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HYPERINFLATION, AND INTERNAL DEBT
REPUDIATION IN ARGENTINA AND BRAZIL:
FROM EXPECTATIONS MANAGEMENT TO THE
"BONEX" AND "COLLOR" PLANS

by

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Research Paper

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**Hyperinflation, and Internal Debt Repudiation in
Argentina and Brazil: From Expectations Management to the
"Bonex" and "Collor" Plans**

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Definition: The "Orloff Effect" - Argentina is Brazil tomorrow.¹

The policy option of explicit default on internal debt has surfaced for a number of reasons. The recent inflationary experiences of Latin American nations are now in the main determined by the necessary internal transfer of resources to the government to service the foreign debt. The consequent increase in internal interest bearing debt further deteriorates the fiscal situation of the government adding inflationary pressure especially in the context of indexed government debt. The higher the inflation rate, it is argued, the lower will be real cash balances and tax receipts (the so-called "Oliveira-Tanzi" effect). Once the (operational) fiscal deficit as a percentage of GDP becomes greater than the maximum attainable with the inflation tax, the government will have to continuously accelerate the rate of money growth and thus push the economy into a hyperinflation. In order to stem this "inevitable" movement toward hyperinflation, some have argued that not only a moratorium on external public sector debt but also a moratorium of some form on internal public sector debt is necessary to decrease the inflationary internal transfer [Zini Jr., 1989]. Subsequently, both Argentina (December 1989 and January 1990) and Brazil (March 1990) have "confiscated" a large portion of the governments liabilities to avoid the increasing refinancing difficulties.

A large amount of current research has looked at the effects of internal debt

¹The "Orloff Effect" is named after a television commercial for Orloff Vodka in Brazil. The commercial has a young man drinking vodka who sees an old man as his reflection in the mirror. The young man, taken aback, says " Who are you?" The old man replies "I am you tomorrow." The analogy in this context is that whatever happens in Argentina will happen to Brazil in the future, e.g. "heterodox shock", hyperinflation, foreign and domestic debt repudiation, etc.

repudiation and government financing problems. The main motivation has been the chronic fiscal deficits run in the United States, United Kingdom, and Italy. The theoretical works have concentrated mainly on "non-confrontational" internal debt repudiation through inflation, e.g. Prescott (1977), Calvo (1988), and Chari (1988), and on the "time-inconsistency" elements of the issuance of internal government debt obligations. A policy is time-inconsistent if the government has an incentive in the future to change a policy plan instituted today. In the context of internal government obligations, the government may have the incentive to renege on promises to pay principal and interest for money borrowed today. The cause of this inconsistency is mainly attributed to the welfare costs of imposing distortionary taxes in the future.

In the Argentine and Brazilian context, a "confrontational" debt repudiation, i.e. forcing debt holders to take a loss either on the principal, interest, or the liquidity of their claims on the government, may result from the fact that the Argentine and Brazilian governments rely heavily on the inflation tax to finance current and future payments. If the costs of using the inflation tax are high, honoring internal (real) obligations may no longer be optimal. Interestingly enough, the historical inspiration of the recent Argentine and Brazilian moratoria came from the *conversione forzosa* undertaken by Mussolini in Italy in November of 1926 (Alesina 1988:58-63). In this forced conversion, all government bonds outstanding with a maturity of less than seven years were converted to a consolidated bond (*Titolo del Littorio*) at 5% interest, immediately losing 20% of its value. In 1934, the maturity of this bond was stretched to twenty-five years at 3.5% interest resulting in a further 30% decline in value (Alesina 1988:61-62). The idea is to decrease debt service

problems by decreasing interest and amortization payments. This allegedly alleviates the necessity to continually accelerate the domestic inflation rate to finance internal debt service.

This paper takes a critical view toward such policies. The fact that the internal debt joined the external debt of these countries as a major source of government financial problems does not imply that partial or full repudiation of the governments obligations is a reasonable policy alternative. This paper argues that internal debt repudiation may do more harm than good except under the unlikely scenario where governments are forced to completely balance their budget. The paper is organized as follows. Section I briefly describes some theoretical reasons why this is the case. Section II shows what one should expect from moratoria from the recent experiences of Argentina and Brazil while section III describes briefly the policies implemented in late 1989 in Argentina and in early 1990 in Brazil and the outcomes of these policies to date. Section IV summarizes and concludes the paper.

I Some Theoretical Considerations

The theoretical reasoning of these "forced refinancing" policies centers on the possible existence of either a continual acceleration of the inflation rate due purely to speculative reasons, i.e. a rational inflationary bubble, or a continual increase in the real stock of internal debt, i.e. a rational debt bubble, or both. Before embarking on a repudiation, however, one would first have to show that either of these bubbles exist and

one would have to make sure that a debt repudiation in and of itself would get rid of the pressure on inflation and on the internal debt. Welch (1991b) shows that necessary conditions for rational inflationary bubbles are not present (at a significance level of 5%) in both Argentina and Brazil for the periods before and after the "heterodox" monetary reform-*cum*-incomes policy stabilization packages of the Austral Plan in Argentina (1985) and the Cruzado Plan in Brazil (1986). Hence, rational inflationary bubbles did not exist in either country on the eve of these policies.

