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**¿WHAT HAVE POPULISTS LEARNED  
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# WHAT HAVE POPULISTS LEARNED FROM HYPERINFLATION?

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## SUMMARY

This paper studies the experience of several heterodox stabilization plans that not only failed to achieve price stability but that induced the economy to accelerating inflation. The income policy approach to stabilization, of the sort followed by populist governments, also failed to improve the well being of low income people.

The cases analyzed indicates that temporary stabilization, to buy time, and later on undertake fundamental reforms, does not work. When inflation is high, the badly needed reforms in the public sector must be introduced at the very beginning. Also, when inflation is high, a careful attention should be paid to domestic debt dynamics. Real interest accruals on domestic debt may seriously jeopardize any serious attempt to stabilization.

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## I. Introduction.

We define populism as an approach that emphasizes income redistribution by government expenditures and income policies and de-emphasizes the problems of deficit financing and inflation. The question we analyze is whether populist governments can stop high inflation. If they can, developing nations like Argentina might be able to grow again. If they cannot, stagnation and the risk of hyperinflation seem the natural outcome.

Argentina efforts to stop high inflation are almost permanent, and the last decades are full of attempts to stabilize prices. Attempts were made by populists, liberals, and conservative governments; by military dictatorships and democratic governments. Analyzing some major economic policies of the last decade, this paper will try to explain why stabilization has not been successful. It also will explain why a change in the populist stance is a necessary but not a sufficient condition to achieve stabilization.

An important attempt by a populist government started in 1985. Known with the name of Austral Plan, because of the new legal currency introduced, the plan tried to put an abrupt end to inflation. The plan failed and it could not be rescued in spite of a variety of policy measures instrumented by the government.

Another attempt was the Primavera Plan that also failed. It started in 1988 and was the prelude to the hyperinflation of 1989 and 1990. Section II of this paper deals with these two experiences.

Section III explains the process of hyperinflation and the measures undertaken to control it. Section IV describes the first plan of the new administration that

took power after the resignation of President Alfonsín, who felt himself unable to manage the economic crisis.

Section V discusses two major items of monetary theory related to high inflation that we believe to be highly relevant for Argentina. One of these items is the phenomenon known as "unpleasant monetarist arithmetic" (Sargent and Wallace, 1981) and refers to policy dilemma of a government that must decide how to finance the deficit and have no other choice than printing money or printing bonds.

The other issue is the problem known as the "time consistency of optimal plans," and in Argentina is related to the policy dilemma of debt repudiation through hyperinflation or forced debt restructuring. Auernheimer (1974) was the first to notice the impact on government finance of repudiation of money with price jumps. Kindland and Prescott (1977) and Calvo (1978) formalized and extended the discussion, and Lucas and Stokey (1983) rose the issue of the debt term structure and time consistency.

Finally, section VI contains concluding remarks.

## II. Stabilization Attempts.

### A. The Austral Plan.

The Austral Plan was based on three basic measures. First, prices of public sector enterprises were increased to reduce their cash flow deficit. Second, all prices, public and private, were frozen at the level prevailing on June 14, 1985. Although, for some sectors, prices were frozen at the level of some weeks before June 14. This because there had been some anticipation of price controls, and several firms (if not all) increased prices to survive the price freeze. Third, the President promised in a public speech that from June 14

on, the Central Bank would not print any money to finance public sector operations.

A few days after the announcement the plan was accepted by the IMF. It essentially respected the monetary and fiscal targets of the Standby agreement reached in the previous week; even more, it was said that the plan set more ambitious targets than those agreed with the IMF.

Besides prices and salaries freezing, as well as public services price freezing (after upward adjustments), the Austral Plan included exchange control and banking system control with a regulating scheme of the main financial activities. Foreign trade regulations and the general level of protection were left without major modifications.

Before the Austral Plan the economic conditions were very worrying, with an accelerating inflation that arrived to levels of a monthly rate of 30%, and with big fears that the process should turn into a hyperinflation. Although this was foreseen by the community as a serious hyperinflation risk, price increases were more the result of price control anticipation by private agents than the result of a fiscal and monetary overflow.

The prevailing high inflation rates and the anticipation of government's policies affected expectations. High expected inflation spread all across the economy in high nominal interest rates, indexation schemes, and in all types of contracts with deferred payments. If a sudden stabilization would occur, unanticipated lower inflation would cause a problem to all non-indexed contracts.

To take account of unanticipated lower inflation, the Austral Plan took the legal provisions to adjust contracts by a schedule contemplating the difference

between the old expected inflation and the new expected inflation supposedly generated by the stabilization plan. This measure did not have any direct implication for the working or dynamics of the stabilization program by itself. The measure just tended to avoid unexpected wealth transfers under the assumption that the plan would be successful.

Although high real interest rates and concentration on short term maturities reflected lack of credibility, the Austral Plan started with favorable public opinion, at a popular level at least. The popular support of the plan can be interpreted in any of two ways. First, the public accepted the stabilization plan as a reasonable approach to stop inflation. Or, second, the public did not know what a reasonable approach was, but accepted the plan anyway approving the decision of the government to give a serious consideration to the problem of inflation. (Before the Austral plan, the monthly rate of inflation more than doubled from December 1983 to June 1985, reaching in the latter month 42%).

Mass media (much of them directly controlled by the State) advertised the Austral Plan producing a favorable effect on general expectations, so, an abrupt fall in prices and free interest rates occurred.

The favorable impact of government's advertisement did not last, neither did the favorable public opinion. The lack of fiscal discipline - jointly with an unsound monetary management - accelerated inflation in 1986-1987 to reach an average level close to 10% per month. Interest rates for loans denominated in Australes increased to reflect expected inflation, and domestic interest rates for operations in US dollars reflected an important element of country risk.

Interest rates for operations in US dollars were about four times the LIBOR rate. This high rate

reflected the poor credit assessment by foreign creditors, which, forced by the impossibility of collecting any payments, lacked alternatives other than restructuring most of Argentina external debt. For the first time during the present century Argentina decided to ignore the reputation effect of debt restructuring.

The consequences of the Austral Plan lasted for several years. Credibility in government's announcements was low and became even lower. In the mind of the citizenry grew the idea that populist's democracy failed again. Most important, the economic standard of living of low income people - to whom populist governments are said to pay special attention - deteriorated or remained at the same level of the previous decade. Table 1 illustrates this last point for the six years period corresponding to Alfonsín's presidency.

Although the Austral plan was presented and discussed in the media as a "new" approach to stabilization there was hardly anything new. It followed the traditional income-policy approach. The only exception was the public commitment of a populist president to stop the monetary emission to finance public sector operations. For the first time in Argentina history a populist president sounded like his archenemies, the monetarists.

The traditional approach to stabilization in Argentina was the announcing of fiscal discipline plus price controls, and the traditional result was increasing inflation after a short period of stabilization. The Austral Plan confirmed this tradition, since after a few months, inflation accelerated again reaching monthly rate of inflation of two digits at the beginning of 1988.

Those who elaborated the plan, and were in charge of managing it, believed that stabilization was a necessary precondition to discuss the reform of the public sector that would allow for sound and permanent monetary and fiscal policy.

