ARE STABILIZATION PROGRAMS EXPANSIONARY?

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Resumen: La evidencia empírica que se presenta en este trabajo pone en duda la idea generalmente aceptada, de que los programas de estabilización del tipo de cambio son expansionistas. Aunque estos programas fueron asociados a expansiones macroeconómicas, no se encontró ninguna evidencia que éstas hayan sido causadas por ellos. Se encontró que, aparentemente, ambos fueron el resultado de choques externos y positivos.

Abstract: The empirical evidence presented in this paper casts doubts on the by now widely accepted "fact" that exchange rate based stabilization programs are expansionary. Even though these programs were associated with output booms, no evidence was found to support the thesis that the booms were caused by the stabilization programs. Rather, positive external shocks seem to have caused both the output booms and the stabilization programs.

1. Introduction

Not long ago, conventional macroeconomic wisdom taught that price stabilization programs cause an initial slowdown in the rate of growth

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of output, due to rigidities in nominal contracts (Fischer, 1988; Taylor 1980, among others). In recent years, this traditional view has been challenged. A large number of case studies and several comparative studies have concluded that stabilization programs that use the exchange rate as the nominal anchor to reduce high levels of inflation are initially expansionary rather than contractionary (Kiguel and Liviatan, 1992; Végh, 1992; Reinhart and Végh, 1994; and Reinhart and Végh, 1995; among others). According to this literature, exchange rate based stabilization, ERBS, programs cause an initial "boom", followed by a recession. In this view, only the programs that use the quantity of money as the nominal anchor exhibit recessions from the very beginning. Easterly (1996) went further in the revision of the stylized facts associated with the stabilization programs. He presents evidence in support of the proposition that stabilization programs are always expansionary, not only in their initial phase.

The empirical proposition that price stabilization programs have systematic real effects - including real appreciation of the domestic currency, current account deficits and output cycles - stimulated the theoretical research. As a result, there is a growing theoretical literature aimed at identifying the mechanisms behind these "stylized facts" (Calvo, 1986; Helpman and Razin, 1987; Calvo and Végh, 1993; Roldós 1995a and b; Uribe, 1995; among others).

The purpose of the present paper is to challenge the empirical proposition that ERBS programs have been expansionary. Using data from Latin American countries, we have found no evidence of output booms caused by the ERBS programs. Rather, external shocks explain the output booms that have been ascribed to the stabilization programs in previous studies. In addition, we present evidence that the ERBS programs were to some extent an endogenous response to the external shocks. Other things equal, Latin American governments seem to have been more willing to launch ERBS programs when external conditions were relatively more favorable, and hence the coincidence of booms and stabilization programs.

Most of the empirical evidence that has been presented to support the proposition that the ERBS programs have been initially expansionary refers to Latin America. Therefore, it seems appropriate to focus on the same region to revise this hypothesis. Furthermore, there is no other region in the world that has experienced two and three digit annual rates of inflation for more than three decades. Stabilization policies have been at the top of the policy agenda in Latin America throughout this period, and several comprehensive stabilization programs have been implemented. Hence, the region exhibits the

policy variability that is necessary to identify statistical relationships. At the same time, even though Latin American countries are not homogeneous, they have often been subject to similar external shocks. This helps to control for other sources of variation when evaluating the effects of the stabilization policies.

The identification of the episodes that should be classified as stabilization programs is not always clear. Indeed, deciding when a program is actually in place, when it starts and when it finishes involves some degree of discretion. Easterly (1996) has recently emphasized this point, arguing that the recession-now-versus recession-later hypothesis fails to hold if the stabilization programs are identified using objective criteria based on inflation performance. He proposes an objective criterion for the selection of the stabilization episodes: inflation of over forty percent for two years or more followed by a period of two years or more of inflation below forty percent. Using this criterion, Easterly identifies 28 stabilization episodes in the 1960-1994 period, all over the world. He then shows that no recessions were associated with these episodes, the pattern being the same for exchange-rate based and money-based stabilization programs.

