IMF Programs & Economic Reforms in Transition Countries

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Abstract

How have IMF programs shaped economic transitions in the post-communist countries? For the last two decades, the formerly socialist countries have experienced dramatic changes in their economic policies. In particular, transition from a centrally planned economy to market-based economy has involved significant public sector reforms. The IMF played a crucial role in facilitating/helping transition with its unique combination of financial resources and policy prescriptions. While most of these countries have participated in IMF programs during the transition period, the degree to which economic reforms have progressed varies significantly among these countries.

What makes IMF involvement in reform process more or less effective? In the paper, we provide an answer to how IMF programs have promoted or stifled public sector reforms in the post-communist economies. Using an original dataset of IMF conditionality and EBRD data on the economic reforms of transition, we show that increasing number of structural public sector conditions included in an IMF program has an adverse effect on economic reforms. We argue that this is because more structural conditions make a government less flexible in coping with domestic opposition to reform measures, hence implementation of conditions more problematic. In other words, increasing number of structural conditions reduce a government's ownership over reform measures, thereby making the implementation of reforms harder especially when facing domestic opposition. As a consequence, the resulting economic reforms are less successful.

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Introduction

For the last two decades, the formerly communist countries of Europe and Eurasia have experienced dramatic changes in their economic structures and resulting policies. In particular, transition from the centrally planned economies of the old system to a new market-based system has involved significant changes to the public sector. Most often, these reforms have included freeing commodity prices, cutting long-standing subsidies and introducing competition to previously protected industries, restructuring and privatizing state-owned enterprises, reducing public employment, and other changes needed to bring public sectors in harmony with an economic system based upon free markets rather than upon state directives.

Throughout the region, the International Monetary Fund (IMF) has been significantly involved in the market transition process. Armed with knowledge on market economy and macroeconomic expertise, equipped with financial resources, and supported by the major sovereign principals such as the United States, the IMF has played a significant role in the marketization process in most of formerly socialist countries of Eastern Europe and Eurasia. The IMF has routinely provided progress assessment and policy recommendation during the transition process through its Article IV consultation. In addition, not only have nearly all transition economies participated in IMF programs, but many of these countries have participated multiple times.[1]

At twenty years since the fall of communism, we witness wide variation in the reform trajectories taken by the so-called transition countries. Some countries, such as Poland, the Czech Republic, and the Baltic States have made significant progress toward market-based economy and have successfully joined the European Union. Meanwhile, others such as Belarus, Moldova, and Kyrgyz Republic have made relatively little progress toward reforming their inefficient public sectors and establishing economies with well-run markets.

Then how have IMF programs shaped economic transitions in former Soviet countries? Do IMF programs help or hurt countries' economic reforms? What are the effects, if any, of

[1] List of IMF programs are included in the Appendix.

IMF programs on economic reforms? Conventional studies of effects of IMF programs either use a before-and-after approach or a with-without-treatment approach to assess effects of IMF involvement on various social, political, and economic indicators. The conventional approach, however, has certain limitations. First, when applying the approach to post-communist countries that have been actively participated in IMF programs for many years, the explanatory variable remains relatively constant as many have participated multiple programs which lasted from one to five years. Second, focusing only on whether a country participated in an IMF program or not neglects the fact that not all IMF programs are designed equally. Indeed, recent empirical studies of IMF lending show that there exist wide variation in IMF programs both in terms of the number of policy conditions they contain and the level of financial support provided.

In this paper, we assess the effect of IMF conditions on public sector reform outcomes in the transition economies. We argue that when it comes to the number of structural conditions that will need to be implemented by reforming governments, less is more. While quantitative performance criteria and targets set certain goals and limits for crucial economic measures, structural conditions prescribe specific policy measures to meet those quantitative targets, limiting the government's ability to adjust to domestic political circumstances. Since it is often more feasible politically for leaders to implement reforms when policy conditions are modest and flexible enough to allow governments to adjust their programs to accommodate domestic opposition, fewer structural conditions should lead greater overall progress in carrying out economic reforms. Utilizing a newly constructed dataset on IMF conditionality and EBRD data on the progress of economic reforms in the transition countries, we find that, for a given IMF program, more structural reform conditions are associated with a country making less progress in achieving economic reforms in the years following program entry. This theoretical argument meshes well with the recent emphasis in the literature on the reform ownership while the empirical analysis provides empirical support for claims that increased ownership with fewer structural conditions leads to better economic reforms.

The paper is organized into five sections. The next section reviews existing studies of post-communist economic reforms and the involvement of the IMF within the region. The following section introduces briefly the process of IMF program design and implementation, then lays out a theoretical argument based on the domestic politics of economic reforms. The third section describes the empirical design and introduces the variables used in the analysis. The fourth section reports and discusses the results from our statistical analyses. In the final section, we conclude by highlighting a number of implications of this research that relate to on-going scholarly and policy debates about IMF reforms.

