Partial Implementation of IMF Programs: Econocrats' Role

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This paper investigates the variation in compliance with IMF program conditions. While borrowing countries know by experience what the Fund's conditions will look like and contribute to the drafting of the loan agreements, IMF program compliance still varies both temporally and cross-nationally. The existing literature of international cooperation explains this variation mostly with structural and exogenous factors such as inefficient IMF monitoring and sanctioning mechanisms, domestic capacity problems, and unanticipated financial shocks. This paper explains partial implementation with heterogeneity of interests in domestic politics. Using a career concerns model, I construct a typology of econocrat's preferences and corresponding implementation levels. Empirical tests with a new dataset of 1491 program-years reveal that conservative policy preferences in economy bureaucracy are positively correlated with better implementation records, especially when accompanied with bureaucratic autonomy.

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Empirical studies show that non-compliance rate for IMF programs is approximately 40 percent (Edwards 2001, Ivanova 2003).[1]

While borrowing countries know by experience what the Fund's conditions will look like and contribute to the drafting of the loan agreements, IMF program compliance still varies both temporally and cross-nationally. Why do states fail to comply with international agreements, even with the ones they themselves ask for? Why do some IMF programs break down? How can we explain this variation? In order to tease out the exact policy effects of IMF programs, we should first take a step back and focus on to what extent these programs are implemented.

Contrary to the conventional understanding, governments of borrowing countries do not negotiate with the IMF and implement the Fund's prescriptions as unitary, monolithic actors. The Fund's programs include policy measures that address the immediate balance-of-payments problem as well as structural obstacles to sustainable growth: measures to contain inflation and public debt, price and trade liberalization, devaluation, monetary and fiscal restraints, and institutional reforms (IMF 2004, 23). Inevitably, most of these reforms involve econocrats –experts who participate in negotiations with the Fund and later implement the agreed terms. On the other hand, these bureaucrats also take part in the highest decision-making body of the IMF, namely the Board of Governors.

By leaving out the bureaucrats' role and the process of implementation, the literature overemphasizes the decision to cooperate and fails to capture how cooperation –defined as "mutual policy adjustment"– occurs (Keohane 1984). To fill this gap, this study focuses on policy adjustments made or halted by bureaucrats. I argue that variation in compliance with IMF conditions (i.e. policy adjustments) can be explained by variation in policy preferences

[1]Compliance levels vary with the specific category in question: of all programs from 1987 to 1999, 57 % of structural benchmarks, 67 % of performance criteria, and 80 % of prior actions have been implemented. See IMF 2001.

of econocrats (Adolph 2004).

Bureaucratic interests and policy preferences –let alone their contribution to international agreements– constitute a neglected subject area. It is assumed that economy bureaucrats, especially those in autonomous agencies, are inherently conservative and neutral. In former Vice Chairman of the Fed, Alan Blinder's words, econocrats are believed to "set aside their own personal beliefs about what is best for society and [...] do their duty" (Blinder 1997). "Their duty," however, is defined by econocrats' pre-existing policy preferences as well as the law. In other words, preferences and institutions jointly determine policy outcomes. Therefore, studying econocrats' preferences in conjunction with institutional constraints is a crucial step in understanding the variation in compliance with IMF agreements.

Literature

The implementation stage is in effect what makes or breaks international cooperation. The extent to which the provisions of a particular treaty are implemented determines the compliance level, and eventually the effectiveness of international obligations. Despite its essential nature, most of the literature is dedicated to pre-agreement phase rather than implementation. These studies focus on "supply-side" explanations of compliance and the possibility of cooperation (Simmons 2000*a*, Mansfield, Milner & Rosendorff 2002, Putnam 1988, Iida 1993, Mo 1995, Pahre 1997, Tsebelis 2002).[2]

Existing research assumes that once an agreement is signed and ratified, implementation will follow automatically. The underlying presumption is that those actors in control of the ratification process will carry out the implementation effort. Hence, their approval

[2]A new strand emerged out of this literature that pays particular attention to the process of implementation and its interaction with the bargaining stage. See Jönsson and Tallberg 1998 and Mertha and Pahre 2005.

of the agreement will facilitate actual policy adjustments. In this treatment, partial implementation is attributed to capacity problems or ambiguity in treaty language – in two-level framework, involuntary defection (Putnam 1988).

Putnam's "two-level games" analogy has established a theoretical path to link pre- and post-agreement phases. Yet, the main concern of this literature is not the implementation of agreements, but rather possibility of cooperation under ratification constraints.[3] While such hand-tying might be desirable under certain circumstances (Schelling 1960, Mo 1995, Pahre 1997, Tarar 2001), it generally makes cooperation less likely.

While this framework sets an example for exploring the linkage between domestic and international politics, it neither addresses the implementation process, nor considers bureaucrats as mediators between the "inside" and "out". The next step to take, therefore, is building on the "two-level games" scholarship by developing "interactive models that link domestic and international politics more closely" (Haggard & Simmons 1987, 515). To this end, an exploration of IMF treaties for which formal ratification is not a requirement and implementation is a contentious subject among domestic actors seems fitting. Just because there is no formal ratification process for IMF programs, there is no reason to assume that implementation is a trivial matter. Absence of a ratification threat means that conflicts of interests in domestic politics regarding the terms of the treaty do not surface until the implementation stage. For this reason, implementation of Fund's conditions becomes a controversial issue and a possible basis for conflict.

While two-level games literature presents an influential approach to the dynamics of domestic and international stages of cooperation, another research agenda of more static nature focuses exclusively on the compliance problem. This strand renders different mechanisms to address non-compliance: management and enforcement (Chayes & Chayes 1993, Downs, Rocke & Barsoom 1996).

[3]See Putnam 1988, Hug and König (2002), Iida (1993), Mo (1995), Pahre (1997), Schoppa (1993), and Tarar (2001) for a summary of the two-level literature.

Variation in compliance behavior of sovereign states presents an intriguing puzzle for all standpoints in international relations theory. If commitments are unenforceable when there is no authority to enforce or when deviations are undetectable as Schelling (1960) suggests, then the norm should be non-compliance. On the other hand, if states are capable of building mechanisms of monitoring and enforcement, then non-compliance should rather be a rare event. However, neither is the case and the literature lays out several explanations of compliance (or non-compliance). Most of these existing explanations can be classified under one of two umbrella categories: consequence- and process-based explanations.

The former one attributes compliance (non-compliance) to the existence (non-existence) of proper consequences. In other words, agreements or organizations with potent carrots and sticks can push countries towards compliance. Accordingly, signing an agreement does not reveal a state's intention to implement it. States' incentives before and after an agreement may vary significantly (Haas 1998). Compared to making the actual policy adjustments and mobilizing necessary resources, signing an agreement is a low-cost political gesture. Therefore, states may choose to deviate from the terms of an agreement if and when benefits of doing so exceeds the costs of detection. This proposition leads advocates of this approach to the logical conclusion that the only way to guarantee compliance is to increase costs of defection through effective monitoring and credible sanctions (Axelrod 1984, Yarbrough & Yarbrough 1985, Downs, Rocke & Barsoom 1996).

In the context of IMF lending, however, this explanation does not hold much water considering the high level of non-compliance (approximately 40 percent) despite existence of strong conditionality attached to loan agreements. The carrot in the form of instant access to IMF credit, together with the stick as suspension of this right, makes the Fund one of the strongest actors in international cooperation. In addition to these direct mechanisms, client states are also rewarded with side-payments or punished by concomitant costs depending on their compliance performance.

A second strand of the compliance literature focuses on the cooperative process rather than the consequences of shirking (Raustiala & Victor 1998). This school attributes failures of cooperation to unintended roadblocks such as rule ambiguity or low levels of bureaucratic capacity. Some even argue that enforcement that reaches to the point of challenging state sovereignty is counterproductive (Downs, Rocke & Barsoom 1996). Instead, parties are managed and persuaded by the processes of socialization, persuasion, and learning. These processes are usually formalized by international regimes (Chayes & Chayes 1993, Checkel 2001, Haas 1998, Dai 2002).

The management school suggests that in practice states sign agreements with the intention to comply with them. The literature shows three reasons for such an intention: norms, interests, and efficiency (Tallberg 2002). Based on this perspective, states do not shirk deliberately. Their occasional failure to implement agreements stems from capacity problems and rule ambiguity. Non-compliance, therefore, is conceived to be a side-effect rather than result of willful disobedience.

Managerial theorists attribute partial implementation to lack of economic resources, limited bureaucratic capability and deficits in technical knowledge. Therefore, they prescribe mechanisms to increase transparency, clarify rules, and provide financial and technical assistance. Young (1992, 183) argues that a direct link exists between effectiveness of an international institution and the governmental capacity of its members to implement its provisions. With this link in mind, most scholars recommend international institutions to level the playing field by helping them in capacity building and in clarifying the uncertainty about the treaty rules.

If we apply this line of argument to explain non-compliance with IMF agreements, a few issues arise. First and foremost, rule ambiguity should be less of a problem for the Fund's clients. After all, most of them are repeat customers. Furthermore, Fund officials have regular meetings with econocrats in borrowing countries, both before and after the signing

of the agreement. That means econocrats have more than one chance to clarify the terms of the agreement. Still, this argument has some merit as it emphasizes the implementation process. Incidentally, some econocrats might be able to communicate much better with the IMF officials, which in turn affects the implementation process positively.

In terms of capacity building, both the World Bank and the Fund offer technical training programs and advising. IMF spends a fifth of its gross expenditures for technical assistance (TA), and recognizes it as an instrument to achieve its strategic objectives (Cortes 2008). Approximately 80 percent of the Fund's TA goes to low- and low-to-middle income countries, especially Sub-Saharan Africa and Asia. In addition, the IMF Institute provides training programs to high-ranking bureaucrats from member states.

Despite all these efforts and the flexibility that the option of renegotiation provides, implementation performance still varies for IMF agreements. Why do some borrowing countries fail to comply even when they are dealing with an international organization that manages its treaties as well as enforcing them? Just as the consequence-based approach does, process-based explanations look for the answers at the international level, especially characteristics of international regimes. They both neglect the strategic relationship among domestic actors with regard to the implementation process, and the one between these actors and the IMF.

Actors and their preferences are of course not completely neglected in the literature. On the contrary, many studies have focused on domestic conflicts of interests and their effects on policy-making. Tarar (2005), for example, argues that it is possible to construct a two-level model with a bottom-up approach by paying explicit attention to executives and legislators with different constituencies, hence preferences. Dai (2002) examines the domestic interest groups that become natural allies of international regimes. Jaffe and Palmer (1997) investigate if innovative domestic firms benefit from environmental treaties. Simmons (1994) analyzes the link between partisan interests and international economic coordination. Mertha

and Pahre (2005) explain partial implementation of US-Chinese intellectual property rights agreements with divergent interests of local governments.

In IMF literature, Mayer and Mourmouras (2008) model the Fund as a benevolent public interest institution and consider the preferences of special interest groups. Bureaucracy, however, is considered in some of these articles only with regards to its quality using proxies such as the risk ratings from International Country Risk Guide (Ivanova, Mayer, Mourmouras & Anayiotos 2003, Nsouli, Atoian & Mourmouras 2006).[4]

Both Simmons (2000*b*) and Grieco, Gelpi and Warren (2009) conduct empirical studies on compliance with the IMF Articles of Agreement instead of program compliance.[5] Simmons finds that regional context as well as domestic respect for rule of law affect compliance with international commitments. Countries are more likely to comply if others in their region comply and if the regime places a high value on the rule of law. Grieco, Gelpi and Warren focus on national preferences to explain variation in compliance with the IMF treaty. They use relative changes in the partisan orientation of a country's executive branch as proxy for national preferences. Their findings suggest that compliance with treaty provisions decreases with right-to-left partisan shifts, but remains consequential nonetheless. Von Stein (2005) argues that these studies neglect the selection bias problem. He argues that treaty compliance is determined by unobservable endogenous conditions that lead countries to sign the agreement in the first place.

In these studies, compliance is a dichotomous phenomenon due to the nature of international commitments under consideration. Policy adjustments required by the Articles of Agreement are different from those in IMF programs. Most of the time, governments can make these adjustments once whereas each IMF program involves several tranches with several attached conditions. Hence, program implementation requires long-term bargaining

[4]See http://www.prsgroup.com/ for detailed information.

[5]Articles of Agreement requires members to maintain a par value for their currency (until 1977), to use a single unified exchange-rate system, and to keep their current account free from restrictions.

–domestic and international– that cannot be captured by these empirical models. Dreher (2003), Joyce (2006), and Arpac, Bird, and Mandilaras (2008) take steps toward this new territory.

Dreher (2003) chooses to examine program interruptions in pre-electoral periods. Using panel data for 104 countries between 1975 and 1998, he finds that programs seem to be more likely to break down before elections. This impact is less severe in more democratic countries. Dreher argues that IMF expects non-compliance before elections and concludes arrangements to avoid interference with political processes. This perspective dismisses the possibility of domestic actors' role in pre-electoral periods.

