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# Macroeconomic effects of IMF-sponsored programs in Latin America: output costs, program recidivism and the vicious cycle of failed stabilizations

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**Abstract**

We investigate the effects of IMF stabilization programs, and the reasons behind the unusually high IMF activity and relatively low program completion rates in Latin America. We base our tests on a panel, and distinguish between IMF program approvals and completion. We find that Latin America has higher output costs of IMF programs (especially when completed), no improvement in the current account, and a much higher likelihood of program failure and recidivism than other regions. The common finding that entering into an IMF-supported program incurs real short-run costs on the economy is entirely driven by the experiences in Latin America.


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## 1. Introduction

Latin America is a volatile region with a history of exceptionally high inflation rates, substantial macroeconomic instability, and a record of unsuccessful monetary and fiscal stabilizations. Not surprisingly, the credibility of stabilization efforts

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with the public is low, making the task of successfully implementing new stabilization programs very difficult. Latin American countries are also the most frequent users of IMF loans and associated IMF-supported stabilization programs (Table 1). These programs' primary official objective is to restore balance of payments equilibrium and, in this context, IMF loans are granted (and the funds disbursed incrementally) conditional upon specific macroeconomic and other criteria being met.[1]

This study investigates the macroeconomic effects of IMF-supported stabilization programs in Latin America, relative to other parts of the world, focusing in particular on output growth and balance of payments adjustment. We also consider the reasons behind the unusually high IMF program activity in Latin America, relatively low program completion rates, and how these characteristics may be associated with macroeconomic instability and the history of failed macroeconomic stabilizations in the region.

There is considerable debate over the effects of IMF-supported stabilization programs but no consensus has emerged about the macroeconomic impact of these programs.[2] Most empirical studies using panel data sets and regression techniques find that IMF-supported programs improve the balance of payments and the current account, but views on the ultimate output and employment effects are much more divergent.[3] Studies measuring the output costs of IMF-program participation have reached radically different conclusions—with estimates ranging from sizeable declines in output growth (e.g. Przeworski and Vreeland, 2000), to little or no adverse output effects (Hutchison, 2002, 2003), to quite strong positive output effects (e.g. Edwards and Santaella, 1993; Dicks-Mireaux et al., 2000).[4]

To our knowledge, no study has specifically focused on the output and current account effects of IMF-supported programs for Latin America over the past two decades. In an early unique contribution, Pastor (1987) considered IMF programs in Latin America in 1960–1981 (using developments before/after program participation, as well as differences between years when countries were in and out of programs, as the benchmarks), and concluded that the current account and output

[1] A key purpose of the IMF is "...to give confidence to members by making the Fund's resources temporarily available to them under adequate safeguards, thus providing them with the opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity" (IMF Articles of Agreement, Article I (v)).

[2] There is a large literature reviewing the effects of IMF-supported stabilization programs. See, for example, Beveridge and Kelly (1980); Bordo and James (2000); Connors (1979); Conway (1994); Edwards (1989); Gylafson (1987); Hutchison (2002, 2003), and Pastor (1987).

[3] For a survey of these results, see Ul Haque and Khan (1998).

[4] These conflicting results arise from several sources, including differences in the types of IMF programs that are investigated, differences in the groups of countries or the time periods that are investigated (e.g. poor developing vs.s emerging market economies or pre- and post-Bretton Woods), differences in the methodologies that are employed, and, perhaps most important, how other factors influencing output growth are taken into account. See Hutchison (2003) for a detailed discussion.

effects of programs were inconclusive. He found, however, systematic reductions in the labor share of income following IMF programs.[5]

The absence of recent work in this area is surprising, since Latin America is the region of the world where the IMF has been most active and macroeconomic volatility greatest. To address this gap in the literature, this study addresses five main questions. First, does participation in an IMF-supported stabilization program tend to make real GDP growth weaker? Second, what is the average impact of an IMF program on balance of payments adjustment? Third, does there appear to be differential effects of IMF programs in Latin America compared with the rest of world? Fourth, are there differences in the macroeconomic outcomes between countries that fully complete IMF programs, never withdraw funds (using the IMF program as a "precautionary" contingent source of funds) and those that have programs approved but are not fully completed? Fifth, does the poor completion record of IMF programs in Latin America affect their macroeconomic performance during program participation?

In addition to our focus on Latin America, we introduce several methodological innovations. The estimation methodology employed to investigate real growth effects of IMF programs is the standard General Evaluation Estimator (GEE). However, we introduce a "matching" procedure into the analysis to control for selection bias (countries self-select into IMF program participation), and argue that Heckman's (1979) Inverse Mills Ratio (IMR) statistic does not appear to adequately address this point. We also control for the occurrence of recent currency/balance of payments crises and "sudden stops" in capital flows associated with currency crises, and test for interaction effects between these events and subsequent participation in IMF programs. This allows us to answer the question: Is the adverse output effect of a currency crisis and/or a reversal in capital flows in Latin America made worse when the IMF steps in with a stabilization package? Another innovation is that we distinguish between IMF program approvals and successful completion of IMF programs in measuring macroeconomic effects. This is especially important for Latin America, since the majority of programs are not successfully completed. Our econometric tests are based on panel data set (67 countries over the 1975–1997 period) with country-specific effects.

Section 2 presents a short description of IMF programs and statistics on the number and completion rates of programs in Latin America and elsewhere. We also discuss the frequency that Latin American countries enter into new programs (recidivism). Section 3 discusses the methodology and data. Section 4 reports the primary empirical results of the study. This section presents estimation results of the "reduced form" output and current account equations with explanatory vari-

[5] In particular, Pastor (1987) considers 18 Latin American countries over the 1965–1981 period. He measures the (1) "before" and "during" absolute comparisons of key macroeconomic variables and (2) the relative performance of countries participating in IMF program and those that were not. He finds that IMF programs during 1960–1981 were associated with insignificant changes in the current account, significant improvements in the balance of payments and mixed effects on output growth. His key result is that IMF programs appeared to be strongly related to a reduction in the labor share of income.

ables that include currency crises and IMF program participation. Section 5 interprets the main results of the study against the background of the recent literature on macroeconomic instability, the link between failed stabilizations and lack of policy credibility, and the determinants of IMF program completion and recidivism. Section 6 concludes the paper.

## 2. The IMF in Latin America

### 2.1. IMF stabilization programs

The main IMF facilities designed to meet short-run balance of payments stabilization are Stand-By arrangements (SBA) and the Enhanced Fund Facility (EFF).[6] In general, Fund members can access credit tranches from the General Resources Account (GRA) either by means of IMF program arrangements or by means of "outright purchases". Outright purchases are limited, typically, for the first 25% of the member's quota and do not involve any phasing or conditionality. Stand-by arrangements have been the main instrument through which members gain access to further credit tranches.[7] Stand By Arrangements (SBA) typically last for 12–18 months. Any drawings beyond the first tranche require both phasing out and stricter conditionality and are limited to 100% of quota annually (300% cumulatively together with the Extended Fund Facility, EFF, as discussed below). Repurchase obligations last $3\frac{1}{4}$–5 years from the date of purchase.

