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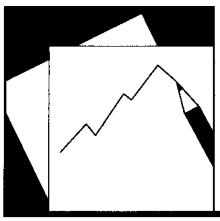

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The Incidence and Effectiveness of Prior Actions in IMF-supported Programs

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The Incidence and Effectiveness of Prior Actions in IMF-supported Programs

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Abstract

Prior actions are measures that need to be implemented prior to Board approval of an IMF-supported program. This paper examines whether such prior actions can signal a willingness to implement reforms, especially when the member's track record is weak. We find some support for this signaling role, particularly for programs supported by the General Resources Account (GRA). Controlling for the member's previous track record, prior actions are associated with greater compliance with other structural conditions, suggesting their possible use as a screening device. Moreover, prior actions set at program approval serve as a useful screening device and strengthen the macroeconomic targets set out in the IMF-supported program. The results also reveal a demonstrable screening effect on growth over the medium term, since the growth impact of the ratio of prior actions at the outset versus the rest of the program is significantly positive while the total number of prior actions is not statistically significant.

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I. INTRODUCTION

Design of the IMF's program conditionality evolved in recent years partly with a view to promoting ownership of programs by national authorities.[2] The conditionality toolkit comprises prior actions, performance criteria, and structural benchmarks. Performance criteria and benchmarks are used as an ongoing tool to monitor the program and achieve the program goals. Prior actions, however, are conditions that the member must implement up-front, that is, prior to the Board approval of an IMF-supported program.

The use of prior actions has evolved over time. In the discussion of the 1978 Review of Conditionality, Executive Directors noted that in situations of protracted imbalances, it was very difficult to design a credible program unless the ground for it had been laid by prompt adoption of certain key measures.[3] To formalize this practice, the 1979 conditionality guidelines indicated that "a member may be expected to adopt some corrective measures before a stand-by arrangement is approved by the IMF, but only if necessary to enable the member to adopt and carry out a program consistent with the IMF's provisions and policies."[4] In practice, these were mainly up-front devaluations. Over time, prior actions began to be used more widely "to ensure that the program has the necessary foundation, and particularly where there is no track record or only a weak one to demonstrate the authorities' determination and political will to implement the program as formulated."[5]

Thus, prior actions have evolved to serve a dual purpose: (1) to ensure up-front implementation of measures that are key to the success of the program objectives; and (2) to signal the authorities' ownership and commitment to implement reforms, especially when their track record is relatively weak. The first objective helps to establish an appropriate macroeconomic setting and/or to facilitate rapid policy changes in difficult economic circumstances. The second objective—often associated with weak implementation of the previous program—tests the government's commitment through early implementation of these measures. This use of prior actions attempts to dispel doubts about past performance and can be viewed as a form of screening to help distinguish between authorities committed to implementing their program and those whose political will or implementation capacity may be lacking. However, their implementation is not necessarily an unambiguous sign of commitment. [6]

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[2] *Guidelines on Conditionality*, 2002, available at http://www.imf.org/External/np/pdr/cond/2002/eng/guid/092302.htm.

[3] For example, serious erosion of competitiveness typically required an immediate exchange rate adjustment. As Boughton (2001) notes that "since the management of the exchange rate usually was too sensitive an issue to be controlled through an explicit performance criterion, an initial devaluation often preceded Fund approval of an arrangement (either as a required prior action or as a preemptive move by the authorities)."

[4] "*Guidelines on Conditionality*" (Decision No. 6056, approved March 2, 1979).

[5] "Prior Actions – Fund Policy and Practice," (EBS/96/164, 10/22/96).

[6] *Review of the 2002 Conditionality Guidelines*, March 2005.

The purpose of this paper is twofold. First, it examines whether the underlying rationale presented above for including prior actions in IMF-supported programs can be empirically corroborated. Second, the paper considers whether prior actions actually improve the implementation of measures in IMF-supported programs. Relatedly, the paper also examines whether more prior actions could promote economic performance measured in terms of economic growth, fiscal adjustment, and inflation because of the more rapid structural adjustment that the measures might generate.

The paper is organized as follows. Section II provides a brief survey of the literature on this topic; Section III provides stylized facts about the use of prior actions in IMF-supported programs; and Sections IV and V presents econometric evidence on the determinants and effectiveness of prior actions. Section VI concludes.

II. THE LITERATURE

The theoretical literature on the political economy of structural conditionality is still in its early stages. To facilitate understanding of the signaling role of prior actions, an analogy could be drawn to Spence (1973). His original signaling model was based on the labor market, in which the employer is unable to observe the employee's productivity and must infer this characteristic on the basis of his education level. If education is sufficiently costly, there is a separating equilibrium between productive high wage workers and unproductive low paid workers because only productive workers will be willing to incur the cost of education. However, a pooling equilibrium may also exist in which the employer cannot distinguish between the "productivity" of the two types.

Applying Spence's model to conditionality in IMF-supported programs, the authorities' commitment is the unobservable factor, and the completion of prior actions represents the cost that helps distinguish between committed and uncommitted governments. In the simplest case, before embarking on a IMF-supported program, the authorities would have to agree on the type of prior actions that would be needed to initiate the program. If the conditions were set correctly, a separating equilibrium would occur with uncommitted governments not agreeing on these conditions and committed governments actually agreeing and implementing them. It could happen, however, that in attempting to isolate the signal of a committed government, the IMF might request too many prior actions and, as a result, the widespread domestic support for the program may dissipate even though the government is committed. Alternatively, well-focused prior actions generating rapid results could make an uncommitted government change its view on the usefulness of such actions.

Drazen (2001) alludes to these tensions in his own adaptation of the signaling approach to conditionality. He develops a model of conditional lending in the face of political constraints and argues that IMF lending must take account of the political constraints in order to be successful. Indeed, he notes that if the nature of the domestic political constraints only become clear to the authorities in the process of formulating a program, it is possible to

initiate a program that ends in failure because of the inability to take this constraint into account.