An internal debt bubble would lead to ever increasing fiscal deficits and the consequent continual acceleration of money growth and inflation. Their existence in Argentina and Brazil is still an open question but is not crucial for the present analysis. Suppose there was a bubble on the internal debt. The bubble can only explode at a rate equal to one plus the real interest rate on the internal debt. As Welch (1990b) shows, an internal moratorium in a reasonably efficient financial market will cause the real interest rate on government obligations to rise. The implication is that if an internal debt bubble exists, an internal repudiation will cause the internal debt to explode *faster* than without the moratorium. The impact effect is that current operational government deficits decline. However, for any positive current deficit, future deficits will be larger in the absence of fiscal reform. Hence, an internal moratorium will require that the real operational deficit of the government (including interest payments) or the Public Sector Borrowing Requirement (PSBR) be immediately reduced to zero for successful inflation stabilization. Otherwise, the government will have to rely increasingly - or even exclusively - on the inflation tax to finance PSBR which will make hyperinflation inevitable and immediate.

Although the moratorium decreases the PSBR of the government, it forces a much larger and immediate fiscal adjustment on the public sector. Reneging on internal debt is not a substitute for credible fiscal reform.²

This conclusion corresponds to the stylized facts of the Italian *conversione forzata*. These partial moratoria virtually eliminated the Italian governments ability to borrow internally at reasonable interest rates for at least ten years following the initiation of such policies [Alesina 1988:72]. One should note that a government's financial reputation will be harmed more extensively when the debt is accumulated during peacetime and not to finance a war. Both the Argentine and Brazilian internal debts are peacetime debt and any repudiation involves a high reputation cost.

II A Brief Comparison of the Argentine and Brazilian Inflation and Debt Experiences

Comparison of the recent experiences of Brazil and Argentina should illustrate the theoretical arguments above.

a. Debt Crisis to Heterodox Shock

After the crisis in 1982, Brazil quickly "solved" the external transfer problem through an IMF type stabilization policy generating record merchandise trade surpluses but experiencing an acceleration in inflation. As Brazil's public sector is responsible for around

²Due to the large and complicated nature of the public sector in Argentina and Brazil, I will not venture here to describe what "fiscal reform" represents other than a reduction in the PSBR.

80% of its total foreign debt outstanding, the necessity to meet foreign debt service created a large fiscal burden which tax receipts could not cover. The government has had to borrow heavily by issuing indexed government debt at relatively high interest rates to meet this debt service in addition to increasing the monetary base [Welch, Primo Braga, and André 1987 and Welch 1990].

Inflation indexing (created in the late 1960s as a "temporary" measure) coupled with the fact that the financial system increased the liquidity of government bonds over the period were necessary to affect the internal transfer of resources to the government so that it could meet foreign debt service (the external transfer).³ Financial institutions were able to "capture" some of the inflation tax by intermediating via repurchase agreements in the so-called "overnight" market between final borrowers and the government as well as financing asset positions with "free" funds such as demand deposits, tax float (tax receipts collected by banks not yet disbursed to the government), etc. This allowed the Brazilian government to transfer resources to itself not only through the mechanism of borrowing but also because it essentially kept individuals transacting in domestic assets as opposed to foreign ones. The arrangement allowed banks to profit from the internal transfer process as well as increase the influence of financial institutions over the Central Bank's monetary policies.⁴ Not only did the efficiency of the financial sector suffer but also the existence of

³The increase in liquidity of this debt was not due purely to the actions of banks and depositors alone. In 1979 the Central Bank instituted a policy which essentially meant that the Central Bank would stand ready at the end of the day to enter into 24 hour repurchase agreements with commercial banks if they could not finance their position in indexed government bonds. This meant that changes in "overnight" market conditions translated into increases and decreases in bank reserves, i.e. monetary base. This practice was eliminated in July 1990 after public critique as found in Brandão (1989) and Pastore (1990).

⁴For a full analysis of Brazilian financial development, see Welch (1991a).

financial asset indexation created additional inflation feedback mechanisms [Baer and Beckerman 1980; Baer and Welch 1987]. As can be seen in table 1, Brazilian government internal public sector debt grew from around 13% of GDP in 1982 to 21.1% of GDP in 1985.