Even though the idea of using an objective criterion to date the stabilization programs is appealing, Easterly's procedure and the results obtained are highly controversial. Above all, there seems to be a contradiction in defining the programs according to their results (the inflation rate) in order to analyze their results. There are episodes in which inflation went down mainly because of favorable external shocks, without the government having implemented a specific stabilization policy. There are also major stabilization attempts that failed to reduce inflation. This methodology biases the selection against unsuccessful programs. Hence, it is not surprising that the list of stabilization programs that emerges from Easterly's algorithm is controversial. For instance, only one stabilization program is found in Argentina in the period 1960-1994. Also, among many attempts in the Southern cone to control inflation via the use of *tablitas*, only the Uruguayan one appears in this list. So, while the point raised by Easterly cannot be dismissed, the proposed solution for identifying episodes looks worse than the problem it was designed to solve.

Empirical studies of the business cycles associated with the ERBS programs face serious problems when trying to identity the relevant episodes. Whatever the merits of Easterly's solution, the questions he raises about the criteria for selecting stabilization episodes cannot be dismissed. Nevertheless, this paper pursues a different line of criticism of this literature, namely that the boom hypothesis may not be robust

to the inclusion of some additional controls. To this end, it seems natural to stick to the "conventional" list of stabilization programs (Reinhart and Végh, 1994, 1995).

The remainder of the paper is organized as follows. Section 2 presents a probit model for the ERBS programs. The analysis of the effects of the programs on GDP growth is presented in section 3. Section 4 ends the paper with some concluding remarks.

2. Major Price Stabilization Programs in Latin America

The set of programs used in all estimations was taken from Reinhart and Végh (1995), with the exception of the Brazilian "Plan Real", which was not included in their sample. The main characteristics of these programs are summarized in table 1.

Following previous literature, only major programs that the public could clearly identify have been included. As Calvo and Végh (1998) have pointed out, this approach has the disadvantage of being subjective and omitting lesser-known episodes. But, at the same time they note that "it makes sense to select episodes in which the phenomenon in question - relative to many other factors which are difficult to control for - was of overriding importance."

The focus is on disinflation programs in chronic inflation countries. As Pazos (1972) first noticed, chronic inflation is a different phenomenon from both low inflation and hyperinflation. The hypothesis that ERBS programs cause output booms refers specifically to countries experiencing chronic inflation. Stabilizing from low inflation apparently causes recessions (Ball, 1994, Gordon, 1982), while stabilizing from hyperinflation may have no effects on output (Sargent, 1982). These considerations have some bearing on the choice of the disinflation episodes that are included in the sample. For instance, the Bolivian experience in the mid-eighties is not included, since it is not a stabilization-from-chronic-inflation program (Calvo and Végh, 1998).

Six dummies were defined to identify different phases of the stabilization programs in the regression analysis (table 2). $E1$ takes value one in the first year of an ERBS program and zero otherwise. A calendar year was considered to be the first year of the program if the program started in any month from July of the immediate previous year to June of that calendar year. This mapping of the calendar into program years is intended to proxy the first twelve months of the programs using annual data. $E2$ and $E3$ take value one in the second

and third years of an ERBS program, respectively, provided the program did not end before. $E4$ takes value one in the fourth and fifth years of an ERBS program, provided it did not end before. Most ERBS programs failed, and thus have an identifiable final date (see table 1). It is more difficult to identify the end of a successful program. Previous literature suggests that the late recessions in ERBS programs tend to show up around the fourth and fifth years (Reinhart and Végh, 1995). ME, for "money early", is equal to one in the first year and, ML, for "money late", is equal to one in the last year of a money-based stabilization program. In the case of successful programs, ML is equal to one in the fifth year of the program. These conventions are taken from Reinhart and Végh (1994).

Arguably, the program dummies could have been defined differently. Different months could have been chosen to map the calendar into the program years. Calvo and Végh (1998), for instance, consider that a program started in year t if it was launched in any of the first three quarters of the year, rather than in the first two as we did. Also, there is no clear-cut criterion to say when programs enter their "late" phase. The choice of the fourth and fifth years of an ERBS program and the fifth year of a money-based stabilization program to capture the performance of mature programs is also more an empirical issue than a matter of principles. Our results are robust to reasonable variations in the definitions of the dummy variables.[1]

3. Explaining the ERBS Programs

Given the high rates of inflation that many countries in Latin America exhibited from the sixties to the nineties, it is not surprising that several major stabilization programs were implemented in the region during this period. What is less obvious is that regional shocks affected the decision to launch such programs. The ERBS programs in Latin America were implemented more-or-less simultaneously in several countries. A batch of plans were implemented in the mid sixties, the *tablitas* in the late seventies, the "heterodox" plans in the mid eighties and then the plans of the late eighties and first half of the nineties. Not only were the programs often launched at the same time in different countries, they were also abandoned at the same time. Apart from contagion effects, this suggests that the stabilization programs were endogenous responses to a set of determinants common to various countries in the region. The analysis that follows makes this point more formally.