Those who did not share the heterodox view to stabilization were doubtful about the real possibility of this approach, and believed that the transformation of public sector enterprises and institutional behavior of local and provincial governments were a prerequisite to stabilization. The failure of Argentina's Austral plan seemed to confirm this last interpretation. President Alfonsín - who resigned five months before the constitutional date for the change of governments - acknowledged his failure to take the necessary actions to reform the public sector.

President Alfonsín's promise to stop monetary emission to finance public sector operations was not honored. The Banco Hipotecario Nacional (Mortgage National Bank) spent almost five billions of US dollars in concessional loans presumably related to the political campaign. Another two billions were granted to countries with poor credit rating like Cuba, Nicaragua, and African countries presumably to support the Argentine Chancellor as a Secretary to the United Nations General Assembly. The loans were granted in domestic currency to be used in purchasing domestic goods. These two operations alone meant more than doubling the monetary base.

As fiscal discipline was not achieved with the Austral Plan, deficits forced the government to borrow from different sources to close the budget. One source of financing was monetary creation by the Central Bank. To sterilize part of the monetary emission the Central



Bank increased reserve requirements paying competitive interest rates on them.

This disguised borrowing eventually resulted in a dominant force driving the hyperinflation of mid 1989, a subject we will discuss later. First, we will discuss some complementary policy actions attempting to rescue the Austral Plan from total failure.

### A.1. Mazzorin's Chickens and Other Heterodox Measures Complementing the Austral Plan

During 1987 the government undertook some policy actions to complement the Austral Plan. Some policies were a repetition of previous policies, but another were new.

Repeated policies were a new price freeze plus discretionary authorizations to increase prices up to a 10% for some items. Authorizations were granted to those items that did not violate special price schedules elaborated by Secretary of Commerce Mr. Mazzorin.

Price controls did not work and the economic authorities decided to take more direct actions to stop inflation. Somehow they imagined that increasing the supply of foodstuffs would stop inflation. One way of increasing it was importing chicken. So Mr. Mazzorin - spending additional government money in a deficit ridden country - imported several tons of chicken. Unfortunately, he imported the wrong kind of chicken. Argentineans refused to consume imported chickens fed with anything else except the corn from the pampas.

Even with a gradual decrease in chicken's prices consumers did not want them. Specially when the chickens started to smell bad. Rotten chickens was the final outcome of Mr. Mazzorin stabilization strategy. He

imported too many chickens in proportion to the taste and freezing capacity of Argentina.

Inflation did not fall, neither did the long run chicken's relative price. In the short run the demand for chicken fell because people reduced consumption in restaurants and other type of "elaborated" chickens. They were afraid of consuming a rotten chicken disguised as special dish or delicatessen. Many domestic producers went into bankruptcy, which in turn reduced the supply of the right kind of chickens that people would like to consume.

The government also determined a wage policy in an attempt to keep salaries according to price inflation. In October 1987 the economic authorities increased minimum wage by 75% (from 200 to 300 Australes per month), and increased in 12% general wages in the private and public sector as well as pensions. Yet, average real wage decreased, which raised angry complaints by labor union leaders who called several labor strikes. Toward the mid of 1988 a general strike by workers of public sector utilities ended with a severe disorder in Plaza de Mayo with several acts of vandalism in downtown Buenos Aires. Then, labor union leaders were asking for the resignation of the Economic Minister.

As in previous stabilization plans the government didn't reduce public spending and tried to close the fiscal budget by borrowing and increasing the tax burden. But, borrowing in the capital market meant a severe crowding out and high real interest rates, therefore, the government opted by "forced borrowing."

This measure implied that the government obtained from tax payers a mandatory loan equivalent to 40% of last period revenue from income tax and net assets tax. First introduced in 1985/86 as an emergency measure,

forced borrowing was reintroduced in 1987, affecting again government credibility and reputation.

The government increased the fiscal burden by rising the tax on imports, cigarettes and checking accounts. This last particular tax - a true innovation in fiscal policy - charged current accounts each time the account was debited. To avoid tax elusion check endorsements were restricted. The tax was paid by current account holders, and commercial banks acted as a withholding agent for the government.

Fiscal experts cannot figure out the rationale for a checking account tax, but the Secretary of the Treasury, who proposed this tax, claimed to have a good explanation like: " Well known neutral taxes are very high in Argentina, therefore, there is much evasion and tax exemptions. So, tax revenue is low in relation to the level of taxes. But, black market operations, exempted operations, and evaders, all use checks; therefore, taxing checks increases revenues and improves the neutrality of the system." The flaw in this explanation is that all checks are taxed, and people who do pay taxes do use checks. The explanation would be right only if eluders and evaders were more intensive users of checks than regular taxpayers.

A new element in the economic policy undertaken during 1987 was the liberalization of the exchange market. This was not a full liberalization because there was two markets: the official market for commercial operations and the financial market for everything else. But, the recognition of this last market ended with several years of ineffective restrictions to stop capital flight.

Jointly with the liberalization of exchange markets there was an announcement of commercial policy. Import restrictions would gradually be eliminated with the

intention to improve resource allocation instead of being an arm twisting measure to force entrepreneurs to keep prices low.

The commercial policy measures were two. First, non-tariff restrictions were substituted by a system based upon indifference tariffs, which, supposedly, would eliminate redundant protection. Second, temporary admission was granted to all kind of inputs. These measures were very weak in relation to the level of effective protection, but they were in the right direction.

Another favorable event was an improvement in Argentina terms of trade, which was used to launch another economic plan known as "Primavera Plan."

#### B. From the "Primavera" Plan to the Hyperinflation.

"Primavera" means "spring season" in Spanish, and that was the name given by the press to the economic plan introduced months before the spring of 1988.

Argentina's favorable terms of trade were mostly due to the draught in the northern hemisphere that increased the international price of some agricultural commodities. Table 2 presents the monthly evolution of nominal and real exchange rates, which in July 1988 - when the Primavera Plan started - was at 113.3. This was a figure lower than the levels of the previous months, but it was a profitable level for soybeans and other crops of the season.

The Primavera Plan allowed the government to realize a profit in the exchange operations. The proceeds from exports were obtained at a lower commercial exchange rate and were sold at a higher rate in the financial market. Table 2 shows that, during several months the spread between the financial rate and the commercial

rate exceeded 20%. To sell dollars in the financial market the Central Bank fixed a minimum value above which would sell foreign exchange, although not in unlimited amounts. The amount announced was large enough to affect the price of the dollar in the short run.

Although not explicitly stated, a second intention of the government was to influence inflationary expectations affecting the path of the dollar in the free market. Other measures attempting to affect inflation were the following: first, a price agreement with trade unions to keep the rate of inflation in the order of 3-4% per month in September and following months. On the other hand, and as a part of the agreement, the government offered to decrease the Value Added Tax by 3%.

Second, government and trade unions representatives created a Price Commission to follow up prices and costs as well as public sector finances. At the beginning of August there was a 30% increase in prices of public sector utilities. This increase was thought to be large enough to guarantee the balancing of the budget of public enterprises.