On the empirical side, the analysis in this paper has some parallels with work that has documented the characteristics of successful IMF- and World Bank-supported programs. Dollar and Svensson (2000) conclude in a study of a large number of Bank-supported adjustment programs that the likelihood of program failure can be predicted by only a small number of domestic political economy variables, including ethnic and linguistic divisions, government instability and undemocratic governments. Similarly, Ivanova and others (2001) find that the completion of IMF-supported reform programs depends primarily on domestic political economy conditions such as ethnic and linguistic divisions, strong special interests, and lack of political cohesion. IMF effort measured as the number of staff hours worked on a particular country does not affect program prospects. Dreher (2004) finds that programs are more likely to break down before elections and that program interruptions are more likely in countries with high government consumption, high levels of short-term debt, and low output per capita. In terms of the number of conditions that are set in IMF-supported programs, Dreher and Vaubel (2004) find that they are positively influenced by the size of the budget deficit and by the growth in money and negatively influenced by the change in reserves.

III. Stylized Facts of IMF-Supported Programs

This section presents some common characteristics of IMF-supported programs.[7] The underlying sample comprises IMF-supported programs that commenced over the 1992–2004 period with conditionality attached to these programs counted through end-2005. The data are normalized based on the length of the arrangement, including any extensions, except for permanently interrupted and ongoing programs, which assume an end-date equal to the last completed review (or the approval date if no review was completed) plus nine months. The number of conditions per year is reported against the year in which the arrangement was approved, even though the arrangement may stretch into later years.

The average number of prior actions has declined relative to the three-year period following the Asian crisis, albeit it remains higher than the pre-Asian crisis period (Table 1).[8] This trend is generally consistent with the increase in other types of conditions (performance criteria and structural benchmarks).[9] The average number of prior actions per program year in stand-by and Extended Fund Facility (EFF) arrangements—which are non-concessional arrangements jointly known as GRA-supported programs—rose from about 3½ over the

[7] The data are based on the Fund's Monitoring of Fund Arrangements (MONA) database.

[8] Numbers of prior actions may be subject to measurement error in view of the policy change in 2000, whereby prior actions became subject to misreporting and thus had to be accurately listed in texts of arrangements. However, any bias is likely to result in more consistent recording of prior actions in the recent period, and hence the observed decline may be underestimated.

[9] The number of prior actions excludes missed structural conditions that may later become prior actions.

1992–97 period to about 6 during 1998–2000 (post-Asian crisis). The increase was reversed during 2001–04, following the initiative to streamline conditionality.[10] The increase in prior actions during the post-Asian crisis period and the subsequent streamlining since 2001 is more stark in the non-precautionary GRA-supported arrangements, with the number of prior actions declining by three to average about six per annum over the 2001–04 period.[11] The use of prior actions has not greatly increased in programs focused on long-term structural adjustment (ESAF/PRGF supported arrangements), rising to four conditions during 2001–04, about one condition higher than the average during 1992–97.

Total conditions in GRA-supported programs have followed a similar pattern as prior actions. Their numbers spiked in the period 1998–2000, particularly in the face of the Asian crisis but have since declined, although they remain much higher than in the pre-Asian crisis period. For PRGF-supported programs, however, there was a substantial decline in the 1998–2000 period relative to the period before, although some of the decline has since been clawed back.

An implementation index and stoppage variable were derived to track country compliance with structural conditionality. These indicators show consistent improvement over time, particularly for GRA-supported programs.[12] Their implementation index improved from 1 in 1992–97 to 1.2 and 1.5 in the following two sub-periods. Consistent with the improvement in implementation among GRA-supported programs, the frequency of stoppages has declined.

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[10] Stand-by arrangements are available to help cover problems associated with the need for balance of payments financing. The length of the arrangement is typically 12–18 months, but varies between 6 months and 3 years. The EFF (window) under which the IMF supports economic programs that generally run for three years and are aimed at overcoming balance of payments difficulties resulting from macroeconomic and structural problems. The PRGF—generally a 3-year arrangement—was initiated in 1999 (replacing the previous ESAF), to make the objectives of poverty reduction and growth more central to lending operations in the IMF's poorest member countries.

[11] Non-precautionary IMF-supported programs are arrangements where IMF resources that are made available to countries with on-track programs are actually drawn by the countries for meeting their balance of payments needs. By contrast, precautionary arrangements are IMF-supported programs that the authorities treat as precautionary, and upon which they draw the resources that are made available to them only if the need arises.

[12] The implementation index was calculated from the IMF's MONA database by giving the value 0, 1, or 2 according to its implementation: not implemented (0), implemented with a delay (1), or implemented on schedule (2). For structural benchmarks a delay of up to 3 months was coded as a 2. These values were then averaged across all conditions to generate a continuous variable between 0 and 2. Programs that went permanently off track were identified as stoppages except for those that terminated because of political regime changes, and were replaced by a successor program. The implementation index excludes completed prior actions since, by definition, prior actions would need to be completed for program approval or completion of a review, leading to an upward bias in the implementation index.

Table 1. Characteristics of Programs by Type of Arrangement

Type of Arrangement	No. of observations	No. of prior actions 1/	Total no. of conditions 1/	Implementat-ion index 2/	Ratio of stoppages
GRA-supported programs					
1992-97	94	3.5	9.9	1.0	0.4
1998-2000	30	5.9	19.1	1.2	0.4
2001-04	23	5.0	16.7	1.5	0.2
Non-precautionary					
1992-97	78	3.8	10.1	0.9	0.5
1998-2000	17	9.5	26.7	1.3	0.4
2001-04	11	6.3	21.7	1.6	0.1
PRGF-supported programs					
1992-97	49	2.8	20.7	1.4	0.5
1998-2000	26	4.3	14.7	1.3	0.3
2001-04	35	3.9	15.1	1.4	0.3

1/ The number of prior actions and total number of conditions are normalized by the duration of the arrangement.

