

"An Unfinished Transition. Inflation and Macroeconomic Policies in Argentina Post-Convertibility" Por Daniel Heymann (Universidad de San Andrés & Universidad de Buenos Aires) y Adrián Ramos (CEPAL & Universidad de Buenos Aires).

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#### An Unfinished Transition Inflation and macroeconomic policies in Argentina post- convertibility

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#### 1. Introduction

The inflationary history of Argentina over the past decades covers a very wide range of situations, from deflation to hyperinflation, reflecting large swings in economic policies, private behaviors and the external environment. Between 1945 and 1974, the annual inflation rate of the CPI was lower than 10% only in three years, but remained below 100% (with a single exception in 1959). The macroeconomic crisis in 1975 defined a transition to a period of very high and variable inflation which lasted until 1991, with inflation rates well over 100% (except in two years), and dramatic episodes of hyperinflation in 1989 and 1990. The public perception of the large social costs of such instability supported the introduction in 1991 of a monetary system based on a hard peg of the currency to the dollar and tight constraints on monetary policies.

After a substantial price drift, the inflation rate converged to international levels, or less. But the "convertibility regime" eventually proved unsustainable, and collapsed in 2001 in a deep crisis of historical proportions, which included the declaration of default on the public debt and massive re- definitions of private financial contracts. However, even in the context of a disturbance with severe social and political consequences, as well as economic effects which included a sharp depreciation, the response of domestic prices was quite moderate and a spike in the inflation rate did not become entrenched. Thus, contrary to many previous fears, the end of the convertibility rule did not imply a relapse into high inflation (see graph 1).

Still, the economy did not settle in a definite low- inflation regime. With real output growing at a fast pace between 2003 and 2008, the CPI inflation apparently escalated over time to an annual rate over  $20\%^1$ , under a monetary policy which did not commit to explicit price or exchange rate targets, while it kept *de facto* the movements of the dollar exchange rate within a small range, and sterilized a good part of the monetary effect of large central bank purchases of foreign exchange. These trends lasted until 2008 when the private sector generated a substantial capital outflow, in an environment influenced by the repercussions of the international crisis and domestic conflicts over the design and implementation of economic policies. A fall in international export prices and a bad agricultural crop contributed to the recession that the economy underwent in 2009. However, this took place

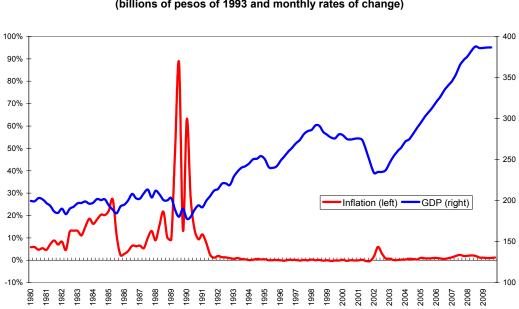
<sup>\*</sup> University of San Andrés and University of Buenos Aires, and CEPAL and University of Buenos Aires, respectively. A version of this paper was presented at the Conference "A Comparative Analysis of Growth and Development: Brazil and Argentina", University of Illinois, April 22-23, 2010, when the first author was with CEPAL Buenos Aires. Useful comments and inputs by Horacio Aguirre, Daniel Arce, Oscar Cetrangolo and Sebastián Katz are gratefully acknowledged. ,The authors are responsible for errors and opinions.

<sup>&</sup>lt;sup>1</sup> The imprecision in the wording derives from the discrepancy between different estimates of the inflation rate since the beginning of 2007, and particularly from the doubts which arose about the reliability of the official statistics. The 20% figure refers to alternative calculations, from private sources, which try to follow the methods and procedures which had been used before that date. Some aspects of the measurement issue are briefly discussed later in the text.

without strong disruptions in the financial sector and in foreign currency markets. Inflation decelerated, but remained sizeable. At the beginning of 2010, while an incipient real recovery was under way, the setup and institutional status of monetary policies became the subject of strong political controversies, when the executive branch of the government proposed to draw funds from the stock of foreign reserves to use for the services of the public debt. The episode signaled vividly that basic characteristics of the setup and implementation of macroeconomic policies remained in debate.

We propose to analyze the post- convertibility macroeconomic experience focusing mainly on inflation and the associated policies and behaviors. After a rapid review of the rise and breakdown of the convertibility regime, the next section sketches briefly the macroeconomic evolution of the post-crisis period, and discusses features of the interaction between private and policy decisions. We then consider in more detail the behavior of monetary policies, with comments about the "reaction function" of the central bank, and the characteristics of price changes, in terms of the magnitude and persistence of inflation rates and patterns of relative price variability. The concluding section includes a discussion of tradeoffs involved in the choice of macroeconomic policies and institutions for Argentina.

One of the themes running through both the narrative and the analytical sections is that the memory of very diverse past experiences, including episodes of prosperity and others of extreme economic instability, has left traces in behaviors, beliefs and attitudes towards policies. The agitated history induced learning by private and government agents, but it also produced open- ended controversies and conflicts. The macroeconomic performance after the convertibility crisis was remarkable for the increase in real activity in conjunction with current account and (until recently) fiscal surpluses. However, the search for a macroeconomic regime that would broaden decision horizons to support a robust growth trend did not converge to well defined, generally agreed upon, policy criteria. In this sense, the post-crisis period represented an unfinished transition. The reappearance of inflation as a widespread concern was a prominent symptom of these unsettled conditions.