Third, collective agreements with labor unions would set the path for nominal wages, and employees of the central government administration received a salary increase of 25%.

Fourth, commercial policy measures included the intention to reduce tax on exports for 500 products and to eliminate non-tariff restrictions in 3000 products. Non-tariff restrictions were introduced during the Malvinas War (1982) and later with a special provision (Annex II, 1983) and were never removed during the Alfonsín administration.

Fifth, all reserve requirements for different kind of deposits were substituted by two special government

obligations denominated "A-1241" and "A-1242" according to the Central Bank resolutions that created them. Although we have liberally used the denomination of "reserve requirements" to give a first approximation to the idea, a word of caution is necessary. A large part of reserve requirements were not "reserves" as banks could not cash them. They were special bonds (or non-disposable deposits in the Central Bank) that substituted reserve requirements.

The government obligations A-1241 and A-1242 were remunerated with the average deposit rate of commercial banks plus 0.5% monthly. This meant that a large part of commercial banks assets were a particular bond that, in average, would pay whatever average interest rate the commercial banks were willing to pay to depositors.

For example, if depositors were afraid of a devaluation they would try to cash deposits to buy dollars. Bankers, to avoid a decrease in deposits, would increase the deposit rate, which in turn would imply a higher interest in A-1241 and A-1242. If what generated the expectation of a devaluation was expectations of a fiscal deficit, a devaluation would occur even with fiscal surplus. An overall deficit would always occur as interest accruals on most of the domestic debt were indexed to panics.

Although some measures instrumented with the Primavera Plan were in the right direction - specially the exchange rate liberalization and the commercial policy - the plan did not succeed. Fiscal reform was not realized and the perverse dynamics of the remuneration of most of the domestic debt drove the system to accelerating inflation. Table 3 shows that inflation decreased from 27.6% in August to 5.7% in December 1988. In February 1989 - the turning point to hyperinflation -

the monthly inflation rate was 9.6% and kept increasing to reach a peak of 196.6% in July.

In a general evaluation of the period 1984-1988, Fernández and Mantel (1985, 1988), concluded that price controls - of the sort introduced with income policies and heterodox policies - delayed the adjustment path to steady state equilibrium. Firms, anticipating price controls in oligopolistic markets, set prices higher than otherwise to protect themselves from the government's political incentive to fix prices lower than long run marginal costs. With a positive probability of a stabilization failure, firms may be temporarily better off with "non-optimal" higher prices. It may perfectly be the case that if stabilization fails the higher price will cushion the firm, for a while at least, from "authorized-prices" lower than long run marginal costs.

A similar argument can be elaborated for nominal and real interest rates. These conclusions had three important implications. First, given that delaying the adjustment might imply that the real interest rate can remain for a longer period at higher values than the long run natural rate, it is doubtful - at the least - that price controls can help to avoid the recessionary effects usually associated with stabilization. Second, higher real rates introduced by a particular stabilization plan with price controls suggest the existence of short run economic wealth transfers across sectors that should be carefully evaluated before justifying the "social advantage" of price controls. Third, price controls with fiscal lags imply an important delay in the adjustment of the global deficit, since its size depends on the magnitudes of the real rate of interest and of the rate of inflation.

Although the economic plan failed the authorities insisted on price controls even after the monthly rates

of inflation were well above 10% monthly. Of course, price controls were totally ineffective and a high inflation accelerated even more. When the authorities abandoned the idea of "heterodox" economic policy making, and gradually moved to more orthodox measures such as reduction of public sector deficit and sound monetary management, it was too late. The strong credibility available at the beginning of the Austral plan was gone, and the side effect of orthodox measures in absence of credibility was taking a significant political cost. The lack of credibility and the fear of repudiation of the government debt increased interest rates at levels never seen before in Argentina. Government borrowing in the domestic financial system, at the beginning of 1988, took place at annual effective rates larger than 30% for operations adjusted to the US dollar, that is, four times the LIBOR rate.

Structural reform of the public sector was never given a serious consideration by the political authorities. There were timid attempts to deregulation and privatization, and when they wanted to be more effective on structural reform it was too late, they awoke in the middle of the hyperinflation.

### III. The Administration of the Hyperinflation

During the second half of 1988 inflation was kept under control with the Central Bank auctioning dollars in the free market. But a growing debt and the political campaign for presidential elections - that would be held in May 1989 - were the dominant forces driving the economy.

Advertisement during a political campaign may have different forms, and many of these forms can be inconsequential for economic developments. But the form



chosen by the ruling party had severe consequences for the administration of the economic crisis.

Toward the end of 1988 the polls showed a clear advantage for the opposition candidate. The political advertisement of the ruling party was that the opposition candidate represented "chaos." Therefore, the situation of Argentina at the beginning of 1989 was a ruling party driving the economy to increasing inflation and an opposition party that represented future "chaos."

The chaos exploded to the ruling party as soon as February 6 of 1989 when the exchange rate policy became unsustainable and the economic authorities introduced the following modifications. First, they devalued the commercial exchange rate 2.5% to 14.45 Australes per US. Dollar and announced an additional devaluation of 6% for the rest of the month. Second, they created a new differential exchange rate 25% higher than the commercial rate to trade special goods and services. Third, the Central Bank ceased to intervene in the free market by auctioning foreign exchange. Fourth, the Central Bank released 6500 millions of australes (about 11% of the monetary base) of reserve requirements in the form of non-disposable deposits (previously created by Central Bank Resolution A-1324).

The run against the Austral continued and the economic authorities were forced to introduce new measures almost every week. Some important measures were the following. The two official commercial exchange rates were unified in a single official rate. Goods imports and exports, also interest corresponding to the financing of commercial operations, were exchanged 50% at the official rate and 50% at the free market rate. Services were allowed 100% at the free market rate.

The financial problems due to the run against the Austral induced the monetary authorities to create every financial asset that could possibly be imagined. Irrespective of its cost, the government issued anything the public would be willing to hold. Therefore, the Central Bank by means of Resolution A-1388 created five new bonds indexed to: the free exchange rate, the stock market quotation of BONEX (a Treasury Bond in US. Dollars), the exchange rate for imports, the greater of both the consumer price index or the nominal interest rate, the greater of both free exchange rate or the nominal interest rate. A special deposit was also created for producers and exporters indexed to the price of crops (Central Bank Resolution A-1391).

Several people and financial institutions took "advantage" of these options; but later, such advantages could not be realized as the government was unable to honor them. Other people, understanding the nature of the Ponzi game that the government was involved, decided to buy US dollars in the free market driving up its price and forcing the government to take new actions.

In April 13, 1989, the government decided that all transactions in the official exchange rate market were transferred to the free market. Exports were taxed at a mobil rate computed as the difference between the free market exchange rate and a reference price of 36 Australes per US dollar. Reference prices would be modified periodically. The government also decided to increase in 14% the price of public utilities and in 16% the price of gasoline. Income policy remained unchanged.

Inflation could not be mitigated, which in March 1989 was 17% monthly. It doubled to 33.4% in April, and more than doubled to 78.5% in May. This was the month

when general elections were held, elections that the ruling party lost.