Literature Review

Economic Reform in Transition Countries

For decades, the countries that comprised the former Soviet Union and its satellite states in the Eastern bloc rejected markets in favor of state control, creating economic systems that concentrated both resources and allocative decisions into government hands. When these same states abandoned central planning in the early 1990s in favor of coordinating societal and economic activities through markets, they began undertaking systemic economic reforms on an unprecedented scale in order to disentangle the massive state apparatus of the old regime from the rest of the economy (Lindblom 2001). Despite their uncommonly similar starting points, the post-communist countries diverged quickly, providing a substantial amount of variation in the extent to which the required economic reforms have been completed. Some countries such as Slovenia and Latvia have made long strides in restructuring their once state-run economies, while others, such as Belarus and Uzbekistan, have economic systems that bear strong resemblances to their socialist predecessors (Aslund 2001). To account for the observed variation in reform outcomes, the large literature on post-communist economic transition offers several explanations. An exhaustive review of the of post-communist reforms would be impossible to conduct here briefly, so for the purpose of

this paper, we summarize prominent arguments along one salient dimension – the degree reform progress has depended upon domestic or international factors.

Many, if not most, explanations of economic reform in the transition countries emphasize the role of domestic conditions. Although they may have often disagreed about the identity about the various parties involved, these scholarly arguments have argued since the beginning of the transition period that the support of various domestic groups remains critical to reforms' success or failure. Taking lessons from the Latin American experience, works such as Przeworski (1991) or Haggard and Kaufman (1995) have worried that political backlash from those who suffer the costs of painful reforms can derail economic reforms before reforms reach their completion. Hellman (1998) turns this argument on its head, claiming that the so-called "losers" from reforms are much less likely to impede lasting changes; instead, it is the "early winners," those with privileged access to rents within a partially reformed system, who are most likely to marshal their new-found resources in opposition to the comprehensive reforms that would erode away economic rents. Although parties' ideology has displayed a surprisingly muted ability to predict reform outcomes for the post-socialist transition (European Bank of Reconstruction and Development 1999), a high degree of polarization within political systems leads to a "war of attrition" between political camps eager to concentrate the costs of reform onto the supports of the opposing group (Alesina & Drazen 1991). The result, according to Frye (2002), has been lower growth in polarized post-communist countries due to unstable and incoherent reform policies. In these and related arguments, reforms' success or failure hangs upon some important domestic group, such as angry voters, vested interests, or ideological rivals, that act as "stakeholders" – actors with both an interest in the status quo and the ability to undermine successful adoption and implementation of reforms (Shleifer & Treisman 2000) Such arguments typically imply that to make progress in reforms, reform-minded politicians must win the support of these domestic stakeholders or, if that is not possible, remove their ability to resist.

Alternatively, other observers have stressed the role of international actors in shaping the

reform paths of the transition economies, highlighting the extensive involvement in the region by international financial institutions, especially the IMF. And, in contrast to the domestic-level arguments that worry over how to deal with obstinate opposition, explanations that emphasize international factors often assume that external constraints will trump domestic opposition. For example, speaking about stalled reforms in the transition countries, an article in the IMF's quarterly magazine, *Finance & Development* writes:

> "Other external pressure might come from the international financial institutions and bilateral donors using loan conditionality to push through key reforms even if vested interests resist. This may be an important factor in whether or not the transition process advances or remains mired in the intermediate stage" (Havrylyshyn & Odling-Smee 2000).

Extending this argument, Vreeland(Vreeland 2003) argues that some countries participate in IMF programs not primarily because of financial needs but because they need political leverage. By bringing in the IMF, the government is able to push through reforms that was not possible because of domestic opposition.

Yet despite the above optimism that IMF conditions can improve reform progress, some vocal critics have argued that attempts of exactly this sort, to "push through key reforms" without broad domestic consensus, have produced the worst results in terms of countries' reform outcomes. In particular, proponents of "gradual" or "evolutionary" reform strategies claim that, by promoting and enforcing an aggressive reform agenda that often ignored existing conditions and sowed seeds of popular discontent, the IMF and other Western institutions had a large, negative effect that, in many countries, eventually undermined public and political support for further reform (Murrell 1993, Roland 2002, Desai 2005). Stiglitz (2003) provides an extreme example, offering the IMF's macroeconomic and privatization consultation advice to the Russian government as the answer to his provocatively-titled book chapter, "Who Lost Russia?" Not all studies, however, are so pessimistic about the relationship between IMF programs and reform outcomes. Notably, Stone's (2002) path-

breaking study of post-communist countries' IMF programs argues that, conditional upon their credible enforcement, IMF programs result in lower inflation and attract higher foreign investment.