#### GDP at constant prices and CPI inflation rates (billions of pesos of 1993 and monthly rates of change)

#### 2. Macro developments: crisis, recovery, trends and uncertainties

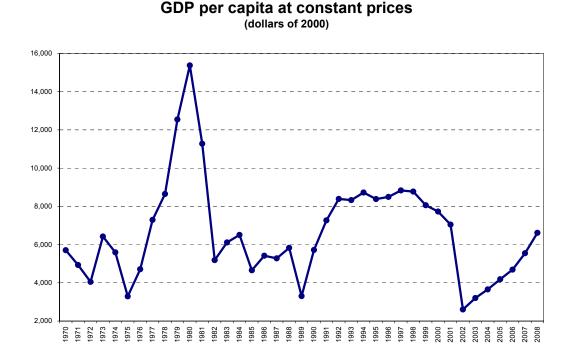
#### a. Convertibility: high expectations and collapse

The introduction of the convertibility monetary regime was a key element of a package of comprehensive policy reforms which included trade and financial liberalizations and large- scale privatizations. The monetary system established a set of tight rules that restricted discretion (and flexibility) in monetary management, and were meant to discipline fiscal policies by cutting their access to central bank finance, while choosing as a fixed nominal anchor the exchange rate with the dollar, a highly visible variable which had become a standard reference for denominating contracts, and even for setting prices. The establishment of a fixed external parity for the indefinite future signaled the intention of bringing inflation down to international levels through a once-and-for-all institutional change without an "exit strategy".

The first years of the system were marked by a sharp growth in real activity and (even more) in domestic demand, which supported a considerable price increase (about 40% measured from the moment when the exchange rate was fixed). Despite this substantial shift in the price level, the residual inflation did not persist, but steadily declined over time to practically complete stability after about three years. In any case, the real revaluation contributed to raise the dollar value of aggregate incomes, and expenditures, to historically high levels (although not as extraordinarily high as in the early eighties, before the debt crisis of that decade; see graph 2). The sharp rise in domestic spending, supported by a rapid credit expansion, was associated with the emergence of current account deficits. Higher tax (and privatization) revenues contributed to a strong fiscal adjustment, and the government restructured its debts after a decade of non- performance. However, after a while the public sector started to demand considerable volumes of financing,

in a context where government bond issues were often considered optimistically, as a sign of confidence by creditors.

Although peso- dollars interest rate differentials did not indicate strong fears about the short-run sustainability of the exchange rate peg, most of the new financial obligations were denominated in dollars. The loans certainly carried a risk premium, but the observed willingness to lend and to borrow seemed to respond to expectations that future levels of "permanent income" in terms of the dollar would satisfy the conditions for overall solvency of debtors, private and public. This meant an implicit trust on a strong performance of the supply of tradable goods and favorable international conditions, which would make sustainable the level of the real exchange rate (Galiani et al., 2003). In addition, the mass of dollar debts endogenously raised the social costs of a real depreciation, whether through a rise of the nominal exchange rate or through a price deflation.



#### Graph 2

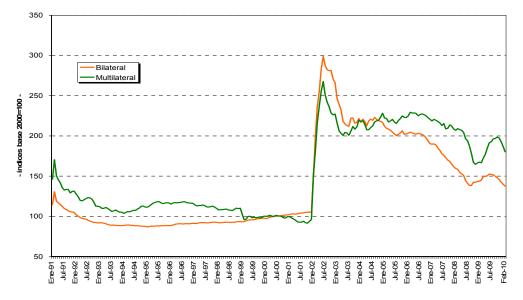
Between 1993 and 1998 the value of exports doubled, an impulse coming from a remarkable improvement of agricultural productivity, good external prices and a strong demand from Brazil. After a dramatic but short pause in the international financial turmoil following the 1994 Mexican devaluation, growth restarted. But the levels of foreign and domestic debts also kept increasing. When, by the end of the decade, exports stagnated (influenced by the Brazilian depreciation and lower commodity prices) and the supply of foreign credit contracted, serious issues of sustainability emerged, and gained prominence over time. The economy was locked into a situation where external adjustment through recession and deflation, besides their painful effects, menaced to reveal the existence of widespread solvency problems, while a "preemptive" ending of convertibility would have implied at a

stroke, not only a requirement to re- define the whole set of economic policies after a strong shock to expectations, but also a need to process the effects of that frustration on incomes, solvency positions and the feasibility to fulfill public and private obligations. Some influential opinions carried the fear of devaluation to the point of proposing an outright dollarization. But giving up the existence of a national currency would hardly have solved the problems of external adjustment and cause dollar debts to be serviced normally. In practice, after a quite long period (about three years) of economic decline and growing financial and fiscal deterioration (which included the issue of quasi moneys by provincial governments), the convertibility regime ended with a bang in December 2001, in the midst of a run against bank deposits and the foreign reserves, a sharp recession, public unrest, and a political crisis.

#### b. Financial breakdown, but no hyperinflation

The exit from convertibility immediately posed the problem of dealing with outstanding financial contracts. The government declared default on its bonds, and decided to switch to pesos the denomination of dollar bank loans and deposits (at different conversion rates: 1 and 1.4, respectively). This brought about a considerable real reduction in the debts of firms and individuals. The application of dollar clauses in utility prices was suspended. Most non- bank obligations (including the external debts of many firms) were opened for re- negotiation. Thus, practically the whole structure of assets and liabilities of the economy was formally put into question. Naturally, this was associated with loud controversies and strong uncertainties.

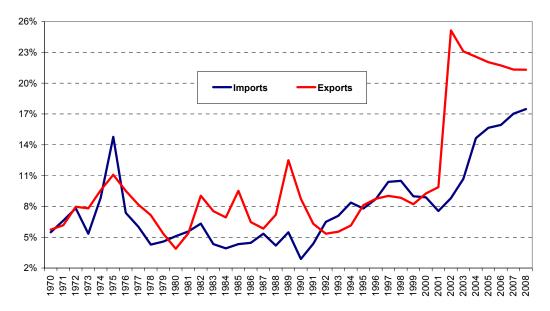
The rush of the public to buy foreign exchange, only partially limited by the restrictions imposed on the withdrawal of deposits from the banks, was reflected in a steep depreciation once the central bank stopped defending the one-to-one dollar parity. By June 2002, the exchange rate reached a level of about 4 pesos per dollar. Considering the inflationary experience of the previous decades, the moderation of the price response to such a shock was quite striking. The inflation rate over the whole of 2002 was 40%, with a monthly peak of 10% in April, and a noticeable slowdown in the second part of the year. Thus, the real depreciation was of a very large magnitude (graph 3).