From May to December 10 - the constitutional date to transfer the power - the ruling party was supposed to manage the Argentine economy. A very difficult task if the official advertisement was right in the sense that the next government represented "chaos." The ruling party tried at all cost to transfer the government immediately, something that the opposition party did not want. Therefore, the ruling party lacked alternatives other than to manage the hyperinflation.

There is abundant literature explaining the failure of heterodox plans attempting to stop inflation in Argentina, but there is no literature analyzing heterodox measures to manage hyperinflation. From May to July 1989 we have the empirical evidence of a populist government using heterodox measures to stop hyperinflation. Of course, hyperinflation accelerated.

In May the government introduced the following measures. First, the economic authorities announced new taxes on durable goods (real state and automobiles) and increases in prices of public utilities and gasoline. Second, the payment of forced savings and other fiscal obligations were claimed in advance. Third, the minimum wage was increased to 4000 australes (the equivalent to U\$ 23 monthly at the official exchange rate at the end of may). Prices were frozen for almost all goods except fruits, vegetables, meats, fishes and sea food.

Plain figures perhaps are not the best indicators of the nature of the difficulties during the period April - July 1989. To illustrate the drama of hyperinflation the following paragraphs give a special timetable of financial restrictions affecting depositors, financial institutions, exchange houses and the stock market.

April 3 and 4 mandatory banking and exchange holidays. April 17, exchange holiday but working day for financial transactions. April 28, mandatory banking and exchange holiday.

May 2, mandatory exchange holiday. May 22, 23, and 24, mandatory banking and exchange holidays. Banks withdrawals were restricted to 20000 australes in each banking account. May 26 and 29, mandatory exchange and banking holiday. May 30, withdrawals from time deposits and acceptances were restricted to 40000 australes. Balances in excess of withdrawals were restructured to become due 7 days later.

June 6, banks withdrawals were restricted up to 50000 australes for any type of operation. On June 9 the withdrawal restriction was increased to 100000 australes.

Exchange controls were reintroduced fixing the exchange rate toward the end of May. The Central Bank would buy each US dollars at 175 australes and would sell it at 177 australes. Buying or selling foreign exchange outside the official regulated market was considered a misdemeanor, and according to legislation, it would be punished with special criminal law for exchange operations.

Yet, there was another law creating the BONEXS that authorized the exchange of BONEXS by foreign exchange and BONEXS by australes. Triangulation through BONEXS replicates a free market for foreign exchange, and that was how the most important transactions were made. In fact, and independently of what the monetary authorities decided, Argentina was operating in an unrestricted market for financial operation in foreign exchange at least since 1978 when the BONEXS were introduced for the first time.

The hyperinflation measured as the rate of devaluation of the austral in the free market reached its peak of 186.4% monthly in June. If measured with the consumer price index the peak is in July with 196.5% monthly.

The severity of hyperinflation and the danger of social unrest forced the elected government to accept an immediate transfer of power. A new populist administration took power on July 9 to insist with price controls, although not everything was heterodoxy in the BB Plan.

#### IV. The Menem Administration and the BB Plan

The announcements of the new administration were a mix of heterodox and orthodox doctrines. On the one hand, the idea of having an income policy was heterodox and was always present from the very beginning. But on the other hand, the rhetoric and the appointment of high ranking officials tended to be orthodox. At the time of writing this sentence I have doubts about how to classify the policy making of the period July - December 1999. I would not call it heterodox because the problems of the budget constraint of the public sector were given serious attention. Although they were not given serious solutions. Neither I would call it orthodox because policy makers firmly believed that price "agreements" were effective to deal with inflation.

The first plan of the Menem administration was the BB Plan. BB means Bunge Born Corporation; the multinational firm that provided the government with a high ranking executive to take the post of Economic Minister.

The political rhetoric was very impressive and unexpected from a populist leader. President Menem announced a program of privatization of almost everything that could be transferred to private hands. ENTEL, the Argentine Telephone Company, was intervened and scheduled for privatization during 1990. Two TV channels owned by the state were privatized toward the end of 1989. Oil exploration and exploitation was subject to privatization and in less than 90 days Argentina signed a standby agreement with the IMF. Table 4 summarizes the projection of public finance of the BB Plan and its relation with previous years.

The preliminary figures for 1989 indicated that the overall deficit was decreased 1.6% of GDP from 1988 to 1989. A further reduction was expected for 1990 according to budgetary projections.

The BB Plan was effective to stop the hyperinflation of the moment and to reach an inflation level of one digit per month during September, October and November. But in December the Argentine economy was again heading to hyperinflation with a monthly rate of 40.1% in consumer price index.

The evidence available so far does not support the hypothesis of a fiscally ridden high inflation process toward the end of 1989. During the months following the hyperinflation the Central Bank did not issue any significant amount of money to cover operating expenses of the public sector. Most of the monetary emission of the period was generated by the purchases of foreign exchange by part of the Central Bank (some of it was used to pay international organizations). Part of the monetary emission was sterilized issuing CEDEPS or short term Central Bank debt.

This new debt was issued at very high nominal rates. Given that it was announced to keep a fixed exchange rate of 650 australes per US dollar up to the end of 1990, in the period going from July to October the average yield of financial assets was more than 15% monthly in US dollars. This seemed not to be a serious trouble for bankers or depositors because most of the money was lent to the government, which remunerated average reserve requirements of about 80% of private banks deposits.

All indexed debt created by Resolution A-1388 (see section III) that became due in the second half of 1989 was compulsively reprogrammed with a new bond denominated BOCON.

Even the most naive of depositors knew that the situation could not last long, and at a given point of time he or she would consider it reasonable to convert Austral deposits to US dollars. In a few months a few smart depositors could realize in Argentina a gain that would take almost a decade to obtain in the world financial market. Of course, not all could realize such a gain. It was the attempt of many to capitalize such a gain what promoted a run on the financial system leading to hyperinflation.

I believe that debt dynamics more than fiscal disarray is the most simple and more powerful explanation of the hyperinflations of 1989, the one beginning in February and the other starting in October, but aborted in January 1990. Hyperinflation was aborted by a compulsive conversion of most of the short term domestic debt to a long term debt in the form of a new series of BONEXS.

Table 5 shows the evolution of monetary and debt aggregates. Notice that the last column of the table correctly predicts the demonetization process of

hyperinflations. The last column measures the share of non-indexed debt denominated in australes but earning a substantial nominal interest rate. As government's debts are private sector assets, and as the private sector decided to shift from australes to dollars a run began leading to hyperinflation. Notice the turning points in February and October 1989 where the share of the Austral debt leads any of the monetary aggregates.

Sometimes in the standard financial programming exercises an increase in M1 suggests credibility and monetization of the economy. The empirical evidence for 1989 does not confirm this interpretation, and there may be some instances - as will be explained in the next section - where monetization is achieved increasing the real interest rates.

