta \geq \theta^w) P(\theta \geq \theta^w) + P(s_i = s_1 | \theta < \theta^w) P(\theta < \theta^w)} \\ &= \frac{p(1 - G(\hat{\rho}(p)))}{1 - G(\hat{\rho}(p))} \end{aligned} \quad (0.13)$$

where if a government is weak, the probability that it announces reform is equal to the probability of not observing protest: $(1 - G(\hat{\rho}(p)))$. From Equation , given reform announcement s_1 , the posterior probability of weakness is always less than the prior: $z(p) < p$. Moreover, the larger the probability of protest, then the smaller is the probability of weakness conditional on the reform announcement.

To derive the pure strategy perfect Bayesian equilibria, note that given the government's reform announcement, the opposition's maximal expected welfare is:

$$EV^O = \max \{ z(p)V^O(s_0, \alpha) + (1 - z(p))V^O(s_1, \alpha), V^O(s_1) \} \quad (0.14)$$

Then from Equation , let $\hat{\rho}(z(p))$ denote the opposition type indifferent between protest and acquiesce conditional on posterior beliefs about the government's weakness. As a result,

$G(\hat{\rho}(z(p)))$ is the common probability assessment of protest conditional on the reform

announcement. Likewise, while strong governments, $\theta < \theta^w$, always find it optimal to announce and implement reforms, with expected payoffs:

$$G\left(\hat{\rho}(z(p))\right)V^G(s_1, \alpha) + \left(1 - G\left(\hat{\rho}(z(p))\right)\right)V^G(s_1) \quad (0.15)$$

the maximal expected payoff for a weak government is given by:

$$EV^G = \max \left\{ G\left(\hat{\rho}(z(p))\right)V^G(s_0, \alpha) + \left(1 - G\left(\hat{\rho}(z(p))\right)\right)V^G(s_1), V^G(s_0) \right\} \quad (0.16)$$

Therefore, for given types θ and ρ , it can be shown how optimal behavior depends on the prior probability of weakness. In particular, since reform announcements can be costly, weak governments announce reforms only if the prior probability of weakness is smaller than the threshold \bar{p} . Given the announcement, the opposition finds it optimal to undertake potentially fruitless protest only if the government's prior probability of weakness is larger than threshold \underline{p} . Lemma 1 provides the necessary conditions for $\bar{p} > \underline{p}$.

Lemma 1:¹³ *If $G(\rho) < \rho$, for all $0 \leq \rho \leq \bar{\rho}$ and, the opposition's type is not too*

large: $\rho < \frac{\bar{Q}[s_0 - s_1]}{\alpha[1 - s_0] + \alpha[s_0 - s_1]\bar{Q}}$ then $\bar{p} > \underline{p}$.

From Lemma 1, if the opposition's disutility from protest is not too large, and the government's beliefs about the distribution of its opponents' cost satisfies the condition $G(\rho) < \rho$, then because each side is uncertain about the other's reaction, reform attempts can worsen welfare compared with the status quo of no reform. In addition, even successful reforms can be Pareto inferior relative to the status quo. To illustrate these possibilities, consider a weak government where perceptions about its commitment to reform lie in the interval $p \in [\underline{p}, \bar{p}]$. In this case, since $p < \bar{p}$, it is an optimal strategy for a weak government to announce reform—the expected value from reform announcement exceeds the status quo. But because the actual cost of protest is low enough, the opposition believes that the government is sufficiently weak to oppose successfully: $p > \underline{p}$, and so “protest” is its best response. Therefore, these set of prior beliefs result in costly reform failure as the weak government first announces and then reverses reform amid protest, and the deadweight loss from protest makes the welfare of both groups worse off compared with the status quo. Moreover, if protest costs are high enough:

¹³ See Appendix I for details.

$$\rho\alpha > 1 - (1 - s_1) \left[G_0 - G_1 + \theta\alpha + \frac{1}{1 - s_0} \right] \quad (0.17)$$

then even successful reform by a strong government amid protest can lower aggregate welfare compared with the status quo. Result 2 summarizes the possible perfect Bayesian equilibria and their corresponding payoffs.

Result 1: *The following Perfect Bayesian Equilibria are possible:*

2.A: Suppose $\theta \in [\theta^w, 1]$ (a weak government), if $p \in [\underline{p}, \bar{p}]$, then announcement, protests and reform failure: $\left\{ V^G = G_0 - \frac{\theta\alpha}{a}, V^O = \frac{1 - \rho\alpha}{1 - s_0} \right\}$.