The Argentine road to financial collapse in the early 1980s is well documented [Felix 1986, Diaz-Alejandro 1985, Corbo, de Melo, and Tybout 1986, and Calvo 1986]. Between 1976 and 1977, interest rates were liberated on most deposits and loans, reserve requirements were lowered, and barriers to entry lowered to decentralize the banking system. Most controls on capital movements were removed by 1979. Stabilization policies were also imposed at the same time as the reforms. Initially (before 1978), the stabilization policy was "orthodox" in nature with fiscal reforms and restrictive monetary policy. The combination of financial liberalization and austere monetary and, to a lesser extent, fiscal policies caused real interest rates to rise significantly. Foreign financing was cheaper than domestic and a large inflow of foreign loans occurred mainly intermediated by domestic commercial banks. As there was an explicit and full deposit insurance program, over-lending and risk taking occurred.

The initial phase of the stabilization policy was successful in dampening balance of payments problems but inflation remained high. Policy makers turned to the "expectations management" approach to inflation stabilization in late 1978. As the country had achieved a degree of openness, policy makers believed that if the exchange-rate was allowed to depreciate at increasingly slower rates, international competition would ensure that the domestic rate of inflation would converge to the international rate of inflation [Fernandez

1985]. Such convergence did not obtain in either the short-term or the medium-term. Increased inflows of foreign capital occurred while individuals felt the exchange-rate regime was still sustainable and the lag in exchange rate adjustment rendered foreign loans cheap relative to domestic ones. As the exchange rate became increasingly overvalued and inflation did not converge, expectations of an imminent devaluation turned capital inflows into capital flight by 1980 [Dornbusch 1989: 294-299].

The financial positions of private sector firms deteriorated during the debt led expansion. In 1980, bankruptcies rose dramatically, non-performing loans increased, and in March the largest commercial bank failed [Tybout 1986: 391-292]. By the end of 1981, the ratio of bad loans to net worth was 141.7% for state and local government banks and 60.7% for commercial banks. Finally, the large devaluations initiated in 1981 would have exacerbated the situation of firms if not for an exchange insurance program and the ultimate creation of dollar denominated government bonds ("BONEX") in 1982 which effectively rendered Argentina's foreign debt public. Additionally, a process of "liquidation" of firms' peso liabilities at subsidized interest rates was initiated.⁵

The Argentine financial market suffered two consecutive crises. The crisis of 1980-1981 falls into the realm of a "classical" banking panic when a large portion of the public realized that the balance sheet positions of banks were extremely fragile. This fragility and the ferocious competition for funds exacerbated the situation as banks raised interest rates on their liabilities to attract new deposits to pay interest further compromising their financial positions. Further, such competition in conjunction with an increasingly overvalued

⁵For a retrospective on the motivation for such policies, see Cavallo (1989).

exchange rate and restrictive monetary policy caused lending rates to rise dramatically pushing increasing numbers of firms into default. The second financial crisis was precipitated at the end of the "tablita" with the large devaluations and the consequent increase in the domestic currency cost of foreign debt service.

Confidence in the financial system and the exchange rate regime disappeared leading to massive capital flight. As foreign reserves dropped and the threat of more bank runs lurked around the corner, policy makers attempted to index financial assets to the inflation rate and liquidate the bad debts of the banking system. In 1982, interest rate controls were reinstated, deposit insurance restricted, formal indexation of financial assets created, an insured exchange rate created, 100% reserve requirements imposed and a rediscount facility ("prestamo basico") instated at the Central Bank.

The total lack of confidence in the Argentine financial sector kept financial indexation from being undertaken on a wide scale except under the auspices of the refinancing of loans or in assets which could be held as reserves against deposits. Even indexation and government guarantees on financial assets could not stem the capital flight. The refinancing effectively transferred what had been privately contracted foreign debt to the government. Further, the fact that the transfer entailed the Central Bank's commitment to float banks which were essentially bankrupt plagued the subsequent stabilization attempts as this proved to be a major source of endogenous money growth.⁶

⁶During the financial liberalization of the 1970s, commercial banks were put at a competitive disadvantage as non-bank financial intermediaries were not required to hold reserves against deposit liabilities. The Central Bank moved to remunerate required reserves on all commercial bank deposits through what came to be called the "Cuenta Regulación Monetaria" or the "Monetary Regulation Account." The account was funded by a fee on "lending ability" of the financial institutions based upon demand deposits. Portfolio shifts between demand deposits and other assets, therefore, had direct effects upon the monetary base. A shift out of demand

The lack of confidence in government financial instruments in Argentina, at least in part, stems from the transferral of the private sector's poor financial position to the public sector. Herein lies the source of Argentina's transfer problem as opposed to Brazil's where the majority of the public sector's foreign debt was contracted directly by the public sector. The fact that private sector foreign debt in Argentina was transferred to the public sector before full gestation of the investment goes far in explaining why Brazil was able to convert a larger portion of its foreign debt into "productive assets" than Argentina and, hence, the Brazilians' higher level of confidence in the financial system.