IMF Program & Its Effects

In the past decade, studies of causes and consequences of IMF programs have burgeoned, largely thanks to the increasing availability of IMF program-related data. A majority of IMF related studies investigate the various effects of IMF programs. Studies not only concern economic causes and consequences of IMF programs but also often assess social and political causes and consequences of programs, as international and domestic political factors are heavily involved in every stage of IMF program — from governments' decision to participate in IMF program, to the IMF's decision to approve a program and negotiation of the conditions to be included, to implementation of the agreed program. These studies include Przeworski and Vreeland (2000) and Vreeland (2003) examining the effect of IMF program on economic growth, Vreeland (2002) examining the effect of IMF program on labor and income redistribution, Nooruddin and Simmons (2006) evaluating the effect of IMF program on social spending, Jensen (2004) and Stone (2002) assessing the catalytic effect of IMF program on FDI flows, Dreher (2004) investigating the effect of IMF program on incumbent government's reelection, and Brown (2009) examining the effect of IMF programs on democracy.[2]

The most common approach to assess the effects of IMF programs is either to compare before and after IMF program participation or to compare with and without an IMF program participation. Recent studies tend to be more methodologically sophisticated, often controlling for selection effects — which countries are more likely to participate in an IMF program — before evaluating the effect of IMF program participation. However, in making

[2]The list of studies examining causes and consequences of IMF programs is too extensive to include all here. There are excellent recent reviews of IMF related research by Vreeland(2007) and Stone and Steinwand(2008).

the main explanatory variable of these studies a dichotomous variable of IMF program participation, these studies make the implicit assumption that all IMF programs are similarly designed to each other or that IMF programs would have similar effects once they are signed, regardless of their design.

Yet, IMF programs are very much different from each other. A few studies of IMF conditionality, for instance, report large variation in IMF program design, whether in the number of conditions included in a program (Dreher & Jensen 2007, Copelovitch 2010) or in the scope of conditionality covered within a program (Stone 2008). And aforementioned studies show that differences between IMF programs in their design are not random but stem from international and domestic political circumstances surrounding deliberate negotiations between the IMF and participating governments. Thus we suspect if the most common approach of the literature that treat IMF programs and their effect homogenous across countries is legitimate.

Argument & Hypothesis

We build our argument based on the theoretical framework proposed by Fearon (1998). Fearon argues that the bargaining of an international agreement and its enforcement are intimately related. In the context of this paper, this would mean that the design of an IMF program and domestic implementation of the reform measures included in the program are closely linked. That is, the design of an IMF program would take into consideration of the possibility of program implementation. In particular, political consideration of the domestic opposition to resist economic reforms should play a key role in the design of IMF programs. In turn, the probably of successful implementation and domestic political struggle over reforms should depend on how an IM program is designed. As many post-communist reformers have found, if the "stakeholders" in the status quo are mistakenly overlooked, ambitious and over-reaching reform programs can be halted quickly by an active and recalcitrant opposition

(Shleifer & Treisman 2000).

Given the theoretical framework, we argue that more detailed policy conditions within an IMF program would hamper rather than promote economic reforms in the contentious transition era of post-Soviet politics. More detailed policy conditions would constrain participating governments' room to maneuver to a tight range of political possibilities when implementing the reform policies hinges on successfully navigating through the range. In comparison, less detailed conditions would give more room for governments to make political compromises and adjustments in implementing reform policies when the government is faced with anticipated or unexpected domestic opposition to reform measures. Although governments are formally committing to less, this increased flexibility ultimately increases the possibility that economic reforms will take place as planned. The argument is closely parallels with the ownership argument in the IMF literature (Bird & Willett 2004). In the language of that approach, the increased ownership of a reform program allows for greater flexibility than a micro-managing schedule of detailed policies that has been handed down by the IMF. Fewer conditions means less reduction in government ownership over reforms, allowing governments to draw their own specific policy measures and cope better with potential domestic opposition by accommodating and adjusting to the demands from domestic opposition.

Given two broad types of IMF conditions — quantitative measures that set the numerical targets for broad range of economic indicators and structural conditions that prescribes specific policy measures to meet the quantitative targets, we further contend that the number of structural conditions can capture the degree of program flexibility. Two types of conditions differ significantly in how they constrain a government's ability to cope with domestic opposition or how much flexibility they grant. On the one hand, quantitative measures, such as quantitative performance criteria, set limits on government's spending or put ceilings on government's debt. These quantitative targets only set the goals for the government to reach and timely meet given a set schedule. Structural conditions, on the other hand, prescribe

specific policy measures, such as privatizing specific list of state-owned enterprises and laying off certain number of public employees. These micro-managing structural conditions put strict constraints on the choice of policy measures and do not allow much flexibility for the government.

Often economic reform initiatives, whether with or without the help of the IMF, are met with strong domestic opposition because economic reforms produce reform losers as well as reform winners. Thus, in pushing through reforms and successfully implement reform measures, it is important to navigate though, negotiate with, and compromise with anticipated and unanticipated domestic oppositions. If domestic opposition is not adequately accommodated, there can be certain political and economic backlashes. For instance, domestic opposition to economic reforms can lead to political leadership change and political leadership change can lead to a big policy swing reversing economic reform initiatives.

We here propose that the number of structural conditions — micro-managing policy measures that dictate the manner in which quantitative targets must be met — can reasonably capture the ownership or of a program or the government's ability to flexibly cope with and accommodate domestic opposition. We further contend that when a government has more flexibility to accommodate powerful domestic opposition, economic reforms that the government pursues is more likely to succeed. Thus, among the countries who participate in IMF programs, those governments who have fewer structural conditions should be better able to actually implement the measures than those who have more structural conditions. And those who can successfully implement reform measures should achieve better reform outcome than those who are not able to implement reform measures. Based on our argument, we propose:

Hypothesis: The greater the number of structural conditions, the worse the reform outcomes associated with that program. The fewer the number of structural conditions, the better the reform outcome.