[1] To save space, we discuss only the results of the regression analysis obtained with the dummies reported in table 2, but other estimations are available upon request.

Table 1

Major Price Stabilization Programs in Latin America

A) Exchange Rate Based Stabilization Programs

Programs	*Beginning and Ending Dates*	*Exchange Rate Arrangement*	*Inflation Rate 1/*		
			Initial 2/	*Lowest 3/*	*Data achieved*
Brazil 1964	1964:03-1968:08	Fixed exchange rate, with periodic devaluations	93.6	18.9	1968:05
Argentina 1967	1967:03-1970:05	Fixed exchange rate	26.4	5.7	1969:02
Uruguay 1968	1968:06-1981:02	Fixed exchange rate	182.9	9.5	1969:06
Argentine *tablita*	1978:12-1981:02	Pre-announced crawling peg	169.9	81.6	1981:02
Chilean *tablita*	1978:02-1982:06	1978:02-1979:06: Pre-announced crawling peg 1979:06-1982:06: fixed exchange rate	52.1	3.7	1982:05
Uruguayan *tablita*	1978:10-1982:11	Pre-announced crawling peg	41.2	11.0	1982:11
Austral (Argentina)	1985:06-1986:09	1985:06-1986:03: fixed rate 1986:03-1986:09: crawling peg	1128.9	50.1	1986:06
Cruzado (Brazil)	1986:02-1986:11	Fixed exchange rate	286.0	76.2	1986:11

Table 1(*continued*)

Programs	*Beginning and Ending Dates*	*Exchange Rate Arrangement*	*Inflation Rate* 1/		
			Initial 2/	*Lowest* 3/	*Data achieved*
Mexico 1987	1987:12-1994:12	1988:02-1988:12: fixed exchange rate 4/	159.0	6.7	1994:09
Argentina 1991	1991:04-present	Currency board with a one-to-one parity to the U.S. dollar	267.0	-0.6	1999:03
Uruguay 1990	1990:12-present	Exchange rate band with a declining rate of devaluation	133.7	7.2	1999:03
Brazil 1994	1994:04-1999:01	Fixed exchange rate	3828.5	1.7	1999:01

Table 1 (*continued*)
B) Money-based Stabilization Programs

Programs	*Beginning and Ending Dates*	*Monetary/Exchange Rate Policy*	*Inflation Rate* 1/		
			Initial 2/	*Lowest* 3/	*Data achieved*
Chile 1975	1975:04-1977:12	Control of monetary aggregates was cornerstone. Exchange rate adjusted by past inflation 5/	394.3	63.4	1977:12
Bonex (Argentina)	1989:12-1991:02	Drastic cut in liquidity through forced rescheduling of domestic debt. Floating exchange rate.	4923.3	287.3	1991:02
Collor (Brazil)	1990:03-1991:01	Sharp liquidity squeeze through freeze of 70% of financial assets. Tight monetary policy. Exchange rate had a passive role and simply accommodated inflation.	5747.3	1119.5	1991:01

Table 1 (*continued*)

Programs	*Beginning and Ending Dates*	*Monetary/Exchange Rate Policy*	*Inflation Rate* 1/		
			Initial 2/	*Lowest* 3/	*Data achieved*
Dominican Republic	1990:08-present	1990:08-1990:12: Exchange controls/black markets 1991:01-1991:07: dual exchange rates 1991:07: exchange market unification and floating	60.0	0.8	1992:03
Peru	1990:08-present	Control of monetary aggegates; dirty floating	12377.8	4.1	1999:02

1/ Twelve-month inflation rate

2/ Twelve-month inflation rate in the month in which the program was implemented.