Joyce's (2006) article is one of the rare studies in the field that presents and empirically tests a theoretical model of implementation. According to this model, borrowing governments and the Fund evaluate marginal benefits of a program as well as the relevant time frame and the discount rate differently. As a result, borrowing governments that are more open and democratic, have longer time horizons for national welfare. Hence, their records of implementation are better than autocratic and/or politically fragmented countries. The results of Joyce's empirical analysis show that program implementation is affected by a country's trade openness, its degree of political openness, the duration of the political regime, and the ideological cohesion of the government.

Joyce's approach goes one step further from others' by taking into account heterogeneity of interests. He recognizes this often-neglected issue by allowing a borrowing government have a perception of the program benefits that is different from the Fund's. However, due to the basic nature of his model, he considers the borrowing government as a unitary actor and does not extend his model to include domestic heterogeneity of interests. Still his approach opens up a new research agenda.

One of the articles that follow this research agenda is that of Arpac, Bird, and Mandilaras (ABM) (2008). Their empirical analysis demonstrates that trade openness, number of

veto players and amount of IMF loans available affect program implementation. They use the "checks" data assembled by the World Bank's Database of Political Institutions (DPI) to measure the impact of veto players on program interruptions. ABM argue that by using this variable they provide empirical support for Drazen's (2002) theory of special interests. According to this perspective, domestic heterogeneity of interests warrants conditionality even with program ownership. ABM suggest that domestic opposition may also lead to program interruptions.

Articles that adopt the case study approach are more likely to penetrate into the implementation process and strategic relationships. Papava (2003), for example, concentrates on the case of Georgia. He traces the "achievements" and "errors" of the Fund when dealing with Georgia. While Papava's article focuses on the IMF side of the implementation process and only tangentially covers the issue of domestic heterogeneity of interests, he makes a considerable contribution by emphasizing the role of negotiated terms and negotiators in implementation. Erbas (2004) makes a similar point using a formal model. Although his article is not accompanied by a case study, his model supports Papava's findings on Georgia. Simply put, "big bang" programs with more conditions and less flexibility may backfire, hinder implementation, and force policy-makers to violate at least some of the program commitments. Instead, a flexible approach in streamlining conditionality may strengthen program ownership, hence program success. Erbas does not consider the role of domestic negotiation team in acquiring such agreement terms, and considers the issue as a supply-side problem as Papava does.

Juwana (2005), Patton (2006), and Arpac and Bird (2009) see this gap and dig deeper into the domestic implementation process. In the Indonesian case, the Bankruptcy Act, one of the program conditions of IMF that was designed to liquidate insolvent domestic companies and to relieve foreign creditors, was not implemented fully due to resistance from the commercial Courts. Indonesian judges adopted a defensive reaction against the foreign

creditors in most court cases. This finding is similar to Mertha and Pahre's (2005) on the role of local Chinese governments in partial implementation of Sino-American agreements. However, different from them, Juwana does not investigate the strategic relationship between the bargaining and implementation stages. He assumes that the implementation failure due to legal bureaucracy was neither expected nor strategically calculated by Indonesian negotiators.

Patton (2006), on the other hand, approaches the issue from another perspective. Why would an openly anti-IMF government implement IMF prescriptions? During its 2001 electoral campaign in Turkey, the Justice and Development Party (AKP) promised to reject IMF-sponsored policies in accordance with its ideological foundation. However, once in power AKP government did not only adhere to the IMF program in place, but also signed and concluded one of the most successful programs in history by 2008. Patton attributes this situation to international (debt sustainability, pressures by the IMF and the EU) and domestic factors among which AKP's unpreparedness and tactics of the opposition are emphasized.

Arpac and Bird (2009) conducted in-depth interviews with policy-makers to analyze the same period in Turkey. They argue that program implementation depends on a broad range of factors including domestic political economy factors such as political cohesiveness, program ownership, and special interest groups as well as idiosyncratic factors. In the case of Turkey, one of these idiosyncratic factors was the presence of "influential technocrats" (Arpac & Bird 2009, 135). Arpac and Bird present the Turkish case as an exception in which "the reforms were pushed through by a group of technocrats in the absence of political cohesion" (Arpac & Bird 2009, 147). Even though some of their interviews show harmony of interests between Turkish econocrats and IMF officials, they consider neither the basis for such compatibility nor the possibility of this factor being a more common phenomenon.

To sum up, a recent trend towards explaining variation in the degree of program

implementation with domestic factors exist. Case studies in this category are especially valuable in laying a new path for researchers. In-depth analyses of IMF programs in specific countries show reasons for both success and failure. Successful implementation of reforms in South Korea, for example, is attributed to civil society's participation in state affairs, which resulted in institutional capacity building. Reforming the central bureaucracy and market by mobilizing the whistle-blowing activities of civil organizations led to implementation of neoliberal economic policies (Lee & Park 2009). On the other hand, Calvo-Gonzalez (2007) shows that possibility of program failure may surface due to domestic factors. Based on the case of Franco's Spain (1959 stand-by arrangement), he argues that both pro- and anti-reformists in government act according to their private interests when negotiating and implementing IMF-recommended policies. Hence, "heterogeneity of interests does not refer only, or even mainly, to differences between the IMF and the recipient country, but to interests within the recipient country" (Calvo-Gonzalez 2007, 330). This is an understanding different from the others that explain implementation with comparison of its marginal costs and benefits (Bird 2008) or with support or lack thereof of special interest groups (Mayer & Mourmouras 2008). It takes into account the possibility of heterogenous policy preferences and strategic interaction within government instead of assuming a unitary policy-making structure.

The goal of this study is making a contribution to the cooperation literature. This field focuses mostly on consequence- and process-based explanations of (non-) compliance. Most of these studies adhere to the unitary actor assumption and consider compliance as a dichotomous concept. The two-level games subfield, on the other hand, relaxes the unitary actor assumption, links domestic and international bargaining stages of cooperation, and takes into account strategic interaction between actors with heterogenous interests (Putnam 1988, Evans, Jacobson & Putnam 1993, Mo 1995, Pahre 1997, Tarar 2001). Translating this interactive approach to the implementation stage requires us to consider compliance as a process which involves actors with different policy preferences.

Model

Literature review reveals both strengths and weaknesses of our cumulative knowledge on international financial cooperation. On the one hand, a rich reservoir of case studies depict a detailed picture of how IMF programs come to be and why they fail or succeed. In addition, because of recent developments in data availability, some of these findings are investigated further in large-n studies. Yet, on the other hand, only a few of these consider implementation as their main focus.[6] Even fewer use formal theory as foundation to their empirical analyses (Edwards 2001).

I will focus on two important, but rarely examined elements of the implementation process: domestic actors who negotiate and implement the Fund's conditions, and the interdependence between the bargaining and implementation stages of international financial agreements.[7] Threading in the conflict of interests between domestic actors across the pre- and post-agreement stages serves to two purposes. Theoretically, it vividly illustrates the "outside-in" effects of international organizations. IMF does not only use a direct carrots-and-sticks strategy, but also establishes alliances with domestic actors whose policy preferences coincide with the Fund's. Empirically, spelling out the link between bargaining and implementation through actors common to both phases can serve as a precursor for predicting the likelihood of compliance and the true effects of IMF prescriptions.

The model in this section forms a typology of econocrats' preferences with regard to expected implementation levels. Accordingly, it is easier for the Fund to bargain with conservative econocrats with career ambitions in international bureaucracy and/or finance sector, and in return programs with these econocrats are more likely to be implemented in full. On the other hand, the model shows that any policy outcome is attainable with the right career incentives. Therefore, even independent econocrats can be persuaded by

[6] See Dreher 2003, Ivanova et al. 2003, Edwards 2005, Joyce 2006.

[7] Steinward and Stone (2008) consider these two stages together on the issue of number and strictness of conditions.

politicians to step out of the program boundaries.

Econocrat's preferences might be shaped by different sources and categorized into different typologies.[8] For our purposes, there are two types of econocrats: those closer to the Fund and those closer to the government. Those in the second category, also named partisans, are easier to understand. After all, what seems more logical for a bureaucrat than implementing the wishes of those who hold the power to appoint and dismiss bureaucrats? Those in the first category, on the other hand, also called conservatives or technocrats, risk their current jobs to support Fund-sponsored policies in domestic politics. Their position can only be explained by their pre-existing policy preferences that coincide with the Fund's, and the institutional autonomy that shield them from immediate retribution.

Unlike formal bureaucratic autonomy, there are no readily available measures of variance in policy preferences. One way to operationalize econocrat's preferences is to focus on his career incentives. It is difficult to imagine a senior bureaucrat who takes a private sector job after retirement to adopt two separate sets of policy preferences for each of his two careers. Instead, it is more likely that both of his jobs and his decisions while doing those jobs reflect his policy preferences. Of course, his beliefs about his duty and what is best for the society may be strengthened through his past career choices and the socialization in those offices. Whichever comes first –preferences or career choices– there is no doubt that they are profusely intertwined (Schneider 1993, Adolph 2004).

Adopting a career-centric path to policy formulation is not a new approach. It is used by several scholars especially in the context of monetary policy-making (Rogoff 1985, Lohmann 1992, Stiglitz 2002, Adolph 2004). That is because the idea of career incentives brings along the possibility of informal principals whose bidding central bankers do in order to attain those rewards. For monetary policy-making, the most popular "shadow" principal is the financial sector.[9] I apply a similar framework by denoting the IMF as the shadow

[8]For example, Downs 1967 and Adolph 2004.

[9]In these studies, central bankers with past experience in the financial sector are argued to be more likely

principal. The Fund becomes an informal ratifier in borrowing countries, and influences the domestic policy-making process. In addition, policy recommendations of the Fund usually coincides with those of the international financial sector. Therefore, it is reasonable to think IMF as an informal principal with possible career rewards in international institutions and the financial sector for transnationalist conservative econocrats.

To illustrate the relationship between preferences and policy outcomes, I follow Adolph's (2004, 37) version of career concerns model introduced by Holmström (1999). In keeping with the economic assumptions of these models, monetary policy –particularly inflation rate– will be the policy in focus.[10] In this setting, the Chief Executive and the IMF are principals to the econocrat, namely the central banker. As formal and informal principals respectively, they can promise career rewards to the econocrat. The Executive can offer a career in politics as well as job security, whereas the Fund can become a reliable reference for a future in private firms or international organizations. Even though the Fund is an informal principal with no present contractual relationship with the econocrat, its rewards can still surpass those of the Executive depending on the pre-existing preferences of the econocrat. Then, career rewards which the econocrat prefers, also shows his true colors.

We assume that the economy follows a Lucas supply function where y and w denote economic output and the wage level respectively, π is inflation rate, and z is a normally distributed shock term with mean zero and standard deviation σ_z.[11]

$$y = \pi - w + z \tag{1}$$

Based on the general model by Rogoff (1985), the quadratic utility function of the

to adopt an anti-inflation agenda compared to career bureaucrats (Havrilesky & Gildea 1990).

[10]IMF programs include quantitative targets for monetary policies. Therefore, picking inflation rate as the main focus is appropriate as well as convenient. On the other hand, results of this model are generalizable to other bureaucratic agencies active in implementation of Fund-sponsored programs.

[11]This setting assumes that the labor market is perfectly competitive and comprised by price-takers (Iversen 1998). Though this is a strong assumption for developing countries, it is necessary to keep the model simple at this stage.

monetary authority, the output and the inflation rate at equilibrium are as follows:

$$U_i = -(1-\chi)(y-y_i)^2 - \chi\pi^2 \tag{2}$$

$$\pi^* = (1-\chi)(\frac{y_i}{\chi} - z),\ \ y^* = \chi z \tag{3}$$

Here, monetary authority's utility depends on his ideal output (y_i) and ideal inflation of zero. χ refers to monetary authority's conservatism, which is inversely related to his inflationary bias. This feature of the monetary policy affects the equilibrium output indirectly: the variance in output grows with the conservatism of the monetary authority. That means conservatism brings along greater economic instability. Rogoff (1985) argued that governments may be tempted to deviate from a conservative monetary policy at times of shock, and solve this time-incosistency problem by delegating to a conservative, independent central banker. Preferences of this central banker determine his level of conservatism (χ_i). A technocrat's χ (χ_T) would lie closer to the Fund's, whereas a partisan's (χ_P) would be much closer to the politician's.

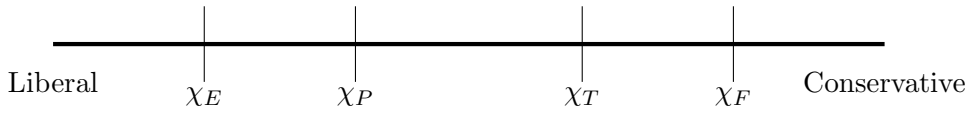


Figure 1: Spectrum of conservatism

The executive can choose any "type" of central banker from this spectrum, and delegate his monetary authority to him. We assume that the central banker has legal independence to set monetary policy according to his own policy preferences.

The central banker B_i has three periods in his career. First period, t_0, refers to the office he held right before his current central bank job. This might be in or outside of the central bank. In period t_1, the executive appoints the central banker to set monetary policy. In the last period, t_2, the central banker either continues at his current post or takes a job

outside (i.e. financial sector, IMF, academia, another government job etc.). The central banker's utility is as follows:

$$U_i = \underbrace{-(1-\chi_i)(y_1 - y_i^*)^2 - \chi_i \pi_1^2}_{current\ policy} + \delta_i [\underbrace{-(1-\chi_i)(y_2 - y_i^*)^2 - \chi_i \pi_2^2}_{future\ policy} + \underbrace{\theta_i m + \tau_i r}_{future\ jobs}] \tag{4}$$

According to this formulation, the central banker's utility depends on policy (π and y), rewards from apolitical[12] positions (m) and jobs in politics (r), and the responsiveness of the central banker to these rewards (θ and τ for private and government rewards respectively). These parameters determine central banker's career and policy preferences, and consequently the inflation policy itself.