The Argentine adjustment entailed a *de facto* internal moratorium through the liquidation of private sector debt through the rediscount facilities. The ability of the Argentine government to borrow using debt instruments internally was severely compromised. The Brazilian government avoided this problem as most of the external debt was contracted by the public sector and the orthodox adjustment policies initiated in 1982 did not bring the financial system to collapse.^{7a} The Brazilian government, therefore, could "smooth" inflation tax "collection" through the issuance of indexed bonds. Argentina, on the

deposits pushes the "Cuenta" into deficit automatically increasing the monetary base through the (net) payment of interest on bank reserves. These deficits make up part of what is called the "quasi-fiscal deficit" of the Central Bank which measures the losses accruing to the Central Bank through its financial operations. The liquidation of debt after the financial crisis of 1981-82 exacerbated the size of the Central Bank's deficit and compromised later attempts at inflation stabilization [Feldman and Summer 1986: 42-45; López Murphy 1984; Piekarczyk 1984; and Piekarczyk 1987].

⁷This is not to say that the Brazilian private sector firms and financial intermediaries did not have problems. The Brazilian government intervened in a relatively surgical way, however, through helping the absorption of bankrupt companies by other firms or into the private sector. See Welch (1991a).

⁸"Inflation expectations management" was briefly undertaken by the Brazilian government in 1980 through the pre-fixing of inflation indexing at 50% for the year on financial instruments. This caused a large flight from financial assets and an acceleration of inflation to over 100%. This policy was adjusted then later abandoned in 1981. For a more detailed discussion, see Welch (1991a).

other hand, could rely only on the inflation tax to finance deficits, explaining the stylized fact that Argentina is more prone to hyperinflationary outbursts.

b. Heterodox Policies: the Plano Cruzado and Plano Austral

Briefly, the relevance of these policies to the current problem lies in the fact that the inflation tax revenue fell in both Argentina (1985) and Brazil (1986) with the imposition of incomes policies and monetary reforms in spite of the increase in inflation tax base (the monetary base).⁹ In Brazil, the Cruzado Plan dismantled the formal inflation indexation of financial assets. By mid-summer, however, the seeds of reindexation had taken root as the government did not effectively complement the policies with fiscal reform and the current account of the balance of payments began to deteriorate. Further, in June 1986, the Central Bank issued short-term floating rate Letras do Banco Central (LBCs) in exchange for the non-indexed Obrigações do Tesouro Nacional (OTN). The conversion involved a capital loss on OTNs. By December, more than half the bond debt was held in LBCs (World Bank 1987: 44). Inflation accelerated to higher levels in 1987 when another "heterodox shock" deindexation in June of that year. Its fate was the same as the Cruzado. By early 1988, the economy was fully reindexed. A "beans and rice" strategy of monetary tightness without fiscal reform was pursued throughout 1988. By the end of 1988, inflation had clearly accelerated to a much higher level and fears of hyperinflation abounded. Another incomes policy *cum* deindexation with restrictive monetary policy was implemented in January 1989 (the Plano Verão or "summer plan"). It was abandoned in June of 1989 when the economy experienced yet another reindexation. Restrictive monetary policy was imposed to keep the economy from moving into hyperinflation until the new administration

⁹See Welch, Braga, and André (1987) concerning the Brazilian case.

took over in March 1990.

With each subsequent unraveling of the heterodox stabilizations, the inflation rate accelerated to a new level. A march to hyperinflation seemed evident especially whenever the (annualized) monthly inflation rate exceeded the constant inflation rate which maximizes inflation tax revenue (optimistically) estimated to be from 1500% to 2000% per year for Brazil. The tampering with the real return to government debt implicit in these policies caused Brazil to experience an ever increasing amount of capital flight, something heretofore alien to the Brazilian stabilization experience. The fear of explicit internal debt repudiation reached its peak during the months preceding the elections causing real interest rates on the internal debt to increase and fears of an internal debt interest rate led hyperinflation mounted [Martone 1989 and Toledo 1989].

The Austral Plan lasted longer than each of the Brazilian attempts at deindexation, roughly three years from 1985 to early 1987. However, the necessity of the Argentine government to both transfer resources abroad and liquidate a portion the private sector's liabilities encouraged a quick flight from monetary base, a complete reindexation of the economy, and significant growth of the internal debt [Cavallo 1989: 123-150 and Dagnino Pastore 1988: 273-292].

The dismantling of the Austral Plan in 1987 did not lead to another stabilization attempt until after the September 1987 elections. In October, an attempt at stabilization was made with a larger devaluation of the Austral, increases in public sector prices, promised fiscal reform, tighter monetary policy, and a freeing of interest rates. The stabilization was largely unsuccessful as inflation accelerated in 1988 due to the inflationary

consequence of the devaluation and monetary growth.