The Extended Fund Facility, established in 1974, provides somewhat longer-term financing to countries in need of structural economic reforms. EFF arrangements typically last for 3 years; phasing and conditionality are similar to the SBAs with an emphasis on longer-term structural reforms. Quota limits are identical to the SBAs, while repurchases last much longer ($4\frac{1}{2}$–10 years). Both facilities are subject to the same rate of interest for repayments. Countries sign an agreement with the IMF before participating in a program that sets certain conditions ("conditionality")—most frequently, specific targets for macroeconomic policy—designed to help restore balance of payments equilibria and insure repayment to the Fund. These conditions, typically involving tight monetary/credit policy and budget deficit reduction, are controversial (e.g. Stiglitz, 2000).

We use the SBA and EFF programs (and, for Korea in 1997, the new SRF program) as our definition of "IMF-supported stabilization programs". These are the only programs clearly linked to short-term balance of payments adjustment.[8] By contrast with these programs, some Fund facilities are designed with other objec-

[6] See Hutchison (2003) for an extended discussion of IMF programs and conditionality.

[7] As the Articles of Agreement state, they were defined as "a decision by the Fund by which a member is assured that it will be able to make purchases from the General Resources Account in accordance with the terms of the decision during a specified period and up to a specified amount" (Article XXX (b)).

[8] There are no cases of SBA and EFF programs being approved in the same year in our data sample.

Table 1
Program approval

| | Short-term programs | | Long-term programs | Programs per country |
|---|---|---|---|---|
| | SBA | EFF | | |
| Full sample | 760 | 57 | 100 | 6.8 |
| Latin America | 284 | 22 | 11 | 11.7 |
| Asia | 101 | 9 | 13 | 6.8 |
| Middle East | 33 | 4 | 0 | 5.3 |
| Africa | 229 | 17 | 72 | 7.2 |
| Other | 113 | 5 | 4 | 3.2 |

All IMF programs (for all countries) since 1952 which ended by December, 1999 are included. Short-term programs include Stand-By Arrangements, Extended Stand-By Arrangements (SBAs) and Enhanced Fund Facilities (EFF). Long-term programs include structural adjustment facility and enhanced structural adjustment facility.

tives in mind (e.g. poverty reduction and growth facility). We do not include these programs, since their primary objective is not short-run balance-of-payments stabilization.[9]

The regional distribution and types of IMF programs are shown in Table 1. Throughout the IMF's history (and up to 1999), 817 short-term and 100 long-term programs were initiated and approved (long-term programs only began in the late 1980s).[10] Short-term stabilization programs are primarily directed to Latin America, with about 38% of program approvals.[11]

### 2.2. Completion rates and recidivism

Table 1 also shows that Latin America is the region with the highest number of programs per country over the 1952–1999 period. (This table includes all IMF programs.) In particular, Latin America had 11.7 programs per country compared to the world average of 6.8 programs per country.[12]

[9] In contrast with our study, Dicks-Mireaux et al. (2000) focus on the structural adjustment programs in their research (SAF and ESAF) and measure the effects of these IMF-supported programs on poor developing countries. Bordo and Schwartz (2000) consider both IMF stabilization and structural adjustment programs, and use a mixed sample of 20 emerging market and developed countries (including Australia and New Zealand). Similarly, Prseworski and Vreeland, (2000) do not differentiate between programs, including both stabilization and structural adjustment IMF lending arrangements.

[10] Contrary to popular perception, Hutchison (2003) finds that the number of IMF programs is not growing over time, nor is the size of these programs changing much relative to the size of the economies involved (about 2% of GDP in 1995–1999). The size of the average program in terms of SDRs jumped in the late 1990s, however, due to the large economic size of the countries going to the IMF for assistance (e.g. Brazil, Indonesia, Mexico, Russian Federation, and South Korea).

[11] Not surprising, given the poverty in the region, Africa dominates the long-term structural programs with 72% of approved programs.

[12] More specifically, this statistic is the number of programs per country where the regional sample is defined as those countries entering into at least one IMF program.

In the Latin American context, the high rate of recidivism—i.e. repeated agreements with the IMF—may be related to the low rate of program completion in the region. Table 2 shows the completion rates of IMF programs for all countries compared with Latin American countries. Our definition of completion is the percentage of IMF funds approved for the program that were actually disbursed. This measure does not necessarily constitute a measure of successful implementation of a program, as it might be the case that resources are not disbursed because the underlying reason for the program is no longer there. In short, it might be the case that the program proved to be so successful or that other positive shocks that occurred made continuation of the program unnecessary. Moreover, a number of approved IMF programs have never seen funds withdrawn, typically because these were originally intended as a "precautionary" source of funds (a contingent credit line).[13]

We are not able to determine, from our data, which programs were stopped or partially completed due to the IMF (suspensions or cancellations), or whether funds were not withdrawn at the discretion of the country involved. In our empirical work, we consider several tests to check the robustness of our results to several assumptions. However, a number of reports, written both in the IMF and by others, suggest that in many cases, the amount disbursed may be a good indicator of program success (Mussa and Savastano, 1999; Dreher, 2002; Bird, 2002). In an IMF working paper, for example, Ivanova et al. (2003) report that the disbursal of funds is correlated with other indicators of program implementation. Mussa and Savastano (1999) study 615 IMF arrangements and find: "In a few of these cases, the program was so successful (or conditions improved so rapidly) that the member needed to use only a fraction of the committed IMF financing. Mainly, however, these were cases where the program went off track and subsequent negotiations failed to reach agreement on a modified program." (p. 94)

The different measures of completion, shown in Table 2, are all based on the percentage of IMF funds approved for the program that were actually disbursed. The column headings are programs completed (with disbursement rates of 100% or above 75%), partially completed (rates between 25% and 75%), and programs not implemented (with disbursement rates listed as either 0% or less than 25%). Only 23% of the IMF programs in Latin America disbursed all of the approved funds (32% of the programs disbursed more than 75% of the approved funds), compared with a completion rate of 35% (45%) for all IMF programs in the world. Similarly, 33% of IMF programs in Latin America paid out less than 25% of the approved funds—and 27% of the programs disbursed no monies at all. The corresponding statistics for all IMF programs are much lower at, respectively, 24% and 18%.

These low completion rates are also reflected in the average rate of completion (funds disbursement). On average, 50% of the approved funds for an IMF program in Latin America were disbursed over the 1952–1999 period compared with an average rate of 60% for all of the IMF programs around the world. Moreover, there

[13] We find 75 precautionary arrangements in the 1975–1997 sample we used in our estimations.