The central banker makes his policy decision on (π) by choosing the optimal value of χ^*, which then determines π^* and y^* when plugged into equation 3. His choice of χ^* should maximize his utility function in equation 4.

The IMF (F) and the Chief Executive (E) are the other players in this game. Their utilities depend on policy as well as the opportunity costs of career rewards they offer to the central banker. F and E cannot set monetary policy, but they can offer future career rewards of m and r to B_i if they are given the opportunity to choose the equilibrium level of χ.

$$U_F = \sum_{\forall t} \delta_F^{t-1} [-(1-\chi_F)(y_t - y_F^*)^2 - \chi_F \pi_t^2 - \theta_F m_t] \tag{5}$$

$$U_E = \sum_{\forall t} \delta_E^{t-1} [-(1-\chi_E)(y_t - y_E^*)^2 - \chi_E \pi_t^2 - \tau_E r_t] \tag{6}$$

[12]This term does not imply that international bureaucracy or finance sector are uninvolved in politics. Instead, it merely emphasizes the difference from careers which require professional involvement in politics.

As shown in Figure 1, I assume $\chi_F > \chi_i > \chi_E$. The IMF is naturally more conservative than any government would like. By putting central banker in between these two principals, we will explore an interesting case in which there is built-in heterogeneity of interests and hence tension.

The sequence of moves for this game starts with bureaucrat's (B_i) career background at t_0. In period t_1,

- B_i is the central banker for a country under an IMF program. The Fund (F) offers B_i a career reward[13] for period t_2 worth $\tilde{m}$ in exchange for implementation of the program target χ_F in period t_1.
- The Executive (E) makes a simultaneous offer to B_i for period t_2 worth $\tilde{r}$ in exchange for implementation of the program target at χ_E in period t_1.
- B_i chooses a policy $\chi^* \in \{\chi_F, \chi_i, \chi_E\}$ for the implementation of the program. If $\chi^* = \chi_F$, the program is implemented fully. Otherwise ($\chi^* < \chi_F$), the result is partial implementation. Whatever the policy choice is, it results in same-period outcomes, π^*_{1i} and y^*_{1i}.

In period t_2,

- F and E decide on fulfilling their promises by choosing $m^* \in \{0, \tilde{m}\}$ and $r^* \in \{0, \tilde{r}\}$.
- B_i chooses his career path. He either stays at the central bank or takes the Fund or the Executive up on their respective offers. If he stays, he sets the policy at $\chi^* = \chi_i$ for period t_2, and π^*_{2i} and y^*_{2i} result. Otherwise, E appoints a new central banker, starting a new game.

This game repeats itself for an indefinite period of time, but each B_i can serve at most for two periods. Unlike bureaucrats, F and E are assumed to be long-term players

[13]This reward can be a job or simply a commendation that generates positive reputation for the bureaucrat and serves as a gateway to a job.

which do not change during the game play. In the one-shot game, different time horizons of the players can cause a problem: at the last stage of the game, neither of the principals have any incentive to fulfill their promises. Yet, in a repeated game setting, their reputational concerns guarantee cooperation. According to the folk theorem, assuming that each B_i knows of F's and E's past behavior, their career offers will only be credible if they honored their previous promises (Fudenberg, Kreps & Maskin 1990).

Implications of the Equilibrium

Formal treatment of the equilibrium for this game is in the Appendix. This section will illustrate the main finding of the model: econocrats with preferences similar to the Fund will implement the Fund's preferred policy and vice versa for those closer to the politicians. In other words, full implementation of an IMF program is more likely with bureaucracy on the Fund's side.

In order to understand how econocrats' policy preferences might affect implementation, first let us consider the variance in their types. Table 1 summarizes the typology of econocrats with determinants of their preferences: amenability to a political career (τ), ambition for an apolitical career in international institutions or financial sector (θ), and concern over policy itself (χ).

I expect implementation level (μ) to vary with these types. Generally speaking, it ranges from full ($\mu = 1$) to partial $\mu < 1$ by following a diagonal from the bottom right cell to the one on the top left corner. Econocrat's type is determined when the weights in corresponding boxes are high. For example, the type on the bottom right corner is a conservative econocrat who values a future career in international financial institutions or financial sector. Therefore, he is more likely to stand closer to the Fund's policy preferences and implement program terms. On the other hand, a liberal econocrat with political ambitions will adopt

Table 1: Typology of Econocrats

	Liberal	Conservative
Political career (e.g. legislator, minister, deputy minister)	$\frac{1}{\chi}, \tau, \frac{\tau}{\theta}$	$\chi, \tau, \frac{\tau}{\theta}$
Policy concerns (e.g. economy bureaucracy, academia)	$\frac{1}{\chi}, \frac{1}{\theta}, \frac{1}{\tau}$	$\chi, \frac{\chi}{\theta}, \frac{\chi}{\tau}$
Apolitical career (e.g. IMF official, finance sector jobs)	$\frac{1}{\chi}, \theta, \frac{\theta}{\tau}$	$\chi, \theta, \frac{\theta}{\tau}$

the government's preferred policy.

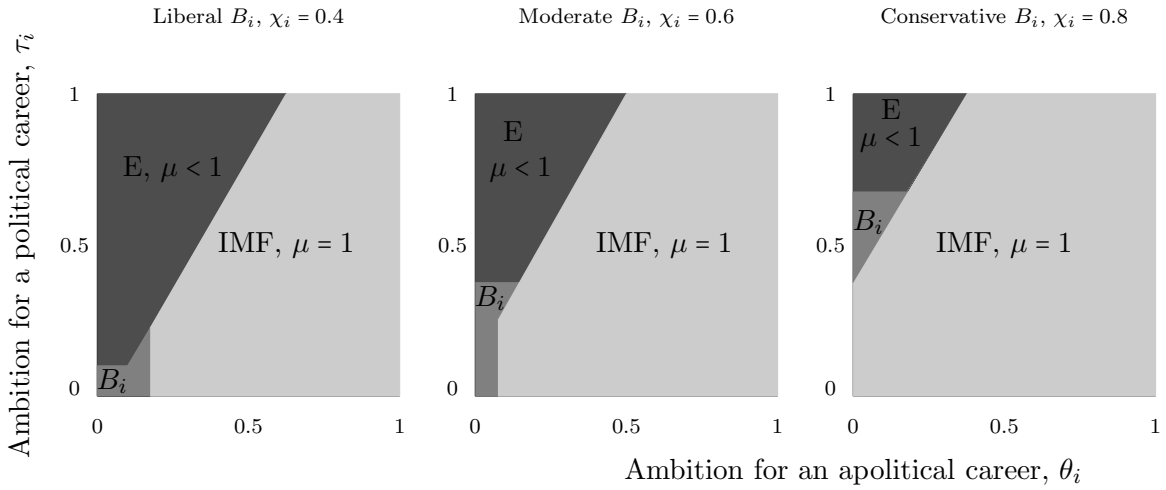


Figure 2: Typology of econocrats and implementation level ($\mu \in [0, 1]$): Shaded areas indicate which principal prevails for the varying parameters (θ_i and τ_i). The darker the region, the farther away the implementation level (μ) is from the program target. For sectors indicated with B_i (including a thin line that extends down the vertical axis to the origin in the final plot), implemented policy depends on bureaucrat's preferences alone. For all plots, $\chi_F = 0.9$, $\chi_E = 0.3$, $\theta_F = \tau_E = 0.25$, $y_i^* = y_F^* = y_E^* = 0.2$, $\delta_i = 0.95$, $\sigma_z = 1$.

Figure 2 shows the effects of econocrat's preferences on implementation by holding the preferences of the Executive and the Fund fixed.[14] As parameters of econocrat's prefer-

[14]This graphic follows Adolph's (2004, 43) example of presenting comparative statics. Changing the values of fixed parameters will change the appearance of the graphs. This is only a minor issue because the parameters chosen here are reasonable and the general conclusions will not be affected by such changes.

ences vary, policy outcome –consequently the implementation level– gets closer to the ideal points of either of the two principals.

Let us consider the conservative econocrat. The graphic on the right shows a conservative central banker who values a career in international organizations or finance sector (has higher θ_i and χ_i). With such an econocrat in charge, IMF tends to prevail in policy-making. When the same econocrat cares more about a political career (has higher τ_i and χ_i), the Executive wins. As can be seen, this darker region is much smaller for the conservative econocrat compared to those of liberal and moderate types. That is because weight on conservatism (χ_i) interacts with weights on career incentives θ_i and τ_i (Adolph 2004, 43). Bureaucrat's conservatism makes offering career rewards cheaper for the Fund, and much costlier for the Executive. Hence, with a highly conservative econocrat in office, econocrat's political ambition τ_i should be sufficiently high to offset disutility from implementing the politician's much more liberal ideal policy ($\chi^* = \chi_E$). On the other hand, there is no such disutility for the conservative econocrat when implementing the Fund's ideal policy. Therefore, even with equal levels of θ_i and τ_i a conservative econocrat chooses χ_F as the equilibrium policy. In other words, conservative econocrats bargain with the Fund more easily, and they are convinced by the Fund's preferred policy more readily.

These implications translate into the following hypotheses:

Hypothesis 1 *Conservative econocrats with institutional autonomy are more likely to achieve full implementation of IMF programs.*

Central bankers who are equally attracted to both career paths are more likely to side with the IMF. That is due to the assumption that monetary policy affects both level and variance of inflation, but only the variance of output. Therefore, there is more at stake for the financial sector compared to the government unless great economic fluctuations occur. That means financial sector offers bigger rewards to control policy. This assumption is reasonable considering that IMF depends on implementation of tight economic policies to

prevent financial crises from going global.

Bureaucrats who are attracted to neither of these two ambitions, will always act according to their inherent policy preferences (areas labeled with B_i in Figure 2). That means conservative econocrats with no intention to move to political office or private jobs might still side with the IMF. This result reflects educational backgrounds and shared experiences of the econocrats. Through socialization, even those uninterested in career rewards can be enticed by either of the two principals. Because IMF has built-in mechanisms of socialization and technical education for econocrats, it is more likely to win with these types.

Socialization and adoption of conservative economic ideology may occur through two channels. First, econocrats whose careers begin in economic institutions may tend to spend more time in international workshops, conferences and technical assistance programs. Hence, those spending their entire careers in bureaucracy would be more likely to side with the Fund. This influence would be proportional to the lengths of these careers.

Hypothesis 2a *Econocrats with backgrounds in economy bureaucracy are more likely to achieve full implementation of IMF programs.*

Hypothesis 2b *The longer the time spent in economy bureaucracy, the more likely the econocrat is to achieve full implementation of IMF programs.*

Second, the Fund officials have a certain profile: males with doctoral degrees overwhelmingly from Western institutions (Momani 2005). Arguably, econocrats with similar educational backgrounds will share the Fund officials' definitions of "good" economic policy. This shared understanding, therefore, may pave the way for inclination towards full implementation.

Hypothesis 3 *Econocrats with degrees in economics are more likely to achieve full implementation of IMF programs.*

There are certain caveats to this modeling exercise that will be explored in future

extensions. To begin with, we have not considered the hiring costs of the IMF versus the government. From one point of view, career openings in international bureaucracy are scarce, and hence costs of career rewards should be higher for the Fund. From another perspective, if IMF helps econocrats' careers by strengthening their reputation in financial sector, associated costs would be much lower. On the other hand, econocrats might be close to the end of their careers, and care less about future jobs and more about leaving a legacy. Then, they might be more likely to behave like policy-oriented bureaucrats regardless of where their ambitions lie.

For the purposes of this model, IMF might be considered as a unitary actor unchanged over time. Governments, however, do change. This introduces the possibility of coalitions and pre-electoral uncertainty into the game. A government on its way out is less likely to offer credible career rewards. In these cases, the front runner political party might become a third principal for the econocrat.

In this model, politicians are assumed to know econocrat's policy preference (χ_i) before appointing him. In reality, the exact value of χ_i might be unknown making government unsure of the career rewards that will be offered. Future work will address these extensions.

Sample and Variables

This study empirically tests hypotheses 1-3 using a panel of 126 states between 1978-2008. In this time period, 112 states entered a total of 586 programs. The remaining 14 states did not sign any agreements during this period. I chose 2008 as the cutoff date because of the structural break introduced by the Great Recession. Considering the possible impact on the Fund's role and its clientele, the aftermath of this global crisis might skew our analysis, and hence it should be investigated separately.