In August of 1988 the "Primavera Plan" (or "Spring Plan") was instituted hinging on a devaluation coupled with a multiple exchange rate system and instituting a crawling peg [Beckerman 1990: 9-10]. The exchange rate system allowed the Central Bank to earn an operating profit by purchasing foreign exchange at the official exchange rate and selling foreign exchange in the parallel market. Aspects of prior stabilizations were also present in the Primavera Plan such as increases in public sector prices, wage and price guidelines, intended fiscal reform, and a pre-announced exchange rate devaluation. As in the earlier "tablita" experiment, the austral became overvalued could only be maintained by high real interest rates. Effective fiscal reform, however, did not materialize and the exchange rate regime came under pressure in late 1988 [Beckerman 1990:11-12]. This pressure culminated in a devaluation of the Austral in February 1989. The approaching May 1989 presidential election complicated further stabilization efforts especially due to the criticism leveled by the Radical party candidate Eduardo Angeloz against the Alfonsin administration's economic team. The economic team consequently resigned in April [Manzetti and Snow 1992: 62] and the Alfonsin administration lost control of economic policy. Argentina moved toward hyperinflation. Needless to say, Angeloz lost the election to Carlos Menem. The inflation rate reached almost 200% (46,350,329.3% at an annual rate) during President Menem's first month in office, July 1990.

Menem ironically installed economists from the Argentine multinational firm Bunge y Borne who quickly implemented a plan to avert hyperinflation. Stabilization was then achieved by first stabilizing the exchange rate then creating dollar denominated deposits.

The administration then administered another set of wage and price agreements in August and pushed an "emergency" economic bill through congress which addressed public sector reform through streamlining public enterprise and privatization in addition to introducing a generalized value-added tax [Beckerman 1990: 11-13]. The stabilization lasted until November 1989. A devaluation at the beginning of December and the forced refinancing of dollar-denominated government bonds (BONEX) to save foreign exchange reserves caused a run on the austral and a return of hyperinflation [The Economist Investigative Unit 1990].

III Hyperinflation, Internal Debt Moratorium and "Liquidity Confiscation"

The perception that the increase in the monetary base when interest payments on internal government debt came due and the difficulties in rolling over this debt at high real interest rates has led to explicit internal debt repudiation in both Brazil and Argentina. The specifics of the events leading up to the moratoria, however, are different in both countries. A brief description of these events follows.

Although Argentina's internal debt is small relative to Brazil's, the large size of payments on government bonds and 7-day accounts ("plazo fijo") in the context of accelerating inflation led the forced exchange of short-term dollar denominated debt for 20-year dollar denominated debt in December and the forced exchange of 7-day accounts for 10-year BONEX in January. The program effectively "confiscated" liquidity from the economy. The events leading to the forced refinancing of these financial assets dates to

November. Speculation against the currency in November put pressure on the government to devalue the Austral and eventually led to the resignation of Central Bank president Javier González Fraga. In December, economy minister Néstor Rapanelli responded by devaluing the Austral by 34.9%, reducing import tariffs by 10 percentage points, raising export duties by 11 percentage points, and raising public sector tariffs dramatically [Latin American Monitor, January 1990: 737-738]. The other major action was the forced rescheduling of maturing government bond debt into 20 year BONEX.

These measures did not stem the run on the Austral. After Rapanelli's "resignation" in December, new economy minister Antonio Erman González introduced a unified floating exchange rate, rescinded the increase in export taxes and decrease in import tariffs, performed a partial about-face on the internal debt rescheduling by declaring that some bond holders would be paid in cash, and promised no further restrictions on the withdrawals of funds from the financial system. Currency markets entered a temporary calm before Christmas as the Central Bank increased interest rates dramatically. After Christmas, the dollar surged again. Rumors of a "dollarization" plan fueled a dramatic run on the currency. The plan meant to fix wages, public sector tariffs and other key prices in terms of U.S. dollars, fix the quantity of Australes in circulation, and allow free conversion at the exchange rate of the day. Speculation about the final value of the exchange rate fueled the run on the Central Bank and hyperinflation [Latin American Monitor, January 1990: 738-739].

As of the new year, the dollarization plan was dropped in favor of another plan which would severely reduce the supply of Australes in circulation. Firstly, the government would print no money over and above that needed to pay wages and pensions. Secondly, the 7-day

(plazo fijo) holders were allowed to withdraw around US\$500 from the accounts the remainder of which was then (forcedly) transformed into 10-year dollar denominated bonds (BONEX Series 89). The dollar immediately collapsed. The new minimum term for deposits was lengthened to 90 days. The confiscation of 7-day accounts amounted to a US\$3 billion removal of liquid assets from the economy. Further refinancings occurred in October of 1990 when Erman González converted US\$8 billion in frozen debts to contractors and others into 10-year negotiable indexed government bonds with a real interest rate of 8% [Latin American Monitor, October 1990: 822].