Multilateral and Dollar Real Exchange Rate (Indices 2001=1)

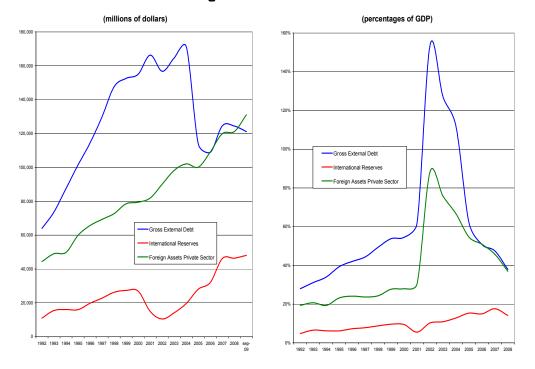
In a situation of extreme social tension and economic disruption, the first reactions of people engaging in everyday transactions after the collapse of the currency board were still characterized by a general use of the local currency as the unit of account of prices for current consumption goods and as means of payment. The absence of a "flight from money" in that sense (possibly a sign that, despite the state of deep distrust and the reluctance to hold domestic assets, in the routine exchanges in goods and labor markets the memory of the recent experience of price stability weighed more than the recollections of past episodes of high inflation) meant that nominal wage and price decisions were influenced by the depression in the demand for goods and labor. Thus, no strong pressures emerged to revise nominal wages and, even if the rise in imported costs and the incentives to buildup precautionary margins over costs operated on price decisions, the response of inflation showed some delay.

These responses gave some time for economic policies to act. The vivid fear, felt across the political spectrum, of a "perfect storm" with a hyperinflation as well as a financial collapse was a strong incentive to avoid fiscal deficits which would require monetary financing for a government which had definitely lost its access to voluntary credit.



Export and Import Coefficients at current prices (percentages of GDP)

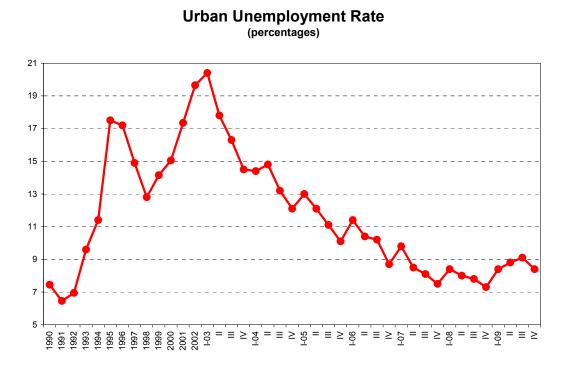




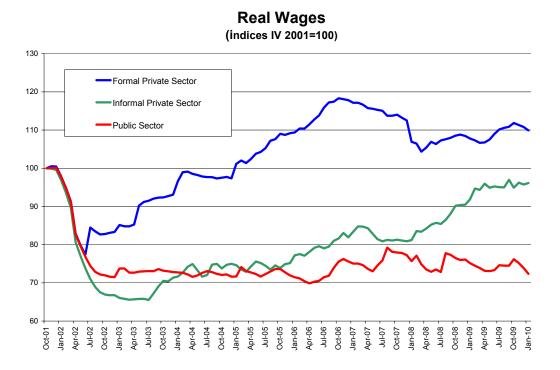
#### Foreign Assets and Liabilities

The large rise in the real exchange rate implied a jump in the domestic purchasing power of exports, and it also revalued the substantial mass of foreign assets held by residents (Graphs 4 and 5). The large changes in the structure of income and expenditure flows at current prices also modified the relative magnitude of potential tax bases. The government introduced export taxes which, along with the fall in the real public spending (mainly through a fall in real wages in the public sector; see graph 7) allowed it to balance cash revenues and expenditures, albeit precariously. Exporters were required to liquidate foreign exchange with small delays; the supply of foreign currencies through the large trade surplus and through official interventions stopped the depreciation despite the still large size of the capital flight. Once it became apparent that a runaway depreciation was unlikely, expectations of a complete crash abated, and the potential propagation mechanisms of the recent price increases did not become active. By the end of 2002, real GDP had fallen by about 20% from its previous peak; its dollar purchasing power had been reduced from a per capita value of about 9000 to near 3000; the unemployment rate reached 25% (graph 6), poverty levels had shot to around 50% of the population, but the conditions for a recovery were emerging.





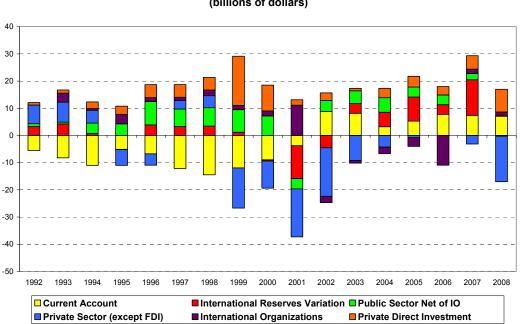




#### c. A recovery with unusual features

The depression of domestic demand in the first half of 2002 resulted from a combination of effects which included a complete standstill of credit, a monetary circulation disturbed by frequent bank closures and restrictions on the availability of cash out of transactions deposits, a drastic fall in real wages, and a precautionary attitudes of liquid agents, which fuelled the private demand for foreign assets. A revival of expectations, however doubtful or tenuous, which induced some spending out of dollar incomes or holdings, was apt to have a strong real impact at the prevailing relative prices. When the movement started, the incipient symptoms of normalization (in a still very disturbed economy) became self- reinforcing. As real activity started to recover, so did tax revenues from domestic sources. Growing primary surpluses in the public sector strengthened the perception that the depreciation of the currency had gone beyond sustainable levels. A strong excess supply of foreign currencies developed in some time. This started a long period during which the external constraint was not operative as a brake on the economy (graphs 4 and 8).