2.B: If $p > \bar{p}$, then status quo: $\left\{ V^G = G_0, V^O = \frac{1}{1 - s_0} \right\}$.

2.C: If $p < \underline{p}$, then reform announcement and implementation without protest:

$$\left\{ V^G = G_1, V^O = \frac{1}{1 - s_1} \right\}.$$

2.D: Suppose, $\theta < \theta^w$ (a strong government), if $p < \underline{p}$, then reform announcement and

implementation without protest: $\left\{ V^G = G_1, V^O = \frac{1}{1 - s_1} \right\}$.

2.E: Suppose, $\theta < \theta^w$ (a strong government), if $p \geq \underline{p}$, then reform announcement and

implementation with protest: $\left\{ V^G = G_1 - \theta\alpha, V^O = \frac{1 - \rho\alpha}{1 - s_1} \right\}$.

From the discussion, the equilibrium policy reform outcome depends both on the government's commitment to the announced reform and perhaps more importantly, on perceptions of the government's commitment, p . IFI involvement can alter such perceptions. In particular, an IFI economic adjustment program provides long-term concessional loans and technical assistance conditional on policy reform. But aside from the loss of access to concessional loans, the failure to implement the agreed reforms can lead to other, much more substantial costs. For example, negative remarks by an IFI in its reports can often entail the loss of equally large amounts of bilateral aid since an IMF program is often a prerequisite for such aid. In addition, the cancellation or suspension of a program can also negatively affect the flow of private funds and investment, as well as debt relief. Therefore, once an IFI program is in place, the costs to the government of not following through on the agreed upon reforms can

greatly increase; in turn, this can fundamentally change beliefs about a government's commitment to the announced reform.

To illustrate this effect, let $\psi > 0$ denote the cost or punishment that the government incurs if the agreed upon reforms are not implemented, then a government is weak—reverses its reform announcement in the face of protest—if:

$$G_0 - \psi - \frac{\theta\alpha}{a} > G_1 - \theta\alpha \quad (0.18)$$

Moreover, if θ^w satisfies Equation with equality:

$$\theta^w = a \left(\frac{G_1 + \psi - G_0}{\alpha(a-1)} \right) \quad (0.19)$$

then the probability that the government is uncommitted to the announced reform is given by:

$$p(\psi) = \Pr[\theta^w < \theta] = 1 - F(\theta^w(\psi)) \quad (0.20)$$

where $p(\cdot)$ declines with ψ : $p(\cdot)_\psi < 0$. However, while the IFI can play an important role in the policy reform process, denying aid or implementing other “punitive” measures can also be costly to the institution. Therefore given these preferences, the next section explores how an IFI program can influence the equilibrium reform outcome, and thus, domestic welfare.

III. AN IFI PROGRAM

Modeling the preferences of a bureaucracy with multiple actors is difficult. But using the recent empirical literature as a guide,¹⁴ the framework aims to capture the idea that the IFI derives utility from the implementation of economic reform,¹⁵ but because of political or other reasons,¹⁶ it suffers disutility when actually required to deny aid or undertake other punitive measures if the reform is not implemented. Moreover, when negotiating with governments an IFI is unaware of the government's actual commitment to economic reform, and the opposition's

¹⁴ For example, Barro and Lee (2002) and Alesina and Dollar (2000).

¹⁵ For example, an IFI may derive utility from domestic reform if it lowers poverty or prevents the spread of crises to other member countries.

¹⁶ See Easterly (2001) for a discussion.

potential reaction to reform announcement. To capture these ideas, assume that if a program is agreed upon, then aid of amount B is disbursed immediately to the government before it announces reform s_i . And if the government announces and implements s_i , then the IFI earns utility of magnitude M ; payoffs to the government and public are identical to the previous section. Otherwise, if the reform is not implemented, then the government pays a cost ψ , and the IFI incurs $f(\psi)$ from punishing the government, where $f' > 0, f'' > 0$. Hence, the IFI's expected payoff from an economic adjustment program can be written as:

$$EV'(\psi|\theta) = [1 - p(\psi)]M - p(\psi)f(\psi) \quad (0.21)$$

In this setup, the greater the conditionality threat ψ , the greater the perception that the government is committed to the reform process, and thus, the more likely that reform will be undertaken without protest. At the same time, the greater the threat, the more costly it becomes for the IFI to fulfill this threat in the event of reform failure.