The Fund programs in this data set comprise concessional as well as non-concessional facilities for theoretical reasons. Econocrats' influence may be at its peak at the negotiation table while bargaining over the type of facility to be implemented. By definition, concessional facilities (previously Extended Structural Adjustment Fund Facility and after 1999 Poverty Reduction and Growth Facility)[15] are designed to help low-income countries with more flexible conditions. Some argue that recipients of these loans constitute a uniform group for which IMF is eager to supply assistance; therefore these programs should be excluded from studies of compliance. Yet, of 78 PRGF-eligible countries, some have a mixed record of concessional and non-concessional programs (e.g. Bolivia), while others have signed one more frequently than the other (e.g. Chad and Dominica). In other words, not all PRGF-eligible countries sign a PRGF all the time (IEO 2009). If program type is a decision that might come under econocrats' influence, then all program types should be included in this project.

Independent Variables

Pertinent to the complex nature of IMF programs, empirical models in the literature employ numerous independent variables. Many of the economic variables listed below are those recommended by previous empirical studies on IMF conditionality. Unless otherwise indicated, all economic variables come from the World Bank's World Development Indicators databank (*World Bank World Development Indicators 2012 [CD-ROM]* 2012), and are lagged one year in order to account for the possible causality between economic conditions and implementation decisions. The second group of independent variables include measures of domestic and international politics. The last category is comprised of independent variables of utmost substantive importance for this project: indicators of conservative policy

[15]The Poverty Reduction and Growth Facility (PRGF) is succeeded by the Extended Credit Facility in 2010. In addition, the Rapid Credit Facility and the Standby Credit Facility are added as new concessional lending facilities. Because these changes took effect after 2008, I will use the old categorization.

preferences. Details about the coding criteria are in the Appendix.

Debt Service Ratio of debt service to gross national income (GNI).

Reserves Gross international reserves measured in months of imports.

Growth Annual percentage growth rate of gross domestic product (GDP) at market prices based in constant local currency.

Fixed Exchange Rates Dummy variable for fixed exchange rate regime, coded from Ilzetzki, Reinhart and Rogoff's (2010) data.

Net Domestic Credit Growth Annual growth in the sum of net credit to the non-financial public sector, credit to the private sector, and other accounts. Data are in current local currency.

GDP per Capita Gross domestic product divided by midyear population, measured in constant 2000 US dollars.

Trade The sum of exports and imports measured as a percentage of GDP.

Budget Deficit Deficit measured as a percentage of GDP.

Inflation, GDP deflator Inflation as measured by the annual growth rate of the GDP implicit deflator.

M2 Money and quasi money (M2) as percentage of GDP. This variable corresponds to "the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government" (*World Bank World Development Indicators 2012 [CD-ROM]* 2012).

Democracy Dummy variable coded from the eleven-point scale Democracy (DEMOC) indicator of the Polity IV project (Marshall, Jaggers & Gurr 2011). In accordance with the standard practice, any country with a score of seven or higher is coded as an

established democracy.

Fractionalization Continuous variable measured on a zero-one scale, coded from the fractionalization (FRAC) variable of the Database of Political Indicators (DPI2010) (Beck, Clarke, Groff, Keefer & Walsh 2001). It is "the probability that two deputies picked at random from the legislature will be of different parties" (Keefer 2010, 14).

Similarity Lagged S measure of similarity in voting records between the US and other states in the United Nations General Assembly (Strezhnev & Voeten 2013).

US Aid Lagged net official development assistance from the US, measured in constant prices at 2010 USD and coded from Organisation for Economic Co-operation and Development Official Development Assistance database (OECD-ODA 2012).[16]

Fund Quota State's total borrowing privileges in the Fund, measured in natural logarithm of millions of SDRs, lagged one year, and coded from IMF e-library International Financial Statistics database (IMF 2012).

Strict conditionality A binary variable that indicates arrangement type. The Fund's non-concessional arrangements –Stand-By Arrangement (SBA) and Extended Fund Facility (EFF)– bear stricter conditionality compared to non-concessional facilities. Hence, this indicator takes the value of one if a state is under an SBA or an EFF for a particular year. This variable is coded using the MONA data set, the EIU country reports, and program reviews from the IMF archives.

Waiver A binary variable that indicates whether the Fund granted a waiver for program slippages. This variable is coded using the MONA data set, the EIU country reports, and program reviews from the IMF archives.

Bureaucratic influence on implementation of international agreements depends on two aspects: policy preferences and capacity to act autonomously. Policy preferences are

[16] Values for this variable might be negative due to repayments of assistance.

adopted through an internal process shaped possibly by ecocnocrats' educational background, career paths and degree of socialization with different types of policymakers. Hence, I operationalize econocrat's policy preferences by using biographical details on educational background, level of expertise, and career as proxies. [17] In this project, econocrats' educational background and career ambitions are used as the main explanatory variables in order to draw attention to implementer's policy preferences. As far as I know, this is the only large-N study on compliance with IMF conditionality that uses annual data on undergraduate and graduate-level educations and prior occupations of 1078 central bank governors and finance ministers from 112 countries.[18]

Due to issues of data availability, these variables are compiled for the central bank governors and finance ministers of member states.[19] These actors are the members of the IMF Board of Governors as well as the heads of bureaucracies who negotiate, sign and implement IMF programs.

Education (CBG) A binary variable that indicates a bachelor's degree in economics, business or finance for the central bank governor. The variable takes a value of zero for any other educational background.

Education (MOF) A binary variable that indicates a bachelor's degree in economics, business or finance for the finance minister. The variable takes a value of zero for any other educational background.

Career (CBG) A binary variable that indicates a central bank governor with a central banking career.[20]

[17] Only recently bureaucrats' biographical details have found their way into large-N studies of IMF agreements. Nelson (2013), for example, codes these details to calculate proportion of neoliberals in government, which he finds to be negatively correlated with number of conditions attached to Fund-sponsored programs.

[18] In total, I reached the names of 703 central bank governors and 598 finance ministers. However, biographical details of 509 central bank governors and 569 finance ministers were available for coding.

[19] Professional and educational background information is obtained through central bank and ministry of finance websites, several volumes of Marquis Who's Who, and personal communication.

[20] Ordinal versions of these two career variables also exist. An arbitrary categorization for these variables is as follows: 3 for past careers in private sector, central banking, or international financial institutions; 2

Career (MOF) A binary variable that indicates a finance minister with a central banking career.

Expertise (CBG) A binary variable that indicates a master's or doctoral degree in economics or finance for the central bank governor.

Expertise (MOF) A binary variable that indicates a master's or doctoral degree in economics or finance for the finance minister.

The categorizations for the education and career variables are based on Göhlmann and Vaubel's (2007) article as well as the general distributions within the data. Below are the graphic representations of these distributions.

Figure 3: Educational backgrounds of econocrats

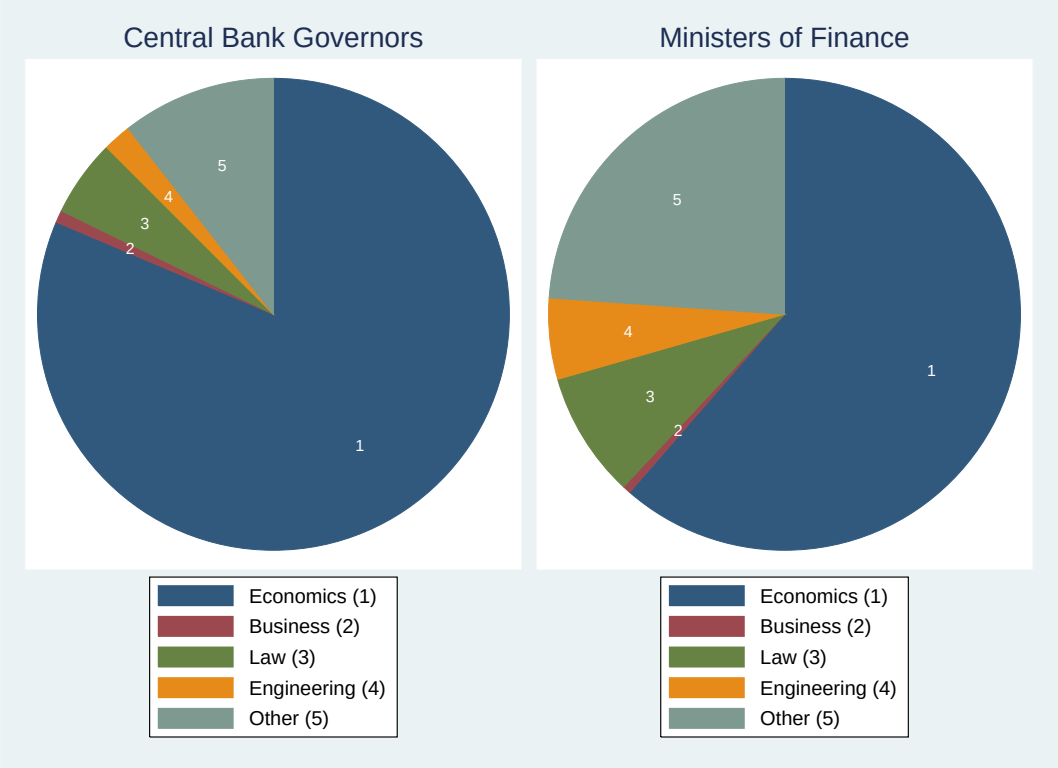


Figure 3 shows that an overwhelming majority of econocrats have undergraduate degrees in economics, albeit more so for central bank governors than ministers of finance. The

for academics or public servants with offices unrelated to macroeconomic issues; and 1 for political posts.

second place is occupied by the "other" category. In most of the low-income countries, especially in Africa, any university degree including agriculture or education is enough to enter civil service. For these econocrats, IMF workshops and graduate degree programs are important to acquire technical knowledge. The remaining two categories –law and engineering– represent prestigious educational paths in developing countries.

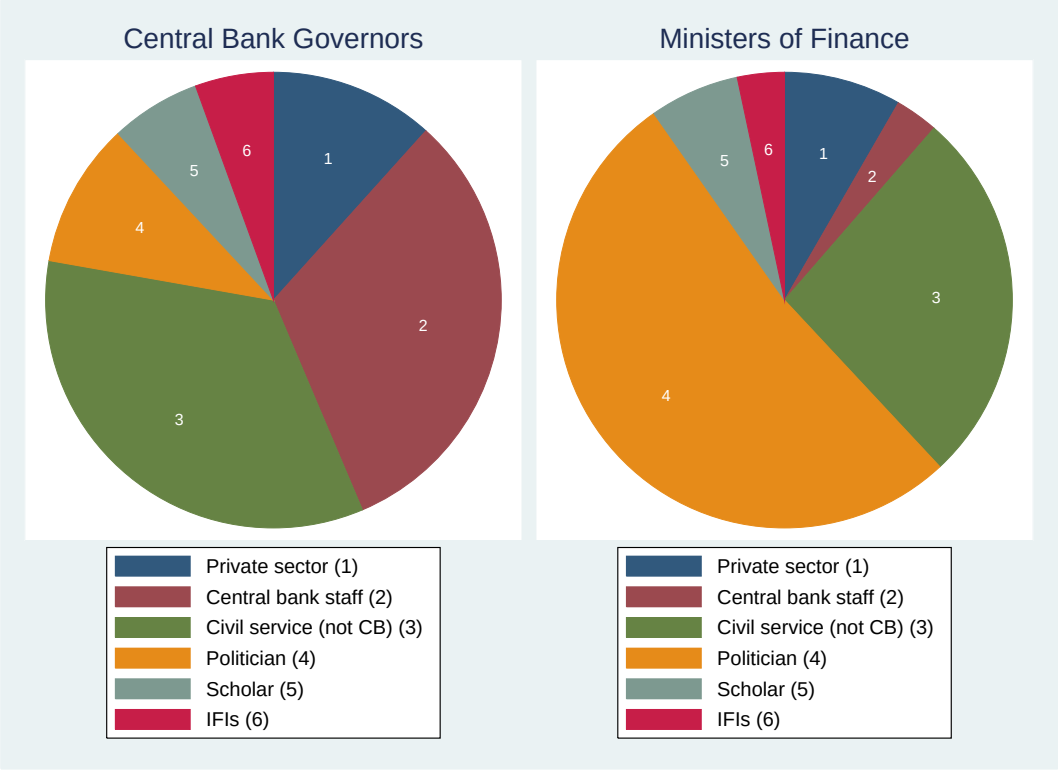
In terms of employment backgrounds or careers, the difference between central bankers and finance ministers is visible in Figure 4.[21] More than 60 percent of the central bank governors come from either within the central bank staff or another bureaucratic agency. On the other hand, about half of all the finance ministers have had political careers. This variation might help us distinguish between the two types of implementers mentioned beforehand: partisans and technocrats. In addition, this variable is a proxy for socialization. It is safe to assume that those econocrats who spent more time in economy bureaucracy, experienced more occasions of socialization with each other and with their international counterparts in several conferences, workshops, and meetings. These occasions might have increased their interactions and shaped their policy preferences.

Figure 5 displays the fractions of those with and without graduate degrees in economics or business administration for both groups of econocrats. There is a stark contrast between the two. Central bankers tend to get graduate-level diplomas more often which lend them the stamp of expertise. This distinction might result from the need of agents to rely on expertise and asymmetric technical knowledge to convince their principals. It might also be an indicator of conservative policy preferences as most graduate degree programs in economics, finance and business administration adopt neoliberal economic doctrine (Momani 2004, Momani 2005).