Empirical Analysis

Dataset

We test our argument in the context of the post-communist countries of Eastern Europe and the former Soviet Union. There are multiple advantages to focusing our analysis of the effects of IMF conditionality on the economic reforms of transition. From a methodological standpoint, these countries' common history under communism provides a compelling starting point from which to study their divergent reform trajectories. Not only did they begin the transition period with a set of comparable political institutions, but the post-communist countries had atypically similar and extensive government control over economic resources, leading to similarity in the kinds of public sector reforms required by the IMF. Finally, due to the common economic difficulties that these countries faced in establishing market institutions, almost all the former socialist countries of the Eastern Bloc and Soviet Union eventually turned to the IMF for help.[3] The post-communist countries' near-universal – and often repeated – participation in IMF programs helps to alleviate concerns about sample selection and provides useful variation on the independent variable. Thus, to analyze the relationship between the number of structural conditions in IMF programs and the extent of countries' progress in pursuing economic reforms, we collect data for twenty-three post-communist countries for the period between 1994-2009.[4]

Main Variables

Our dependent variable – ECONOMIC REFORM – derives from scores for economic and institutional reform given to each transition country by the European Bank of Reconstruction and Development (EBRD) for each year since communism's collapse. In total, the EBRD

[3] A quick look at the history of IMF lending confirms the ubiquity of IMF assistance in the transition economies. Among 263 IMF programs between 1994-2004, 77 programs, or roughly 30%, occurred within post-Soviet countries.

[4] The appendix provides a list of countries and programs in the dataset.

tracks reform progress on eight different dimensions: large-scale privatization, small-scale privatization, competition policy, enterprise restructuring and corporate governance, price liberalization, trade and currency liberalization, banking reform, and securities market reform. Experts at the EBRD assign an indicator of 1-4.3 to represent a country's cumulative reform progress on each dimension, with 1 meaning "little to no reform" and 4 indicating "performance typical of advanced industrial economies."[5] Like any data that relies upon expert assessments rather than "hard" data, the EBRD scores have a subjective element that raises the possibility that raters' biases or expectations unduly influence countries' scores. The EBRD has taken steps to mitigate such concerns. For instance, the reform scores are checked for consistency by country experts outside the EBRD, include a wide range of different policies, and are guided by a relatively explicit coding methodology.[6] The end result is a set of standardized measures for different dimensions of reform that can be compared reasonably across post-communist countries and over time.

We combine the EBRD scores to build a single, composite measure of institutional and economic reform.[7] In pairwise comparisons, the eight dimensions of reform correlate positively and are statistically significant at p-values below 0.001. The Cronbach's α for these eight items is 0.74, with an reliability coefficient of 0.96. Given the empirical support that these results provide for treating reform in a single dimension, we use factor analysis to construct a reform index to use as the dependent variable for our statistical analyses.[8] The left-hand side of Table **??** summarizes this reform index by country. Looking at the table, we see that the reform index produces estimates that are in line with conventional wisdom.

[5]Within this range, there are eleven possible values the measures can take: 1, 1.3, 1.7, 2, 2.3, 2.7, 3, 3.3, 3.7, 4, and 4.3.

[6]The EBRD makes the coding rubric available on its website:
http://www.ebrd.com/pages/research/economics/data/macro/ti_methodology.shtml.

[7]Given the nature of the EBRD data, it is possible to investigate progress across all eight dimensions of economic and institutional reforms separately. For the time being, however, we treat reform in a single dimension in order to focus on the general relationship between conditionality requirements and subsequent reform. We leave it to future research to supply the theoretical innovations necessary to make dimension-specific tests of reform useful.

[8]Principal-axis factoring shows that the different dimensions load mainly onto one factor. We use the varimax rotation of this first factor.

The index places reformers such as Poland, Hungary, and Estonia on the high end, laggards such as Turkmenistan and Tajikistan at the low end, and mid-performers such as Russia and Romania towards the middle of the pack.

The right-hand side of Table 1 also provides a statistical summary of our main independent variable, the number of STRUCTURAL CONDITIONS in a program. In terms of classification, structural conditions include targets and requirements set by the IMF depending upon prior actions, structural performance criteria, and structural benchmarks. Often, these conditions require a government to make very specific reforms. For instance, conditions may assign a specific number of public sector employees to be laid off by particular dates, list specific state-owned enterprises to be privatized, and prescribe detailed measures by which to reform and restructure particular public enterprises. The data on structural conditions come from a larger dataset of IMF conditionality which codes 263 IMF programs signed between 1994 to 2006(Woo 2010). We update this data for the post-communist countries in our dataset to include the years 2007-2009. During the period between 1994 and 2009, the IMF concluded 84 programs in the post-communist region, with an average of 15.5 structural conditions per program (standard deviation of approximately 11.25). Four programs have no structural public sector conditions while six have 30 or more. Most notably, Ukraine signed an IMF program in 1998 that contained 51 structural conditions, and, in 1995 Armenia signed a program with 50 conditions.