To prevent the IFI from making incredible threats, I assume that with some probability π the IFI repeats this game, the structure of which remains the same. However in each repetition θ and ρ are drawn anew from their distributions—a new government, country or other changes in nature. Thus, somewhat artificially, it is assumed that there is no learning on the part of the IFI across interactions.¹⁷ Moreover, if the reform is not implemented and the agreed upon punishment is not completely administered, then it is assumed that IFI threats are no longer viewed as credible for all remaining iterations of the stage game. That is, agents form their expectations according to a simple trigger strategy. Let ψ_t^e denote the expected punishment after a program has been agreed upon in a stage game played at time t . Then:

$$\begin{aligned} \psi_t^e &= \psi_t^* & \text{if } \psi_{t-1} &= \psi_{t-1}^* \\ \psi_t^e &= 0 \quad \forall t & \text{if } \psi_{t-1} &\neq \psi_{t-1}^* \end{aligned} \quad (0.22)$$

it is straightforward to show that these beliefs are consistent with equilibrium behavior: if $\psi_t^e = 0$, then it is optimal for the IFI to set $\psi_t^* = 0$, and if $\psi_t^* = 0$, then it is optimal to expect $\psi_t^e = 0$. Moreover, these beliefs impose an upper bound on threats. Hence, a threat is credible only if the cost of not administering the threat—the reputation loss, exceeds the actual cost of the threat:

¹⁷ Alternatively, one could obtain similar results by assuming that the IFI is engaged in simultaneous interactions with other countries, and failure to punish in one country entails a complete loss of reputation in the IFI's interaction with the other countries.

$$f(\psi^*) \leq \sum_{j=t}^{\infty} \pi^{t-j} \left[EV_j^I(s_1, \psi^*) - EV_j^I(s_1, 0) \right], \text{ where } EV^I(s_1, 0) \geq 0 \quad (0.23)$$

Thus, the IFI selects its optimal threat ψ in order to maximize its expected payoffs subject to the above reputation constraint : the IFI only issues threats that allow it to maintain its reputation.¹⁸

In the analysis, attention is restricted to interior solutions. Hence, the optimal punishment equates the marginal expected benefit from implementation, with the higher expected marginal cost if it turns out that the reform is not implemented and punishment must then be administered:

$$-p_{\psi}M = p_{\psi}f(\psi) + p(\psi)f_{\psi} \quad (0.24)$$

Using the first order condition , we can express the optimal threat as a function of the benefit that accrues to the IFI from the reform implementation: $\psi^*(M)$, where to conserve notation, the other arguments have been suppressed. It follows that the optimal threat increases with M :

Lemma 2: $\psi^*(0) = 0$, and $\frac{\partial \psi^*(M)}{\partial M} > 0$

An equilibrium is obtained—an IFI program is agreed upon—if the combination of aid, threat, and reform, (B, ψ, s_1) , leaves the government no worse off than without any IFI involvement; that is, as long as the government's participation constraint is satisfied:

¹⁸ Because there is no uncertainty about the IMF's preferences, this is not a model of reputation building per se; that is, reputation can only be destroyed, not built. Moreover, for all threats that satisfy the reputation constraint, issues of time consistency do not arise.

Definition 1: An equilibrium reform package (B, ψ^*, s_1) satisfies subject to and