Table 2
Program completion

| Completion Index | Total number of programs | Programs completed | | Programs partially completed | Programs not implemented | |
|---|---|---|---|---|---|---|
| | | $\alpha = 1$ (%) | $\alpha > 0.75$ (%) | $0.25 \geq \alpha \geq 0.75$ (%) | $0.25 > \alpha$ (%) | $\alpha = 0$ (%) |
| All programs (1952–1999) | 917 | 35 | 45 | 30 | 24 | 18 |
| Latin America (1952–1999) | 317 | 23 | 32 | 35 | 33 | 27 |
| All programs (1975–1999) | 566 | 38 | 48 | 33 | 19 | 10 |
| Latin America (1975–1999) | 138 | 30 | 39 | 35 | 27 | 17 |

All IMF programs (for all countries) since 1952 and which ended by December, 1999 are included. The programs include: Stand By and Extended Stand By Agreements, Enhanced Fund Facility, Structural Adjustment Facility and Enhanced Structural Adjustment Facility. The completion index is the ratio of amount disbursed to amount agreed in any IMF program.

is no apparent time trend in program completion, neither in Latin America nor elsewhere.[14]

## 3. Methodology and data

### 3.1. GEE methodology

Throughout our regression analysis, we employ the General Evaluation Estimator (GEE) methodology that was first applied to the evaluation of IMF programs by Goldstein and Montiel (1986). The key element in this approach is that it must be possible to characterize macroeconomic policy choices by a simple and stable (over time and across countries) reaction function that holds for both participating and non-participating country-years. We extend this standard model by introducing currency crises and sudden stops in capital inflows as additional factors influencing the evolution of output (for their importance see Hutchison, 2003 and Hutchison and Noy, 2002b). We differentiate between IMF program participation in Latin America and elsewhere and thus are able to identify the uniqueness of the IMF's intervention in Latin America. Furthermore, we investigate whether

[14] This finding is different than the one presented in Mussa and Savastano (1999) and expounded on in Bird (2002) which did not account for the fact that the end of their sample included programs that did not yet expire. Details are explained in the working paper version of this paper, Table 1.1.3 (Hutchison and Noy, 2003).

accounting for completion (implementation) rate of IMF programs changes these results.

In our model, the growth of real GDP for the $i$th country at time $t$ ($y_{it}$) is explained by policies that would have been observed *in the absence* of an IMF-supported program ($x_{it}$), external factors ($w_{it}$), the recent occurrence of financial crises ($D^{\mathrm{CC}}_{i(\cdot)}$), the existence of an IMF-supported program ($D^{\mathrm{IMF}}_{i(\cdot)}$), the existence of an IMF-supported program in Latin America to capture differential responses in the region ($D^{\text{LA-IMF}}_{i(\cdot)}$), and unobservable random disturbances ($\varepsilon_{it}$).

$$y_{it} = \beta_0 + \beta_k x_{it} + \alpha_h w_{it} + \beta^{\mathrm{CC}} D^{\mathrm{CC}}_{i(\cdot)} + \beta^{\mathrm{IMF}} D^{\mathrm{IMF}}_{i(\cdot)} + \beta^{\text{LA-IMF}}_{i(\cdot)} D^{\text{LA-IMF}}_{i(\cdot)} + \varepsilon_{it} \tag{1}$$

where $x$ is a $k$-element vector of policy variables, $w$ is an $h$-element vector of exogenous variables, $D^{\mathrm{CC}}_{i(\cdot)}$ is a vector of dummy variables each equal to unity if the country has experienced a currency crisis at time $t$, separately at time $t-1$, and a sudden stop at time $t$ (and zero otherwise), $D^{\mathrm{IMF}}_{i(\cdot)}$ is a dummy variable equal to unity if a short-run IMF program is in effect (and zero otherwise), $D^{\text{LA-IMF}}_{i(\cdot)}$ is a dummy variable equal to unity if a short-run IMF program is in effect for that country-year observation (and zero otherwise), and $\varepsilon_{it}$ is a zero mean, fixed variance, serially uncorrelated, disturbance term. $\beta_0$ is a vector of country effects (allowing average growth rates to vary across countries in the sample).

Policies adopted in the absence of an IMF-supported program ($x_{it}$) are directly observable only for non-program periods, and a key part of the GEE estimation approach is therefore to construct a counterfactual for policies during programs. This counterfactual is based upon a policy reaction function that links changes in the policy instrument to the deviation of the observed lagged value for output growth from its desired value ($y^d_{it}$). The policy reaction function is described by:

$$\Delta x_{it} = \gamma\left[y^d_{it} - y_{i(t-1)}\right] + \eta_{it} \tag{2}$$

where $\eta_{it}$ is a zero mean, fixed variance, serially uncorrelated error term assumed to be uncorrelated with $\varepsilon_{it}$ and $\Delta$ is the difference operator. The parameter $\gamma$ indicates the extent to which the policy instrument is adjusted in response to disequilibria in the target variable. Substituting (2) into (1) and subsuming desired output growth into the vector of fixed-effect constant terms for each country ($\beta'_0$) gives

$$\begin{aligned}\Delta y_{it} = {} & \beta_0 - (\beta_k\gamma_k + 1)y_{i(t-1)} + \beta_k x_{i(t-1)} + \alpha_h w_{it} + \beta^{\mathrm{CC}} D^{\mathrm{CC}}_{i(\cdot)} + \beta^{\mathrm{IMF}} D^{\mathrm{IMF}}_{i(\cdot)} \\ & + \beta^{\text{LA-IMF}}_{i(\cdot)} D^{\text{LA-IMF}}_{i(\cdot)} + \varepsilon_{it} + \beta_k \eta_{it}\end{aligned} \tag{3}$$

Equation (3) is the GEE reduced-form model used in a number of earlier studies (Dicks-Mireaux et al., 2000; Goldstein and Montiel, 1986; and Hutchison, 2003). This model is estimated using panel data drawn from countries and periods in which IMF support was in place and those in which IMF support was absent. The initial aim is to get consistent estimates for $\beta^{\mathrm{IMF}}$—the effects of IMF lending programs on the target variable. By including a binary variable for IMF programs in Latin America, we estimate the additional (marginal) effect of having an IMF pro-

gram in that region (so that, overall, the effect of an IMF program in a Latin American country is captured by summing the two coefficients). We also investigate alternative definitions in classifying program-years—both years for which an IMF program was approved and years in which a completed (or partially completed) IMF program was in place (with the aim of identifying the differential effect of completing a program).[15]

### 3.2. Estimation and matching

In our estimates, we follow a procedure first suggested by Hausman and Taylor (1981) that takes into account the bias in estimation of a dynamic panel with predetermined and endogenous variables. When a correlation exists between the independent variables and the individual country-specific effects, a least-squares estimation of a dynamic model ignores the correlation between the time-invariant country-fixed effects and the error term. Similarly, a correlation between the crises or program explanatory variables and the error term exists when output fluctuations contribute to their onset. The Hausman–Taylor three-step estimation methodology is an instrumental variable estimator that takes into account the possible correlation between the independent variables and the individual country-specific effects. By assuming appropriate exclusion restrictions on the lag structure of the structural equations, simultaneity issues running from output growth (our dependent variable) to currency crises and IMF programs are also dealt with.[16,17]

In the first step, least-square estimates (with fixed effects) are employed to obtain consistent but inefficient estimates for the variance components for the coefficients of the time-varying variables. In the second step, an FGLS procedure is employed to obtain variances for the time-invariant variables. The third step is a weighted IV estimation using deviation from means of lagged values of the time-varying variables as instruments.[18] The procedure requires specifying which explanatory variables are to be treated as endogenous. In our specification, the endogenous

[15] Note that the theoretical model suggests that the *change* in the output growth rate is the appropriate dependent variable to be included in the regressions. We use this formulation of the dependent variable in our empirical specifications. The results (available from the authors upon request) are not materially changed if the dependent variable is the growth rate of output.