In addition to the number of structural conditions, we control for other program-specific and country characteristics that might be correlated with both the extensiveness of IMF conditionality and countries' economic reform progress. We include a count variable for MULTIPLE PROGRAMS because the frequency with which a given country has already participated in IMF programs may have a relationship to both the current number of conditions and associated reform outcomes. Various arguments link democratic institutions to both the extensiveness of economic reforms in the post-communist countries (Przeworski 1991) as well as the terms on which IMF loans are granted (Woo2010). We code DEMOCRACY as a

dichotomous measure and follow the convention of assigning a value of "1" to all countries receiving a Polity score of 7 through 10 (Jaggers & Gurr 1995).

Given that both the terms of IMF conditionality and subsequent reform progress should depend heavily upon the prevailing economic situation that leads countries to reach out to the IMF, we include variables to proxy for the depth of macroeconomic crisis. As hyperinflation and joblessness were among the main symptoms of economic collapse during the transition period, we control for INFLATION (logged) as well as UNEMPLOYMENT rates. We control for debt pressures that may affect reform opportunities as well as IMF conditionality by including a measure for countries' DEBT-TO-EXPORTS ratio. Similarly, low ECONOMIC GROWTH or economic contraction may influence reform trajectories as well as the number of conditions that the IMF attaches to its loans; accordingly, we control for year-on-year growth in GDP. As a measure of countries' wealth, we also include GDP PER CAPITA (logged), given in constant 2005 international dollars (PPP). Descriptive statistics for these variables and all other variables used in the analyses appear below in Table 1.

Empirical Model

We begin by taking individual IMF programs as the unit of analysis, using least squares regression to model the relationship between the progress in economic reforms and the number of IMF structural conditions.Since structural reforms do not respond instantaneously to changes in policy such as those laid out in IMF conditions, we model reform scores at time $\mathbf{t}$ as a function of the explanatory variables in the previous time period. This modeling decision helps to account for the temporal lag between program enrollment and realization of the outcome.[9] We also include the lagged value of country's reform score, allowing us to control for the status quo of reform progress at the time that the IMF agreement is signed. All

[9]While, admittedly, the choice of a one-year lag is somewhat arbitrary, we believe it is a conservative coding decision, since it assumes that policy outcomes linked to the specified IMF conditions will have had sufficient time to manifest themselves after one year or less. Quite plausibly, the lag between policy adoption and recognized improvement in reform scores could be longer. Repeating all analyses with a two-year lag on the structural conditions variable only strengthens our results.

Table 1: **Descriptive Statistics, by Variable**

Variable	Mean	Std. Dev.	Min.	Max.	N
Economic Reform Index	0	0.941	-2.007	2.476	506
Public Sector Conditions	4.224	4.406	0	26	85
Total Conditions	15.518	11.182	0	51	85
GDP per Capita	8.726	0.807	6.744	10.211	541
Democracy	0.504	0.500	0	1	516
Number of IMF Programs	3.619	1.851	1	8	260
Duration of Current Program	1.965	1.048	1	5	260
Inflation (logged)	2.803	1.959	-2.853	9.654	527
Unemployment	9.433	7.572	-0.564	37.264	484
Debt-to-Export Ratio	123.685	98.629	0	1158.6	454
GDP Growth	1.418	8.836	-44.8	30.5	549
Ongoing IMF Program	0.469	0.499	0	1	550
UN Voting Affinity	-0.088	0.272	-0.824	0.528	450
UN Security Council	0.082	0.274	0	1	550
IMF Annual Dispersement	11.717	8.052	1.287	26.581	550
Years to Quota Review	2.19	1.436	0	4	525

Note: Reform scores and economic data from the European Bank of Reconstruction and Development (EBRD). IMF program-specific data collected by authors. Democracy scores calculated from (Jaggers & Gurr 1995). UN voting data from Erik Gartzke's Affinity of Nations Index, version 4.0.

models report Huber-White heteroskedasticity-robust standard errors to mitigate concerns about violations of the OLS assumptions of homoskedasticity.[10]

Results and Discussion

Table 2 presents the results from the regression analyses of the reform index on the number of structural conditions and the other covariates. We report the results from three separate models in order to increase confidence that the results are robust to different versions of the independent variable. The baseline model appears in the first column, measuring IMF conditionality using the total number of structural constraints in a given IMF program. Historically, however, IMF programs include conditions that encompass several different types of reforms, some of which are very technical in nature and quite possibly unlikely to engender the type of domestic opposition implied by the theory. Based on the logic that IMF-promoted reforms are likely to be most politicized in the areas that involve programmatic government spending, Table 2's second column narrows the analysis to consider just those structural conditions that apply to reforms of the public sector reforms. For brevity's sake, we discuss the results of these first two columns together and leave the third column subsequently.