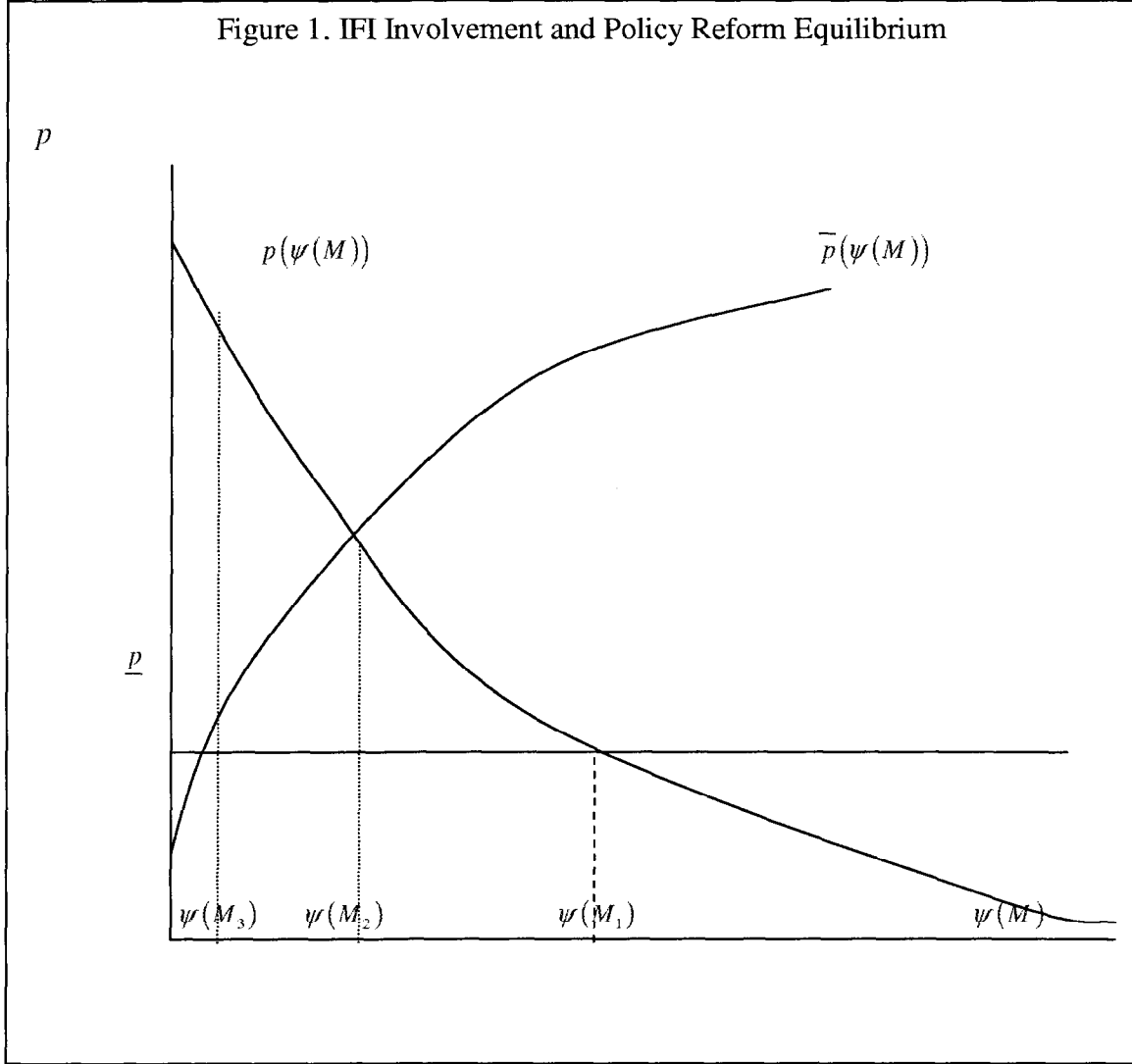
$$EV^G(s_i, B, \psi^*) = \max \left\{ \begin{aligned} &q(\psi^*)V^G(s_0, \psi^*, B, \alpha) + (1 - q(\psi^*))V^G(s_1, B), \\ &q(\psi^*)V^G(s_1, B, \alpha) + (1 - q(\psi^*))V^G(s_1, B), V^G(s_0, \psi^*, B) \end{aligned} \right\} \geq$$

$$EV^G(s_i) = \max \left\{ \begin{aligned} &qV^G(s_0, \alpha_1) + (1 - q)V^G(s_1), \\ &qV^G(s_1, \alpha) + (1 - q)V^G(s_1), V^G(s_0) \end{aligned} \right\}$$

Figure 1 is a useful pedagogic device for analyzing how conditional aid affects the denouement of policy reform. The threshold probability below which there will be no protest, \underline{p} , is a function of the opposition's type, ρ , and its relative welfare loss from the policy change; thus, \underline{p} is invariant to IFI involvement, and thus, is drawn parallel to the horizontal axis. In contrast, as the punishment threat grows, the set of weak governments $\theta \geq \theta^w$ shrinks, and consequently, from Equation $p(\psi(M))$ declines. Hence, even a weak government grows more confident of success and the threshold probability above which a weak government will not announce reforms, $\bar{p}(\psi(M))$, grows with the size of the punishment threat. Intuitively, by lowering prior, and thus posterior beliefs about the government's weakness conditioned on reform announcements, the punishment threat enhances the signaling power of reform announcements, making weak governments more willing to announce reforms. Therefore, let M_1 be implicitly defined by:

$$\underline{p} = p(\psi(M_1)) \tag{0.25}$$

then using Lemma 2, for all $M > M_1$, IFI involvement provides perfect political cover. Because the IFI derives a large enough benefit from domestic policy reform, its optimal degree of conditionality, ψ^* , is sufficiently large so as to lower the prior probability of government weakness below both thresholds $\bar{p}(\psi(M))$ and \underline{p} . In this case, IFI involvement accomplishes two tasks. Conditionality induces a [privately] weak government to announce reforms, as well as, it deters interest group protest, thereby enabling reform implementation.