2/ The implementation index varies between 0 and 2 and is calculated only for those programs that did not stop. The index excludes prior actions, which, by definition, are completed.

Differences in the characteristics of programs across geographic regions reflect different country circumstances (Table 2). IMF-supported programs for the Central and East European and the former Soviet countries that constitute the Commonwealth of Independent States (CEE/CIS, excluding the Baltic states) generally had the largest number of prior actions, consistent with the need to implement a large number of structural reforms in the early 1990s to facilitate a change in market structure from centrally planned to free-market. The Baltic countries had significantly fewer number of prior actions in their IMF-supported programs, in part because their program ownership was viewed as being strong. Programs in the African and the Western Hemisphere regions were subject to the smallest number of prior actions and total conditions, which at least in the former set of countries could be related to the fact that most of their programs are based on long-term developmental goals and therefore the need for rapid extensive changes in economic structure may be less pressing. In terms of program implementation and stoppage rates, the performance of the former Soviet republics (excluding the Baltic countries) was the weakest—the implementation rate of non-prior action structural conditionality was only 1.3, and half the programs stopped prematurely.

Table 2. Characteristics of Programs by Region, 1992-2004

Region	No. of observations	No. of prior actions 1/	Total no. of conditions 1/	Implementation index 2/	Ratio of stoppages
Europe					
Transition (Former Soviet Union, excl. Baltics)	36	5.8	18.5	1.3	0.5
Baltics	18	2.7	7.6	1.5	<0.05
Central and Eastern Europe	33	7.5	19.7	1.5	0.3
Africa	86	2.2	13.6	1.4	0.3
Asia/Pacific	22	4.9	17.6	1.4	0.5
Middle East	16	6.1	16.4	1.4	0.4
Western Hem.	52	2.6	13.2	1.3	0.4

1/ The number of prior actions and total number of conditions are normalized by the duration of the arrangement.

2/ The implementation index varies between 0 and 2 and is calculated only for those programs that did not stop. The index excludes prior actions which, by definition, are completed.

A. Prior Actions as a Screening Device

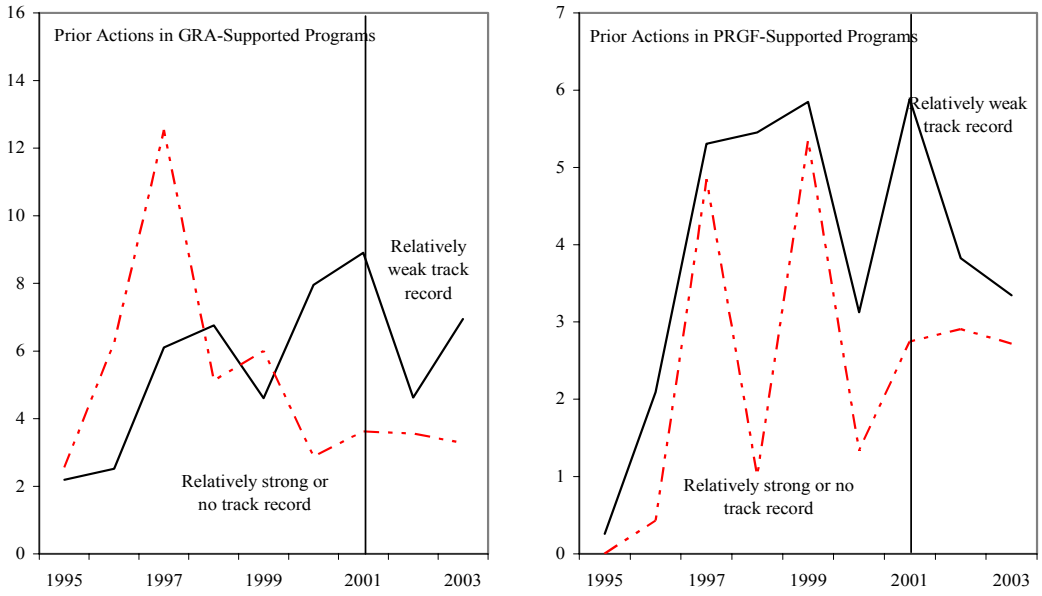
As noted before, the IMF's *Review of the 2002 Conditionality Guidelines* suggests that critical up-front measures could be made into prior actions. The operational guidelines also indicate that prior actions may be used either when a measure needs to be implemented up-front in order to achieve program goals, or when there are significant doubts that the measure would be implemented at a later stage. In the latter case where the likelihood of the program to succeed is lowered in the absence of prior actions, the authorities should be given the chance to demonstrate their commitment to these measures by implementing them early. However, prior actions are not be used for the sole purpose of testing program ownership.

In both GRA and PRGF-supported programs, prior actions have been used as a screening device—more prior actions have been employed in countries with a relatively weak track record in earlier IMF-supported programs (Figure 1). Track records are determined based on the implementation index for structural conditionality (as described in footnote 12). A member is identified as having a relatively weak track record if its implementation index in previous IMF-supported programs was below 1.42, the median implementation index of all IMF-supported programs during 1995–2003. Accordingly, in countries with relatively strong track records, the number of prior actions per program year has averaged about 3 since 2001. In countries with relatively weak track records, the average is about 5½ prior actions per program year.