These independent variables are used separately as well as in combination. In order to

[21] This categorization is made for the office held immediately before becoming a central bank governor or finance minister. Ideally, a measure that takes into account all previous posts should be preferred. Unfortunately, such an account of complete employment background with specific dates of entry and exit is rarely available.

Figure 4: Employment backgrounds of econocrats

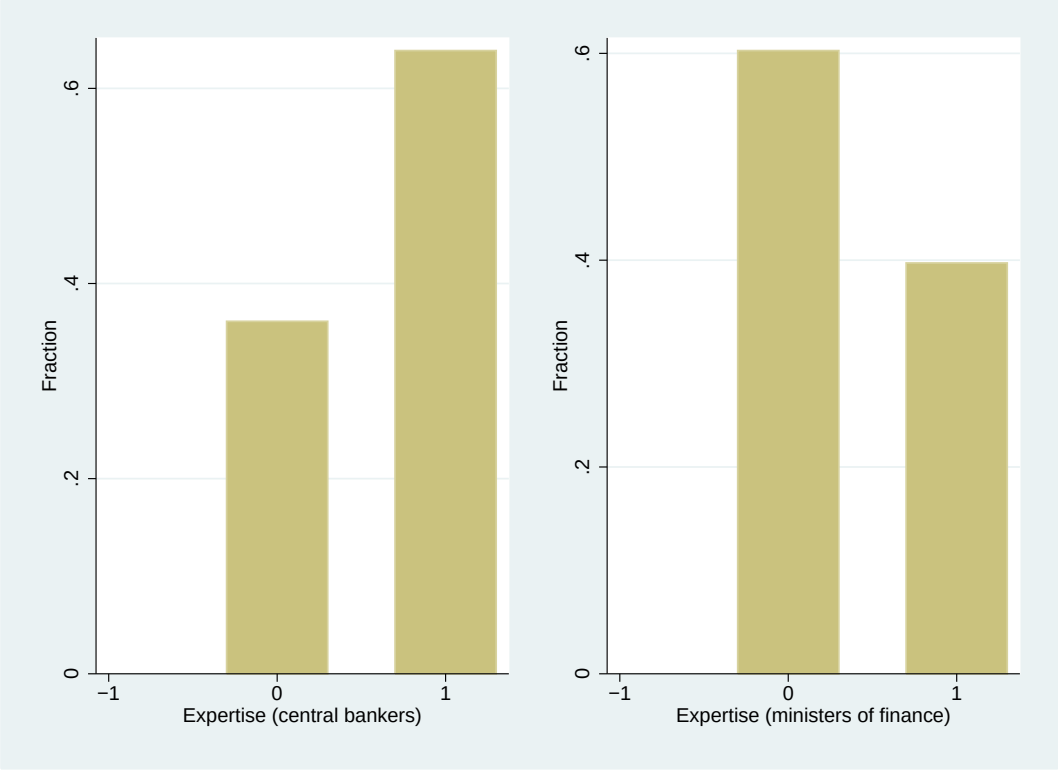


understand their joint effect, interaction variables are coded for getting both undergraduate and graduate degrees (Expertise × Education), econocrats with undergraduate degrees in economics in both seats (Education (CBG) × Education (MOF)), econocrats with graduate degrees in economics in both seats (Expertise (CBG) × Expertise (MOF)), and econocrats with central banking careers in both seats (Career (CBG) × Career (MOF)).

Given the nature of IMF programs, having a policy position on implementation may not be sufficient to generate bureaucratic influence. Agency autonomy is a crucial determinant, especially to understand how bureaucratic influence translates into policy. The central banking literature uses Cukierman, Webb and Neyapti's (1992, 1994) measure of legal independence. This measure is not available for most of the countries and years in this project. In addition, because it is a legal measure, it seldom varies. Instead, I use the following measures from Dreher, Sturm, and de Haan's (2008, 2010) data set.[22]

[22]The data are available on http://www.kof.ethz.ch/centralbankgovernors.

Figure 5: Expertise of econocrats



Irregular Turnover Dummy variable for replacement of a central bank governor before the end of the legal term in office.

Bureaucratic Time Horizon Number of years left until the end the governor's legal term in office.

Turnover Number Number of actual turnovers in a particular year.

Legal Duration Duration of governors' term in office according to the central bank law.

Time in Office Number of years spent in office since governor's appointment.

Even though these are proxies of central bank governor's discretionary power, they present a way to understand whether or not econocrats in a particular political system have job security and under how much political pressure they make their decisions.

Dependent Variables

The dependent variables in this project are grouped in two categories: selection and implementation.

Agreement Selection A binary variable indicating if a country is under an IMF arrangement between 1978 and 2008. This information is found in the annexes of the Fund's Annual Reports for the 1978-1993 period and in the MONA data for the 1993-2008 period.

Program Suspension A binary variable that indicates ineligibility for all the drawings of an arrangement. Borrowing states find themselves in this position if they miss a performance criteria and are unable to get a waiver from the Fund or if they fail a quarterly review. This variable is coded from Martin S. Edwards' data set which depends on the Schadler reports, quarterly country reports of the Economist Intelligence Unit (EIU), and Edwards' own analyses of program reviews from the IMF archives (Schadler 1995*a*, Schadler 1995*b*, Edwards 2002). Edwards' data set covers the 1979-1995 period; I coded this variable for the 1995-2008 period using the MONA data and EIU reports (EIU 2013).

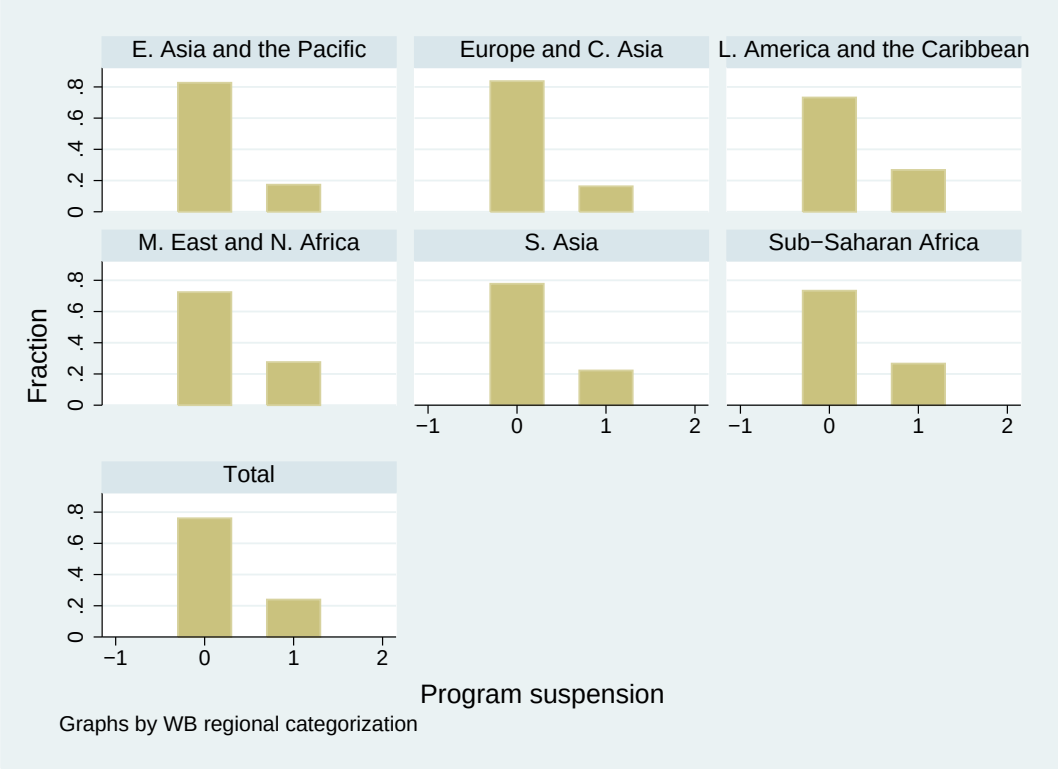
Implementation An annual ratio of disbursed to approved loans. The Fund releases tranches of promised loans after program reviews depending on whether or not certain conditions are met by the borrowing country. When some or all of a disbursement is left undrawn, this may indicate deviation from program goals. This variable is coded using the MONA data set and the EIU country reports (Ivanova et al. 2003).[23]

In 217 of the 586 Fund programs studied, states were not eligible for all of the available drawings. Borrowing countries experienced suspension of funds in 356 of the 1491

[23]Killick (1995), for instance, uses a 25 % arbitrary cut-off point to determine how much of the IMF loans are committed but left undrawn at the end of a program. Dreher (2006) criticizes this approach because of its omission of the interruptions that occur before program expiration.

program-years. Average disbursement rate between 1978 and 2008 is .64 when precautionary agreements are included, and .70 when they are excluded. This rate is negatively correlated with the occurrence of program suspensions. Figures 6 and 7 show histograms of program suspensions by region and the ratio of disbursements to commitments (i.e. implementation ratio) respectively.

Figure 6: Histogram of Program Suspensions by Region



One of the main dependent variables of this project is the *program suspension*. I operationalize this variable different from program cancellations. A program is cancelled when governments make public statements to terminate the agreement. These cancellations do not reflect compliance levels perfectly. To begin with, some countries cancel their agreements simply because they do not need the Fund's assistance anymore. For some others, cancellation of an agreement is a formality to sign another facility. Hence, program cancellations comprise a legal matter rather than a true measure of non-compliance.

My operationalization of program suspension refers to ineligibility for all of the draw-

ings due to *either* missing performance criteria and inability to obtain a waiver *or* failing a quarterly review. The original data for this variable are coded by Martin S. Edwards (2002). When coding for suspension, he relied on multiple sources of information including the IMF archives, the EIU country reports, and the 1995 Schadler reports. Hence, Edwards uses reliability checks to ensure that all of his sources match. He reports that 13 out of 14 Fund programs, overlapped with the EIU reports, point to the same conclusion in both sources. Edwards underlines that the probability of this result occurring due to chance is .0003.

For the 1995-2008 period, I used the same sources. Fortunately, because of the recent calls for transparency, IMF archives provide a more comprehensive account of previous programs.[24] Although most reports simply use wording like "conditions were not met" or "program went off-track" instead of detailing the reasons behind the outcome, they still present the most accurate information on suspension. The quarterly EIU reports mention the status of IMF agreements under the Economic Policy section.[25]

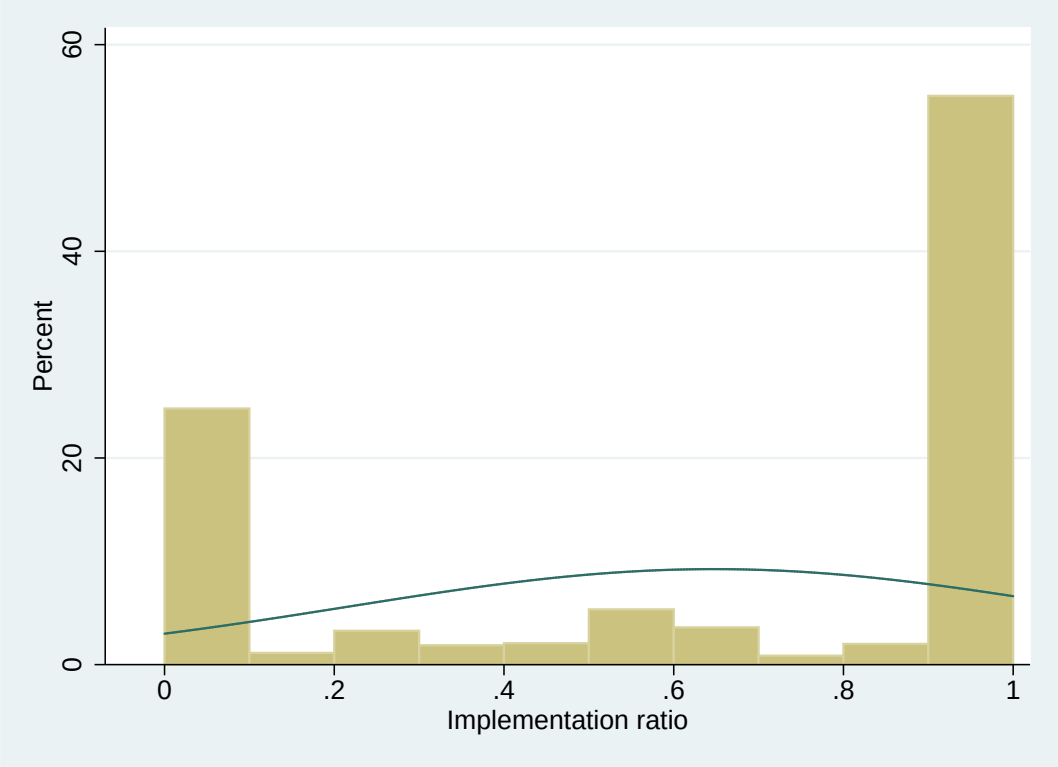
In addition to the *program suspension*, I also use a continuous variable, *implementation*, to strengthen the analysis of partial implementation. Suspension occurs if and when the borrowing state passes a certain threshold of poor implementation. Partial implementation stands above that threshold and is tolerated by the Fund, which grants waivers for the missed program conditions. Because there is no official statements of partial implementation, it is difficult to capture this form of non-compliance. The most popular proxy for implementation level is the percentage of tranche withdrawn (Conway 1994, Killick 1995). The Fund disburses its loans in tranches or installments depending on the results of scheduled reviews. Hence, the assumption is that the ratio of disbursed to originally approved amount of loans represents the implementation level.