## V. Economic Policy and High Inflation.

There are two topics in monetary theory that deserve special attention in high inflation environments. One is the case of "unpleasant monetarist arithmetic" that deals with the policy dilemma of financing deficits by printing money or by printing bonds. The other is the problem of time inconsistency and the existence of nominal bonds in private hands.

### A. Unpleasant Monetarist Arithmetic.

Sargent and Wallace ask the question of what would happen if the government decides to decrease the share of the deficit financed with money creation. By itself this would tend to decrease inflation. But if the government is expected to shift to full money creation later, lower money creation means faster transitory accumulation of debt and higher money creation in the future.



Anticipations of higher money creation in the future imply higher inflation today.

With a positive constant real interest rate, a higher debt means higher interest payments in the steady state. If the economy is on the left side of the Laffer curve an increase in the stock of debt implies a higher inflation tax in the steady state. However, if the economy is on the right side of the Laffer curve, a higher debt will require a lower inflation; and the Sargent and Wallace proposition would not hold.

When the assumption of a constant interest rate for different levels of government debt is replaced by the assumption that higher debt is associated with higher real interest rates, higher inflation is obtained on both sides of the Laffer curve. This can be verified with the following set of relationships [see Fernández (1990) for an optimization model with a liquidity constraint providing the micro-foundations for this subject].

The government financial policy dilemma is represented by the following steady state relationships:

$$\alpha \cdot b \cdot r = m \cdot \pi \quad (1)$$

$$(1-\alpha) \cdot b \cdot r = s \quad (2).$$

The first relationship is the share ( $\alpha$ ) of the quasi-fiscal deficit (that is, the deficit generated just by the real interest on government debt) that is financed by inflation. The second relationship is the share ( $1-\alpha$ ) of the quasi-fiscal deficit that is paid with the primary surplus  $s$ .

Let  $\Phi(\pi) = m/b$  be the proportion of real money yielding no interest to the stock of real government debt with  $d(\Phi)/d\pi < 0$ . In the particular case of Argentina  $m$  corresponds to the definition of real M1 and  $b$  can be

considered bonds and deposits yielding interest. Deposits are government obligations because of the high reserve requirements remunerated at competitive rates by the Central Bank. Let  $b = b(r, \pi)$  with  $db/dr > 0$  and  $db/d\pi < 0$ . Substitute this relationship in (1) and (2) to obtain

$$r = (1/\alpha) \cdot \Phi(\pi) \cdot \pi \quad (3)$$

$$b(r, \pi) \cdot r = s/(1-\alpha) \quad (4)$$

Assume that  $\pi \cdot \Phi(\pi)$  is increasing in  $\pi < \pi'$  and decreasing in  $\pi$  for  $\pi > \pi'$ . This implies that if the stock of bonds  $b(\cdot)$  were a constant or independent of  $\pi$  and  $r$  (as in most of the literature on inflation tax), the graph of seigniorage revenue against the inflation rate would have the usual Laffer curve property.

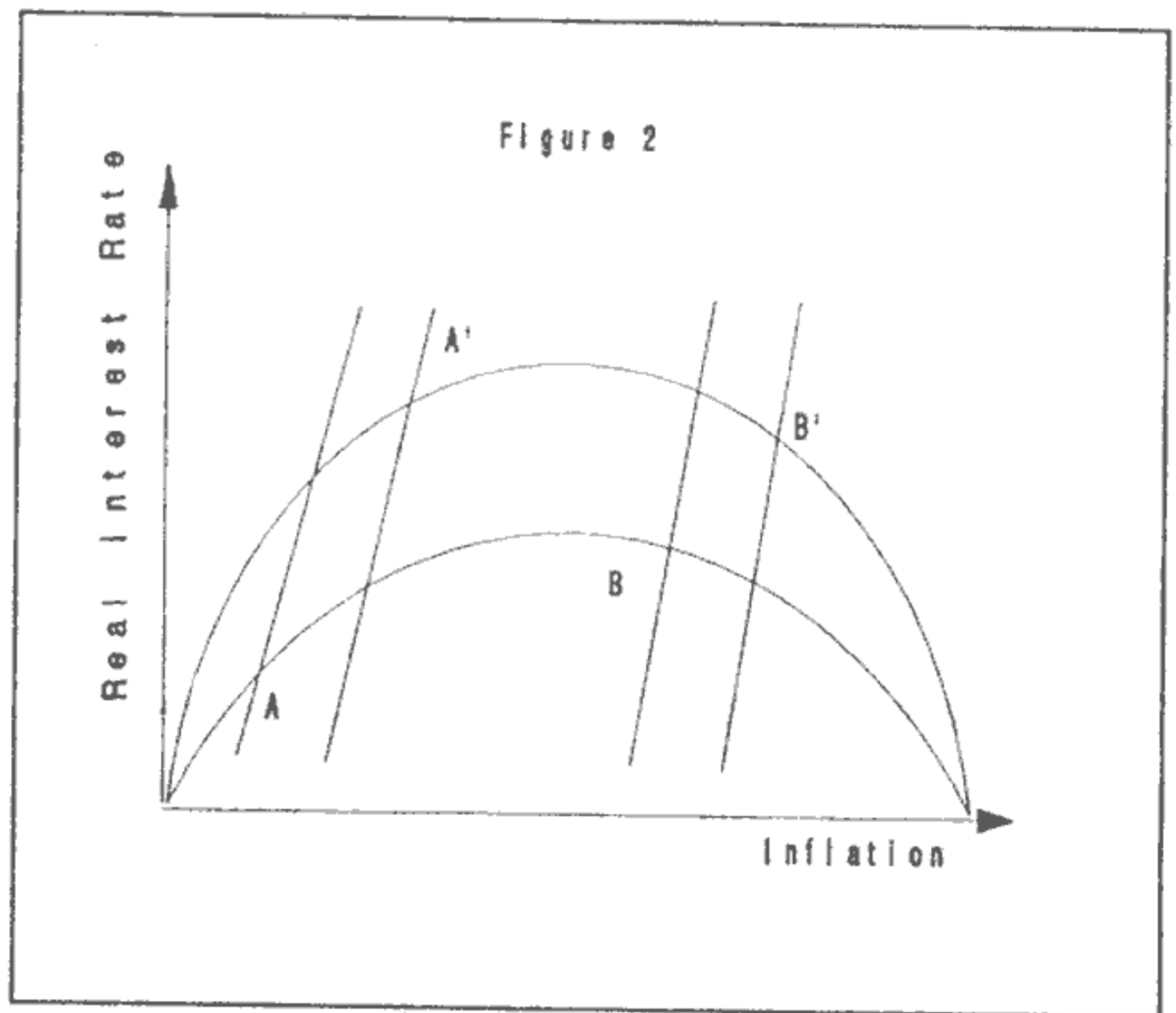
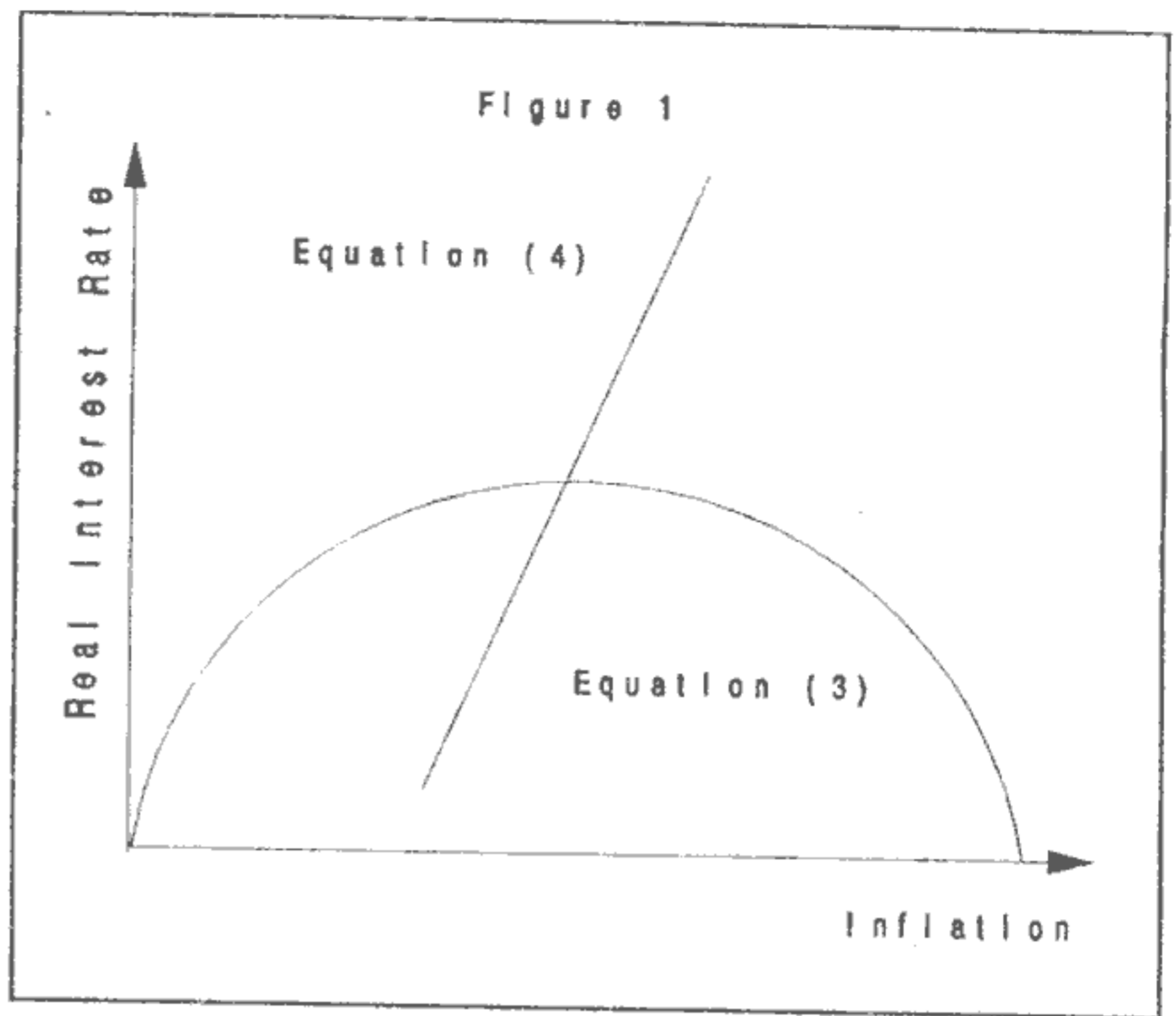
Figure 1 illustrates relationships (3) and (4). Fernández (1990) shows, in a model where the dynamics is explicitly specified, that the line representing (4) must cut from below the line representing (3) to obtain a saddle point equilibrium; otherwise the system is unstable.