We have argued that, somewhat paradoxically, increasing numbers of structural conditions within IMF programs can impede economic reforms' progress. This argument is rooted in the logic that structural conditions, as opposed to general targets that reforming governments can meet on their own terms, proscribe a specific plan for reform that demands narrowly-defined policy instruments and institutional arrangements. As a result, each condition represents a loss of government flexibility that is often crucial to coping with domestic stakeholders that oppose change to the status quo. Conversely, we expect that the greater flexibility that comes with reduced structural conditions should be associated with improved implementation, which in turn paves the way for more successful economic reforms. But is

[10]All results hold if instead standard errors are clustered by country in order to account for potential correlation in errors within country.

Table 2: **Greater Conditionality Associated with Less Future Reform**

Economic Reform Index *Factor Score* Variables	IMF Conditions – Total	IMF Conditions – Public Sector	IMF Conditions – Instrumental Variables
Economic Reform$_{t-1}$	0.839*	0.849*	0.843*
	(0.057)	(0.058)	(0.058)
Structural Conditions$_{t-1}$	-0.015*	-0.006*	-0.010*
	(0.005)	(0.002)	(0.003)
GDP per capita$_{t-1}$, (logged)	0.152*	0.139*	0.158*
	(0.047)	(0.049)	(0.051)
Democracy$_{t-1}$	0.147*	0.130*	0.144*
	(0.060)	(0.061)	(0.063)
Multiple Programs$_{t-1}$	0.019	0.018	0.017
	(0.014)	(0.013)	(0.013)
Inflation$_{t-1}$, (logged)	0.008	0.012	0.012
	(0.017)	(0.016)	(0.019)
Unemployment$_{t-1}$	-0.002	-0.001	-0.007
	(0.005)	(0.005)	(0.006)
Debt-to-Exports Ratio$_{t-1}$	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Economic Growth$_{t-1}$	0.001	0.001	0.000
	(0.003)	(0.003)	(0.004)
Constant	-1.292*	-1.171*	-1.246*
	(0.379)	(0.392)	(0.420)
No. of Cases	77	77	72
Estimator	OLS	OLS	LIML

Note: Reform scores and economic data from the European Bank of Reconstruction and Development (EBRD). IMF program-specific data collected by authors. Robust standard errors in parentheses. * indicates statistical significance at the 0.90 level or greater.

there evidence that the number of structural conditions imposed by IMF programs has an effect on the extent of reforms in the years immediately following IMF conditionality? In fact, there is. The coefficient estimates for the variable representing the number of conditions are negative and statistically significant across both of the first two models. Interpreting these results substantively, the coefficient estimates tell us that fewer structural conditions on the public sector in a given IMF program correlate with more extensive economic reforms in a country in the year after signing the IMF agreement, even after controlling for a host of other such as the prevailing depth of economic crisis and the extent of economic reforms at the time of program entry.

Turning to the control variables that are less central to our inquiry, other coefficient estimates help to establish that the model provides results that we would expect. Not surprisingly, a country's economic reform score in the current year displays a large, positive and statistically significant relationship with the economic reform score in the prior year. For example, GDP per capita is positively associated with reform progress. One possible interpretation of this result is that, while wealthier countries may have greater resources with which to weather the deprivations that come with difficult reforms, poorer countries may have particular trouble reforming due to the population's heightened reliance on the public sector. Similarly, in line with previous research (Hellman 1998, European Bank of Reconstruction and Development 1999, Frye & Mansfield 2004), the models also find evidence of a positive and statistically significant relationship between democracy and economic reform.

By contrast, none of the other economic- and program-related controls appear have coefficient estimates that are statistically distinguishable from zero. In these data, the progress of economic reforms does not appear to be correlated with factors such as inflation, unemployment, economic growth or high foreign debt. Furthermore, the results reveal that multiple instances participation in IMF programs do not display a strong relationship with economic reform, either in the negative or positive direction.

As noted in a recent review of the literature, quantitative studies of the IMF have become

increasingly sophisticated to deal with methodological issues that researchers in this area often face (Steinwand & Stone 2008). Although the near-universal participation in IMF programs among post-communist countries obviates the need for a selection model, one might worry that there could be an endogenous relationship between a country's prospects for future economic reform and the number of structural conditions imposed by the IMF at the time of program adoption. To alleviate concerns about possible endogeneity bias, we re-estimate the base model using instrumental variables regression. We present multiple candidates that have been argued in the IMF literature to influence the number of program conditions, yet are plausibly exogenous to the progress in economic reform in a given country. Recent work by Dreher and colleagues (N.d.) suggests that, although temporary, rotating membership on the United Nations Security Council (UNSC) affects a myriad of ways in which member countries interact with the international organizations, particularly those dominated by U.S. interests. As such, our first instrument is a dummy variable for years in which a given country was assigned to sit on the UNSC. Similar arguments extend the logic of legislative vote-buying and log-rolling that is prevalent in the American Congress literature to voting in the United Nations. The U.S. or other countries with large influence within the IMF can potentially "buy" votes on important issues by promising to get a "better deal" for countries that are in talks with the IMF. Thus, we also instrument for the number of structural conditions using a measure of affinity in a program year between that country and the United States.[11] We also include a square term for the affinity score to account for a probable curvilinear relationship since vote-buying tactics are typically only useful for "swing voters" that are not guaranteed to vote with the influential country, but have preferences that are close enough that they can be bought off. Finally, we round out our instrumental variables by including a measures for the amount of loans that the IMF disperses in a given year as well as a variable that records the number of years until a schedule quota review by the IMF governors. Commentators have remarked that IMF conditionality appears to

[11]This measure is taken from the Erik Gartzke's Affinity of Nations Index, version 4.0.

be influenced by bureaucratic and practical factors within the IMF that are independent of the economic situation within debtor countries (Bird & Willett 2004). According to these sources, conditionality reflects the tightness of internal budget constraints; during overall lulls in IMF lending or immediately after quota reviews, conditionality is relaxed as lending capacity increases (Dreher & Vaubel 2004).