Some scholars like Killick (1995) use arbitrary cutoff points (e.g. 20 percent) to code

[24]A new type of IMF publication, namely Ex Post Assessment of Longer-Term Program Engagement, analyzes past programs and the conditions under which they succeeded or failed.

[25]If and when there is discrepancy between these sources, I have checked the main news sources on the LexisNexis Academic search engine for clarification.

Figure 7: Histogram of Implementation Ratio



non-compliance. This approach, however, might overestimate non-compliance because some states choose to treat their agreements with the Fund as precautionary.[26] Killick's measure is also a cross-sectional one that does not vary annually. That means information on variance of implementation levels within individual programs will be lost. Considering our main independent variables, such a loss might be critical. For example, central bank governor of country A might change mid-program, and if we use the same disbursed-to-approved ratio for all program-years, we cannot detect any possible correlation between this change and the implementation level. Therefore, I constructed an annual measure of implementation ratio that spans from 0 to 1. When coding this variable, I used information on approved and disbursed amount of loans in the archived MONA data.[27]

[26]The "precautionary" status of a program, whether formally or informally deemed as such, is mentioned in press releases, program reviews, and staff surveys in the IMF archives.

[27]In calculations, the disbursements made in the first three months of each year are counted for the previous year; because the reviews that release those disbursements evaluate the implementation performance of the previous year.

Table 2 shows the difference between a cross-sectional and an annual measure for the same country. With a cross-sectional measure of implementation, Azerbaijan's performance seems quite satisfactory. This overestimation of implementation level, however, does not correlate with the program suspensions in 2000 and 2004. Why would the Fund suspend its program with Azerbaijan while the ratio of disbursed-to-approved loans for the 1996 and 2000 programs were .88 and .80 respectively? This dilemma is solved if we use an annual measure of implementation. With this approach, we find out that Azerbaijan's compliance with IMF conditions had fallen dramatically throughout both programs, and hence the suspensions.

Table 2: Example: Cross-sectional and annual measures of implementation

Country	Year	Agreement	Program	Implementation (cross-sectional)	Implementation (annual)
Azerbaijan	1995	1	1	1	1
Azerbaijan	1996	1	1	.88	1
Azerbaijan	1997	0	1	.88	.79
Azerbaijan	1998	0	1	.88	.69
Azerbaijan	1999	0	1	.88	.35
Azerbaijan	2000	0	1	.88	0
Azerbaijan	2001	1	1	.80	1
Azerbaijan	2002	0	1	.80	.5
Azerbaijan	2003	0	1	.80	.33
Azerbaijan	2004	0	1	.80	.66
Azerbaijan	2005	0	1	.80	0

Notes. "Agreement" refers to whether or not an agreement is signed with the Fund. "Program" refers to whether or not country is under an IMF agreement.

Estimation Techniques

In this project, of 3906 country-years, only 40 percent comprise the portion spent under IMF programs. More than half of the time, member states were not under the Fund's scrutiny. Therefore, their implementation and suspension scores are missing. Is it possible to treat these missing data as randomly-generated?

Member states that sign an agreement with the Fund constitute a self-selected sample (or "incidental" selection), not a random one (Goldberger 1981). It is likely that some countries refrain from entering a program to avoid conditionality. Some governments that could not or would not implement IMF conditions might choose not to participate in any IMF facilities. Thus, by ignoring this possibly non-random process of signing an agreement, we might overestimate the implementation levels in the population. To correct for this non-randomness, we need to address the sample selection bias in our regression techniques.

To solve this problem, Heckman treats the selection process as the omitted variable. The regression results generated by the Heckman's technique report the coefficient rho (ρ), which represents the correlation in the error terms. The sign and significance of rho informs us about whether or not selection bias constitutes a problem, and if yes, its particular impact. A statistically significant chi-square test for rho means that the unobserved variables of the selection stage also affect the outcome stage, and it is necessary to correct for this non-randomness. Interpretation of the sign is a tricky subject. Some authors choose to skip this interpretation altogether due to the sensitive nature of the rho. The error terms in the selection and outcome equations, which the rho coefficient is based on, are dependent on the model specification. That means alternative model specifications change the errors, and hence the rho. While keeping in mind this sensitivity, I present a basic interpretation structure to clarify the relationship, but refrain from using it as a major road sign in my analysis.

In congruence with the model specifications, I use Heckman's maximum likelihood and censored probit estimators for the continuous and binary dependent variables respectively. To control for heteroskedasticity, I employ robust standard errors throughout this project. Following Beck, Katz, and Tucker (1998), I add a set of cubic splines to the estimation to address the possible autocorrelation in the binary dependent variable (Tucker 1999). Finally, to account for regional effects, a set of dummy variables for the World Bank geo-

graphical regions[28] are created and plugged into relevant estimations.

Findings

First, I focus on the selection process through which states enter IMF programs. The literature uses a set of economic measures as determinants of the selection, such as debt service ratio, reserves measured in months of imports, GDP growth.[29] The baseline selection model in Table 2 builds on this existing literature (Conway 1994, Knight & Santaella 1997, Przeworski & Vreeland 2000). All variables are lagged one year, and a series of temporal splines are included to account for the possibility of autocorrelation (Beck, Katz & Tucker 1998).

The results confirm the conventional wisdom about the impact of debt service, reserves, and GDP growth. Politicians seek the Fund's help when economic fundamentals compel them. As expected, countries that are more integrated into the international economic system through trade seem to be more likely to enter IMF programs. A similar prospect exists for economies with (any form of) floating exchange rates. In other words, countries that peg their currencies tend to refrain from IMF agreements. These correlations support the argument that IMF's clients are countries in balance-of-payments crises. As the money and quasi-money supply to GDP ratio (M2) reminds us, these are also countries that face liquidity problems.

The χ^2 test on the cubic splines is highly significant, confirming the existence of autocorrelation in this model. By including these splines, we control for this issue.

The selection bias becomes a problem, because these same measures of overall eco-

[28] East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, South Asia, and the Sub-Saharan Africa.

[29] In addition to those reported in Table 3, other independent variables such as budget deficit and inflation are used as well. These variables were not statistically significant and did not add to the overall performance of the model.

Table 3: Baseline Selection Model

Independent Variables	Coefficients
Debt Service	**.0227** (.0066)
Reserves	**-.0329** (.0147)
GDP per Capita	**-.00008** (.00002)
Growth	**-.0235** (.0071)
Trade	**.0022** (.0011)
Fixed Exchange Rate	**-.5623** (.0723)
M2	**-.0056** (.0017)
Constant	**1.6401** (.1174)

N = 1846
Cubic spline χ^2 test: 462.02 (p > 0.0000)
Percent Correctly Predicted: 78.7 %
Robust standard errors are in parantheses.
Coefficients that are statistically significant at 0.05 level are marked with **bold** type.

nomic robustness affect both the selection and the implementation stages of IMF agreements. To control for selection, we have to use the information from this baseline model in our outcome equations. The instrument that carries this information is the hazard rate from the predicted values of the baseline model. This hazard rate or lambda represents the probability of being under a Fund program, and controls for the selection bias for used in the outcome model.[30]

Using this methodology, following subsections summarize the findings for each of the two dependent variables.

[30]Originally, Heckman's (1979) technique was called a "two-step" estimation. The "heckman" command in Stata 9, however, fits regression models with selection using full maximum likelihood by default.

Determinants of Implementation

The dependent variable in this section is the continuous implementation measure based on the disbursement ratio. The model below is a Heckman estimation, which tests whether a country was under an IMF-sponsored program and whether loans for that country were disbursed as agreed following the observance of the scheduled performance criteria. The model includes four sets of variables: actor-specific variables, variables for bureaucratic autonomy, variables for domestic and international politics, and economic variables.

The right side of Table 4 shows the selection stage. States seem to make their participation decisions based on their economic conditions –debt, reserves, fixed exchange rates, growth. In terms of political variables, both the Fund quota and receiving aid from the US are positively correlated with signing an agreement with IMF. These results are in line with the findings of the literature. Though, the US influence is weak: a one unit (.01) increase in the amount of aid improves the probability to sign an agreement only by .04 percent. Interestingly, the Similarity measure is negatively correlated with program participation. States voting similarly with the US are less likely to participate in IMF programs. This effect might be explained by availability of non-IMF funds for the close allies of the US. The only significant actor-level variable is Career (CBG). Central bank governors with careers within the agency are less likely to support the decision to sign an IMF agreement. Yet, as we shall see, once an agreement is signed, their influence on implementation is positive. Hence, experienced central bankers might refrain from agreement because of their intrinsic knowledge of what IMF conditions entail and how their governments might respond.

On the left side of the table, we report the implementation model. Actor-level variables are significant and positively related to implementation.[31] Using joint Wald tests,

[31] If a variable appears in both selection and outcome equations, the coefficient in the outcome equation has to be corrected in order to take into account its presence in the selection equation. Using Sigelman and Zeng's (1999) formula, I calculated these adjustments. Unless otherwise mentioned, these "real" coefficients are very close to those generated by the Heckman estimation method. For example, reported and adjusted coefficients for the Education (CBG) are .387 and .391 respectively.

Table 4: Determinants of Implementation

Implementation Model		Selection Model	
Education (CBG)	**.3875** (.1122)	Education (CBG)	-.0322 (.1539)
Career (CBG)	**.1333** (.0506)	Career (CBG)	**-.2357** (.0778)
Education (MOF)	**.4328** (.1243)	Expertise (CBG)	-.1710 (.2705)
Career (MOF)	.1442 (.1410)		
Expertise (MOF)	-.0023 (.0996)		
Education×2	**-.4039** (.1319)	Expertise×Education	.5166†(.067)
Career×2	**-.0430** (.0134)		
US Aid	-.0001 (.0001)	US Aid	**.0009** (.0001)
Similarity	**-.5019** (.1108)	Similarity	**-.2214** (.1219)
Debt Service	**.0048** (.0026)	Debt Service	**.0456** (.0058)
Reserves	**-.0226** (.0101)	Reserves	-.0212†(.0123)
Growth	.0001 (.0002)	Growth	**-.0302** (.0069)
Fixed Echange Rates	-.1065 (.0684)	Fixed Exchange Rates	**-.5463** (.0791)
Irregular Turnover	.0976 (.1087)	Inflation	**-.0042** (.0012)
Bureaucratic Time Horizon	.0015 (.0132)		
Turnover Number	**-.1906** (.0978)		
Legal Duration	-.0125 (.0418)		
Time in Office	-.0061 (.0095)		
Borrowing Experience	**-.0173** (.0061)		
Waiver	.0226 (.0553)		
Strict Conditionality	**-.3252** (.0830)		
Fund Quota	-.0420 (.0306)	Fund Quota	**.0621** (.0263)
Democracy	**.1480** (.0571)		
Fractionalization	-1959† (.1109)		
Constant	**1.6726** (.5954)	Constant	-1.0682 (.5010)
Rho	.5301	N	941
Rho χ^2	.0000		
Model χ^2	.0000		

Coefficients for regional dummies are omitted.
Robust standard errors are in parantheses.
Coefficients that are statistically significant at 0.05 level are marked with **bold** type.† indicates marginal significance.

other actor-level variables (Expertise(CBG) and Education×Expertise) are omitted from the model specification due to their lack of influence. Instead, two interaction variables are included: Education×2 and Career×2 refer to having central bank governors and finance ministers with similar educational (BA in economics or business) and occupational (previous posts in the central bank) paths respectively. Both have significant and negative effects

on implementation level. Our theory is not specific about the number of econocrats and their joint influence. In other words, we have no reason to believe that increase in the number of econocrats in key institutions would result in better implementation. Considering the ministry of finance as a political post, it is possible that we are capturing possible conflict between politicians and econocrats. Without appropriate technical knowledge, politicians might delegate the details of the implementation process to econocrats. On the other hand, if they share econocrats' technical knowledge, econocrats might lose the advantage of asymmetric information. This scenario might produce conflicts within government that affects implementation negatively.

Inclusion of the interaction terms changes our interpretation of the Education and Career variables. Because of the interaction term Education×2, the coefficient of Education (CBG) (.387) reflects the effect of having a CBG with bachelor's degree in economics or business only when the MOF has no such education. Below are the coefficients adjusted considering the interaction terms. Interestingly, central banker's influence on implementation is positive only when finance minister lacks the technical knowledge. When finance minister joins central banker in terms of educational background, their joint effect as well as the individual effect of the central banker turns negative.