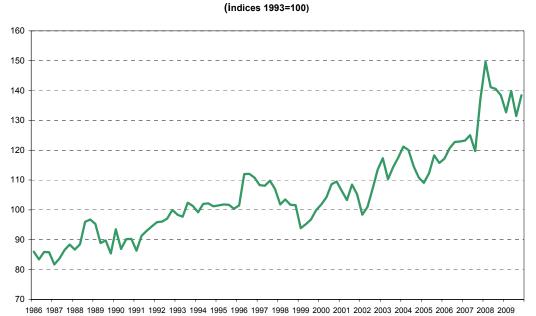
#### **Graph 8**



# (billions of dollars)

**Current Account and Capital Flows** 





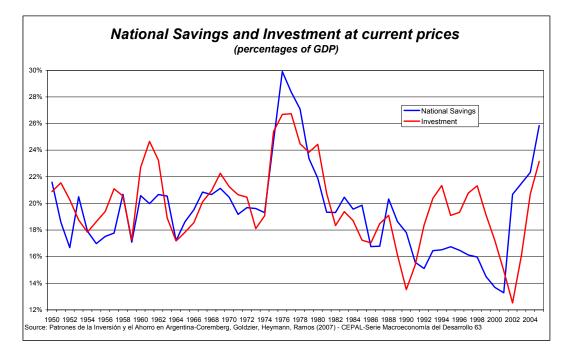
## International Terms of Trade

The expansion of real activity following the crisis was not an ordinary rebound in a stop- go cycle. Contrary to many expectations<sup>2</sup>, the growth phase was unusually sharp and long- lived and, after accounting for the recovery effect, it resulted in a peak-to-peak (1998- 2008) average rate of increase of the GDP of about 3% per year. A noticeable feature of the period was the positive sign of the current account balance, reflecting sizable trade surpluses and smaller services on foreign debts as the outcomes of their re- negotiations. In particular, the public sector performed in 2005 an operation of re- structuring, with substantial reductions in capital or interest rates, which was accepted by the holders of about three quarters of the bonds previously in circulation; the (not complete but very significant) normalization of the status of the debt was reflected in a sharp fall in the "country risk" interest rate differentials (graphs 14 and 15), although the government's access to credit remained restricted.

The value of exports more than doubled in an interval of six years (2002- 2008). The very favorable evolution of international prices made a large contribution (graph 9), but there were also sizable increases in exported volumes, of agricultural and industrial goods. Production of grains reached a peak in the 2007/2008 campaign, about 50% above the output of five years earlier. Much higher international terms of trade, after a sharp rise in the weight of foreign transactions in GDP, had a considerable impact on the purchasing power of domestic incomes, which rose even faster than real output. Comparatively high domestic savings amply exceeded investment (graph 10), which rose sharply from very low values to levels (about 23% of GDP at constant prices in 2008) higher than the maxima of the

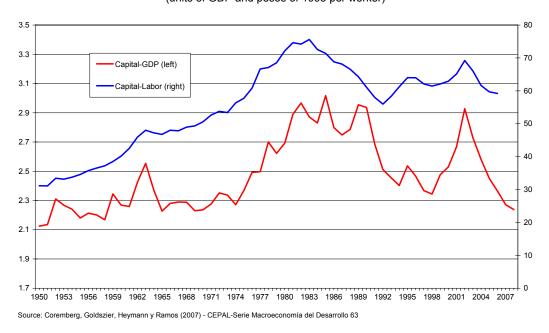
 $<sup>^{2}</sup>$  For example, at an early stage, the recovery was described by a high IMF official as a "the bounce of a dead cat" (see Damill et al., 2005 for a discussion of the role of the IMF in the crisis).

previous decade. The growth rate of the capital stock recovered noticeably (from negative levels in the crisis), but remained smaller than the rise in aggregate output (graph 11).



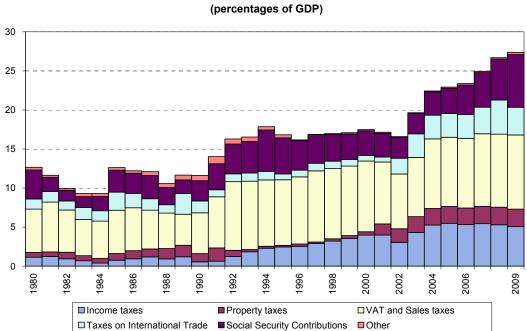
#### Graph 10





Capital-GDP and Capital-Labor Ratios (units of GDP and pesos of 1993 per worker)

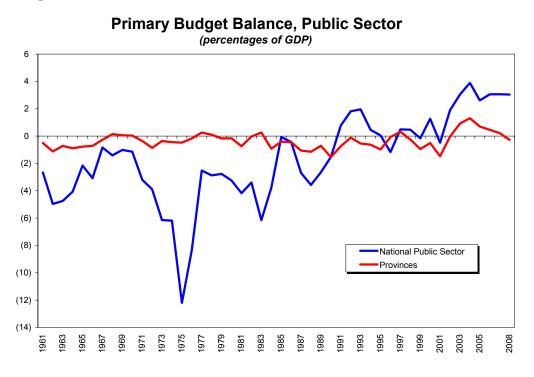
On the fiscal side, the rapid evolution of tax revenues allowed the government to maintain budget surpluses between 2003 and 2008, despite the strong increase in expenditures (graphs 12, 13 and 23). The consolidated primary public spending as a share of GDP rose 8.1 points in that period (after a fall of about 5 points in the crisis) and an additional 3.2 points in 2009, reaching historical highs. From the point of view of the perceived incentives of the government, maintaining a slack in its budget constraint seemed an important consideration because it reduced the influence of the potentially unfriendly moods and attitudes in international financial markets, and because of the political leverage resulting from the availability if resources to manage and distribute. However, in the last years of the decade, the state of fiscal policies emerged as a subject of concern, and the re- opening of international markets for its debt became a salient objective for the government.