3/ Last information available: March 1999.

4/ The exchange rate fixing followed some initial devaluations between December 15 and February 29, 1988.

5/ Significant measures toward lifting capital controls enacted only in June 1979 (Edwards and Cox Edwards, 1991)

Source: Calvo and Végh (1998), press and data from International Financial Statistics (IMF).

Table 2

Stabilization Program Dummies

Observations in which the dummies are equal to 1

Countries	$E1$	$E2$	$E3$	$E4$	ME	ML
Argentina	1967, 1979 1985, 1991	1968, 1980 1986, 1992	1969, 1981 1993	1970, 1994 1995	1990	1991
Brazil	1964, 1986 1994	1965, 1995	1966, 1996	1967, 1968	1990	1991
Chile	1978	1979	1980	1981, 1982	1975	1978
Dominican Republic					1991	1995
Mexico	1988	1989	1990	1991, 1992		
Peru					1991	1995
Uruguay	1968, 1979 1991	1969, 1980 1992	1970, 1981 1993	1971, 1972 1982, 1994 1995		

Source: elaborated by the authors based on table 1.

A probit model was estimated using panel data for the Latin American countries that implemented ERBS programs during the past three decades. The dependent variable is the dummy $E1$, wich takes value one, if an ERBS program started in the country in that year, and zero otherwise. The domestic explanatory variables are the lagged logarithm of the rate of inflation, LPI, the lagged logarithm of the ratio of international reserves to GDP, LIR, and a dummy for parliamentary elections, $PARELE$, lagged two periods. The foreign explanatory variables are the percent increase in US stock prices, represented by Standard and Poors 500 Index, $SP500$, and the rate of growth of GDP in industrial countries, $IGDPG$ (see the appendix for a description of the data). The results are reported in table 3.

The coefficients are statistically significant at five percent at least, and exhibit the "right" signs. As to the domestic determinants, ERBS programs are more likely to be launched when inflation in the previous year was larger, when foreign reserves were higher, and in the second year after parliamentary elections. The first result is natural, robust and self explanatory. The finding that larger foreign reserves favored the launching of an ERBS program is consistent with the fact that fixed exchange-rate regimes require a high level of reserves. The third seems to indicate that politicians are more willing to launch an ERBS program during the early phases of the legislative session.[2]

Both the rate of growth of GDP in industrial countries and the return on US stocks, as measured by the rate of growth of $SP500$, are positively associated with the beginning of ERBS programs in Latin America. The qualitative results are robust to changes in the sample. The relationship between several US interest rates and ERBS programs were also tested, but were either not significant or not robust to small changes in the sample.

These results seem to confirm that, other things equal, policymakers were more willing to launch ERBS programs when the international environment was relatively more favorable. Table 3 provides some support to the optimal waiting theory, according to which governments wait until conditions are relatively good to initiate a stabilization program (Orphanides, 1996). It does not mean, of course, that only when facing good external conditions did Latin American governments start a stabilization program: several domestic variables also proved important in the decision. Our result is indeed consistent with the launching of some stabilization programs under unfavorable

[2] This interpretation is very tentative. Military governments implemented some of the analyzed programs, the lenght of parliamentary sessions varies from one country to another, and the political costs of the programs could also be very different in different circumstances. Nevertheless, the coefficients multiplying the other regressors do not vary significantly if this variable is omitted.

external conditions, as was the case of the Argentinian Austral plan in 1985. The external conditions were very negative for Argentina at that time, but an inflationary process that was running out of control left the government with few options (Canavese and Di Tella 1988).

Table 3
Probit Model
Dependent variable: $E1_{i,t}$

Variables	*Estimate*	*Error*	*t statistic*	*P value*
$LPI_{i,t-1}$	0.615	0.166	3.704 **	[.000]
$LIR_{i,t-2}$	0.551	0.269	2.045 *	[.041]
$PARELE_{i,t-2}$	0.945	0.417	2.267 *	[.023]
$SP500_t - SP500_{t-1}$	2.559	1.198	2.137 *	[.033]
$IGDPG_t$	40.874	16.777	2.436 *	[.015]
Constant	3.366	4.193	0.803	[.422]

Number of observations	160
Number of positive observations	12
Pseudo R Squared (Cragg and Uhler, 1970) a/	0.388
Pseudo R Squared (Mc Fadden, 1974) a/	0.328

Notes: Period of estimation: 1963 to 1994. Countries: Argentina, Brazil, Chile, Mexico and Uruguay. a/ See Maddala (1983). Sources: see the appendix.