Next, consider the polar opposite case where IFI involvement does not provide political cover. To this end, let M_2 be implicitly defined by:

$$\bar{p} = p(\psi^*(M_2)) \quad (0.26)$$

then for all $M < M_2$, IFI conditionality fails at the minimum task of inducing the government to announce reforms. Indeed, an equilibrium—an agreement between the IFI and the government—may not even exist. That is, because $p(\psi^*(M)) > \bar{p}$, a weak government privately has no intention of announcing reforms; and if the cost of not reforming: $-\psi^*$ exceeds the aid benefit

B , then the government's participation constraint is not satisfied. Thus, let M_3 be implicitly defined by:

$$B = \psi^*(M_3) \quad (0.27)$$

then for all $\psi^*(M) \in (\psi^*(M_3), \psi^*(M_2))$ an equilibrium does not exist—conditionality has screened out a weak government. If a weak government had agreed to a program, the threat of IFI punishment would still not make it optimal for it to announce reforms. In addition, the level of aid dispensed, B would not have fully compensated the government for the conditionality imposed costs of not reforming. Hence, it is optimal for such a government not to accept an IFI program. However, for $\psi^*(M) < \psi^*(M_3)$ while the threat of punishment is still insufficient to induce a weak government to announce reforms, conditionality is so weak that the initial aid flow compensates the government for the conditionality imposed costs of not reforming. Because the IFI's relative benefit from country reform is low, and thus the level of conditionality is limited, a weak government will agree to an IFI program with the full intention of never announcing reforms.

However, as depicted in Figure 1, the most pernicious equilibrium is obtained when the conditionality threat is at an intermediate level:

$$\psi^*(M) \in [\psi^*(M_2), \psi^*(M_1)] \quad (0.28)$$

In this case, IFI involvement in the policy reform game sufficiently emboldens a weak government to announce reforms:

$$p(\psi(M, \cdot)) < \bar{p}(\psi(M, \cdot)) \quad (0.29)$$

yet the level of conditionality associated with the IFI program still leaves the public willing to protest reform announcements:

$$p(\psi(M, \cdot)) > \underline{p} \quad (0.30)$$

Consequently, a weak government reverses its policy announcement amid protest. Hence, IFI involvement worsens domestic welfare relative to the status quo of no reform announcement. Result 2 summarizes these findings.

Result 2:

Suppose $\theta \in [\theta^w, 1]$ (a weak government),

3.A: if $M \in [M_2, M_1]$, then reforms are announced, but not implemented amid protest, with

$$\text{payoffs: } \left\{ V^G = G_0 - \left[\frac{\theta\alpha}{a} + \psi + \delta\hat{\psi} \right], V^O = \frac{1-\rho\alpha}{1-s_0}, V^I = -f(\psi) \right\}.$$

3.B: If $M \in (M_3, M_2)$, then there is no IFI program agreement and no reform announcement:

$$\left\{ V^G = G_0, V^O = \frac{1}{1-s_0}, V^I = 0 \right\}.$$

3.C: If $M > M_1$, then reforms are announced and implemented without protest:

$$\left\{ V^G = G_1, V^O = \frac{1}{1-s_1}, V^I = M \right\}.$$

3.D If $M \leq M_3$, then there is an IFI program, but no reform announcement.