Recent arrangements with Bulgaria (1997) and Romania (2001) are examples of programs with a relatively large number of prior actions and a relatively weak track record. At the beginning of Bulgaria's 1997 IMF-supported program, 13 prior actions were implemented

following weak performance under previous programs.[13] The case of Romania is particularly interesting—the 2001 program had about 24 prior actions per program year. Five previous programs had gone off track, and measures subject to prior actions served a vital role in establishing credibility and overcoming vested interests. Despite the establishment of a successful track record in the 2001 program, the 2004 IMF-supported program with Romania continued to use many prior actions because they have proved to be effective in making progress in structural reform.[14]

Figure 1. Prior Actions and Track Record 1/



Source: MONA database and staff calculations.
1/ The vertical lines refer to the beginning of the new conditionality streamlining initiative.

IV. Determinants of Prior Actions

This section examines the two main rationales for prior actions discussed above, namely the macroeconomic conditions of the member country at the outset of the IMF-supported program and the implementation record under the previous program. For this, the ratio of prior actions to the total number of structural conditions set at the approval of the period *t* program was regressed on the lagged implementation index (i.e., the implementation index of a member country's previous IMF-supported program, reflecting the country's track record).

[13] Bulgaria: Ex-Post Assessment of Longer Term Program Engagement, 2004, IMF, available at http://www.imf.org/external/country/BGR.

[14] Romania: Ex-Post Assessment of Longer Term Program Engagement, IMF, available at http://www.imf.org/external/country/ROU.

The implementation index was adjusted for program stoppages by setting the index to be zero for stopped programs. Other control variables included the initial macroeconomic conditions (in period *t*-1) such as the budget and current account balances as a percent of GDP, reserves to imports ratio, the inflation rate, and the ratio of external debt to GDP.[15] The estimation controls for institutional factors such as political freedom (i.e., the degree of democracy), duration of government in office, executive variation (i.e., whether the election of the executive is within one year of the start of the IMF-supported program), and government stability (these are discussed further below). Additional control variables in the regression include the share of prior actions in the country's previous program, which controls for any "hysteresis" effects (implying that there may be some persistence in the use of prior actions over subsequent programs for the same member country) and dummy variables for the geographic region of the member country. The analysis is based on data from 1992 to 2004.

The choice of control variables for institutional factors is motivated by the theoretical literature on policy reform. In particular, this literature suggests the inclusion of measures of political instability (Tabellini and Alesina, 1990; Svensson 1998), the length of tenure of government (Tommasi and Velasco, 1996; Cukierman and Liviatan, 1992), and political freedom (Haggard and Webb, 1994) to control for the institutional set up underlying the ability to implement an economic reform program, which could also determine the share of prior actions in an IMF-supported program. The premises are that democratically elected governments have a higher probability of successfully implementing reforms, as do stable governments.[16] The variable measuring the duration of the incumbent government was motivated by the work of Dollar and Svensson (2000) showing that countries with longer spells in power were less likely to be committed to a structural reform program. A change in government just prior to the start of a program may affect the ratio of prior actions depending on whether the new government has an opportunity to develop its own economic program and/or if there is uncertainty about the commitment of a new government to a program.

The implementation index was differentiated according to the type of IMF arrangement (GRA and PRGF), since it appears that prior actions are used more heavily in GRA-supported programs than in PRGF-supported programs.

[15] In previous work on timing of the IMF-supported program, Conway (1994), Joyce (1992), and Knight and Santaella (1997) have found that past participation in IMF-supported programs, real GDP growth, GDP per capita, external factors (terms of trade, current account balance, reserves-import ratio, international reserves, and long-term external debt) were significant determinants of the timing of IMF involvement. However, to conserve on the degrees of freedom, this paper uses only a subset of these macroeconomic indicators to portray the initial conditions.

[16] The Appendix provides data definitions of these variables.

The results of the regression are presented in Table 3.[17] The lagged implementation index of non-prior action structural conditionality is significantly negative for GRA-supported programs, suggesting that GRA-supported programs with a relatively weaker track record (i.e., lower implementation index in the previous program) tend to have a significantly higher share of prior actions at program approval. Conversely, countries with a good implementation track record in their previous IMF-supported program had fewer prior actions in the period *t* program. In particular, if the previous program's implementation of structural conditions had been perfect (i.e., an implementation index of 2), then the ratio of prior actions could be lower by about 16 percent relative to the IMF-wide average. This relationship, however, is not significant for PRGF-supported programs.

Table 3. Determinants of Prior Actions

Dep. variable: Ratio of prior actions at approval to total conditions	Coefficient
Constant	-0.04
Lagged implementation index in programs under the GRA	-0.08 *
Lagged implementation index in ESAF/PRGF programs	-0.05
Lagged prior actions	0.33 ***
Democracy	-0.02
Autocracy	-0.02
Length in office	0.01
Government stability	0.12
Change of government	-0.02
Initial international reserves/imports	-0.90
Initial budget position	-2.44 **
Initial external debt position	0.10
Initial external current account position	1.34 **
Initial inflation rate	-0.26
African region	0.01
Asia/Pacific region	-0.11
Middle East region	-0.04
Transition economies	0.21 **
No. of observations	73
R-squared	0.48

***, ** and * indicates significance at the 1, 5 and 10 percent levels.

The share of prior actions in the previous program has a positive and significant effect on the share of prior actions for the current program's approval, implying some persistence in the use of prior actions during the subsequent program (i.e., the hysteresis effect). This result, in combination with the last result that a weak implementation record leads to more prior actions, may suggest that for countries that consistently do not implement performance criterion and structural benchmarks, prior actions might offer a way of increasing the probability of program success, since the "delivery rate" on prior actions is higher, by definition, than the other two conditionality tools (i.e., performance criteria and structural benchmarks).

[17] A Tobit regression of the equation yields similar results as the simple OLS specification. Further, replacing the dependant variable by the ratio of prior actions to total number of conditions, both set for the whole program period (instead of approval alone), does not alter the main results.