4. The Stabilization Programs and the Business Cycle

The purpose of this section is to review the empirical evidence on the business cycle associated with the ERBS programs in the light of the evidence presented in the previous section, that the ERBS programs were mostly launched under favorable external conditions.

Reinhart and Végh (1994) submit the stabilization-programs-business-cycle hypothesis to statistical scrutiny, using data from Latin America during the last three decades (1964-1993). They perform regression analysis with panel data on the seven Latin American countries that implemented stabilization programs in the period. The rate of growth of real GDP is the dependent variable and several dummies

are designed to capture different stages of the stabilization programs. One such regression is reported in column 1 in table 4.[3]

We detected some extreme values in our dataset that significantly affected the results. According to the IMF, Brazilian real GDP grew at a rate of 23 per cent during 1965, the second year of the 1964 ERBS program. In order to avoid having the results distorted by this extreme observation, the Brazilian 1964 program was excluded from the sample. Hence, the analysis that follows is based on the five money-based and eleven of the twelve exchange-rate-based stabilization programs implemented in Latin America since 1964.

The Reinhart-Végh-like regression reproduces very well the stylized business cycle that has been ascribed to the stabilization programs. In particular, an early boom followed by a recession is found in the ERBS programs, while money-based stabilization programs are associated with recessions from the very beginning.

However, the probit model shows that the initiation of the ERBS programs is associated with particular circumstances that are likely to have an independent influence on growth. Hence, there is a potential selection bias in regression 1 of table 4, produced by the statistical association between the program dummies and the explanatory variables in our probit model.

The second regression in table 4 controls for stock prices in the United States and GDP growth in industrial countries, both lagged one period, and for lagged domestic GDP growth. The first two regressors proved important in explaining the launching of ERBS programs, and are hence potential sources of bias if omitted. The inclusion of lagged GDP growth in the regression should improve the efficiency of the estimation.

The estimated coefficient associated with the second year of an ERBS program is much lower once these additional variables are included, and not significantly different from zero (at a 10 percent of confidence). Note that the rate of GDP growth of industrial countries, and the percent increase of US stock prices, explains a significant part of current GDP growth in Latin American countries. Apparently, at least part of the output booms observed in the region at the beginning of the ERBS programs could actually be ascribed to the external factors.

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[3] The dummy variables used in this regression and defined in section 2 are not exactly the Reinhart-Végh dummies. They included just two dummies for the ERBS programs, one for the first, "exchange early" and one for the last year, "exchange late". Adding the other two renders the estimation more robust, and especially increases the ability of the regression to capture the output booms, for some of these booms became visible during the second calendar year after the initiation of the ERBS programs

Table 4
Real GDP Growth
Seven Latin American Countries, 1964-1995

Variables	(1)	(2)
$E1$	0.006	0.005
	(0.341)	(0.353)
$E2$	0.029 *	0.024
	(1.786)	(1.512)
$E3_t$	0.007	-0.002
	(0.374)	(-0.126)
$E4_t$	0.031 **	-0.032 **
	(-2.059)	(-2.138)
ME_t	-0.068 ***	-0.047 ***
	(-3.058)	(-2.124)
ML_t	0.021	0.025
	(0.904)	(1.117)
$SP500_{t-1}$	—	0.039 *
		(1.640)
$IGDPG_{t-1}$	—	0.330
		(1.730)
$GDPG_{t-1}$		0.255 ***
		(3.698)
Adj. $R2$	0.033	0.105

Notes. t values in parentheses. One, two and three stars indicate significance at 10, 5 and 1 per cent, respectively. Fixed Effects estimations. Sources: see the appendix