[16] Without appropriate, and fairly restrictive, assumptions on the structural equations, our estimation measures correlations rather than causality. Even so, our main result, namely that the negative output effect of an IMF program disappears once one includes IMF programs in Latin America separately and that no effect is discernible on the current account, still hold.

[17] A more efficient General Methods of Moments (GMM) procedure is theoretically possible. It relies on utilizing more available moment conditions to obtain a more efficient estimation (e.g. Arellano and Bond, 1991, 1998). In our case, the long time-series makes this procedure difficult to implement for most specifications of the model. Hutchison and Noy (2002a,b) provide some results using the Arellano and Bond (1998) GMM framework and show that the coefficient estimates obtained are very similar to those obtained from the Hausman and Taylor (1981) procedure.

[18] For exact details on the motivation and estimation procedure, see Hausman and Taylor (1981) and Greene (2002), respectively.

explanatory variables are the binary measures (IMF programs, currency crises and Sudden Stops) and the lagged dependent variable.[19]

A decision by the IMF to offer participation in a loan program and a decision by the borrowing country to accept such an offer are not random. Therefore, if the participation decision is correlated with macroeconomic variables that are also correlated with the outcome variable (in this case, output growth and the current account balance), a standard estimation of output growth will yield a biased coefficient for the participation variable. While instrumental variables have generally been used to deal with this type of selection bias, other techniques are available when no good instruments are available.[20]

The common Heckman (1979) methodology to deal with selection bias has been used before in the literature evaluating IMF program participation and has performed poorly (Dicks-Mireaux et al., 2000; Hutchison, 2003). The more recent methodology of matching (Dehejia and Wahba, 2002; Heckman et al., 1997, 1998) is designed to account for the "selection on observables" bias. In its purest form, the idea is simple. Each participation observation is matched to a non-participation observation that has the same observed values of a vector of other characteristics that determine participation ($X$). The difference in the observed outcome between the two matched observations is thus the program's effect.

Heckman et al. (1997) note that "...simple balancing of observables in the participant and comparison group samples goes a long way toward producing a more effective evaluation strategy" (p. 607). On this basis, we insure that our samples of program and non-program observations are distributed over a common support for the participation decision. Rosenbaum and Rubin (1983, 1985) have shown that, if the probability of participation—$P(X)$—is known than matching by $P(X)$ instead of $X$ is sufficient. This collapses a multidimensional problem to one dimension and greatly simplifies the procedure. Furthermore, Rubin and Thomas (1992) show that using an estimated probability of participation $\tilde{P}(X)$ instead of $P(X)$ is still effective in reducing selection-on-observables bias.

In practical terms, we start by estimating a probit model of the decision to participate in an IMF short-term program. We employ a specification that is similar to that reported in Dicks-Mireaux et al. (2000) and Hutchison (2003).[21] We then construct the estimated probability of participation ($\tilde{P}(X)$—a propensity score) for each country-year. We discard those observations whose propensity scores are outside the common support of the participating and non-participating observations.[22] This implies that 155 non-program observations that have very low estimated propensity scores ($<0.079$) and four participation observations that have the highest estimated propensity scores ($>0.82$) are omitted. All our econometric exercises include only the trimmed samples.

[19] Different assumptions with regard to the endogenous variables do not change our results.

[20] For a survey see Blundell and Costa Días (2000).

[21] See appendix C for results of the estimated probit equation.

[22] Edwards (2002) also uses the same propensity score—common support procedure to control selection bias in his research on determinants of the current account.

### 3.3. Data

The minimum data requirement to be included are that GDP figures are available for a minimum of 10 consecutive years over the period 1975–1997. This requirement results in a sample of 67 developing countries.[23] We use annual observations.

The data on IMF programs, on their time span and amounts agreed and withdrawn, was taken from various issues of the IMF's *Annual Report*. Our binary indicator of currency crises is constructed by identifying "large" changes in an index of currency pressure, defined as a weighted average of monthly real exchange rate changes and monthly (percent) reserve losses.[24] Following convention (e.g. Kaminsky and Reinhart, 1999), the weights are inversely related to the variance of changes of each component over the sample for each country. An episode of severe exchange rate pressure is defined as a value in the index—a threshold point—that exceeds the mean plus two times the country-specific standard deviation, provided that it also exceeds 5%. For the algorithm, we used to construct the binary Sudden Stop variable, we first identified observations in which there was an increase in the current account of more than 3% of GDP. We then marked a crisis year whenever a country experienced both a turnaround in the current account (a capital flow reversal) and a currency crisis. For exact details on the procedures used to identify currency crises and Sudden Stops and their justifications, see Glick and Hutchison (2001) and Hutchison and Noy (2002a, b), respectively.

In our regression analysis, we include several control variables. For external–exogenous factors, we include trade-weighted lagged external growth rates of the major trading blocks (EU, Japan and US) and the lagged rate of real exchange rate overvaluation.[25] The (lagged) policy factors we consider are the change in the budget surplus to GDP ratio, inflation, and credit growth.

In controlling for sample selection bias, a probit equation explaining the likelihood of IMF-program participation was estimated. Other variables employed in this estimation, not noted above, are the rate of capital formation, the debt to GDP ratio, the debt service to imports ratio, and the foreign exchange to imports ratio. All these macroeconomic data series are taken from the International Monetary Fund's IFS CD-ROM.

[23] Our sample also excludes major oil-exporting countries and countries with a population of less than one million. For a complete list, see the working paper version (Hutchison and Noy, 2003).

[24] Our currency pressure measure of crises does not include episodes of defense involving sharp rises in interest rates. Data for market-determined interest rates are not available for much of the sample period in many of the developing countries in our dataset.

[25] Real exchange rate overvaluation is defined as deviations from a fitted trend in the real trade-weighted exchange rate. The real trade-weighted exchange rate is the trade-weighted sum of the bilateral real exchange rates (defined in terms of CPI indices) against the US dollar, the German mark, and the Japanese yen. The trade-weights are based on the average bilateral trade with the United States, the European Union, and Japan in 1980 and 1990.