As predicted by the discussion above, the value of the government bonds fell dramatically. Further, real interest rates rose to very high levels. Table 8 shows monthly (consumer price) inflation rates from May 1989 to February 1991. Significant inflation reduction did not occur until April 1990. This was achieved at the cost of very high real interest rates, a fall in gross domestic product from November 1989 to November 1990 of 4.6%, and a large withdrawal of funds from the financial system. For example, by April 1990, total deposits in the banking system had reportedly fallen by 75% [Latin American Monitor, April 1990: 762]. These funds either left the country in the form of capital flight or U.S. dollar purchases. The alleviation of pressure on the Treasury's budget was only temporary as the budget turned negative in November 1990. Although inflation fell during the second half of 1990, they are not inflation rates which one would call "reasonable" for such a large violation of property rights. At the beginning of 1991, a new wave of runs against the Austral took place in recent weeks and Argentina has returned to a hyperinflationary state. The Austral fell around 40% against the dollar in January 1991

while inflation is expected to exceed 20%. The run on the Austral in January 1991 led to the resignations of Economy Minister Erman Gonzalez and Central Bank governor Javier Gonzalez Fraga [Wall Street Journal January 30 1991]. Domingo Cavallo has taken over as Economy Minister and has proposed a new stabilization based upon fiscal reform called the "Autumn Plan". The fiscal reform is complemented by a move to full convertability of the Austral and a deindexation of the economy [Buenos Aires Herald, March 31, 1991]. The policy of internal moratoria initiated in December 1989 produced a large amount of capital flight, a large recession, and only temporary alleviation from hyperinflation.

Brazil's program, now dubbed the "Plano Collor" after incoming president Fernando Collor de Mello, effectively froze 80% of all liquidity (M_3) including government bond debt financed in the "overnight market" at the Central Bank with a real interest rate of 6% for eighteen months. Again liquidity was "confiscated".¹⁰ The events leading up to the Brazilian internal debt moratorium were somewhat less severe compared to the Argentine. Interest rates had risen in the pre-election period to very high real levels due to the fact that the Workers Party candidate, Luis Ignacio da Silva or "Lula", had promised a default on the government's internal debt if elected. The business reaction to Lula's proclamations was summed up by Mario Amato statements to the effect that Brazilian businessmen would abandon the country if Lula was elected and all mobile capital would flee the country [Latin American Monitor November 1990: 717].¹¹ Capital flight allegedly tripled in the six months

¹⁰A full discussion of the program will not appear here. For some preliminary description and analysis, see Martone (1990), Primo Braga (1990), and Yoshino (1990).

¹¹The viewpoints of both Amato and Lula tend to be extreme. A general view of the situation lies somewhere in between the two.

before the election. This financial market pressure was exacerbated by the fact that the election went to a run-off. The victory of the more conservative Fernando Collor de Mello in addition to summer vacation eased some of the pressure on interest rates and the dollar.

Upon taking office in March, Collor shocked the nation by doing exactly what Lula had promised to do: freeze around 80% of the liabilities of the financial system. The arguments in favor of such a policy were similar to those in the Argentine moratorium with the additional element that internal indexed government debt financed in the overnight market had acquired the status of primary liquidity in the economy, i.e. money, and that the an internal debt freeze or confiscation would be akin to a drastic reduction in the money supply. Holders of overnight accounts were allowed to remove 20% of their funds, the remainder of which was placed in an indexed account at the Central Bank at a 6% real rate per year for eighteen months. Individuals were also allowed to remove around US\$1200 from checking and savings accounts, the remainder frozen at the Central Bank. In addition to these measures, the "Collor Plan" included a 45-day wage and price freeze, a widespread fiscal reform, an administrative reform of the public sector, a large privatization of public enterprise, and liberalization of trade [Primo Braga 1990: 4-6]. A novel aspect of the "voluntary" privatization effort was the creation of "self-destructing" privatization certificates. Banks, insurance companies, and pensions funds were required to purchase these certificates with their funds at the Central Bank. The face value the certificates was initially set at Cr\$1000 and was to deteriorate at 1% per month. In spite of this built in capital loss, the early sales of these certificates was disappointing [Latin American Monitor September 1990: 815].

By May and June, the economy had found new sources of liquidity. The source was the loopholes introduced in the original legislation concerning the withdrawal of frozen funds. After a clamping down on these loopholes and a reform of the Central Banks operations in the open market, the Central Bank pursued a strongly contractionary monetary policy. In September the Central Bank recalculated - in effect raised - reserve requirements. Real interest rates rose even higher than they already had been and the economy slipped into a deep recession.

Business production showed highly variable movements from the onset of the plan, being susceptible to the general amount of liquidity in the economy. Output initially fell, recovered in August and September then deteriorated toward the end of 1990. By the end of 1990, the Brazilian economy was headed for a severe recession. The fall in business activity from January 1990 to January 1991 was 4.64%.