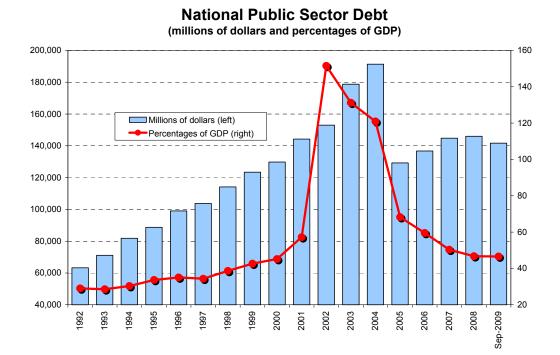
Graph 12

National Tax Revenues

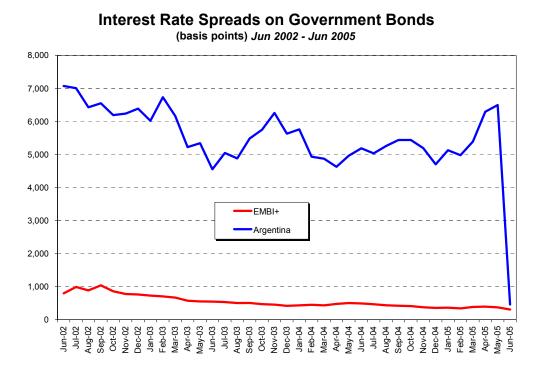




Graph 14



## 15

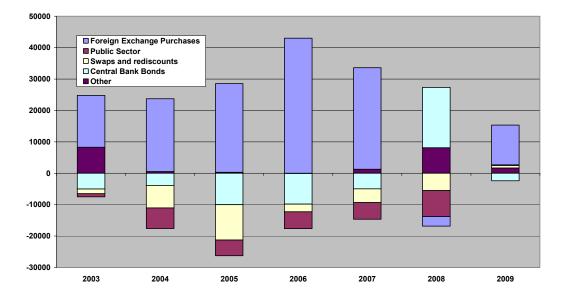


#### d. Monetary policies after the crisis

The collapse of the convertibility regime left a strong imprint in attitudes regarding the design and implementation of macroeconomic policies, with a marked shift against tight rules and presumably unconditional pre- commitments. The dramatic ending of a period of foreign deficits in a resounding default made it hard to maintain that monetary policies should be unconcerned with current account sustainability, and concentrate only on the management of nominal prices. The experience also led to a marked concern for avoiding real overvaluations of the currency and to an emphasis on the real exchange rate as an instrument for economic growth (see for example Frenkel and Rapetti, 2009, Rodrik, 2008). As it was the case in other economies, the role of foreign reserves as self- insurance against shocks was highlighted (cf. Bastourre et al., 2009), with particular strength because of the unfavorable perception of the behavior of the IMF before and during the crisis and the perspective of a tightly constrained supply of private external credit.

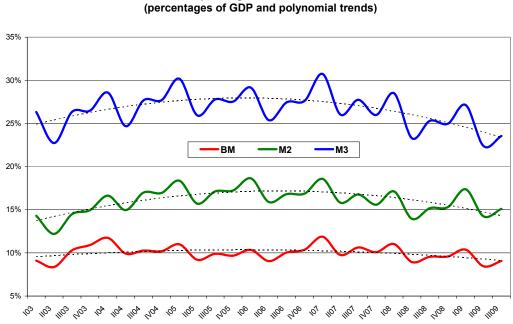
Monetary policies after the crisis were based on an analysis which stressed that foreign exchange rate variability (especially downwards) should be kept within relatively narrow bounds, and that the uncertainties about the transmission mechanisms of monetary policies with a small and still fragile financial sector would greatly complicate the administration of an interest-rate based monetary policies. The central bank implemented a "managed floating" of the dollar exchange rate, which, after being allowed to fall to around 2.8 pesos in 2003 was let to oscillate for several years near a level of 3. Although no formal announcements were made, the perception that the authorities were in a position to regulate the parity and would prevent substantial drifts became established in the public. Until 2008, the exchange rate policy was associated with large purchases of foreign currencies by the central bank. The monetary effect of that intervention was sterilized to a significant extent by a contraction in financing to the government, the cancellation of credits granted to the financial sector (rediscounts and swaps) and by the sale of central bank promissory notes, which reached a particularly large volume in 2005 and 2006 (graph 16).

#### Graph 16



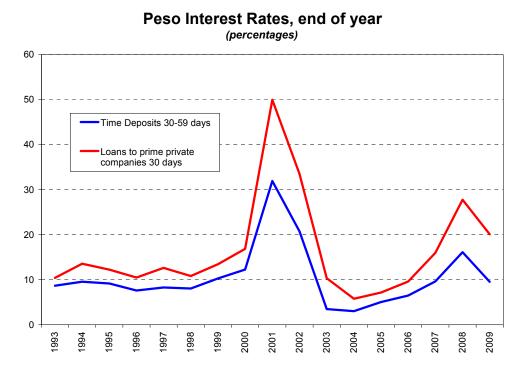
#### Determinants of changes in the Monetary Base (millions of pesos)





Liquidity Coefficients

The large growth in production and demand after the crisis was self- financed to a good extent. The mobilization of the large hoards of foreign currencies accumulated by the private sector was an important element in the initial revival of spending and, over time, in the expansion of activities such as construction. The financing requirements of firms were limited by the massive debt restructurings, and the increases in unit margins implemented in the crisis. The volume of bank loans to recovered sharply over the years, but to quite low levels relative to GDP (only about 12.5% in 2008), and despite the growth of other credit vehicles (trust funds, in particular) the financial sector as a whole remained small. However, there was no surge of excess demand for credit and, overall, no pressure on interest rates. As an indicator of this behavior, after 2003 the returns on time deposits (graph 18) remained smaller than the domestic (effective) inflation rate.