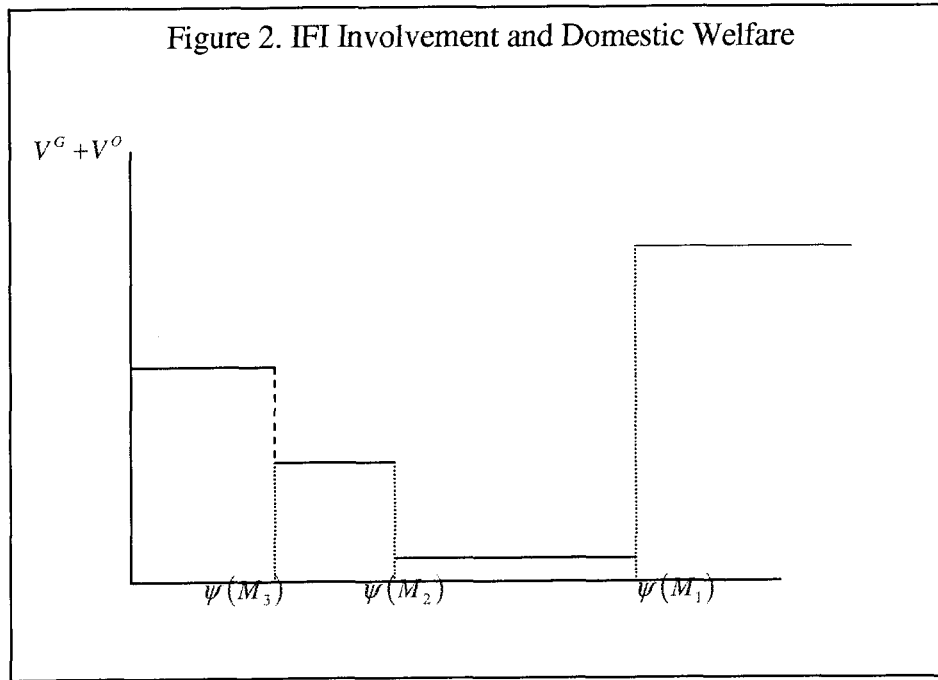
$$\left\{ V^G = B + G_0 - [\psi + \delta\hat{\psi}], V^O = \frac{1}{1-s_0}, V^I = -f(\psi) \right\}$$

Suppose $\theta \in [0, \theta^w)$ (a strong government),

3.E. If $M > M_1$, then $\left\{ V^G = G_1, V^O = \frac{1}{1-s_1}, V^I = M \right\}$, otherwise

$$\left\{ V^G = G_1 - \frac{\theta\alpha}{a}, V^O = \frac{1-\rho\alpha}{1-s_1}, V^I = M \right\}$$

For the case of a privately weak government, Figure 2 depicts the impact of IFI involvement on aggregate domestic welfare—the sum of government and opposition welfare. As expected, that impact is approximately inverted-U shaped. For low levels of conditional threats, a weak government collects aid but does not reform; this in turn is better than the no reform and no aid. However, IFI impact is at its most severe when it induces a weak government to reform amid protest. By increasing the conditionality threat above $\psi(M_1)$, IFI involvement obtains the maximal level of domestic welfare, as reforms are obtained without protest.



IV. EXTENSIONS: POLITICAL CONSENSUS

By ruling out credible redistribution, the arguments thus far have focused on the IFI's role as a deterrent technology, providing governments with the political cover necessary to undertake unpopular economic reforms. But as the recent debate over domestic ownership of reform programs suggests,¹⁹ for social and economic reasons, political consensus through redistribution may be a superior objective. What role does the IFI have in this process? This section extends the existing apparatus to analyze this question, arguing that augmenting its previous role as a deterrent technology, domestic political consensus requires the IFI to operate as a commitment technology.

To understand the argument, assume that for subsidy s_1 there exists a corresponding lump sum transfer t_1 that leaves the opposition indifferent between the new and old subsidy. Ignoring institutional details, it is assumed that the transfer is financed by the savings brought about from the subsidy reduction:

$$t_1 = s_0 - s_1 \quad (0.31)$$

¹⁹ See Boughton and Mourmouras (2002).

The key ideas are that the transfer can only be made *after* the subsidy has been cut, and because the transfer is financed from the budget, it is commonly known that it lowers the government's welfare. To be clear, since the new lower subsidy reduces pricing and other distortions, the government is still better off making the transfer under the new subsidy compared with maintaining the old higher subsidy s_3 , but would prefer not make the transfer at all:

$$G_1 > G_1 - t_1 > G_3 \quad (0.32)$$

Furthermore, if it is assumed that subsidy policy cannot be reversed, then the problem of time consistency arises. After the subsidy has been reduced, the government has little incentive to enact the transfer. Knowing this, the population *ex ante* will not agree to the subsidy reduction despite the promise of a compensating transfer.²⁰ Hence, as in the previous section, there is no political consensus and reform depends on perceptions of the government's commitment.