The explanatory power of the initial macroeconomic conditions and the institutional factors is somewhat mixed. As could be expected, members with strong initial budget positions had less need for prior actions at approval, and the result is significant at the 5 percent level. Somewhat more curiously, a strong initial current account position results in a higher share of prior actions.[18] None of the other remaining macroeconomic variables had a significant impact on the initial share of prior actions in an IMF-supported program.[19] As for the institutional factors, countries with new governments formed within one year of the start of an IMF-supported program (change of government) had a lower ratio of prior actions to total conditions, suggesting that the IMF is allowing time for new governments to develop their own economic program. Also, consistent with Dollar and Svensson's argument that the macroeconomic performance of countries with leaders in power for long periods is weak, IMF-supported programs appear to place more emphasis on prior actions to counter the effect. However, none of the institutional variables were statistically significant.

Among the regional dummy variables, the share of prior actions in total conditions appears to be highly prevalent in the European transition countries (which includes the CEE and CIS countries). This result is consistent with the stylized facts depicted in Table 2.

V. Prior Actions And Program Success

A. Prior Actions and Program Implementation

The previous section presented some evidence that prior actions are incorporated into IMF-supported programs to address the weak implementation of previous programs. The follow-up question then is whether more prior actions at program approval improve the implementation of subsequent structural benchmarks and performance criteria in that program.[20] For this, the impact of the ratio of prior actions to total conditions set at program approval on the change in the program implementation rate was examined. The hypothesis is that once countries have crossed the initial "hurdle" of prior actions for program approval, even the weak implementers of earlier programs should be able to improve the implementation of program conditionality in the current program, the assumption being that if the member country made the effort to complete the prior actions for program approval, then it is committed to successfully implementing the rest of the program. Indeed, for countries with several programs where prior actions were repeatedly used as a tool for

[18] Given that the level of government savings affects the level of the current account balance, a relatively high correlation between the two initial conditions was found. The correlation was about 0.35, the highest correlation among the macroeconomic variables in the regression. The significant positive impact of the current account balance, however, disappears when government balance is dropped from the estimation.

[19] Changes in the current account and government balances were introduced as additional variables in the estimation. However, they were subsequently dropped due to lack of statistical significance.

[20] Previous research ("The Modalities of Conditionality — Further Considerations," SM/02/13) suggests that prior actions do not help to prevent program stoppages.

achieving a higher program delivery rate (because they consistently have weak implementation of performance criterion and structural benchmarks), the implementation rate in the consecutive programs would be expected to at least improve.

To test this hypothesis, the estimation considers the change in the implementation rate of performance criteria and structural benchmarks in IMF-supported programs between two successive programs. The implementation rate was set at zero for stopped programs. The predicted value of the share of prior actions in total conditions at approval from the regression reported in Table 3 was used as an explanatory variable because it embodies the effects of all of the macroeconomic and institutional variables. Since the predicted value of the share of prior actions set at approval is exogenous, by definition, there is no issue of simultaneity.

The coefficient on prior actions was split between GRA-supported and PRGF-supported programs, because of the significant difference in the approach to setting prior actions between the two types of programs (see previous section). Further, the prior actions coefficient in GRA-supported programs is also split between the CEE/CIS countries (excluding the Baltics) and other countries to differentiate between the transition and non-transition countries, since—as noted in Table 2—the CEE/CIS economies (excluding the Baltics) have tended to have a higher use of prior actions.[21] As in the previous regression, the sample included all IMF-supported programs approved between 1992 and 2004.

The analysis of whether a higher share of prior actions improves program implementation reveals a statistically significant relationship for GRA-supported programs in both the transition (excluding the Baltics) and non-transition groups of countries (Table 4). An increase in the share of prior actions by 10 percentage points improves implementation between successive programs by 0.10, which is roughly a 10 percent increase in the implementation rate relative to the sample mean of about 0.98 for GRA-supported programs in the CEE/CIS countries. For GRA-supported programs of non-transition countries, the coefficient indicates an even higher improvement in the implementation rate—when the share of prior actions rises by 10 percentage points, the implementation rate between successive programs improves by about 21 percent; in PRGF-supported programs, the corresponding improvement in the implementation rate is about 17 percent. All these coefficients are statistically significant at least at the 10 percent level. These results suggest that in countries where there were already a high share of prior actions for program approval (such as the CEE/CIS countries), the dividend (measured as the improvement in the implementation of subsequent measures) from adding on more prior actions is lower than in

[21] The Baltics are excluded in this exercise because the share of prior actions in these countries is fewer than the other countries in this group.

countries where the share of prior actions was smaller.[22] This result is consistent with earlier studies that showed that programs with higher prior actions often show worse-than-average implementation of other subsequent measures under the program. [23]

Table 4. Prior Actions and Programs Implementation

Dep. variable: Change in implementation of non-prior action conditionality	Coefficient	
Constant	-0.27	
Ratio of prior actions in GRA-supported programs in the CEE/CIS countries 1/ 2/	1.00	*
Ratio of prior actions, GRA-supported programs in non-CEE/CIS countries 1/ 3/	2.12	*
Ratio of prior actions, PRGF-supported programs 1/	1.73	**
No. of observations	71	
R-squared	0.08	

1/ Predicted values of prior actions ratio based on Table 3 regression interacted with the appropriate type of program dummy variable.
2/ Excludes the Baltic states.
3/ Includes the Baltic states.
** and * indicate significance at the 5 and 10 percent levels.

Thus, although prior actions may be useful as a screening device, it is important to note that their implementation is not an absolute sign of commitment. While employing prior actions may bring the programs to a lower bound of acceptable implementation standards, and they may also enhance ownership, they do not provide a full solution. Indeed, it is still possible that purely nominal implementation of these measures, without the underlying commitment, is unlikely to lead to successful achievement of the program goals.