A decrease in  $\alpha$  implies an upward shift in (3) and a rightward shift in (4) and, as shown by Figure 2, we obtain a solution with higher inflation irrespective if the economy is on the left side or on the right side of the Laffer curve (see points A' and B').

What this analysis tells us is that the crowding out effect on the service of government debt by increasing borrowing produces higher inflation. The impact of higher borrowing on the stock of debt and on real interest requires more inflation to pay for it than the alternative of not borrowing. The alternative of just printing money to pay for debt services produces less

inflation than the alternative of paying a lower share but of a higher total debt service increased by borrowing.

Notice that the old remedy to stop inflation, that is, by reducing deficits or by increasing primary surplus works nicely on either side of the Laffer curve. A result that contrasts with previous literature where it would work only on the left side of the Laffer curve.



## B. The Problem of Time Consistency of Optimal Plans.

A textbook risk-free government bond paying low interest is a concept found in textbooks, but not in Argentina's financial markets. Governments with poor reputation cannot issue risk-free bonds. So, we wonder, when governments lose their reputation how can it be built up? Starting from a positive debt the real interest cost to build up reputation might be impossible to afford. Perhaps if debt is canceled or substantially reduced through hyperinflation, repudiation or reprogramming, the social cost is lower than collecting distorting taxes to pay for debt services. Perhaps it is higher. These are topics that should be carefully analyzed and I have not been able to find a definite answer to all these questions; but, below, I will try some answers.

In policy discussions in Argentina, Ricardo Arriazu (see references) emphasized the necessity of a careful analysis of government financial wealth before considering a change in the stabilization policy of the late seventies. That policy consisted in a preannouncement of future devaluations in an attempt to reduce inflationary expectations.

Eventually that policy produced a revaluation of the peso. To correct the revaluation a series of devaluations were introduced in 1981 that accelerated inflation and deteriorated the financial wealth of the government. Those results tended to confirm Arriazu's conjectures, and suggests that before changing policy the government should pay special attention to the composition and the time structure of claims and liabilities.

The failure to understand this point may imply that to correct a real distortion - a real appreciation of

the peso - a greater distortion is introduced. In other words, if inflation must increase, the government should previously try to restructure the debt toward long term nominal claims at fixed interest rates. Unfortunately, as time consistency analysis emphasizes, it would be very hard to find private agents willing to accept such unhedged restructuring, as Resolutions A-1241, A- 1242, A-1388, and the general experience of 1988 and 1989 confirmed in Argentina. Those resolutions were issued to provide fully hedged positions to financial investors.

The success of time consistency analysis to explain some important issues on stabilization is not because populists are inconsistent, either because they do not know economic theory, or because they commit obvious policy mistakes. If neutral taxes are unavailable governments would tend to maximize social benefits repudiating debt either through taxes, inflation, reprogramming or the like. Yet, if this were the case why would rational people in populist countries hold nominal debt?

It could be the case that nominal bonds yield liquidity services (as assumed in Fernández (1990)) or that people holds nominal debt if they can fully hedge it. Hedging a nominal bond could be implicit, for example tax deferrals or fiscal lags are good hedges against jumps in the price level. Also it could be the case that in countries like Argentina, where the stock of non-indexed domestic debt is substantially less than 10% of GDP, tax deferrals and the Olivera-Tanzi effect of fiscal lags might imply a zero-net-present-value nominal debt.