## 4. Output and current account effects of IMF programs in Latin America

### 4.1. Evaluating the output effects

Table 3 presents results from our benchmark model.[26] The statistically significant control variables are lagged output growth, lagged inflation, external growth rates, real exchange rate overvaluation, and the crises variables. A 1% rise in the growth rate of the G-3 economies raises output growth in developing economies an average of about 0.30% points. Rises in inflation and in the real exchange rate overvaluation index significantly reduce output growth. However, the coefficients for budget changes and credit growth are not significantly different from zero. The signs and coefficient estimates for the control variables are consistent across alternative specifications of the model reported elsewhere in this paper.

Turning to the financial crises variables, the coefficient estimates indicate that the onset of a contemporaneous (lagged) currency crisis is associated with a fall in GDP growth of about 1.0% (1.2) points with a much larger effect attributed to the occurrence of a sudden stop (about 3.4% points).[27]

In column (1) of Table 3, we observe that the average effect of an IMF short-term program on output is statistically significant and negative. Column (2) demonstrates that controlling for sudden stops does not change that significance level or magnitude of the negative "IMF effect". However, once we control for the difference between IMF programs in Latin America and elsewhere (column 3)—with or without controlling for the occurrence of sudden stop crises (column 4)—the result no longer holds. Specifically, the coefficient for the IMF program approval dummy in columns (3) and (4) is no longer significantly different from zero.

The results reported in columns (3) and (4) indicate, however, that a program approval in Latin America will lead to a statistically significant average reduction of output growth of 1.1–1.5% points. The effect of IMF program approvals in Latin America appears to be worse than elsewhere.[28]

However, it is not clear whether IMF programs in Latin American have "underperformed" relative to the other regions during each decade of our sample. To investigate this issue for the 1990s, compared to earlier decades, column (5) presents results of IMF programs with a decomposition of programs during 1990–1997. Two dummy variables are added to our baseline model: a dummy variable representing all IMF program years during 1990–1997 (one if in program

[26] The participation equation estimated and summary statistics are available in the working paper version of this article. See Hutchison and Noy (2003).

[27] Hutchison and Noy (2002b) find that sudden stops are even more traumatic for a sample of higher income emerging market economies.

[28] This result is maintained, qualitatively, for the more restricted sub-sample of Latin American countries, but coefficients are no longer statistically significant. We also test for longer run effects of IMF programs by adding 2 or 3 lags of the IMF dummy and the IMF Latin America dummy variable. None of these lag values are statistically significant, however.

Table 3
Output growth regressions

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Real GDP growth ($t-1$) | −0.83*** | −0.76*** | −0.84*** | −0.77*** | −0.78*** |
| | (24.85) | (19.29) | (24.88) | (19.38) | (19.41) |
| Change in budget surplus to GDP ($t-1$) | 4.12 | 6.59 | 4.24 | 6.88 | 3.86 |
| | (0.94) | (1.20) | (0.97) | (1.26) | (0.69) |
| Inflation ($t-1$) | −0.02*** | −0.02*** | −0.02*** | −0.02*** | −0.02*** |
| | (2.95) | (2.71) | (2.87) | (2.60) | (2.90) |
| Credit growth ($t-1$) | 0.01 | 0.01* | 0.01 | 0.01* | 0.01* |
| | (0.96) | (1.61) | (1.07) | (1.72) | (1.92) |
| External growth rates ($t$) | 0.25** | 0.31** | 0.25** | 0.30** | 0.30** |
| | (2.27) | (2.36) | (2.24) | (2.29) | (2.24) |
| Real exchange rate overvaluation ($t-1$) | −0.02*** | −0.02** | −0.03*** | −0.02** | −0.02** |
| | (3.87) | (2.26) | (4.04) | (2.36) | (2.10) |
| Currency crises dummy ($t$) | −0.99** | −0.88* | −1.07** | −0.93* | −0.58 |
| | (2.14) | (1.56) | (2.30) | (1.65) | (0.95) |
| Currency crises dummy ($t-1$) | −1.20** | −0.91* | −1.26** | −0.95* | −0.95* |
| | (2.49) | (1.71) | (2.61) | (1.78) | (1.63) |
| Sudden-stop crises dummy ($t$) | | −3.37*** | | −3.46** | −4.21** |
| | | (2.96) | | (3.04) | (3.36) |
| IMF short-term program dummy ($t$) | −0.78** | −0.73* | −0.25 | 0.21 | 0.32 |
| | (−2.24) | (−1.80) | (−0.55) | (0.35) | (0.47) |
| IMF short-term program in the 1990s ($t$) | | | | | −0.83 |
| | | | | | (0.81) |
| Latin American IMF program dummy ($t$) | | | −1.07* | −1.48** | −2.32** |
| | | | (1.86) | (2.23) | (2.80) |
| Latin American IMF program in the 1990s ($t$) | | | | | 3.15** |
| | | | | | (2.51) |
| Adjusted $R^2$ | 0.46 | 0.40 | 0.46 | 0.40 | 0.41 |
| Number of observations | 764 | 594 | 764 | 594 | 594 |
| Correlation of error terms | 0.06 | 0.04 | 0.05 | 0.04 | 0.05 |

LHS variable: change in real GDP growth. Hausman and Taylor (1981) 3-step IV estimator. $T$-statistics in parantheses. Columns (1)–(5) use the trimmed full sample.
* represents 10% significance.
** represents 5% significance.
*** represents 1% significance.

year, zero otherwise) and a dummy variables for Latin American program years during 1990–1997 (one if in program year, zero otherwise). The "output effect" results for Latin American programs are again highly significant (negative) over the entire sample, but substantially larger on average (−2.32) than previously reported in columns (3) and (4). (The output effect of IMF programs for all regions, during the entire sample period or during the 1990s, remains statistically insignificant.) The converse is true for the 1990s, however, as estimated output effect of an IMF program in Latin America during the 1990–1997 period is positive (3.15) and highly significant *relative* to the sample average; the marginal net effect of a program in Latin America in the 1990s is positive ($0.83 = 3.15 - 2.32$) and marginally significant. This indicates that IMF programs in Latin America are

associated with very small positive output effects in the 1990s, but large negative effects during 1975–1989.

### 4.2. Evaluating the output effects of completed IMF programs

Table 4 examines whether the identified magnitudes of the output effects are different once completion of IMF programs is considered. In this table, we employ several different variables to proxy for completed (or partially completed) programs. In the first, we construct an index that is the ratio of disbursed resources to the amount agreed in the original program.[29] Secondly, we construct a binary variable that marks 1 for every program that was completed on time, and for which all resources were disbursed, and 0 otherwise. Another version of this binary measure identifies completed programs as ones in which at least 75% of agreed resources were disbursed. Thirdly, we identify those programs that were intended as precautionary arrangements—those programs for which no monies were disbursed—and use an alternative definition of program participation (approval) that includes only non-precautionary programs.