B. Prior Actions and Macroeconomic Policy

As discussed before, prior actions serve the purpose of a screening device as well as measures set to strengthen macroeconomic targets such as the fiscal position and the inflation rate. To assess the efficacy of these conditions, a test was conducted on the impact of prior actions on these aggregates. For the fiscal target, the change in the overall government balance normalized by the lagged output level was regressed on the inflation rate, the

[22] The results remain broadly similar when institutional variables (noted in the earlier section) are added in the estimation as additional variables that might independently affect the change in implementation rate between consecutive IMF-supported programs.

[23] *Review of 2002 Conditionality Guidelines—Selected Issues*, March 2005.

nominal interest rate, the lagged fiscal balance in relation to GDP, U.S. growth, the level of corruption in the economy, and the conditionality variables discussed previously. The analysis is confined to middle-income countries, since prior actions are especially prevalent in GRA-supported programs with countries having weak track records.[24]

The only cyclical variables that are statistically significant in impacting the fiscal position are U.S. growth (positively, likely through boosting export tax revenue), the lagged fiscal balance (negatively, because of the phenomenon of mean reversion), and the nominal interest rate (to help finance debt service). Over the long run, the fiscal balance is positively associated with corruption, possibly because more corrupt countries require stronger budgetary positions to demonstrate fiscal rectitude. While the implementation index of the previous program is not a significant determinant of the change in the fiscal balance, the number of structural performance criteria and benchmarks and the difference between the number of prior actions set at the outset of the IMF-supported program and at other times are positive and statistically significant. Since, on average, countries with prior actions set at the outset of a IMF-supported program are expected to carry out over twice as many upfront measures compared to the remainder of the program, the coefficient estimate indicates that these countries achieve a budgetary improvement of about 0.2 percent of GDP more than in countries without any initial prior actions, holding other factors constant.

The inflation rate is modeled as a function of its lagged value, the change in the terms of trade and in the real exchange rate, the level and change in the lagged fiscal balance, and the conditionality variables. In contrast to the results for the fiscal balance, the implementation index of the previous program is a significant determinant of the inflation rate, with full implementation of the structural conditions in the previous program associated with a 4 percentage point decline in the inflation rate. On the other hand, the number of structural performance criteria and benchmarks and the difference between prior actions set at the outset of the IMF-supported program and those set at other times are not significant determinants of the inflation rate, although the negative signs are consistent with the view that more focused conditionality helps to improve the achievement of inflation targets.

These results confirm that prior actions set at program approval act as strong screening devices and assist the achievement of the macroeconomic targets set out in the IMF-supported program.

C. Prior Actions and Macroeconomic Performance

The previous sections highlighted that prior actions may be effective in raising the delivery rate of other types of structural conditions among IMF-supported programs and the quality of

[24] The sample includes all middle-income countries listed by the World Bank, except PRGF-eligible countries and countries with populations of less than 1 million (mostly Caribbean and South East Asian island nations).

macroeconomic policies. However, this does not necessarily imply that economic outcomes also improve through more prior actions; a premise that is examined in this section.

There are three reasons why more prior actions may lead to stronger growth over the medium term. First, the implementation rate of prior actions is 100 percent, by definition, because IMF-supported programs cannot be initiated or maintained without the completion of these actions. This requirement stands in contrast to the other types of structural conditions, such as structural performance criteria which may be waived.[25] Second, a successful screening device such as the completion of a large number of upfront prior actions is likely to boost growth because of the separation of "committed" from "less committed" countries for IMF-supported programs. Finally, it could be that the measures associated with prior actions implemented up-front are more substantive than measures set at a later stage of the program, which may also contribute to growth.

To test these various hypotheses about the impact of prior actions on growth, the number of prior actions, performance criterion and structural benchmarks, and the implementation index are included as additional explanatory variables in a standard growth regression.

While the literature on the determinants of growth is vast, the equation presented in this paper tries to be parsimonious with growth determinants comprising macroeconomic policies, exogenous conditions, and long-run factors typically identified in the literature as being robust determinants of growth.[26] The variables representing macroeconomic policies include the level and the change in the budget balance (in percent of GDP), the change in the real interest rate, the degree of overvaluation, and the inflation rate. All of these variables enter the equation with one lag to limit the impact of endogeneity. Exogenous factors are captured by the contemporaneous growth rate for the United States. The long-run determinants of growth per capita comprise the quality of law and order and the investment rate (variable definitions are provided in the Appendix).[27] The number of structural conditions is endogenous and is instrumented with the variables specified in the previous section.

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[25] Waivers are granted if the deviation is minor, temporary, or corrective actions have been taken, as long as the Fund is satisfied that the program will be successfully completed. "*Guidelines on Conditionality*, 2002, available at http://www.imf.org/External/np/pdr/cond/2002/eng/guid/092302.htm.

[26] Since countries choosing IMF-supported programs are self-selected, a correction for this self-selection was included based on the Mills-ratio from a probit model of program choice. Terms of trade were also included but were not statistically significant.

[27] Rule of law indices have been found to be significant in Barro (1996), Easterly and Levine (2001), Dollar and Kraay (2003), Alcala and Ciccone (2004), and Rodrik, Subramanian, and Trebbi (2004), although Glaeser and others (2004) argue against using this variable. Levine and Renelt (1992), Sachs and Warner (1995), Caselli, Esquivel, and Lafort (1996), Sala-i-Martin (1997) have found that the investment ratio is a significant determinant of growth.