Table 5: Interpreting Interactions: Outcome Model (Implementation)

Scenario	Coefficient	
When β(Education (MOF))=0	β(Education (CBG))	= .387
When β(Education (MOF))=1	β(Education (CBG))	= **-.017**
When β(Education (CBG))=0	β(Education (MOF))	= .432
When β(Education (CBG))=1	β(Education (MOF))	= .028
When β(Career (MOF))=0	β(Career (CBG))	= .133
When β(Career (MOF))=1	β(Career (CBG))	= .09

In addition to policy preferences, I expect domestic institutions to affect the implementation level. The proxies I use for bureaucratic autonomy are Turnover Number and

Democracy. Annual number of actual turnovers is an indicator of whether or not the central banker in particular and bureaucracy in general is susceptible to political fluctuations. In other words, extent of the job security for the implementers of IMF-sponsored policies will be reflected in these numbers. On the other hand, despite the discussion on the incompatibility of democratic accountability and central bank independence, democratic countries tend to harbor autonomous agencies (Bernhard 2002). Hence, whether or not a country is classified as democratic might give us an idea about the bureaucratic autonomy in that system. The results on Table 4 suggest that implementation improves with lower turnover numbers and higher probability of being a democracy.[32]

The economic variables in the outcome model demonstrate that poor economic fundamentals are positively correlated with implementation. As its debt service increases and reserves decrease, a borrowing country is more likely to implement IMF conditions. In other words, the worse the economic conditions are, the better the implementation process goes.

On the other hand, the Time in Office does not have the expected sign. The coefficient for length of time spent in office is not significant. This result might stem from data restrictions. This variable represents time spent in the current post rather than time spent in the economy bureaucracy. Socialization probably takes longer than one's time in his or her current post. Hence, this hypothesis should be tested again when more detailed biographical data is available for the entire sample or its subset.

The negative and significant sign of the Borrowing Experience shows that states learn, but what they learn is partial implementation. As the years spent in IMF agreements increase, states become less likely to implement IMF conditions fully. Of course, this relationship might also be picking up on the structural problems of the chronic borrowers.

[32]Fractionalization has a marginally significant negative effect on implementation. This finding makes a reference to the "program ownership" idea of the Fund. In addition, I included an interaction variable for fractionalized democracies, but the Wald test suggested that we cannot reject the null hypothesis that the coefficient on this variable is in fact zero.

That is why I have also run this estimation with regional dummies. The results are essentially the same. States with vast IMF experience might be learning how to receive flexible conditions, implement partially, and get away with it as they continue to sign consecutive agreements.

Table 4 also points out that selection bias was indeed a problem for this data-generating process. The rho coefficient is positive and significant. This proves that the implementation model cannot be considered apart from the agreement model. As we suggested before, negotiation and implementation stages are interdependent, and they should be analyzed together. I once again refrain from interpreting the sign of the covariance term as it is a byproduct of the model specification. Generally speaking, a positive rho coefficient means that unobservables in the selection and outcome models are positively correlated with one another.

In order to test the robustness of the results, I run the same model with additional economic variables as well as different measures of the key variables such as growth, reserves and debt service. For example, I re-estimated the model with lagged total debt service instead of lagged debt service ratio (as % of GNI) or reserves as percentage of total external including gold instead of reserves measured in months of imports. I also added trade, M2 and budget deficit variables, and the results were unchanged. I also used regional dummies for Latin America, Middle East, Sub-Saharan Africa, and South Asia as well as a dummy variable for a fixed exchange rate regime in both stages of the model. Even though results were substantially the same, the model chi square was improved with these additions. All the regional dummies had negative and significant coefficients at the selection level, meaning that countries from these regions are less likely to sign IMF agreements. At the outcome stage, only Latin America and Sub-Saharan Africa had negative and significant coefficients. Adopting a fixed exchange rate regime seems to be negatively correlated with entering a Fund program, but it loses its significance at the implementation stage. This is predictable

as one of the first policy recommendations of the IMF for borrowing countries is to liberalize the exchange rate regime.

Statistical significance is important, yet it says nothing about the substantive effects of the key independent variables. Table 6 reports the marginal effects for the expected value of implementation conditional on being observed (E(y | y observed)). For each scenario, the independent variable of interest was modified while holding others at their mean values.

The baseline implementation ratio, for which all independent variables are held at their means, shows that partial implementation is the expected outcome of the IMF programs. The upper limit of variance in implementation as we modify the key independent variables is around 40-50 %, close to the actual average mentioned in the literature (Ivanova 2003). This finding strengthens the argument of partial implementation being an equilibrium. In other words, both IMF officials and borrowing countries sign agreements knowing that deviations from the agreement will occur. The extent of partial implementation and the IMF response to this outcome are contingent to some domestic factors.

First, economic fundamentals are crucial in both negotiation and implementation stages. Countries with low international reserves, low growth, and high debt are more likely to sign and implement IMF agreements.

Second, econocrats' educational backgrounds in economics or business –an indicator of conservative policy preferences– affect implementation positively.[33] Interestingly, combined effect of two such econocrats as heads of monetary and fiscal policy-making is negative. As mentioned before, this change might be an outcome of domestic conflicts of interests between partisans and technocrats.

Third, institutional structure –especially delegation– constitutes another important factor. Countries with higher bureaucratic autonomy are more likely to implement fully.

[33]Marginal effect of CBG's prior occupation seems to be negative, but insignificant. This result might be due to the way interactive terms are interpreted by the *mfx* command in Stata 9. I will check the effect with *margins* command of Stata 12 in the future.

Table 6: Marginal Effects on Implementation

Baseline Expected Level of Implementation	32 %
Scenario	Change
When CBG's degree is in economics or business, and MOF's degree is not	Increases by 11.8%*
When MOF's degree is in economics or business, and CBG's degree is not	Increases by 14.1%*
When both CBG and MOF have degrees in economics or business	Decreases by 13%*
When CBG has a central banking career and MOF does not.	Decreases by 1.9 %
When both CBG and MOF have central banking careers	Decreases by 1.3%*
Increase borrowing experience by 1 year	Decreases by 0.5%*
Increase turnover number by 1 unit	Decreases by 6%*
When CBG's degree is in economics or business and turnover number is zero	Increases by 2.66%*
When CBG's degree is in economics or business and turnover number is one	Decreases by 3.35%*
When CBG's undergraduate and graduate degrees are in economics and business and turnover number is zero	Increases by 7.5%*
When CBG's degree undergraduate and graduate degrees are in economics and business and turnover number is one	Increases by 0.1%*
Being a democracy	Increases by 4.7%*
Increase fractionalization by 1 unit	Decreases by 6.1%*
Increase debt service ratio to maximum	Increases by 20.8%†
Decrease reserves to minimum	Increases by 6.5%*
Increase similarity to maximum	Decreases by 24.8%*

$*$ indicates a statistically significant change.
† indicates marginal significance.

One unit increase in the turnover number of central bankers decreases implementation by 6 percent. Conventional wisdom tells us that democracies would be more comfortable with the issue of delegation compared to non-democracies. Hence, it is possible to regard democracies as natural harbors for independent bureaucratic policy-making. Here, being a democracy

increases implementation by 4.7 percent. I have also run marginal effects using turnover number and educational background together. With a conservative and autonomous econocrat in office, expected level of implementation increases by 2.66 percent. On the other hand, a conservative econocrat without institutional autonomy has a negative effect on implementation. A similar, albeit marginally significant, effect is detected for Expertise×Education. I re-estimated the model with the Expertise×Education variable, and as mentioned before it is not significant. Its marginal effect, however, is significant at the 0.07 level. This effect is more pronounced conditional on bureaucratic autonomy, and it disappears as turnover number increases.

These results also support the realist argument that US allies are favored in IMF programs. This effect, however, is stronger at the selection stage. At the outcome stage, US Aid has no significant influence, only the Similarity measure stands. Countries with UN voting records similar to the US are less likely to sign IMF agreements and when they do sign, they are less likely to implement the conditions.

It is also possible to calculate the marginal effects for the probability of being observed. The baseline probability of signing an agreement with the IMF is 31.5 percent. Even though actor-level variables all have negative signs, the Expertise×Education variable has a positive and marginally significant coefficient. With all other variables at their means, having an expert conservative CBG increases the probability of signing an IMF agreement by 21.8 percent. This effect is significant at the .001 level. That means econocrats with policy preferences similar to those of the IMF officials are more likely to negotiate and implement Fund-sponsored programs. Now let us consider whether or not they affect the suspension decision.

Determinants of Program Suspension

The dependent variable in this section is the binary suspension measure. The model below is a Heckman probit estimation, which tests whether a country was under an IMF-sponsored program and whether its program was suspended, defined as ineligibility for all the drawings of an arrangement.

Table 7: Determinants of Program Suspension

Suspension Model		Selection Model	
Education (CBG)	**.4663** (.1948)	Education (CBG)	**-.3506** (.1171)
Career (CBG)	.0777 (.1068)	Career (CBG)	**-.2367** (.0631)
Expertise (CBG)	.5877 (.3580)	Expertise (CBG)	**-.4073** (.1920)
Expertise×Education	**-.9196** (.3927)	Expertise×Education	**.7168** (.2135)
US Aid	-.0003 (.0002)†	US Aid	**.0010** (.0001)
Similarity	.1664 (.2318)	Similarity	**-.2088** (.0968)
Debt Service	**-.0077** (.0039)	Debt Service	**.0417** (.0069)
Reserves	.0209 (.0219)	Reserves	-.0147 (.0117)
Growth	-.0053 (.0120)	Growth	**-.0225** (.0061)
Fixed Exchange Rates	**.4621** (.1483)	Fixed Exchange Rates	**-.5554** (.0642)
Irregular Turnover	-.3017 (.2569)	Inflation	**-.0015** (.0004)
Bureaucratic Time Horizon	-.0147 (.0262)		
Turnover Number	**.5299** (.2458)		
Legal Duration	-.0992 (.1173)		
Time in Office	.0177 (.0225)		
Borrowing Experience	.0053 (.0113)		
Waiver	−.3668† (.2075)		
Strict Conditionality	**.3056** (.1562)		
Fund Quota	-.0107 (.0737)	Fund Quota	**-.1424** (.0229)
Democracy	-.1931 (.3009)		
Fractionalization	.4421† (.2619)		
Democ×Frac	.1301 (.5013)		
Constant	-.4781 (1.453)	Constant	**3.0872** (.4388)
Rho	-.8907	N	1129
Rho χ^2	.044		
Model χ^2	.0001		

Coefficients for regional dummies and χ^2 results for cubic splines are omitted.
Robust standard errors are in parantheses.
Coefficients that are statistically significant at 0.05 level are marked with **bold** type.† indicates marginal significance.

Table 7 confirms our suspicions about the selection bias. The rho coefficient is nega-

tive and significant. Considering the fact that compliance gets better with higher implementation ratio and worse with higher suspension probability, the change in the rho coefficient's sign is expected. It means unobservables are negatively correlated with one another. For example, program ownership by the borrowing government might be an unobserved variable that is negatively related to signing an agreement with the Fund, but positively related to program suspension.

Similar to the previous one, I re-estimated this model with additional economic variables to test the robustness of the results. Overall, the key findings on the actor-level variables are very robust. The actor-level variables for finance ministers as wells as related interaction variables are dropped from the model as Wald tests suggested that we cannot reject the null hypothesis that their coefficients are in fact zero. I also added cubic splines and regional dummies, which improved the model according to the chi square results. All the coefficients for cubic splines were positive and significant, confirming the rationale for using them. Results for the regional dummies showed that only clients from South Asia and Middle East are more likely to get suspended. The difference from the last section might mean that even though Latin American and Sub-Saharan borrowers implement partially, these deviations do not result in program suspensions.

The selection model shows that economic variables are again important in making the decision to sign an agreement. Countries with high debt and low growth are more likely to borrow from the Fund. High inflation and a fixed exchange rate regime discourages states, whereas being a US aid recipient has a positive effect. It is important to note that coefficients for inflation and US aid are rather small, hence their substantive effect should be scrutinized.

In terms of actor-level variables, what we found in the implementation section becomes more striking here. Educational background in economics or business, expertise, and career ambition are all negatively correlated with agreement selection when considered sep-

arately. Only when a CBG has both undergraduate and graduate degrees in economics or business, he or she has a positive effect on entering a Fund-sponsored program. Table 8 shows that when either of the two variables is positive, the other's individual effect turns from negative to positive. This shows that there is an important threshold for forming a policy position through socialization or accumulation of technical knowledge.

Table 8: Interpreting Interactions: Selection model (Suspension)

Scenario	Coefficient	
When β(Expertise (CBG))=0	β(Education (CBG))	= −.3506
When β(Expertise (CBG))=1	β(Education (CBG))	= **.3662**
When β(Education (CBG))=0	β(Expertise (CBG))	= −.4073
When β(Education (CBG))=1	β(Expertise (CBG))	= **.3095**

We find a similar effect for the outcome model. Even though only Education (CBG) is significant, all three of the actor-level variables are positively related to program suspension. The interaction term, however, has a significant and negative effect. In Table 9, coefficients of interacting variables are re-calculated considering their interdependence. Once again, the individual effects of Education and Expertise are reversed as the other interacting term takes the value of 1. With truly conservative econocrats in office, program suspension becomes less likely.

Table 9: Interpreting Interactions: Selection model (Suspension)

Scenario	Coefficient	
When β(Expertise (CBG))=0	β(Education (CBG))	= .4633
When β(Expertise (CBG))=1	β(Education (CBG))	= **-.4533**
When β(Education (CBG))=0	β(Expertise (CBG))	= .5877
When β(Education (CBG))=1	β(Expertise (CBG))	= **-.3319**

Similar to our previous findings with implementation ratio, bureaucratic stability seems to be an important factor. Number of CBG turnovers is negatively correlated with suspension. The more bureaucratic replacements there are, the more likely the borrowing country loses its eligibility for funding. This effect might stem from two causal paths: either

through the lack of bureaucratic autonomy or through the difficulty of formulating a consistent monetary policy. Democracy –another measure of delegation– has no significant effect. Hence, whether turnover number is picking up on bureaucratic autonomy or capacity is not clear.