I have tried to analyze this topic in another paper (Fernández 1989). Working with the original Lucas-Stokey cash-in-advance framework the proof of the time inconsistency of government nominal debt is

straightforward. But is a zero-net-present-value nominal debt time inconsistent.? In a model with money in the utility function as used by Persson, Persson and Svensson, Calvo-Obstfeld shows that a zero-net-present-value for nominal debt does not solve the time inconsistency problem (see references for other results on time inconsistency). I obtained the same result for a cash-in-advance model.

However, another results follows. For example, a policy able to produce a shift from a government net-positive-nominal debt to a net-negative-nominal debt can be made time consistent. Also, time consistency might be achieved in several cases where individual agents are not deprived of volition at the stage of nominal assets restructuring.

A very important underlying assumption in the time inconsistency results is that governments may restructure at will all real and nominal obligations at market prices and economic agents will passively accept such restructuring. If this is not so, as some available evidence on private sector behavior incurring in fiscal lags and tax deferrals suggests, the problem under discussion becomes a true differential game where time inconsistent solutions are more difficult to arise.

The compulsive reprogramming of the domestic debt at the beginning of January 1990 as an alternative way to avoid hyperinflation in Argentina is perhaps the most interesting case to analyze this type of problems. Obviously, if people would have willingly accepted restructuring, compulsion would had not been necessary. This occurred just three weeks ago from the time of writing this paragraph (January 1990), and it is too soon to evaluate the results and the future consequences of such policy action. But it will certainly be the subject of future research by the author.

## VI. Conclusions

The question we rose at outset was if populist governments can stop high inflation. If they could, developing nations like Argentina might be able to grow again. If they don't, stagnation and the risk of hyperinflation seem the natural outcome.

Populist governments used to approach economics emphasizing income redistribution and paying little attention to deficit finance and the risk hyperinflation. The experience we have analyzed seems to suggest that populist approach to economic policy has failed to achieve even a minimum improvement in the well being of low income people. Traditional political parties have not disappeared from electoral competition, but they are in a process of aggiornamento and rationalization of their later experiences.

Populist leaders learned that they were wrong when believed that transitory stabilization trough price controls was a necessary condition to carry out the reform of the public sector. They thought in transitory stabilization as buying time for a structural reform and for future sound and permanent monetary and fiscal policy. But they never had the time to reach the future. They also learned that the transformation of public sector enterprises and institutional behavior of local and provincial governments were prerequisites to stabilization. The failure of Argentina's Austral, Primavera and BB Plan were the learning experiences.

After decades of failures, governments of any type are non-credible, and transitory stabilization with heterodox measures increases real interest rates and the burden of the domestic debt which, in turn, builds up pressures for a new inflation burst. The problem of high

inflation is usually the problem of an oversized public sector and fiscal disarray. Any program that does not immediately attack these two problems will almost surely fail. It remains to be seen, at least in Argentina, a successful heterodox plan. Heterodoxy has failed, not because all heterodox plans were wrong or illogical, but because they were used to postpone well known reforms of the public sector badly needed from several decades.

What populist leaders have also learned is that not all the problems facing a country like Argentina were just the result of naive income policies or the government spending too much. Domestic debt, credibility, financial runs and policy mistakes are almost as important as naive populism.

The change in the populist stance of basing stabilization on deficit ridden income policies is a necessary condition for price stability. It is also necessary to start the stabilization with well known fundamental reforms in the public sector. Any delay in taking these measures is understood as a lack of political will in undertaking the reforms and deteriorates even more the low credibility in government. Finally, a careful attention must be paid to domestic debt dynamics that can easily jeopardize any serious attempt to stabilization. It may perfectly be the case that domestic debt restructuring may be necessary to assure the stability in financial markets.



TABLES

Table 1

Argentina: Per-capita GNP and Real Wages

Year	Per-capita GNP		Real Wages	
	Real Australes 1970 = 100	Real US Dollars	Minimum Wage	General Average
1984	96.0	2883.5	89.4	95.2
1985	90.3	2710.6	64.6	81.7
1986	93.8	2815.7	78.2	83.5
1987	94.3	2829.8	72.9	76.9
1988	90.0	2701.9	48.7	66.3
1989	84.7	2542.5	46.3	60.0

Source: Carta Economica. GNP measured with real US Dollars of the third quarter of 1989. Real Wage is an index with base January 1984=100.

Table 2

Argentina: Nominal and Real Exchange Rates

	Real Exchange Rate	Nominal Commer. Exchange Rate	Nominal Free Exchange Rate		Real Exchange Rate	Nominal Commer. Exchange Rate	Nominal Free Exchange Rate
Jan-84	110.5	24.89	30.77	Jan-87	108.8	1292.76	1713.55
Feb-84	107.4	27.77	40.51	Feb-87	110.0	1383.22	1712.22
Mar-84	100.4	30.86	50.05	Mar-87	113.8	1541.00	1879.86
Apr-84	95.7	35.08	54.62	Apr-87	111.3	1541.00	2039.47
May-84	94.4	40.84	64.90	May-87	110.7	1590.79	2066.84
Jun-84	94.2	47.62	69.28	Jun-87	110.8	1706.19	2076.40
Jul-84	93.9	56.17	75.55	Jul-87	110.9	1894.18	2384.50
Aug-84	94.1	68.40	98.19	Aug-87	110.0	2115.17	2926.50
Sep-84	92.0	83.39	113.25	Sep-87	109.9	2457.34	3451.40
Oct-84	98.6	105.42	122.23	Oct-87	120.3	3243.29	3955.79
Nov-84	109.6	133.38	166.91	Nov-87	120.9	3510.00	4068.50
Dec-84	108.4	160.84	180.79	Dec-87	121.6	3535.00	4572.00
Jan-85	110.2	201.07	240.00	Jan-88	122.2	3892.00	5454.00
Feb-85	111.6	242.49	317.25	Feb-88	121.7	4334.20	5781.90
Mar-85	110.5	306.39	402.93	Mar-88	119.9	4922.70	6329.50
Apr-85	109.4	396.46	527.38	Apr-88	119.8	5772.00	6923.00
May-85	112.4	525.44	619.14	May-88	117.9	6736.60	8226.20
Jun-85	115.5	736.60	797.47	Jun-88	118.0	8072.00	10243.50
Jul-85	124.2	801.00	942.73	Jul-88	113.3	9653.30	12176.70
Aug-85	122.7	801.00	952.05	Aug-88	108.9	12000.00	14115.30
Sep-85	122.0	801.00	939.52	Sep-88	101.3	12000.00	14321.80
Oct-85	121.0	801.00	924.57	Oct-88	97.3	12223.50	14943.00
Nov-85	120.0	801.00	898.01	Nov-88	95.9	12674.10	15389.10
Dec-85	118.4	801.00	855.24	Dec-88	93.6	13138.60	15772.40
Jan-86	117.1	801.00	899.43	Jan-89	91.0	13665.50	16808.60
Feb-86	115.6	801.00	860.88	Feb-89	94.8	15378.80	24998.90
Mar-86	111.9	801.00	908.68	Mar-89	107.7	20325.30	40476.20
Apr-86	111.1	827.82	921.82	Apr-89	214.3	57411.70	64387.00
May-86	110.9	849.57	900.12	May-89	246.7	124493.3	135000.0
Jun-86	109.9	873.63	895.11	Jun-89	183.3	208333.0	416429.0
Jul-86	107.0	903.73	914.91	Jul-89	157.7	563238.0	660714.0
Aug-86	105.9	965.05	1086.48	Aug-89	148.3	650000.0	673727.0
Sep-86	109.0	1050.36	1222.27	Sep-89	140.5	650000.0	653430.0
Oct-86	107.8	1093.59	1198.26	Oct-89	137.3	650000.0	703000.0
Nov-86	107.6	1150.85	1349.75	Nov-89	131.1	650000.0	887770.0
Dec-86	108.2	1212.90	1564.75	Dec-89	117.0	875807.0	1350000.0