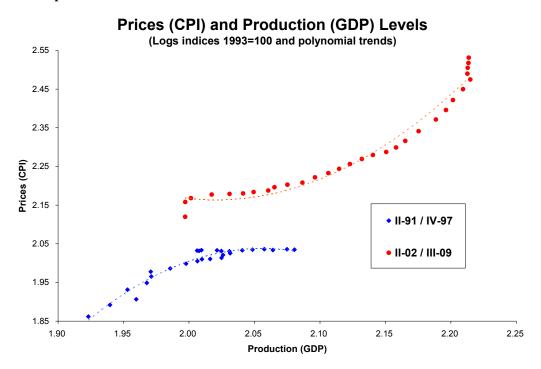


e. Rising inflation after a slow start

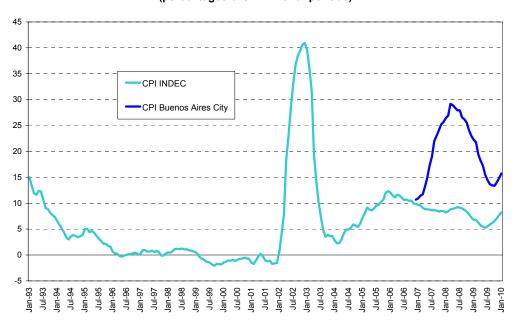
The expansion in real activity started in 2002 from a state of widespread and large sub- utilization of resources<sup>3</sup> (graphs 6 and 11), in which many prices had been set with high mark-ups over costs; in addition, the exchange rate declined in nominal terms after its initial jump, and the public certainly did not expect another round of depreciation. These conditions favored an elastic quantity response as aggregate spending recovered. Actually, taking as the origin the moment where the exchange rate stopped rising, the response in the first phase of this expansion showed a less steep price- quantity schedule than in the analogous stage of the convertibility program (graph 19). In 2003, the annual CPI inflation rate was below 4%. The realization of such low inflation shortly after the breakdown of the monetary system which was often perceived in its time as the barrier between stability and hyperinflation was a remarkable feature of the economic performance. However, the rates of price increases escalated, gradually but noticeably in the following years, and reached about 20% in 2007- 2008 (graph 20).

<sup>&</sup>lt;sup>3</sup> Opinions warning that the economy was approaching its "potential output" emerged relatively soon in the recovery. However, given the extraordinary rate of unemployment, and the high levels of the capitaloutput ratio assuming that the destruction of capacity in the crisis had not been enormous beyond the standard depreciation (in addition to the variability that the ratio had shown between different periods), would have suggested that for quite a while the evolution of demand rather than supply constraints would be the main determinant of real activity. This picture evolved substantially during the expansion, as idle resources were absorbed.





The configuration of relative prices emerging from the crisis, with a very high real exchange rate and low real wages, left much room for a recovery of the dollar purchasing power of domestic prices and wages. At a more or less constant nominal exchange rate, kept from falling through the intervention of the central bank, the rise in internal demand stimulated internal price and wage adjustments. Wages in the formal private sector rose by around 20% annually between 2005 and 2008; in the first two of those years (but not in the others) that implied a sizeable increase in their purchasing power (graph 7).

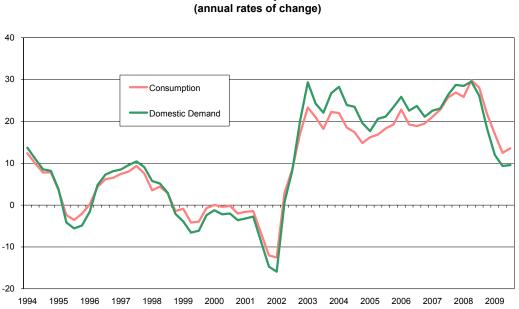


Inflation Rates (percentages over 12 month periods)

The CPI grew over 12% in 2005, suggesting that prices were becoming more sensitive to upward impulses, and opening questions about the possibility that inflation could gather momentum. Policy discussions contemplated the possibility of using fiscal and monetary policies to moderate the steep rise in aggregate spending (graph 21), and to favor a convergence to a somewhat slower expansion of real activity, considering that this would be in line with a likely trend after a period of steep recovery. The authorities decided against this alternative, with the view that a strong increase in demand would induce a supply response and would contribute to keep the economy growing at the very high growth rates achieved so far, and that consequently no deceleration was advisable. The implicit analysis seemed to be that, given the slow movements in the exchange rate and the fiscal surpluses, aggregate inflation should be treated as a collection of individual price increases and that the contribution of demand was negligible (or even negative, under the argument that high demand stimulates investment and increases in supply). The choice was then, in addition to suggesting informal wage guidelines, to use actions meant to influence directly the behavior of price setters and, in the case of exportable wage goods, to re-direct their supply to the domestic market. The government addressed large firms or sector associations in order to induce them to contain price rises and reduce profit margins, and applied export restrictions, especially in the case of beef and wheat In addition, subsidies were provided, particularly to public utilities, mainly transportation and electricity (a sector where there had been signs of strains in satisfying the demand), and to various foodstuff-producing activities. Over time, such subsidies reached a considerable volume (around 3% of GDP).