Program Duration Effects

Structural changes take time to have an economic impact, and therefore, growth effects associated with structural conditions are not expected during the two-year average lifetime of a GRA-supported program. Consistent with this view, the logarithm of the normalized number of prior actions and performance criterion and benchmarks (the latter interacted with the implementation index) are not significant determinants of growth during the program period (Table 5). In contrast, the index of the implementation of structural performance criteria and benchmarks in the previous program is positive and statistically significant in the regression and indicates that full implementation of the previous program would boost growth by about ¾ of a percentage point per year (i.e., 0.004*2 for full implementation of the measures). This effect likely combines the fact that countries with better implementation records have unobservable factors that are conducive to growth and also the possible positive growth benefits of prior actions set in the previous program, since both variables are highly correlated (correlation coefficient of 0.56). These results hold even when other variables such as schooling, openness, and political risk are included in the estimation.

Except for the fiscal variables, the cyclical variables are significant determinants of growth during the program period and the initial real exchange rate level is also a major determinant. Higher inflation and higher interest rates dampen growth, while an overvalued real exchange rate also lowers growth. The United States' growth has significant positive effects on growth elsewhere and a significant long-run elasticity between GDP per capita and the rule of law at about 1½ is observed. [28]

To differentiate between the hypothesis of a better delivery rate and a good screening device for prior actions, both the total number of prior actions and the difference between the actions set at the outset of the program and at other times during the program were included in the same regression. As in the exercise under Section V.A., the variable was differentiated between transition and non-transition countries to highlight any differences among these two groups of countries. The impact of the ratio of prior actions at the outset versus the rest of the program is significantly positive for all economies while the total number of prior actions is not a significant determinant of growth (although the total number is significant in the absence of the ratio of prior actions at the outset versus the rest of the program). Except for the possibility that conditions set at the outset have more time to affect the economy, the profile of conditions over the program period should not demonstrate any independent effect on growth unless the screening effect was present. Therefore, the difference in importance between the time profile and the number of conditions indicates a demonstrable screening effect on growth.

[28] Rodrik, Subramanian, and Trebbi (2004) document a slightly lower coefficient estimate of 1.3 for the rule of law variable developed by Kaufman, Kraay, and Zoido-Lobaton (2002). Zoido-Lobaton

Table 5. Prior Actions and Macroeconomic Policies

During program duration		
	Change in fiscal balance	Inflation rate
Program implementation		
Prior actions at program approval relative to those set during rest of program	0.003 ***	-0.008
Normalized number of PCs and SBs (log)	0.003 **	-0.007
Implementation index	0.002	-0.02 ***
Macro policies		
Change in nominal interest rate	0.001 *	
Inflation rate	-0.015	0.341 ***
Change in budget balance		-0.178 **
Budget balance	-0.255 ***	-0.321 ***
Change in terms of trade		-0.029
Change in real exchange rate		-0.096 ***
Pre-determined conditions		
U.S. growth	0.166 ***	
Corruption	-0.002 ***	
Constant	-0.012 ***	0.036 ***
IMF program dummy variable	-0.006 ***	0.012
Countries without any IMF program	0.008 ***	0.001
Inverse Mills ratio	-0.001	-0.008
Number of observations	413	437
Pseudo-R squared	0.070	0.38
Log likelihood	1061.4	723.1

***, **, and * denote significance at the one, five, and 10 percent levels.

It is of course possible that the prior actions set at the outset of an IMF-supported program are more critical than those set later during the program. A comparison of the measures introduced at both stages shows some differences, mainly related to the concentration of macroeconomic policy measures at the beginning of an IMF-supported program, and policies to improve economic efficiency being emphasized later in the program. For example, the IMF recommended the establishment of a currency board (Bulgaria, 1997) and an adjustment to the band for exchange rate volatility (Philippines, 1998) at the outset of these programs, whereas amendments to the energy law (Bulgaria, 1998) and increases in the prices of petroleum products (Brazil, 1998 and Pakistan, 2000) were suggested at later stages of the respective programs. Therefore, given the nature of the structural measures set for the approval of an IMF-supported program, it is unlikely that these conditions directly affect medium- and long-run growth, suggesting that the screening effect is perhaps the most likely explanation for the growth impulse from prior actions set for program approval.

Medium-term Effects

As indicated earlier, the impact of structural conditions on output would expect to be maintained over the long run. To test this effect, the growth rate three years after the outset of the IMF-supported program was used as the dependent variable. The results indicate that the screening effect on growth persists over time, at least for CEE/CIS countries (excluding the Baltics). The impact of the ratio of prior actions at the outset versus the rest of the program is significantly positive for these economies while the total number of prior actions is not a significant determinant of growth.[29] Moreover, countries with twice the number of prior actions set at the outset of the program relative to other times grow by about ¾ percent of GDP per annum faster than countries without up-front prior actions, holding other factors constant.

The same macroeconomic variables that were statistically significant in the previous specification remain significant except for the exchange rate overvaluation term (insignificant) and the fiscal variables (significant). The long-run relationship between output per capita and law and order remains strong, with an elasticity at about 1.6 while, in contrast to many other studies, no clear relationship between output per capita and the investment rate is found. Interestingly, the dummy variable for middle-income countries that did not have an IMF-supported program over the 1992–2004 period is significantly positive. This is because these countries had already graduated from IMF-supported programs prior to this period and were rapidly becoming full-fledged market economies. In contrast, although the dummy variable for countries with IMF-supported programs is significantly negative, this effect is offset by the positive growth impact of both prior actions and other types of conditions when measured at average levels. For countries with high ratios of prior actions set at the outset relative to those set during the rest of the IMF-supported program, the net impact of the program on growth is positive.

[29] When the variable capturing the difference between the number of prior actions set at the outset of the program and at other times during the program is excluded from the specification, the total number of prior actions becomes a significant positive determinant of growth (Table 6, column 3).