Source: Carta Economica

Table 3

Argentina: Inflation and Nominal Interest Rates

	Inflation Average in Depositors Consumer Interest Prices Rate			Inflation Average in Depositors Consumer Interest Prices Rate	
Jan-84	12.5	12.9	Jan-87	7.6	8.3
Feb-84	17.0	12.5	Feb-87	6.5	7.5
Mar-84	20.3	13.4	Mar-87	8.2	4.0
Apr-84	18.5	17.5	Apr-87	3.4	7.1
May-84	17.1	20.8	May-87	4.2	7.7
Jun-84	17.9	20.3	Jun-87	8.0	8.3
Jul-84	18.3	19.3	Jul-87	10.1	10.6
Aug-84	22.8	18.5	Aug-87	13.7	12.3
Sep-84	27.5	22.1	Sep-87	11.7	15.4
Oct-84	19.3	24.2	Oct-87	19.5	12.4
Nov-84	15.0	20.0	Nov-87	10.3	8.9
Dec-84	19.7	30.9	Dec-87	3.4	12.3
Jan-85	25.1	24.9	Jan-88	9.1	13.2
Feb-85	20.7	20.9	Feb-88	10.4	13.3
Mar-85	26.5	23.5	Mar-88	14.7	15.7
Apr-85	29.5	27.4	Apr-88	17.2	16.2
May-85	25.1	31.1	May-88	15.7	17.2
Jun-85	30.5	16.8	Jun-88	18.0	19.5
Jul-85	6.2	5.2	Jul-88	25.6	22.7
Aug-85	3.1	5.7	Aug-88	27.6	10.6
Sep-85	2.0	5.3	Sep-88	11.7	9.1
Oct-85	1.9	4.3	Oct-88	9.0	9.3
Nov-85	2.4	4.4	Nov-88	5.7	10.2
Dec-85	3.2	4.4	Dec-88	6.8	12.2
Jan-86	3.0	4.4	Jan-89	8.9	12.1
Feb-86	1.7	4.5	Feb-89	9.6	18.9
Mar-86	4.6	4.9	Mar-89	17.0	21.7
Apr-86	4.7	4.4	Apr-89	33.4	44.5
May-86	4.0	4.4	May-89	78.5	127.8
Jun-86	4.5	4.3	Jun-89	114.5	135.1
Jul-86	6.8	4.6	Jul-89	196.6	40.1
Aug-86	8.8	6.5	Aug-89	37.9	12.8
Sep-86	7.2	6.9	Sep-89	9.4	7.4
Oct-86	6.1	7.9	Oct-89	5.6	6.1
Nov-86	5.3	7.7	Nov-89	6.5	9.6
Dec-86	4.7	8.3	Dec-89	40.1	30.0

Source: INDEC and BCRA. Average interest rate for Dec-89 preliminary.

Table 4

Argentina: Public Finances in Percent of GDP

	1984	1985	1986	1987	1988	1989	1990
Public Sector Operational Deficit	8.0	4.8	2.4	4.8	5.0	6.2	-0.1
Central Bank Quasi-Fiscal Deficit	2.5	2.8	1.1	0.9	1.4	1.4	1.5
Overall Public Sector Deficit	10.5	7.7	3.5	5.7	6.4	4.8	1.4

Source: Ministerio de Economía and BCRA. All figures measured on cash basis. Preliminary figures for 1989 and budget estimates for 1990.

**Table 5**  
**Argentina: Monetary and Domestic Debt Aggregates**

M1	M5	M5 - M1	Debt	BCRA Debt in US\$	Total of Austral in US\$	Share Debt
Jan-87	6.4	19.6	13.2	4550	5387	84.5%
Feb-87	6.3	19.8	13.5	4765	5669	84.1%
Mar-87	6.5	19.4	12.9	4729	5838	81.0%
Apr-87	6.6	19.6	13.0	4646	5755	80.7%
May-87	6.5	19.5	13.0	4629	5740	80.6%
Jun-87	6.1	18.6	12.5	4964	6246	79.5%
Jul-87	5.8	17.8	12.0	4545	5762	78.9%
Aug-87	5.2	16.8	11.6	4040	5537	73.0%
Sep-87	4.8	16.2	11.4	3671	5162	71.1%
Oct-87	4.4	14.7	10.3	3390	5192	65.3%
Nov-87	4.4	15.3	10.9	3634	5370	67.7%
Dec-87	4.7	16.8	12.1	3508	5303	66.1%
Jan-88	4.7	16.4	11.7	2973	4687	63.4%
Feb-88	4.5	16.6	12.1	3187	5139	62.0%
Mar-88	4.3	16.6	12.3	3792	5371	70.6%
Apr-88	4.2	16.4	12.2	3798	5506	69.0%
May-88	3.8	15.3	11.5	3829	5392	71.0%
Jun-88	3.5	14.0	10.5	3801	5294	71.8%
Jul-88	3.2	13.3	10.1	3877	5439	71.3%
Aug-88	3.0	12.9	9.9	4471	5956	75.1%
Sep-88	3.3	14.2	10.9	6117	7322	83.5%
Oct-88	3.6	14.8	11.2	6357	7617	83.5%
Nov-88	3.5	15.8	12.3	6750	7955	84.9%
Dec-88	3.9	17.2	13.3	6972	8187	85.2%
Jan-89	4.1	18.9	14.8	7967	9222	86.4%
Feb-89	4.3	19.3	15.0	5692	7125	79.9%
Mar-89	4.1	18.4	14.3	3909	5456	71.7%
Apr-89	3.7	17.8	14.1	3120	4905	63.6%
May-89	3.0	13.8	10.8	2388	3760	63.5%
Jun-89	2.6	12.4	9.8	1857	2989	62.1%
Jul-89	1.6	7.9	6.3	2594	3984	65.1%
Aug-89	2.1	10.0	7.9	4158	5547	75.0%
Sep-89	2.8	12.2	9.4	5176	6658	77.7%
Oct-89	3.6	13.9	10.3	5133	6763	75.9%
Nov-89	4.3	14.7	10.4	3584	5183	69.1%
Dec-89				1866	3639	51.3%

Note: Source Carta Economica. Monetary aggregates in proportion to GDP. debt aggregates in millions of US dollars.

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