Along with a growth of GDP which again approached 9%, the inflation rate fell some points in 2006, to around 10%. By the end of the year, however, prices were

accelerating again, with signs of a new push at the start of 2007. At this point, the government modified the procedures used in the measurement of the CPI.



#### Graph 21

## Private Consumption and Total Domestic Demand at current prices

f. Facts and figures

Until 2007, the measurement of macroeconomic indicators and particularly the consumer price index had not emerged as a noticeable issue in public debates. It later became a first order matter, with political as well as economic connotations. The government made changes in the personnel of the statistical institute (INDEC) and in the methods used in gathering and processing the data, in order to revise what they considered as exaggerated estimates of inflation (some statements attributed potential overestimates to purposeful maneuvers in order to favor creditors on indexed financial instruments, particularly government bonds). The official data showed a slowdown of inflation to 8.5% in 2007 (including such striking features as an absolute drop of 11% in the prices of tourism services over the year). Calculations made by private institutions, and even some provincial price indices, showed much larger figures (graph 20). Discrepancies persisted in the following years, when the official estimates remained well below those of alternative sources. According to INDEC, the total increase of the CPI between 2006 and 2009 was just over 25% (averaging 8% per year); in private measurements which try to mimic the pre- 2007 methodologies, the analogous variation was near 80% (21% per annum)<sup>4</sup>. Naturally, those differences impinged on the estimates of indicators like the real exchange rate and measures of the purchasing power of incomes.

<sup>&</sup>lt;sup>4</sup> See http://bsascity.googlepages.com/

From the point of view of the methodological consistency and the economic significance of the information, the INDEC data under question seem less reliable than their substitutes, even when these are produced without the resources and the infrastructure of a national statistics institution. As for the sphere of public opinion, the discredit of the official calculations, especially those related to inflation and real incomes, became open and widespread. In particular, no reference to those inflation rates was used in wage negotiations, either on the part of the union or the business sides. Even the government, when trying to influence the order of magnitude of wage increases, did not argue on the basis of the official CPI, although at the same time it persistently rejected the criticisms addressed to those calculations.

#### g. Conflicts, shocks and uncertainties, but no crisis

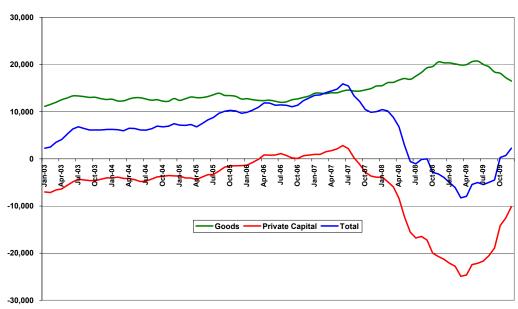
The macroeconomic evolution in the last years of the decade was marked by successive shocks, of external and domestic origin. Its description thus requires using relatively short time frames in order to account for the observed changes in behavior.

In a rapidly expanding economy, the inflation rate in 2007 probably reached over 20%. The adjustments in the exchange rate and in public utility prices were of much smaller magnitude. The rise in the international price of exports, which had been a feature of the period since the crisis, accelerated sharply in that year and in the first part of the next. The repercussions of the jump in world agricultural and food prices, felt as an inflationary factor in numerous economies, took a particular form in Argentina, where it triggered a deep political controversy about the appropriation of the income effect of the improvement in the terms of trade. In March 2008, the government decided to implement a mobile scale (contingent on international prices) of export taxes for soybeans (previously set at a 35% rate), which implied a substantial increase in the levels of taxation on the main agricultural commodity, and the potential for further rises. The measure provoked a strong reaction from farmers, and also from urban groups who perceived that their incomes were dependent on the expenditures of the agricultural sector. Eventually, the tax schedule went for parliamentary ratification, which was refused in a dramatic vote.

In 2007, the international financial crisis was felt in Argentina with a short- lived episode of stress in the banking system, and it probably had an influence in the start of a movement of accumulation of foreign assets by the private sector<sup>5</sup> (graph 22). By mid 2008, the international shock was combined with the internal political and economic uncertainty caused by the conflict between the government and the farmers. This strengthened the private capital outflow, and led at some moments to net withdrawals of deposits. The central bank reacted by providing liquidity to the banks, particularly by redeeming a large volume of its promissory notes (graph 16) and by using reserves to satisfy the demand for foreign currencies; as a show of strength, it actually induced a fall in the exchange rate. Later in the year, however, with the worsening of the international situation associated with the Lehman episode, and the large devaluations of currencies like the Brazilian real, the

<sup>&</sup>lt;sup>5</sup> In a period of rapidly rising incomes, and particularly, of sharp increases in export prices, this behavior need not be interpreted simply as a symptom of "flight to quality", but may have had a component of savings out of transitory receipts (in some sense analogous to the use made by governments of the increments in export earnings in countries where the public sector produces and sells exportable commodities).

exchange rate with the dollar was allowed to increase substantially, although always under a strong actual or potential intervention of the central bank in order to smooth the process of depreciation and its financial repercussions.