In order to check the robustness of our results, we performed a sensitivity analysis along the lines of Leamer (1985), and Levine and Renelt (1995). The sensitivity of the estimations of the effects of the programs is analyzed running regressions that include the program dummies, the lagged endogenous variable, and varying sets of controls. The control variables are organized into two subsets. The first includes the rate of growth of $SP500$, the Federal Reserve discount rate, $DISC$, the Federal Funds rate FF, the Treasury Bills rate, TB, the Prime Rate, PR, and the rate of return on US government 3 -

year bonds GB. These variables are expected to capture external-to-the-region conditions which affect capital flows to Latin America (Calvo, Leiderman and Reinhart, 1992 and 1993). The second subset of controls includes industrial countries' GDP growth $IGDPG$, industrial countries' investment-GDP ratio $IINV$, and the percent change in the terms of trade of each country TOT. We started estimating all the combinations of these two subsets, taking one control variable from each subset and lagging them one period. Then, we estimated the same combinations using the contemporaneous and lagged values of the controls (except for the TOT where we used a one and a two year lag, avoiding the contemporaneous value). Thus, we ran 36 different combinations for each estimation method (fixed and random effects).

Table 5 summarizes the information from the regressions yielding the highest and lowest t-value for the parameter of interest. "Base" refers to the regression without controls. The Hausman test systematically rejected the hypothesis of correlation between the individual effects and the regressors, so the random effects-estimations should be consistent and more efficient than the fixed-effects estimations. Nevertheless, since the test has low power in small samples both estimations are reported.

The $E2$ coefficient is positive in all the regressions, but it is not robust. Some sets of controls yielded a positive and significant coefficient for this dummy, at least when fixed- effects estimation is chosen, but other plausible controls render this coefficient non significant.[4] It is not surprising that some sets of controls do not modify the estimation of this coefficient. If our "story" is right, these controls should capture the common external shocks that simultaneously affect the business cycle and the economic policy. This is a complex phenomenon that we can expect to capture only imperfectly, and it seems natural that some sets of controls work better than others. Hence, even though there seems to be larger than average rates of growth at the beginning of the ERBS programs, it is not possible to say that these rates of growth are really larger than expected, given previous growth and external shocks. The $E4$ coefficient is always negative, with a lowest t-value of -1.846, corresponding to a P-value

[4] Calvo and Végh (1998) have recently reported results of regressions in which the early booms remain after including some controls for external shocks. We obtain similar results when we choose regressors, samples, and methods of estimation similar to theirs. However, tables 2 and 3 show that these results are not robust.

Table 5
Sensitivity Analysis
A) Fixed Effects

Variable	*Extremes*	*Coeff*	*Standard Error*	*t*	*Adj − R2*	*Controls*
*E*1	High	0.010	0.016	0.630	0.125	TOT_{t-1} TOT_{t-2} $SP500_t$ $SP500_{t-1}$
	Base	0.006	0.016	0.342	0.033	
	Low	0.004	0.015	0.250	0.146	$IGDPG_t$ $IGDPG_{t-1}$ FF_t FF_{t-1}
*E*2	High	0.034	0.016	2.092	0.132	$IGDPG_t$ $IGDPG_{t-1}$ $SP500_t$ $SP500_{t-1}$
	Base	0.029	0.017	1.768	0.033	
	Low	0.023	0.016	1.462	0.146	$IGDPG_t$ $IGDPG_{t-1}$ FF_t FF_{t-1}
*E*3	High	0.008	0.018	0.482	0.163	$IINV_{t-1}$ $PRIME_{t-1}$
	Base	0.007	0.018	0.370	0.033	
	Low	0.000	0.018	0.012	0.146	$IGDPG_t$ $IGDPG_{t-1}$ FF_t FF_{t-1}

Table 5 (*continued*)

Variable	*Extremes*	*Coeff*	*Standard Error*	*t*	*Adj − R2*	*Controls*
E4	High	-0.037	0.015	-2.454	0.092	TOT_{t-1} $SP500_{t-1}$
	Base	-0.031	0.015	-2.039	0.033	
	Low	-0.027	0.015	-1.846	0.163	$IINV_{t-1}$ $PRIME_{t-1}$
ME	High	-0.053	0.021	-2.499	0.157	$IINV_{t-1}$ GB_{t-1}
	Base	-0.068	0.022	-3.045	0.033	
	Low	-0.041	0.022	-1.816	0.130	$SP500_t$ $SP500_{t-1}$ $IINV_t$ $IINV_{t-1}$
ML	High	0.034	0.022	1.507	0.132	$IGDPG_t$ $IGDPG_{t-1}$ $SP500_t$ $SP500_{t-1}$
	Base	0.020	0.023	0.874	0.033	
	Low	0.012	0.022	0.535	0.146	$IGDPG_t$ $IGDPG_{t-1}$ FF_t FF_{t-1}