To work correctly, instrumental variables must be exogenous with respect to the dependent variable. This cannot be demonstrated directly by any test, but must rather be argued theoretically. We can think of no reasonable explanations linking economic reform progress to security council membership, yearly amounts of global IMF dispersements, or years to IMF quota reviews. However unlikely, UN voting patterns would not be sufficiently exogenous if voting similar to the U.S. on UN matters is indicative of some other unobserved variable that also predicts successful progress on domestic economic reforms. For caution's sake, we repeat the analyses without these two variables, and the results of the instrumental variables regression hold without any meaningful change. We conduct a joint significance test of our instruments in the first-step regression that models total number of structural conditions. This test yields an F-statistic of 4.2 ($p<0.01$). Due to the relative weakness of the instruments, we use limited-information maximum likelihood estimation, as suggested by (Sovey & Greene 2011).[12]

The third column in Table 2 demonstrates that the results are robust to adopting this alternate estimation strategy. The coefficient on the instrumented variable for structural condition is negative, as anticipated by our theoretical argument, and statistically significant. Moreover, the magnitude of the estimated relationship is comparable to that found in previous models, bolstering our confidence in the soundness of the prior estimates. Thus, using a handful of exogenous instruments, we continue to find a negative relationship between economic reform progress and increasing structural conditions.

As a second set of robustness checks, we conduct additional analyses, this time taking

[12]Results for the two-stage least squares estimator are almost identical.

the country-year as the unit of analysis. This time-series cross-sectional design allows us to better analyze the temporal dynamics of economic reform and marshal the fullest amount of information in the dataset. Switching the frame of reference from separate IMF programs to country-years requires that we expand the main variable of interest, STRUCTURAL CONDITIONS, to repeat the program's number of conditions for every year that the program is in force and take a value of 0 during non-program years. In conjunction with this coding, we also add ONGOING PROGRAM, a dummy variable that takes a value of 1 during program years and a zero otherwise. As part of these additional analyses, we add a control for the DURATION of the program in years in order to control for the possibility that length of time under IMF agreement may improve or impede reform progress. This variable is a counter that begins with a value of 1 when an IMF agreement is signed and continues until the year in which the program is officially concluded. Finally, as a precaution against trends over time in either reform progress or the number of structural conditions, we include a counter for the year as a TIME TREND.

Table 3 presents three columns of results from the new analyses. The first column reports the estimates of an OLS model of the economic reform index regressed on lagged values of the covariates controlling for panel-specific autoregressive processes (AR1). The second column repeats this specification, plus the inclusion of fixed effects as a precaution against any unobserved country-specific heterogeneity that could bias results. In final column, we adopt a error-correction framework as an alternative approach to accounting for temporal dependence in the data (Greene 2000, De Boef & Keele 2008). In contrast to our other analyses, this model uses first differences in reform scores as the dependent variable.[13] As is common practice when using with error-correction models, we include differenced versions of the explanatory variables alongside their lagged values to help identify short-term versus long-term factors that may affect changes in reform progress. All models report panel-

[13]Because of this differenced dependent variable, error-correction models mitigate integration problems and reduce the chances the scope of temporal dependence, since changes in reform score this year are generally less likely to be dependent upon changes the previous year's changes in reform.

corrected standard errors.[14]

Comparing across all models in Table 3, we again see empirical evidence that structural conditions are negative and statistically significant. After incorporating time-series cross-sectional information and expanding the set of covariate controls, these results continue to support our theoretical argument. IMF conditionality can work against the true goals of reform by restricting the ability of governments to adapt contentious reform plans to something that is feasible given the existing political landscape within a country.

Conclusion

What is the effect of an IMF program on economic reforms in the post-Soviet transition countries? In this paper, we focus particularly how IMF programs have shaped economic reforms during a time of extensiveness economic and institutional transition. We argue that fewer structural constraints within an IMF program would improve overall reform outcomes. This is because fewer conditions on how to meet IMF-mandated targets provide governments with greater flexibly in dealing with domestic opposition and reaching compromises that will facilitate implementation rather than gridlock. While preliminary, our empirical analysis shows that indeed, increased number of structural public sector conditions would hamper economic reforms in post Soviet countries rather than promote economic reforms.

The paper proposes a more sophisticated way to examine the effect of IMF program by taking into account the variation of the design of IMF programs. With better access to the IMF's own dataset on IMF conditionality, this approach would allow researchers to better understand effects of not only IMF program participation but also the contents of IMF programs.