The general specification of our reduced form model remains the same and very similar coefficients for the control variables are obtained. The lagged growth rate, the inflation rate and the external variables are still statistically significant and have plausible signs.

When the completion index (ratio) is employed to account for completion of programs, the average effect of an IMF program is found to be positive (but only occasionally statistically significant), while IMF programs in Latin America decrease output growth by 1.8% points for each program year (column 1).[30] The results are similar for either of the two versions of the completed-programs binary variable employed (columns 2 and 3). A completed IMF program has a positive but statistically indistinguishable effect on output, while a completed IMF program in Latin America reduces output by 1.9% points for our index = 1 binary measure and 0.9% points for our index > 0.75 binary variable (the coefficients are statistically significant).[31]

Finally, we identify those IMF programs for which at least the first tranche of funds were drawn, i.e. we exclude those programs that were intended to "precautionary".[32] Seventy-five programs in our sample fall into this category. The em-

[29] For justification of using this index see Section 2 and for statistics on the index see Table 2.

[30] These results are obtained by summing the coefficients for the IMF and Latin American IMF binary variables.

[31] Boughton (2000) suggests that the nature of IMF programs changed dramatically with the debt crisis of the 1980s. To examine the robustness of our result, we ran the same specification as in Table 4 column 2 for the sample later than 1982 and obtained a very similar coefficient on the Latin American IMF variable (3.4% points). We also examined whether accounting for the magnitude of the sudden stop in capital inflows changes our results—it does not, the IMF coefficient for the same column 2 is then 3.3% points.

[32] Programs abruptly cancelled before any funds were disbursed would also not be included in this group.

Table 4
Output growth regressions—completion variables

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Real GDP growth ($t-1$) | −0.76*** | −0.75*** | −0.76*** | −0.76*** | −0.76*** |
| | (19.35) | (19.33) | (19.28) | (19.12) | (19.20) |
| Change in budget surplus to GDP ($t-1$) | 7.04 | 6.86 | 6.47 | 5.37 | 6.03 |
| | (1.28) | (1.25) | (1.18) | (0.96) | (1.08) |
| Inflation ($t-1$) | −0.02*** | −0.02*** | −0.02*** | −0.02*** | −0.02*** |
| | (2.69) | (2.60) | (2.69) | (2.75) | (2.62) |
| Credit growth ($t-1$) | 0.01* | 0.01 | 0.01* | 0.01* | 0.01* |
| | (1.61) | (1.51) | (1.56) | (1.73) | (1.84) |
| External growth rates ($t$) | 0.31** | 0.32** | 0.33* | 0.27** | 0.27** |
| | (2.35) | (2.42) | (2.48) | (2.00) | (2.02) |
| Real exchange rate overvaluation ($t-1$) | −0.02** | −0.02** | −0.02** | −0.02* | −0.02* |
| | (2.04) | (1.96) | (1.99) | (1.78) | (1.93) |
| Currency crises dummy ($t$) | −0.84* | −0.85* | −0.92* | −0.58 | −0.63 |
| | (1.57) | (1.59) | (1.72) | (0.94) | (1.03) |
| Currency crises dummy ($t-1$) | −0.82 | −0.84 | −0.84 | −0.87 | −0.91 |
| | (1.45) | (1.50) | (1.49) | (1.49) | (1.55) |
| Sudden stop crises dummy ($t$) | −3.46*** | −3.66*** | −3.65*** | −4.03*** | −4.10*** |
| | (3.02) | (3.24) | (3.21) | (3.21) | (3.27) |
| Completion index | | | | | |
| All IMF programs | 0.38 | | | | |
| | (0.38) | | | | |
| Latin American IMF programs | −2.18* | | | | |
| | (1.77) | | | | |
| Completed programs | | | | | |
| All IMF programs | | 1.72 | 1.19 | | |
| | | (1.46) | (1.18) | | |
| Latin American IMF programs | | −3.62** | −2.04* | | |
| | | (2.41) | (1.58) | | |
| Non-precautionary programs only | | | | | |
| All IMF programs | | | | −0.87** | 0.08 |
| | | | | (2.10) | (0.15) |
| Latin American IMF programs | | | | | −1.61** |
| | | | | | (2.32) |
| Adjusted $R^2$ | 0.41 | 0.40 | 0.40 | 0.41 | 0.41 |
| Number of observations | 569 | 569 | 569 | 569 | 569 |
| Correlation of error terms | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |

LHS variable: change in real GDP growth. Hausman and Taylor (1981) 3-step IV estimator. $T$-statistics in parantheses. Columns (1)–(5) use the trimmed full sample. Column (2) and (3) uses the completion index (CI) to identify a binary variable for completed programs. For column (2) CI = 1 and for column (3) CI > 0.75.

* represent 10% significance.

** represent 5% significance.

*** represent 1% significance.

pirical results are very similar, however. For column 4 in Table 4, the coefficient estimate for the IMF variable (−0.87) is very similar to that reported in Table 3 column 2 (−0.73), which uses the more inclusive definition of IMF programs. The

IMF coefficient estimates reported in column 5 of Table 4 are also very similar to those reported in column 4 of Table 3. Throughout the robustness exercises, two results stand out: IMF programs in Latin America are more costly if they are completed and evidently costlier than elsewhere.

### 4.3. Evaluating the effect of IMF programs on the balance of payments

In Table 5, we adopt a variant of the specification of Calderón et al. (2002) to estimate the determinants of the current account deficit. We can thus examine whether any correlation is observable in the data between participation in a short-term IMF program and the level of the current account surplus as percent of GDP. As suggested in their work, our control variables are a lagged current account surplus to GDP ratio, a change in budget surplus, real GDP growth, debt to GDP ratio, external trade-weighted growth rates, and real exchange rate overvaluation.

All of the coefficients have the anticipated signs and are statistically significant. The model explains up to 56% of the variation in the current account over time and across countries. Column (1) examines the average effect of an IMF program approval on the current account. These results correspond to previous studies: IMF programs have little contemporaneous effect on the current account but a significant positive effect with a 1-year lag. By contrast, the effect of an IMF program in Latin America is significantly positive contemporaneously but significantly negative with a 1-year lag (with little cumulative effect on the current account).

We also examine, whether our results are due to omitted variable bias. Specifically, it might be the case that the estimated improvement in the current account is due to a change in the real exchange rate (and drastic devaluation of the exchange rate, i.e. a currency crisis) rather than the introduction of an IMF program. Indeed, it appears that this is the case. Column (2) includes only the general IMF approval dummies, while column (3) asks whether that effect is different, on average, for Latin American countries. Columns (4) and (5) employ the same specification to examine whether completed programs differ in their effects with those programs that were approved but never implemented. In these specifications, we use the completion variables discussed in the previous section. In all of these regressions that include an accounting of currency crises, the coefficients for the IMF variables are statistically indistinguishable from zero. The standard result in the literature—the positive effect of an IMF program in facilitating current account adjustment—does not appear to hold when the sharp currency depreciations often preceding IMF programs (currency crises) are taken into account.