As table 6 indicates, inflation fell from a high in March 1990 of 84% to around 8% in May 1990. The initial success of the Brazilian plan compared to the Argentine plan can be explained by the relatively large portion of wealth held domestically in Brazil compared to Argentina. The confiscation of wealth, therefore, was much larger in Brazil. The money supply, however, began to grow extremely fast starting in September 1990. Since May, however, inflation has steadily accelerated to a rate of around 22% in February 1991. The severe acceleration of inflation led to a new attempt at inflation stabilization through deindexation of the economy and wage and price controls in February 1991. Unfortunately, the credibility of the Collor administration has all but vanished. His party suffered defeats in the senatorial and gubernatorial elections in November. An opinion poll of 16 states

reveals that no more than 25% of the population supports the Collor plan [Latin American Monitor December 1990: 849]. The governess of São Paulo broke the wage and price guidelines early in the plan. As of April 1991, the government is having difficulties maintaining price controls.

IV Final Comments

The theoretical analysis above indicates that an explicit internal debt moratorium without fiscal reform is not a viable policy to combat hyperinflation. The Argentine experience of the early 1980s relative to Brazil's seems to bear this out. The "success" or "failure" of the current programs which include explicit internal debt moratorium depend ultimately on the profundity and credibility of fiscal reform. If all that is needed is a fiscal reform, however, the moratoria may have introduced an unnecessary element of instability, especially in the Brazilian case. One could argue that the measures taken were necessary to allow the public sector to buy enough time in order to implement successful fiscal reform. This line of argument was one of the main motivations for the "heterodox" stabilization experiments in both countries. Overall fiscal reform went to the wayside when inflation stopped due to wage and price controls only to become a pressing issue when inflation accelerated after the dismantling of these programs. These "new" programs based upon liquidity confiscation, however, display the same type of time inconsistency. The initial (limited) success leads the government to delay fiscal reform.

A credible and lasting public sector reform has not taken place in either country. In

the Argentine case, the programs destroyed what was left of the governments ability to borrow internally (and along with it the remains of the financial system) in order to save foreign exchange reserves. The lack of credible fiscal reform in Argentina implies that the Central Bank does not have the ability to avoid speculative runs against the currency as witnessed by the unraveling of the plan in late 1990 and early 1991. The cost of an internal moratorium without a fiscal reform in the case of Brazil is a flight from domestic assets decreasing government's ability to finance itself in a reasonably orderly fashion without resorting to the inflation tax. Further, the loss in the desirability of government liabilities and economic policy credibility means that Brazil may suffer an imminent "Argentine" hyperinflation. The clear conclusion is that such schemes are an inviable means of stabilizing inflation and exchange rates. Further, the Collor Plan in Brazil, instead of allowing Brazil to avoid the "Orloff Effect" has actually hastened its arrival: Brazil is faced with the prospect of a shrinking internal financial market, higher rates of inflation, and large increases in capital flight endemic to the Argentine experience.

Table 1
Brazil: Public Sector Net Debt as a Percentage of GDP

year	External Debt	Internal Debt
1982	22.73	12.81
1983	29.50	17.84
1984	30.77	19.53
1985	29.22	21.10
1986	30.36	18.60
1987	34.23	22.53
1988	30.15	24.56
1989	28.90	33.22
year	Monetary Base	Total
1982	3.1	33.55
1983	3.0	46.64
1984	2.0	50.30
1985	2.1	50.32
1986	3.0	48.95
1987	2.6	59.36
1988	1.7	56.41
1989	1.7	63.82

Notes: * preliminary estimates

Source: Banco Central do Brasil: Brasil: Programa Econômico. March 1990.

Table 2
Argentina: Public Sector Net Debt as a Percentage of GDP

year	External Debt ^(a)	Internal Debt ^(b)
1981	7.7	N.A.
1982	28.2	N.A.
1983	39.1	N.A.
1984	34.2	N.A.
1985	54.2	N.A.
1986	48.8	8.9
1987	53.6*	8.9
1988	54.2*	9.1
1989	57.4**	11.2**
year	Monetary Base ^(b)	Total
1981	8.0	N.A.
1982	9.0	N.A.
1983	6.0	N.A.
1984	4.0	N.A.
1985	4.0	N.A.
1986	5.0	62.7
1987	7.0	69.5*
1988	4.0	67.3*
1989	0.2**	68.8**

Notes: * estimate, ** preliminary

Sources: (a) Inter-American Development Bank (1989): Economic and Social Progress in Latin America.