Table 5 (*continued*)
B)Random Effects

Variable	*Extremes*	*Coeff*	*Standard Error*	*t*	*Adj − R2*	*Controls*
$E1$	High	0.007	0.015	0.454	0.137	TOT_{t-1} TOT_{t-2} $SP500_t$ $SP500_{t-1}$
	Base	-0.000	0.016	-0.003	0.033	
	Low	-0.000	0.015	-0.008	0.172	TOT_{t-1} $PRIME_{t-1}$
$E2$	High	0.029	0.015	1.929	0.142	$IGDPG_t$ $IGDPG_{t-1}$ $SP500_t$ $SP500_{t-1}$
	Base	0.023	0.016	1.415	0.033	
	Low	0.018	0.015	1.226	0.180	$IGDPG_t$ $IGDPG_{t-1}$ $PRIME_t$ $PRIME_{t-1}$
$E3$	High	-0.013	0.017	-0.788	0.137	TOT_{t-1} TOT_{t-2} $SP500_t$ $SP500_{t-1}$
	Base	-0.001	0.018	-0.040	0.033	
	Low	0.000	0.017	-0.001	0.153	$IGDPG_{t-1}$ TB_{t-1}

Table 5 (*continued*)

Variable	*Extremes*	*Coeff*	*Standard Error*	*t*	*Adj − R2*	*Controls*
E4	High	-0.040	0.014	-2.901	0.108	TOT_{t-1} $SP500_{t-1}$
	Base	-0.038	0.015	-2.529	0.033	
	Low	-0.034	0.014	-2.444	0.142	$IGDPG_t$ $IGDPG_{t-1}$ $SP500_t$ $SP500_{t-1}$
ME	High	-0.051	0.021	-2.430	0.132	$DISC_{t-1}$ $IINV_{t-1}$
	Base	-0.068	0.022	-3.044	0.033	
	Low	-0.039	0.021	-1.841	0.141	$SP500_t$ $SP500_{t-1}$ $IINV_t$ $IINV_{t-1}$
ML	High	0.035	0.021	1.637	0.142	$IGDPG_t$ $IGDPG_{t-1}$ $SP500_t$ $SP500_{t-1}$
	Base	0.023	0.023	0.986	0.033	
	Low	0.013	0.021	0.611	0.155	$IGDPG_t$ $IGDPG_{t-1}$ FF_t FF_{t-1}

Notes: See the appendix for the sources and the list of variables.

of 0.067. The negative ME coefficient is robust in this set of regressions. In summary, recessions are generally more robust than booms in this analysis.[5]

5. Concluding Remarks

The empirical evidence presented in this paper casts serious doubts on the by now widely accepted "fact" that ERBS programs are expansionary. It was shown that previous comparative studies lacked appropriate controls, and thus overestimated the positive effects of the stabilization policies on output. No significant positive effects of the ERBS programs were found when other variables that capture the external shocks were included, while the recessions remained.

A related "fact", that has been largely neglected in the literature, is that, other things equal, an ERBS program is more likely to be launched when the region faces favorable external conditions. Some recent theoretical literature provides plausible explanations of this link (Alesina and Drazen, 1991; Casella and Eichengreen, 1994; and Orphanides, 1996). It is precisely this "fact" that explains the overestimation of the effects of the stabilization programs in previous empirical studies.[6]

At the very least, the analysis in this paper suggests that the evidence that the booms were caused by the stabilization programs should be carefully reassessed. Even if, after some more empirical research, it is found that the ERBS programs can have some positive independent effects on output, the order of magnitude of those effects is likely to be significantly smaller than what has been assumed so far.

It is interesting to note, in this respect, that recent attempts to calibrate models of the real effects of stabilization programs have

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[5] We estimated a set of regressions with country-standardized series to eliminate country-wise heteroscedasticity. The results are qualitatively the same. We prefer to present the estimations with the original variables, because point estimates on the effects of the plans do not have a simple interpretation with standardized series. Other results are available upon request.