## 5. Instability, failed stabilizations and IMF programs in Latin America

IMF program failures/cancellations are more frequent in Latin America and the output costs of completing a program, when it does occur, are substantially higher

Table 5
Current account regressions

| | Approved programs | | | Completed programs | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) index | (5) binary |
| Current account to GDP ratio ($t-1$) | 0.4727*** | 0.4448*** | 0.4433*** | 0.4451*** | 0.4442*** |
| | (15.65) | (16.96) | (16.85) | (16.90) | (16.90) |
| Change in budget surplus to GDP ratio ($t$) | 0.2064*** | 0.1911*** | 0.1918*** | 0.1871*** | 0.1868*** |
| | (5.89) | (6.30) | (6.28) | (6.13) | (6.14) |
| Real GDP growth ($t$) | −0.0022***s | −0.0019*** | −0.0020*** | −0.0019*** | −0.0019*** |
| | (5.76) | (5.87) | (5.89) | (5.79) | (5.86) |
| Debt to GDP ratio ($t$) | −0.0168*** | −0.0229*** | −0.0227*** | −0.0229*** | −0.0230*** |
| | (4.64) | (6.74) | (6.64) | (6.75) | (6.81) |
| External growth rates ($t$) | 0.0047*** | 0.0050*** | 0.0050*** | 0.0049*** | 0.0048*** |
| | (3.87) | (4.78) | (4.78) | (4.64) | (4.49) |
| Real exchange rate over-valuation ($t-1$) | 0.0002*** | −0.0001** | −0.0002** | −0.0002*** | −0.0002** |
| | (3.02) | (2.37) | (2.40) | (2.41) | (2.48) |
| Currency crises dummy ($t$) | | 0.0008 | 0.0012 | −0.0002 | 0.0004 |
| | | (0.19) | (0.29) | (−0.05) | (0.09) |
| Currency crises dummy ($t-1$) | | 0.0127*** | 0.0123*** | 0.0140*** | 0.0145*** |
| | | (3.06) | (2.95) | (3.30) | (3.47) |
| IMF short-term program dummy ($t$) | −0.0058 | 0.0057 | 0.0015 | 0.0001 | −0.0020 |
| | (0.89) | (1.37) | (0.26) | (0.02) | (0.26) |
| IMF short-term program dummy ($t-1$) | 0.0156* | −0.0003 | 0.0051 | −0.0042 | −0.0118 |
| | (2.41) | (0.07) | (0.91) | (0.59) | (1.54) |
| Latin American IMF program dummy ($t$) | 0.0153* | | 0.0087 | 0.0139 | 0.0095 |
| | (1.69) | | (1.10) | (1.40) | (0.80) |
| Latin American IMF program dummy ($t-1$) | −0.0245* | | −0.0112 | −0.0011 | 0.0015 |
| | (2.70) | | (1.41) | (0.11) | (0.13) |
| Adjusted $R^2$ | 0.49 | 0.56 | 0.56 | 0.56 | 0.56 |
| Number of observations | 814 | 801 | 801 | 799 | 799 |
| Correlation of error terms | 0.06 | 0.07 | 0.08 | 0.08 | 0.07 |

LHS: Current account to GDP ratio Hausman and Taylor (1981) 3-step IV estimator. $T$-statistics in parantheses. Columns (1)–(5) use the trimmed full sample. Columns (4) and (5) use the IMF programs' completion variables described in the text.

* represents 10% significance.

** represents 5% significance.

*** represents 1% significance.

than in other regions. Previous studies finding adverse effects of IMF programs may be entirely explained by the poor performance of Latin American countries when they enter into an IMF-sponsored stabilization program. Further, there is little evidence of substantial improvement in the current account when entering into

an IMF program once the effects of sharp currency depreciations preceding program approvals are taken into account.

Four related and self-reinforcing factors appear to explain this poor performance: external shocks combined with poor institutions, a history of poor macroeconomic management, the lack of policy credibility, and the nature of IMF-sponsored stabilizations. This argument is spelled out in more detail, together with references to the appropriate literature, in the remainder of this section and in our concluding comments.

### 5.1. *Volatility and failed stabilizations in Latin America*

Latin America is a very volatile region with exceptionally high inflation rates, substantial macroeconomic instability, and a history of failed monetary and fiscal stabilizations that has eroded credibility in policy reforms generally. Hausmann and Gavin (1996) show that inflation in Latin America is more than 100 times as volatile (measured in standard deviations) as in the industrial countries and higher by far than in any other region of the world; real GDP growth in Latin America is about two to three times as volatile as industrial countries, and more volatile than in any region other than Africa and the Middle East; and while a "typical" recession lasts roughly 2 years both in Latin America and in other regions, it involves an output decline in real GDP of about 8% in Latin America compared to only about 2% in industrial economies.

They attribute the relatively high volatility of inflation and output in Latin America to especially large external shocks—mainly terms of trade disturbances and sudden shifts in international capital flows—as well as unstable macroeconomic policy.[33] These shocks, combined with "institutions and policy regimes (that) have been ill-equipped to cope with large shocks", are important in making Latin America a volatile region (p. 2). Fernández-Arias and Montiel (2001) also point to especially unfavourable external conditions facing Latin America in explaining low growth in the region.[34]

Linked with macroeconomic instability, most Latin American experiences with stabilization reforms have been disappointing. Rigobón (2002) finds that most attempts at fiscal reforms in eight Latin American countries in the last 30 years have not been completed (22 of 30 experiences), with key parts of the reforms not implemented and the programs eventually abandoned. He shows that a typical experience in Latin America is for a country to start a disinflation program when there is a problem with high inflation and a fiscal deficit, a nominal anchor is implemented and a fiscal reform started. The fiscal reform usually takes longer

[33] Hausmann and Gavin (1996) argue that terms of trade volatility, as well as its affect on the macroeconomy, is greater in Latin America because of the high concentration of the region's exports in primary commodities.

[34] Gavin et al. (1996) present evidence that the pro-cyclical fiscal response in recessions in Latin America is an important contributing factor to macroeconomic instability.

than anticipated, however, and budget deficits are slow to decline. Ultimately, both the nominal anchor and fiscal reform are abandoned and higher inflation returns.

Tornell and Velasco (1998) consider the major successful stabilization programs in Latin America since 1960 (22 cases), contrasting the consequences for fiscal discipline from "exchange rate-based" and "money-based" programs. They find that money-based programs induced substantially more fiscal discipline, and show theoretically that this stylised fact is consistent with a model whereby a money-based stabilization program provides more discipline, and is more effective, in cases where the policy maker is impatient.

In a model that includes price controls and government credibility, van Wijnbergen (1988) investigates the high costs associated with disinflation programs in Brazil and Argentina. He shows that the interaction between lack of credibility of government monetary policy announcements and the price setting behavior of forward looking firms can lead to inertia well beyond the price setting period. Furthermore, the lack of government credibility leads to substantial output losses during the disinflation program.