Working as a commitment technology, an IFI program that includes both the subsidy reduction and the compensating transfer as conditions can achieve political consensus: ownership by all interest groups. To make this argument more precise, assume that the structure of the game is identical to the previous section, except for inclusion of a compensating transfer. Then the result below is easily derived:

Result 3: *If $\psi^* \geq t^*$, then (s^*, t^*) is implemented with political consensus.*

The intuition is straightforward. If the punishment threat is large enough, then domestic groups know that it is optimal for the government to make the transfer *ex post* rather than face costly punishment. Hence, domestic groups *ex ante* will agree to the subsidy reform. Furthermore, because of the redistribution mechanism, political consensus is by definition Pareto efficient.

However, achieving political consensus critically depends on the IFI's ability to punish nonimplementation. If $\psi^* < t^*$, then the government's promise of redistribution is not credible. In this case, the nature of the interaction between the affected groups, the government, and the IFI is similar the role of political cover discusses in the previous section. Moreover, depending on the magnitude of t^* , achieving the first best of political consensus may require a much larger threat than required to serve as a deterrent technology. This result runs counter to the popular view that domestic ownership requires minimal, unobtrusive IFI conditionality.

²⁰ Even if the transfer is made before the subsidy change, the time consistency problem remains. In this instance, domestic groups now have the incentive to accept the transfer and renege on the promise not to protest against subsidy reform.

V. CONCLUSION

This paper has used a highly stylized framework in order to discuss the very complex issue of conditional aid's impact on domestic welfare. The paper argues that conditional aid can be welfare improving, providing political cover to governments thereby enabling them to implement unpopular reforms without costly protest. However, if the "punishment" associated with conditionality is weak enough, then IFI involvement can be quite harmful, as weak governments attempt reform in the mistaken belief that the opposition will not protest. The outcomes of protest and policy reversal unambiguously worsens welfare. The framework also suggests that the goal of policy ownership or consensus does not obviate the need for conditionality. Indeed, it requires a greater degree of intrusiveness, as redistributive considerations need to be explicitly included. Moreover, for consensus to be achieved, punishment threats may exceed that required to create political cover.

That said, because the analysis is quite stylized, these implications are tentative. For example, because delay and other factors change the payoffs to policy reform for both the domestic players and the IFI across time, dynamic considerations may modify these policy implications. Moreover, this framework has made the not innocuous assumption that the government is interested in policy reform, but is prevented from doing so by fear of protest (Ramcharan 2002 discusses some of these issues). Hence, this framework does not address the many cases where the government itself may have no interest in reform, only IFI aid.

Mathematical Appendix

Lemma 1: If $G(\rho) < \rho$, for all $0 \leq \rho \leq \bar{\rho}$ and, the opposition's type is not too

large: $\rho < \frac{\bar{Q}[s_0 - s_1]}{\alpha[1 - s_0] + \alpha[s_0 - s_1]\bar{Q}}$ then $\bar{p} > \underline{p}$.

Proof: Let \underline{p} be implicitly defined by

$$\frac{V^O(s_1) - V^O(s_1, \rho\alpha)}{V^O(s_0, \rho\alpha) - V^O(s_1, \rho\alpha)} = z(\underline{p}) \quad (1.1)$$

then for all $p > \underline{p}$, an opposition of type ρ finds it optimal to protest given reform announcement s_1 . Likewise, define \bar{p} as:

$$G(\hat{\rho}(z(\bar{p}))) = \frac{V^G(s_1) - V^G(s_0)}{V^G(s_1) - V^G(s_0, \alpha)} = \bar{Q} \quad (1.2)$$

then for a government of type θ , announcing s_1 is optimal if $p < \bar{p}$. If

$\rho < \frac{\bar{Q}[s_0 - s_1]}{\alpha[1 - s_0] + \alpha[s_0 - s_1]\bar{Q}}$, then $G(\hat{\rho}(z(\bar{p}))) > z(\underline{p})$. Since $G(\rho) < \rho$, and $\hat{\rho}(z(\underline{p})) < z(\underline{p})$, it follows that $z(\bar{p}) > z(\underline{p})$. Because $z(\cdot)$ is a strictly increasing positive function, $\bar{p} > \underline{p}$.

Lemma 2: $\psi^*(0) = 0$, and $\frac{\partial \psi^*(M, \cdot)}{\partial M} > 0$

Proof: Implicitly differentiating Equation yields:

$$(1.3) \quad \frac{\partial \psi}{\partial M} = \frac{-p_\psi}{2p_\psi f\psi + pf_{\psi\psi}}$$

but, $p_\psi < 0$ and from the second order condition: $2p_\psi f\psi + pf_{\psi\psi} > 0$, therefore $\frac{\partial \psi^*(M, \cdot)}{\partial M} > 0$.