[6] It should be mentioned here that Kiguel and Liviatan (1992) have already noticed that most ERBS programs were initiated under favorable external conditions. Also Simonsen (1988) and Ortíz (1988) identified external conditions that were favorable to Brazil when the Cruzado program was launched. A similar point was made by Bruno and Piterman (1988) and by Cukierman (1988) for the 1985 Israeli stabilization program. However, somehow surprisingly, these observations seem not to have been applied to analysis of the "stylized facts" associated with the $ERBS$ programs.

failed to obtain the high rates of growth observed during the ERBS programs (Reinhart and Végh, 1994; Rebelo and Végh, 1995). The results of this paper might help to explain those failures in a simple way: the models cannot reproduce such booms simply because they were not caused by the stabilization programs. Thus, maybe the models are basically correct when they predict at most modest increases in production and consumption associated with implementation of stabilization policies.

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Appendix

Data

$DISC_t$	United States discount rate. Source: IFS of IMF.
$E1_{i,t}$	Dummy variable that takes value 1 during year t, if country i started an ERBS program from july of year t-1 to june of year t, and 0 otherwise. (See the dating of the programs in table A1).
$E2_{i,t}$	Dummy variable that takes value 1 during year t, if country i is in the second year of an ERBS program, and 0 otherwise (analogous for $E3_{i,t}$).
$E4_{i,t}$	Dummy variable that takes value 1 during year t, if country i is in the fourth or following years of an ERBS program, and 0 otherwise.
FF_t	United States federal funds rate. Source: IFS of IMF.
GB_t	United States government bonds, 3 years maturity. Source: IFS of IMF.
$GDPG_{i,t}$	Rate of growth of real GDP in country i during year t. Source: IFS of IMF.
$IGDPG_t$	Industrial countries' GDP growth. Source: IFS of IMF.
$IINV_t$	Industrial countries' investment to GDP ratio. Source: IFS of IMF.
$LIR_{i,t}$	Logarithm of the ratio of nominal reserves to nominal GDP for country i at the end of year t. Source: IFS of IMF.
$LPI_{i,t}$	Logarithm of inflation in country i during year t. Source: IFS of IMF.
$ME_{i,t}$	Dummy variable that takes value 1 during year t, if country i is in the first year of a money based stabilization program, and 0 otherwise.
$ML_{i,t}$	Dummy variable that takes value 1 during year t, if country i is in the last year of a money based stabilization program, and 0 otherwise.

Data (*continued*)

$PARELE_{i,t}$	Dummy variable that takes value 1 if the country i had a parliamentary election during year t, and 0 otherwise. Source: International Foundation for Election Systems, Washington DC.
PR_t	Prime rate. Source: IFS of IMF.
$SP500_t$	First difference of the logarithm of the Standard and Poors 500 stock index. Source: Global Financial Data, Stock Market Indexes.
TB_t	Treasury Bill rate. Source: IFS of IMF.
$TOT_{i,t}$	Percent change in the terms of trade for country i during year t. Source: ECLAC.

Table A1
Major Price Stabilization Programs in Latin America
Exchange Rate Based Stabilization Programs

Brazil 1964	1964:03-1968:08
Argentina 1967	1967:03-1970:10
Uruguay 1968	1968:06-1971:12
Argentine *tablita*	1978:12-1981:02
Chilean *tablita*	1978:02-1982:06
Uruguayan *tablita*	1978:10-1982:10
Austral (Argentina)	1985:06-1986:09
Cruzado (Brazil)	1986:02-1986:11
Mexico 1987	1987:12-1992:02
Convertibility Program (Argentina)	1991:04-present
Uruguay 1991	1991:01-present
Brazil 1994	1994:04-present

Table A1 (*continued*)
Money-based Stabilization Programs

Chile 1975	1975:04-1977:12
Bonex (Argentina)	1989:12-1991:01
Collor (Brazil)	1990:03-1991:01
Dominican Republic	1990:08-present
Peru	1990:08-present

Source: Reinhart and Végh (1994), save for Brazil 1994 that was added later.