Against a background of macroeconomic instability and a history of failed stabilizations, it is not surprising that policymakers lack credibility and that each new stabilization effort is associated with substantial output costs. When agents expect policy reforms to fail with a high probability, private sector adjustment is slow and tentative and leads to higher adjustment costs.

### 5.2. *Explaining recidivism and low program completion rates*

There is now a substantial literature on the degree of "recidivism", duration and completion rates of IMF programs (Bird, 2002; Bird et al., forthcoming; Dreher, 2002; Joyce, 2001). Using a data set covering 90 developing countries over the 1980–1996 period, Bird et al. (forthcoming) find that "recidivist borrowers" have larger current account deficits, lower reserve holdings and smaller capital flows, higher program cancellation rates, lower terms of trade and greater debt-service ratios, and are viewed as relatively more corrupt.[35] They argue that recidivist countries are caught in a vicious cycle—they enter IMF programs out of necessity when balance of payments disequilibria are severe. Adverse external conditions and high poverty appear to make the cost of implementing the IMF-sponsored policies high, however, and as a result compliance with program conditions are low and a high percentage of the programs are cancelled. The authors argue that if there is no penalty for past non-completion, then the country will turn to the IMF again for

[35] They estimate models designed to predict, for a given country, the number of IMF programs and the number of years spent in IMF programs.

another program. They conclude that non-completion is not a leading indicator of graduating from the Fund but rather one of future referrals.[36]

Similarly, Joyce (2001) points out that there is no penalty for non-compliance besides the incomplete disbursement of assistance, and a country may enter a new program without penalty. He argues that these are the reasons that many countries have agreed to a number of IMF arrangements since the 1970s and spend years in a series of consecutive Fund programs. In this context, he investigates the time spent in IMF programs (duration) for a group of emerging market economies over 1982–1997. He finds that the program duration has lengthened in recent decades. The average spell length was two and one half years, but the likelihood that a spell would end in a given period first rose as time passed and then fell, reflecting the adoption by some countries of consecutive programs. Time in programs is extended for those countries with lower per capita income, landlocked geographic status, and *stable* legal processes.[37] He also finds that countries with exports concentrated in primary goods are more likely to have longer spells in IMF programs.

Ivanova et al. (2003) investigate the implementation of IMF-supported programs using measures of program interruptions, compliance with conditionality, and the share of committed funds disbursed. Using an internal IMF database (MONA) and an econometric model, they find that program implementation depends primarily on borrowing countries' political characteristics. In particular, strong special interests, political instability, inefficient bureaucracies, lack of political cohesion, and ethno-linguistic divisions are correlated with low implementation rates. By contrast, they do not find any association between initial and external conditions and the probability of program implementation.[38]

Mercer-Blackman and Unigovskaya (2000) uses the same IMF internal database to investigate whether transition economies that more successfully implement the conditionality of IMF programs over 1993–1997 tend to show better performance on recovery and growth. They do not find a clear relationship between the level of compliance in meeting "structural benchmarks" of IMF programs and growth, but do find a link between growth and the index of success in meeting the "performance criteria" of IMF programs. The authors note that the positive and significant relationship between an index of implementation (of the performance criteria) does not imply causation since countries that have grown quickly may simply have found it easier to implement Fund programs successfully (and consequently meet the fiscal, monetary, credit and other criteria).

[36] Knight and Santaella (1997) and Mussa and Savastano (1999) put a more positive light on recidivism. Knight and Santaella (1997) suggest that, by entering into repeated fund programs, countries learn how to implement stabilization policies. Mussa and Savastano (1999) suggest that recidivism reflects IMF flexibility in dealing with countries over time as circumstances change.

[37] Joyce (2001) considers both short- and long-term programs (i.e. SBA, EFF, SAF, ESAF programs), while we consider only short-term programs.

[38] Invanova et al. (2003) suggest that this lack of correlation indicates that program targets may incorporate realistic goals and be related effectively to a member's initial position. A member's initial indebtedness also does not affect the outcome of IMF-supported programs.

## 6. Conclusion: why are IMF-supported stabilizations in Latin America so costly?

The findings of this study and the literature surveyed in the previous section suggest that macroeconomic stabilization programs in Latin America—both with and without IMF support—are usually unsuccessful. The results are recurring disinflation/stabilization cycles with high output costs. How might these stylised facts be related to our work showing both that Latin America has higher output costs of IMF programs (especially when "successfully" completed), little or no improvement in the balance of payments, and a much higher likelihood of program failure and recidivism than other regions of the world? Indeed, the common finding that entering into an IMF-supported program incurs real short-run costs on the economy is entirely driven by the bad experiences in Latin America and is not found for the rest of the developing world.

Most of the stabilization programs in Latin America are linked to IMF programs. Eighteen of the 22 major stabilization programs in Latin America identified by Tornell and Velasco (1998), for example, were started around the time IMF programs were approved. The failure of stabilization programs is therefore related to the low completion rates of IMF programs. Moreover, if Latin American countries—with a history of failed stabilizations—understand that the output costs of a program are likely to be relatively large, it may be that continuing in a program would be more vulnerable to a particular external (or internal) disturbance. This factor, combined with evidence that Latin America generally faces larger and more frequent external disturbances than other parts of the world (Hausmann and Gavin, 1996), could explain the high rates of failure of IMF programs.

Failing to complete a program does not appear to entail especially large costs, and there are no observable penalties that prevent entering into a new program soon thereafter (Joyce, 2001). Under these circumstances, perhaps it is not surprising that Latin America is caught in a vicious cycle of repeated IMF programs with frequent failures and high output costs associated with stabilizations, IMF-sponsored or otherwise. This explanation fits well with the model of Rigóbon (2002) in which he directs attention to sequences of failed stabilizations in Latin America with subsequent inflation rates higher than before the programs were initiated (e.g. Brazil in the 1980s, Venezuela since 1983, Argentina in the 1970s). Rigóbon (2002) demonstrates that these sequences may actually be the result of "optimal policy choices" given the incentives faced by policymakers.

This does not necessarily imply that the IMF programs are poorly designed, only that the structural features of Latin America combined with external circumstance and a history of failure, makes the vicious cycle of failed stabilizations difficult to break. The upshot is that the pattern of recidivist IMF lending and repeated program failure in Latin America seems to have little beneficial impact on growth or the balance of payments. Adjustment to the balance of payments is related more to recurrent currency crises (sharp exchange rate depreciations), i.e. market-driven adjustments to external competitiveness, rather than to IMF programs. The output costs associated with IMF-supported stabilization programs in Latin America at

times have been substantial (1970s and 1980s), and greater than in other parts of the world. This may be due to stringent conditions imposed on IMF lending or, alternatively, to the lack of policy credibility associated with stabilization programs in Latin America.

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