Table 6. Prior Actions and Growth

	During program duration	3 years after beginning of program	3 years after beginning of program
Program implementation			
Prior actions at program approval relative to those set during rest of program (non-transition, log)	0.015 ***	0.006	
Prior actions at program approval relative to those set during rest of program (transition countries, log)	0.010 ***	0.009 **	
Normalized number of prior actions during program (log)	0.001	0.001	0.004 *
Normalized number of PCs and SBs (log)	0.000	0.001	-0.002
Implementation Index	0.004 *		
Macro policies			
Overvaluation (year prior to program)	-0.085 ***	-0.020	-0.023 *
Change in real interest rate	-0.015 ***	-0.063 ***	-0.057 ***
Change in nominal interest rate			
Inflation	-0.062 ***	-0.088 ***	-0.085 ***
Change in budget balance	0.057	0.124 ***	0.126 ***
Budget balance (year prior to program)	0.067	-0.066 ***	-0.072 **
Pre-determined conditions			
U.S. growth	0.300 ***	0.194 **	0.169 ***
Long-run relationship			
Log of GDP per capita	-0.006 ***	-0.010 ***	-0.009 ***
Law and Order	0.009 ***	0.016 ***	0.015 **
Investment rate	0.001	0.001	0.000
Constant	0.066 ***	0.081 ***	0.079 ***
IMF-supported program dummy variable	-0.011 ***	-0.007 **	-0.006 **
Countries without any IMF-supported program	0.010 ***	0.016 **	0.014 ***
Inverse Mills ratio	0.004		
Number of observations	401	376	377
Pseudo-R squared	0.374	0.201	0.180
Log likelihood	902.4	802.4	900.0

***, **, and * denote significance at the one, five, and 10 percent levels.

VI. CONCLUSIONS

The evidence in this paper suggests that prior actions may indeed provide a useful signaling/screening device for countries with weak or nonexistent track records of program implementation. The paper has confirmed the close association between the number of prior actions and weaknesses in the implementation of previous programs (at least for GRA-supported programs) and provided somewhat mixed evidence on the relationship between prior actions and initial macroeconomic conditions and institutional factors. The results also suggest that prior actions may be used to improve the overall program delivery rate, particularly in countries that consistently have weak implementation of non-prior action structural conditionality. Moreover, a higher share of prior actions improves the implementation rate of performance criteria and benchmarks over successive IMF-supported programs, although adding on too many prior actions could dilute this effect.

In terms of economic policies, prior actions set at program approval strengthen the macroeconomic targets set out in the IMF-supported program for middle-income countries. The fiscal balance improves during the course of the program for countries with average levels of prior actions set at program approval, while the inflation rate declines for the same category, although this decline is not significant.

To determine whether structural conditions affect economic outcomes, prior actions and other conditions were also included in an analysis of growth. The paper noted three reasons why more prior actions may lead to stronger growth over the medium term. First, all prior actions are carried out, by definition. Second, the screening component of a large number of up-front prior actions could boost growth because of its ability to separate committed and less-committed reformers. Finally, measures associated with prior actions set at the outset of the IMF-supported program could be more substantive than prior actions set through the rest of the program. The results reveal a demonstrable screening effect on growth over the medium term, since the growth impact of the ratio of prior actions at the outset versus the rest of the program is significantly positive while the total number of prior actions is not statistically significant. Part of the differentiation of the effects of prior actions on growth over time could be associated with differences in the impact of various measures. However, a closer look at the data reveals that the preponderance of prior actions introduced for the approval of a IMF-supported program are largely related to macroeconomic policy measures, and therefore unlikely to directly affect medium- and long-term economic growth. In future work, it would be useful to build on the decomposition of prior actions in terms of their focus, to ascertain whether different types of policies have different impacts on growth.

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Appendix

Variables used in regressions on implementation

To capture specific institutional features, political economy variables are used as explanatory variables. The quality of the bureaucracy and government stability variables are taken from the ICRG database and are based on perceptions of these characteristics.

The **government stability** variable has a 12-point scale and measures both the government's ability to carry out its program and its ability to stay in office. To limit the variability in the estimate, this variable is considered in logarithmic terms.(Source: International Country Risk Guide—ICRG).

The **democracy** and **autocracy** variables are taken from the University of Maryland, Polity IV project. They define strength of democracy based on an indicator of the presence of institutions and procedures through which citizens can express preferences about alternative policies and leaders, the existence of institutionalized constraints on the exercise of power by the executive, and the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. Alternatively, autocracy is defined as regimes that sharply restrict or suppress competitive political participation. The democracy indicator ranges from 1 to 10 and the autocracy indicator ranges from -10 to -1. In this paper a dummy variable is created for democracies with a value of zero for polity values less than zero, and the actual value for polity values greater than zero. Similarly, a dummy variable is created for autocracies with a value of zero for polity values greater than zero, and minus the actual value for polity values less than zero.

Change in government is expressed as a dummy variable and recorded as one if the election of the executive is within one year of the commencement of the IMF-supported program.

Length of term in office is the number of years that the current executive has been in office at the time of program approval. Both these variables are from the World Bank's database.

Variables used in growth regression

Most variables have standard definitions. Variable changes are defined either as logarithmic changes in the underlying variables (**CPI, U.S. output**) or as nominal changes divided by GDP in U.S. dollars (**budget balance**). The **output per capita** variable is output in U.S. dollars valued at the PPP exchange rate and divided by the population. The **overvaluation** variable is defined as the logarithmic difference between the real exchange rate measured using the CPI and a 25-year HP filter trend line. The **real interest rate** is measured as the 3-month t-bill rate minus the inflation rate. All of the macroeconomic variables are from the *World Economic Outlook*. **Law and order** is an assessment of the strength and impartiality of the legal system and of the popular observance of the law (ICRG database).