Table 3
Brazil: Public Sector Deficit and Interest Burden on Internal and External Debt
(as a percentage of GDP)

Year	Deficit ^a (1)	Internal Debt Service (2)	External Debt Service (3)	Total Debt Service (4)	2/1	3/1	4/1
1981	5.20	1.50	2.08	3.58	0.29	0.40	0.69
1982	7.00	2.37	2.49	4.86	0.34	0.36	0.69
1983	3.50	3.06	3.22	4.83	0.87	0.92	1.38
1984	2.70	3.30	3.14	6.44	1.22	1.16	2.38
1985	4.30	3.44	2.97	6.41	0.80	0.69	1.49
1986	3.50	2.23	2.51	4.74	0.64	0.72	1.35
1987	5.50	2.17	2.10	4.27	0.39	0.38	0.78
1988*	4.26	2.19	3.51	5.7	0.51	0.80	1.31

Notes: * estimated
(a) PSBR Operational Definition

Sources: Celso L. Martone: Fiscal Policy and Stabilization in Brazil. Working Paper #50, The World Bank and Alvaro A. Zini Junior : "Fundar a Dívida," Informações FIPE, January 1989.

Table 4
Argentina: Public Sector Deficit and Interest Burden on Internal and External Debt
(as a percentage of GDP)

Year	Deficit ^a (1)	Internal Debt Service (2)	External Debt Service (3)	Total Debt Service e (4)	2/1	3/1	4/1
1981	13.3	5.17	2.23	7.40	0.39	0.17	0.56
1982	14.9	5.72	4.66	10.37	0.38	0.31	0.70
1983	15.6	0.94	5.02	5.96	0.06	0.32	0.38
1984	12.6	0.80	4.16	4.95	0.06	0.33	0.39
1985	6.10	0.78	4.67	5.45	0.13	0.77	0.89
1986	4.70	0.30	3.42	3.72	0.06	0.73	0.79
1987	7.38	0.66	2.72	3.38	0.09	0.37	0.46
1988	5.10	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1989	7.10	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Sources: World Bank (1987): *Argentina: Economic Recovery and Growth*. (Washington D.C.: The World Bank) and José María Fanelli and Omar O. Chisari: "Restricciones al Crecimiento y Distribucion del Ingreso: El Caso Argentino," Working Paper, CEDES, Buenos Aires, Argentina.

Table 5
Brazil: Annual Inflation Rates 1981-1989

Year	Inflation ^(a)
1981	113.0
1982	94.0
1983	164.0
1984	223.6
1985	223.3
1986	138.7
1987	407.2
1988	1050.0
1989	2270.2

Notes: (a) Wholesale Prices measured by the Índice de Preços por Atacado

Source: Fundação Getúlio Vargas.

Table 6
Brazil: Monthly Inflation Rates June 1989 to February 1991

Month	Monthly Inflation	Monthly Inflation (annualized)	Last 12 Months
1989 June	26.77	1,622.6	
July	29.03	2,029.5	
August	30.95	2,442.5	1,084.0
September	35.83	3,844.1	1,198.0
October	37.62	4,515.1	1,303.8
November	41.42	6,299.3	1,464.2
December	53.55	17,079.0	1,764.9
1990 January	56.11	20,849.3	1,609.7
February	72.78	70,681.8	2,751.3
March	84.32	153,669.3	4,853.9
April	44.80	8,396.2	6,584.6
May	7.87	148.2	6,458.7
June	9.55	198.8	5,657.3
July	12.92	329.8	4,947.8
August	12.06	292.1	4,272.3
September	12.76	332.1	3525.44
October	14.20	392.0	2,909.30
November	15.58	468.8	2,359.45
December	18.30	651.3	1,794.75
1991 January	19.91	783.6	1,355.38
February	21.87	974.4	926.60

Notes: (a) Consumer Prices measured by the Índice de Preços ao Consumidor

Source: Fundação Instituto Brasileiro de Geografia e Economia

Table 7
Argentina: Annual Inflation Rates 1981-1989

Year	Inflation ^(a)
1981	104
1982	164
1983	343
1984	692
1985	417
1986	82
1987	178
1988	398
1989	4,924
1990	1,067

Notes: (a) Consumer Prices

Source: INDEC

Table 8
Argentina: Monthly Inflation Rates June 1989 to December 1991

Month	Monthly Inflation	Monthly Inflation (annualized)	Last 12 Months
1989 May	78.5	104,530.6	765
June	114.5	798,899.7	1,472
July	196.6	46,350,329.3	3,611
August	37.9	4,629.0	3,909
September	9.4	193.9	3,825
October	5.8	96.7	3,726
November	6.5	112.9	3,731
December	40.1	5,618.2	4,924
1990 January	79.2	109,532.0	8,165
February	61.6	31,617.3	12,085
March	95.5	311,617.5	20,263
April	11.4	265.3	16,903
May	13.6	361.9	10,724
June	13.9	376.7	6,071
July	10.8	242.3	2,048
August	15.3	452.0	1,697
September	15.9	487.5	1,410
October	7.7	143.6	1,437
November	8.2	172.1	1,461
December	4.7	73.5	1,067
1991 January	7.7	143.5	797.1
February	27.0	1,660.5	535.8

Notes: (a) Consumer Prices
Source: INDEC

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