Although a first rough cut at the data, the empirical findings give rise to a few tentative policy suggestion. For the IMF and participating governments, it is indeed better if an IMF

[14]Substantive results do not change if panel-corrected standard errors are dropped. Likewise, findings do not depend upon controlling for AR1 processes.

Table 3: **Time-Series Cross-sectional Data**

Economic Reform Index *Factor Score* Variables	Panel-Corrected Standard Errors	Fixed Effects	Error-Correction Model
Economic Reform$_{t-1}$	0.893*	0.759*	-0.129*
	(0.020)	(0.023)	(0.010)
ΔStructural Conditions			-0.002
			(0.001)
Structural Conditions$_{t-1}$	-0.003*	-0.002*	-0.005*
	(0.001)	(0.001)	(0.001)
ΔGDP per capita, (logged)			1.753*
			(0.373)
GDP per capita$_{t-1}$, (logged)	0.077*	-0.070*	0.108*
	(0.013)	(0.042)	(0.008)
ΔDemocracy			-0.019
			(0.024)
Democracy$_{t-1}$	0.065*	0.060*	0.070*
	(0.013)	(0.018)	(0.019)
ΔMultiple Programs			-0.037
			(0.039)
Multiple Programs$_{t-1}$	0.023*	0.048*	0.020*
	(0.003)	(0.006)	(0.003)
ΔDuration of Program			-0.027
			(0.020)
Duration of Program$_{t-1}$	0.005	0.016*	0.002
	(0.008)	(0.006)	(0.014)
ΔInflation, (logged)			-0.024*
			(0.006)
Inflation$_{t-1}$, (logged)	0.005	0.017*	-0.008
	(0.005)	(0.004)	(0.006)
ΔUnemployment			-0.001
			(0.003)
Unemployment$_{t-1}$	0.005*	0.005*	0.002*
	(0.001)	(0.002)	(0.001)
ΔDebt-to-Exports Ratio			0.000
			(0.000)
Debt-to-Exports Ratio$_{t-1}$	-0.001*	-0.001*	0.000*
	(0.000)	(0.000)	(0.000)
ΔEconomic Growth			-0.013*
			(0.004)
Economic Growth$_{t-1}$	0.002*	-0.001	-0.018*
	(0.001)	(0.001)	(0.004)
ΔOngoing Program			0.159*
			(0.057)
Ongoing Program$_{t-1}$	0.025	-0.036	0.066
	(0.023)	(0.022)	(0.045)
Time Trend	-0.004	0.013*	
	(0.002)	(0.003)	
Constant	-0.620*	0.650*	-0.875
	(0.131)	(0.378)	(0.082)
No. of Cases	371	371	341
Country Fixed Effects	No	Yes	Yes
AR1 Correction	Yes	Yes	Yes

Note: Reform scores and economic data from the European Bank of Reconstruction and Development (EBRD). IMF program-specific data collected by authors. Panel-corrected standard errors in parentheses. * indicates statistical significance at the 0.90 level or greater.

program is fully owned by participating governments. And the ownership of a program can be improved by the IMF setting numerical targets yet allowing the government to draw its own specific policy measures to meet those targets. If the IMF tries to micro-manage specific policy measures, it may backfire and result in poor program implementation.

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Table 4: **IMF Conditionality, by Year**

Year	Number of IMF Programs	Structural Conditions (Avg.)	Structural Conditions (Std. Dev.)
1994	8	6.750	6.274
1995	12	18.667	14.581
1996	12	16.333	8.690
1997	7	22.429	14.339
1998	5	31.200	13.461
1999	4	22.000	9.557
2000	4	8.000	5.033
2001	8	11.500	5.555
2002	3	14.333	0.577
2003	2	9.500	2.121
2004	5	19.200	11.256
2005	3	16.000	11.358
2006	2	19.000	5.657
2007	0		
2008	5	6.200	2.490
2009	4	8.750	4.500

Table 5: **Appendix: Sampled Post-Communist Countries & IMF Programs**

Countries	Years of IMF Agreement
Albania	1998, 2002, 2006
Armenia	1995, 1996, 2001, 2005, 2008, 2009
Azerbaijan	1995, 1996, 2001
Belarus	1995, 2009
Bulgaria	1994, 1996, 1997, 1998, 2002, 2004
Croatia	1994, 1997, 2001, 2003, 2004
Estonia	1995, 1996, 1997, 2000
Georgia	1995, 1996, 2001, 2004, 2008
Hungary	1996, 2008
Kazakhstan	1994, 1995, 1996, 1999
Kyrgyz Republic	1994, 1998, 2001, 2005, 2008
Latvia	1995, 1996, 1997, 1999, 2001, 2008
Lithuania	1994, 2000, 2001
Moldova	1995, 1996, 2000, 2006
Poland	1994, 2009
Romania	1994, 1997, 1999, 2001, 2004, 2009
Russian Federation	1995, 1996, 1999
Slovak Republic	1994
Slovenia	
Tajikistan	1996, 1998, 2002, 2009
Turkmenistan	
Ukraine	1995, 1996, 1997, 1998, 2004, 2008
Uzbekistan	1995