And by assuming $f(0) = f'(0) = 0$, it follows that $\psi^*(0) = 0$.

References

- Alesina, Alberto, and David Dollar, 2000, "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth*, Vol. 5, No. 4.
- Alesina, Alberto, and Allan Drazen, 1991, "Why Are Stabilizations Delayed?" *American Economic Review*, Vol. 81, pp. 1170–89.
- Barro, Robert, and Jong-Wha Lee, 2002, "IMF Programs: Who Is Chosen and What Are the Effects?" NBER Working Paper No. 8951 (Cambridge, Massachusetts: National Bureau of Economic Research)..
- Boone, P., 1995, "The Impact of Foreign Aid on Savings and Growth" (unpublished; London School of Economics and Political Science).
- , 1996, "Politics and the Effectiveness of Foreign Aid," *European Economic Review*, Vol. 40, pp. 289–329.
- Boughton, James, and Alexandros Mourmouras, 2002, "Is Policy Ownership an Operational Concept," IMF Working Paper 02/72 (Washington: International Monetary Fund).
- Burnside, Craig, and David Dollar, 2000, "Aid, Policies and Growth," *American Economic Review*, Vol. 90, pp. 847–68.
- Casella, Alessandra, and Barry Eichengreen, 1996, "Can Foreign Aid Accelerate Stabilization?" *Economic Journal*, Vol. 106, pp. 605–19.
- Collier, Paul, and Jan Willem Gunning, 1999, "The IMF's Role in Structural Adjustment," *Economic Journal* Vol. 109, pp. 634–51.
- Drazen, Allan, 2001, "Conditionality and Ownership in IMF Lending: A Political Economy Approach," (unpublished).
- , 1999, *Political Economy in Macroeconomics*, (Princeton, New Jersey: Princeton University Press).
- Drazen, Allan, and Vittorio Grilli, 1993, "The Benefits of Crises for Economic Reforms," *American Economic Review*, Vol. 82, pp. 598–607.
- Federico, Giulio, 2001, "Samaritans, Rotten Kids and Policy Conditionality," Center for the Study of African Economics, Oxford University, WPS 2001-16.
- Fernandez, Raquel, and Dani Rodrik, 1991, "Resistance to Reform: Status Quo Bias in the Presence of Individual Specific Uncertainty," *American Economic Review*, Vol. 81, pp. 1146–55.

Hsieh, Chang-Tai, 2002, "Bargaining Over Reform" forthcoming in *European Economic Review*.

International Monetary Fund, 2001a, "Conditionality in IMF-Supported Programs—Policy Issues," <http://www.imf.org>.

International Monetary Fund, 2001b, "Structural Conditionality in IMF-Supported Programs," <http://www.imf.org>.

International Monetary Fund, 2001c, "Strengthening Country Ownership of Fund-Supported Programs," <http://www.imf.org>. Ivanova, Anna, Wolfgang Mayer, Alex Mourmouras, and George Anayiotos, 2001, "What Determines the Success or Failure of Fund-supported Programs," (unpublished; Washington: International Monetary Fund).

Khan, Mohsin, and Sunil Sharma, 2001, "IMF Conditionality and Country Ownership of Programs," IMF Working Paper 01/142 (Washington: International Monetary Fund).

Khan, Mohsin, and Nadeem Ul Haque, 1998, "Do IMF Supported Programs Work? A Survey of the Cross Country Empirical Evidence," IMF Working Paper 98/169 (Washington: International Monetary Fund).

Olson, Mancur, 1965, *The Logic of Collective Action* (Cambridge, Massachusetts: Harvard University Press).

Ramcharan, Rodney, 2002, "Reputation, Debt, and Policy Conditionality" (unpublished; Washington: International Monetary Fund).

Rodrik, Dani, 1996, "Understanding Economic Policy Reform," *Journal of Economic Perspectives*, Vol. 34, pp. 9–41.

———, 1989, "Promises, Promises: Credible Policy Reform via Signaling," *Economic Journal*, Vol. 99, pp. 756–72.

Stiglitz, Joseph, 2002, *Globalization and Its Discontents*, (New York: W.W. Norton & Co.)

Svensson, Jakob, 2000, "When is Foreign Aid Policy Credible? Aid Dependence and Conditionality," *Journal of Development Economics*, Vol. 61, pp. 61–84.

Vreeland, R. James, 1999, "The IMF: Lender of Last Resort or Scapegoat?" (unpublished).