In terms of program content, level of conditionality and receiving waivers are correlated with suspension. Countries that receive waivers are less likely to be sanctioned. This is intuitive as for the Fund to grant waivers, it should have some hope for the future of the economic program. Or from an actor-level perspective, IMF officials should be persuaded by the steps already taken that the program is not doomed. In a sense, receiving waivers is a signal that partial implementation will not escalate into suspension. On the other hand, programs with strict conditionality are more likely to get suspended. Again, intuitively, flexible conditions are easier to implement. Controlling for these effects enables us to argue that econocrats' policy preferences have a direct effect on implementation. Yet, waivers and conditions are negotiated by the same econocrats. Therefore, future research should focus on these dependent variables.

Before moving on to the negotiation stage, let us evaluate the predicted probabilities of program suspension.

The baseline probability of program suspension is 37.3 percent. This is close to Edwards' finding of 42.3 percent, and the gap is due to the inclusion of programs with more flexible conditionality (e.g. PRGF) as well as the expansion of the data (Edwards 2002). Figure 8 shows a decrease in the number of suspensions since late 1990s, yet this fall is parallel to the general trend in the total number of program-years. Hence, we cannot claim that IMF's sanctioning behavior is changing fundamentally.

Conservative policy preferences –once ingrained in econocrats' undergraduate and graduate education– decrease probability of program suspension by 34.9 percent while holding all other independent variables at their means. If we consider this effect together with

Table 10: Predicted Probabilities of Program Suspension

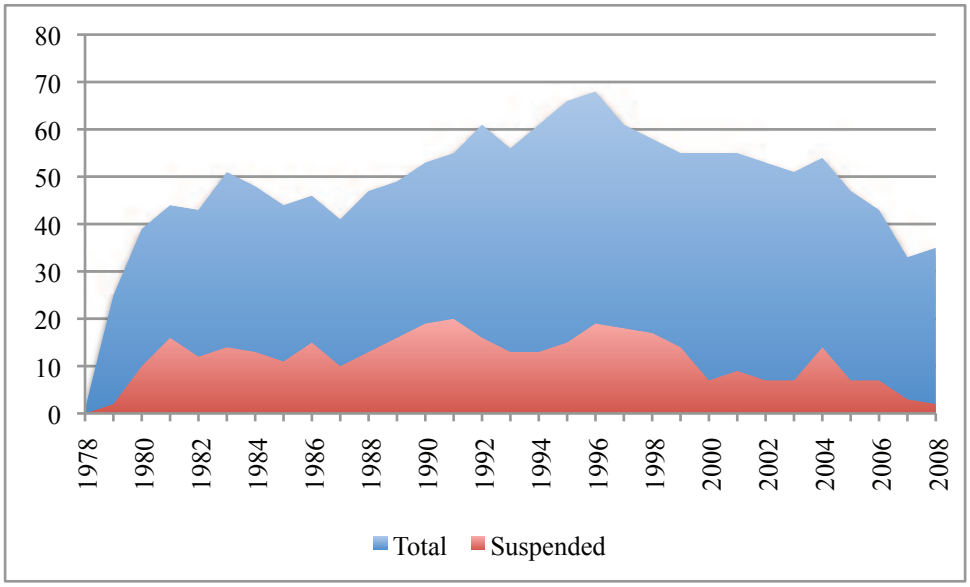
Baseline Suspension Probability	37.3 %
Scenario	Change
When CBG has an undergraduate degree is in economics or business, and no such graduate degree	Increases by 16.5%*
When CBG has both undergraduate and graduate degrees in economics or business	Decreases by 34.9%*
When conditionality is strict	Increases by 11.5%*
If a waiver is received for a missed target	Decreases by 13.8%*
Increase turnover number by 1 unit	Increases by 20%*
When CBG's undergraduate and graduate degrees are in economics and business and turnover number is zero	Decreases by 14.1%*
When CBG's degree undergraduate and graduate degrees are in economics and business and turnover number is one	Increases by 4.7%*
Increase fractionalization by 1 unit	Increases by 16.7%†
Having a fixed exchange rate regime	Increases by 17.4%*
Increase US aid to maximum	Decreases by 34.3%†
Increase debt service ratio to maximum	Decreases by 6.5%

∗ indicates a statistically significant change.
† indicates marginal significance.

the turnover number, it becomes clear that bureaucratic autonomy is an important part of this effect. Without any change, the Expertise×Education variable sustains its negative impact on the probability of suspension, but with just one turnover per year program suspension becomes more likely. Still this increase in probability is much smaller compared to the individual marginal effect of the turnover number, 4.7 and 20 % respectively. For the first scenario, the Expertise×Education term is fixed at 1, while for the second scenario it is held at its mean (.59). Hence, institutional structure and policy preferences work in conjunction.

Interestingly, the economic fundamentals seem to be influential on the implemen-

Figure 8: Number of Suspensions and Total Program-Years



tation measure but not the program suspension. Only debt service ratio has a significant coefficient in the expected direction. Substantially however, its marginal effect (- 6.5 %) on program suspension is not significant. This result takes us back to the argument that implementation ratio and program suspension emphasize different properties of international compliance. Implementation is a process controlled by domestic actors, while authority to suspend a program belongs to the Fund. Program suspension represents a threshold in non-compliance. The decision of whether that threshold is passed is made by the IMF Executive Board. Thus, it is important to use both of these measures to capture this nuance. Our findings show that poor economic fundamentals affect program implementation, but not necessarily the probability of getting suspended. This result again shows that IMF expects partial implementation and does not punish it with suspension of funds categorically.

In sum, similar to economic variables, Borrowing Experience, Time in Office, and Career exhibit no significant effects on program suspension. The most important findings of this section are the joint effect of Expertise and Education as well as its relation to bureaucratic autonomy. Suspending a program is a tough decision for the Fund, yet evidence suggests that domestic institutions and implementers' policy positions influence this decision.

Conclusion

In reality, domestic institutions might influence international cooperation in either way: depending on their institutional characteristics and relations with the IMF officials, econocrats might lean towards full or partial implementation of the program goals. Their preferences might be shaped by their budgetary concerns as well as a more idealistic world-view on how to achieve sustainable economic growth. While the literature on compliance attributes defection to the rent-seeking behavior of the politicians and weak institutional capacity, preferences of the implementers are usually left out.

Similarly, when compliance is achieved, success is considered as an indication of political cohesion or well-designed enforcement mechanisms. However, bureaucrats as implementers of international agreements have the power to subvert the goals of a reform program. Allina-Pisano, for example, argues that non-compliance with the IMF-supported land reform in Ukraine was a result of local bureaucrats' resistance to these changes.[34] She claims that local officials' position has depended on their belief in the harmful effects of these reforms on social welfare. Ukrainian bureaucrats have deviated from the goals of the agreement sub rosa, because open opposition against the central government was not possible. This example implies that understanding compliance behavior ultimately requires a better theory of bureaucratic politics.

The results presented in this paper show that there is a strong correlation between the policy preferences of the econocrats and the implementation level. Hence, it contributes to the domestic politics and compliance literature by pointing towards a new direction. So far, we have overemphasized the constraining effects of domestic politics on international relations. This study expands this limited focus by emphasizing who implements international agreements and why they choose to comply or defect.

[34] Allina-Pisano 2004.

In future studies, I will focus on refining this argument by clarifying the causal mechanisms. Intuitively, bureaucratic influence may follow two routes: directly through policy decisions and indirectly through bargaining over lenient, more implementable policies (Nelson 2013). The empirical tests in this study suggest that domestic heterogeneity of interests affect compliance. Next, we shall investigate how and under what conditions these causal mechanisms operate.

Appendix

Model

Definition 1. *Difference between player k's utilities from two policies is* $\Delta_k(\chi_1, \chi_2) = E(W_k(\chi_1) - W_k(\chi_2))$.

Definition 2. *For econocrats,* $W_i(\chi_i) = (1+\delta_i)[-(1-\chi_i)(y-y_i^*)^2 - \chi_i\pi^2]$. *For* F, $W_F(\chi_F) = -(1-\chi_F)(y-y_F^*)^2 - \chi_F\pi^2$. *For* E, $W_E(\chi_E) = -(1-\chi_E)(y-y_E^*)^2 - \chi_E\pi^2$.

Definition 3. *Reversion policy for* F *is* $\chi_F^R = E(\chi^*|\tilde{m} = 0)$. *Reversion policy for* E *is* $\chi_E^R = E(\chi^*|\tilde{r} = 0)$

Using Definitions 1, 2, and 3, I will describe F's equilibrium behavior. E's equilibrium offer $\tilde{r}$ will be analogous to this description.

Proposition 1 All else being equal, F will make B_i an equilibrium offer $\tilde{m} \in [\underline{m}, \overline{m}]$, in which

$$\overline{m} = \frac{\Delta_F(\chi_F, \chi_F^R)}{\theta_F}$$

and

$$\underline{m} = \max\left[\frac{(1+\delta_i)\Delta_i(\chi_i, \chi_F)}{\delta_i\theta_i}, \max\left(0, \frac{\tau_i\Delta_E(\chi_E, \chi_F)}{\tau_E\theta_i}\right) + \frac{\Delta_i(\chi_E, \chi_F)}{\delta_i\theta_i}\right].$$

Proof. The upper bound of the available equilibrium offers of F is the most F can afford credibly. That equals to the one-period value of the difference between F's offer and his reversion point, divided by the cost of the offer: $\overline{m} = \dfrac{\Delta_F(\chi_F, \chi_F^R)}{\theta_F}$. In other words, whatever F promises in period 1, he will at most pay the amount of his added utility from policy control.

The lower bound has to be the winning bid against B_i's added utility from both independent action and E's best offer. The first term, $\dfrac{(1+\delta_i)\Delta_i(\chi_i, \chi_F)}{\delta_i\theta_i}$, refers to the B_i's disutility from choosing F's ideal policy over his own. Any bargain acceptable for B_i has to compensate this loss. The second term, $\max\left(0, \dfrac{\tau_i\Delta_E(\chi_E, \chi_F)}{\tau_E\theta_i}\right) + \dfrac{\Delta_i(\chi_E, \chi_F)}{\delta_i\theta_i}$, represents the net change in B_i's utility given E's best offer. It consists of two parts: the values B_i attaches to E's career reward $\tilde{r}$ and E's ideal policy, respectively. □

Proposition 2 So long as there are gains to trade, $\overline{m} > \underline{m}$, bargains between F and B_i will succeed even if F cares little for the future.

Proof. According to the folk theorem for games between short- and long-run players, repeated nature of the game guarantees reputation costs, which makes principals with any $\delta_F \in (0, 1]$ fulfill their promises. This is because the costs and benefits of defection are deferred to the next period. If F does not pay $\tilde{m}$ for today's policy in the next period, the next period's econocrat –same as or different from today's agent– will not accept an offer from F. Thus, so long as $\overline{m} > \underline{m}$, any $\delta_F \in (0, 1]$ will be enough for bargains between F and B_i to exist. □

Proposition 3 Given that both F and E offer some $\tilde{m} \in [\underline{m}, \overline{m}]$ and $\tilde{r} \in [\underline{r}, \overline{r}]$, B_i always accepts the best offer and implements policy accordingly. In period 2, winning bidder fulfills his offer, and B_i accepts. If there was no winning bidder, B_i remains in office and implements χ_i.

Proof. As B_i maximizes his utility over one play of the game, he will always play a pure strategy of taking the best offer and implementing policy accordingly. When both F and E

play pure strategies and offer some $\tilde{m} \in [\underline{m}, \overline{m}]$ and $\tilde{r} \in [\underline{r}, \overline{r}]$, B_i accepts the best offer that offsets his losses from policy implementation and maximizes his utility function in Equation 4. □

Proposition 4 If either or both of the principals play mixed strategies, equilibrium results of the game with respect to policies implemented will not be affected.

Proof. The game setting allows both principals to play mixed strategies. Suppose that given $\overline{m} > \underline{m}$, F offers $\tilde{m}$ such that $m \in [\underline{m}, \overline{m}]$ with probability p, and $m = 0$ with probability $1 - p$. F will win so long as $E(\tilde{m}) = pm \geq \underline{m}$. As long as F's offer is in line with this constraint, B_i will implement his ideal policy. If F's offer is less than this lower bound, he will be punished. Therefore, any mixed strategy with $pm < \underline{m}$ is strictly dominated by the pure strategy of playing $m = \underline{m}$ in every period. With a strategy of playing $m = \underline{m}$, F gains at least $\underline{m}$ every period, whereas with a strategy of playing $pm < \underline{m}$ B_i stays in office and implements χ_i. Because $\chi_i < \chi_F$, F prefers to avoid this outcome compared to policy control. That means under a mixed strategy any and all realizations of m will be in line with this lower bound. This conclusion implies that mixed and pure strategy equilibria with the same $E(m)$ and $E(r)$ do not differ in terms of the policies implemented. □

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