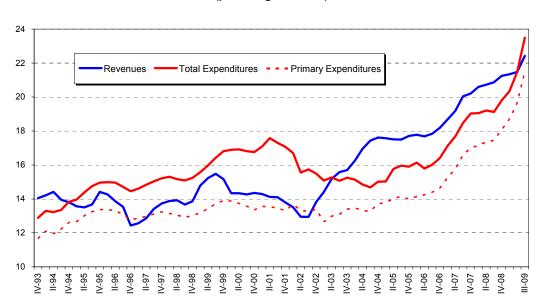


#### Graph 22

Net Foreign Exchange Transactions Private Sector (millons of dollars over 12 month periods)

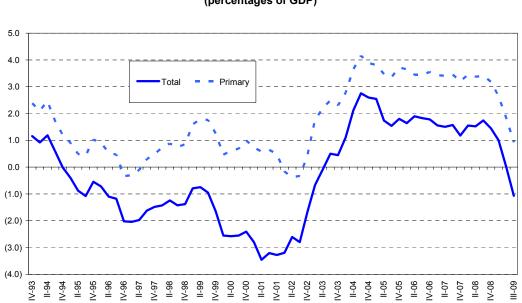
In the course of 2008, moreover, the fall in the international commodity prices reduced the country's terms of trade, which declined from their recent peaks even while maintaining historically high levels (graph 9). Domestic demand and real activity also weakened. In this setting, the government decided to increase its revenues by nationalizing the private pension system. Although the pension funds already held a good part of their portfolio (about 60%) in public debt instruments, this measure implied that the government got direct access to a flow of funds of around 1% of GDP, and received the transfer of a substantial stock of private and foreign assets, against its new contingent obligations. The return to a state- managed pay-as-you-go system was not an unpopular measure, and received parliamentary support. However, groups of contributors to the social security system objected to the mandatory change, and the appropriation of funds by the government caused fears in asset holders, and led to another episode of financial stress.





Revenues and Expenditures, National Public Sector (percentages of GDP)

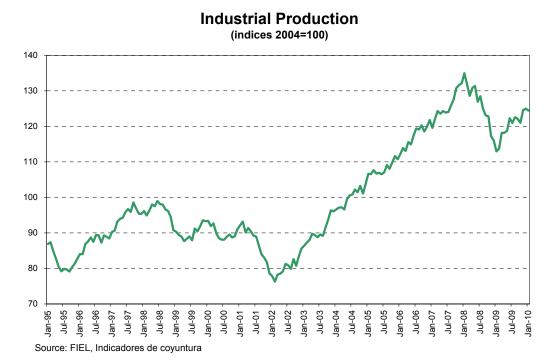
Graph 24



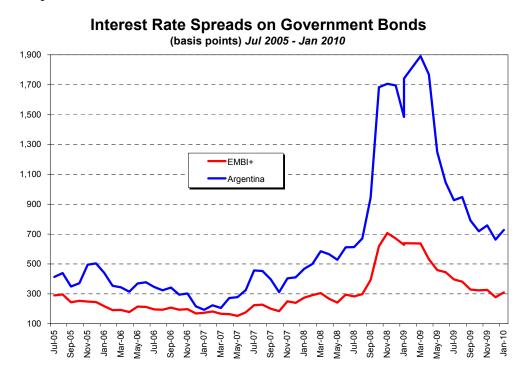
Budget Balances, National Public Sector (percentages of GDP)

The Argentine banking system reached the time of the international crisis with substantial levels of liquidity and without significant repayment difficulties on a mass of loans which was small relative to macroeconomic aggregates. The central bank had accumulated a large volume of foreign reserves. The fall in international demand and a steep decline in agricultural production (the result of reduced expectations of farmers and a severe drought) were reflected in a considerable drop in exports in 2009. The private sector continued to manifest a strong demand for foreign assets (figure 22). However, trade in goods still generated a large surplus, as imports declined; the central bank could manage the foreign exchange market without much loss in reserves, and remained able to regulate the movements in the exchange rate. The perception that the depreciation was to stay within narrow bounds contributed to reduce the incentive for capital outflows in the course of the year. Thus, even if there was a noticeable deceleration in lending, and moments of tension in the banking system and the foreign currency markets, neither of these went through crisis- like disruptions.

In any case, the economy experienced a recession in 2009 (graph 25), with a somewhat lower inflation rate (about 15%). The central bank slowed the depreciation with respect to the dollar, but the strengthening of other currencies meant that the multilateral exchange rate increased significantly. Tax collection was affected by the lower levels of domestic activity and foreign trade, while public spending kept rising at a fast pace. Even with the addition to revenues of social security taxes previously derived to the pension funds and the inclusion as government receipts of an IMF allocation of SDRs and of nominal earnings of the central bank transferred as dividends to the treasury, the primary surplus dropped to about 1% of GDP (graphs 23 and 24). There was certainly a cyclical element in that fall but, in addition, the trends of public finances were uncertain, particularly on the expenditure side. The "country risk" differentials of returns on bonds (graph 26), although much smaller than the high peaks in 2008, showed a reluctance of asset holders to buy Argentine debt and, in practice, international credit markets were effectively closed to the government. These conditions created the potential of funding problems for the public sector.



Graph 26



h. Monetary institutions in question, inflation again a prominent issue

As a signal to international debt markets, the government initiated steps towards an offer of bond conversion to the "holdouts" which had not participated in the 2005

operation of debt restructuring. Also, an executive decree instructed the central bank to transfer part of its foreign reserves to the treasury in order to constitute a fund destined to meet debt services due in 2010, arguing that those reserves had reached excessive levels for their precautionary purpose, and should better be used to reduce high- cost liabilities; in addition, the authorities argued that its financial policy would lower significantly the cost of foreign credit for the public and private sectors, and facilitate investment. In fact, news about the debt swap and the availability of reserves for debt servicing raised the prices of government bonds. Still, in a moment where the fiscal position was perceived to be weakening, the proposed application of reserves in urgency to meet the year's obligations, in an international situation which did not show other countries facing tight liquidity constraints, could also be interpreted, not as a portfolio choice of a robustly solvent public sector, but as a demand for central bank financing by a government lacking alternative sources of funds. In any case, the decree overruled clauses of the charter of the central bank, which raised strong political and legal controversies; the same happened with the removal of the president of the central bank, who opposed the constitution of the fund.

The episode showed macroeconomic policies and institutions in an unsettled state, even though international conditions had improved and there were signs of rebounds in exports and in private domestic spending. Meanwhile, the start of 2010 was marked by a visible acceleration of price increases, with special force in foodstuffs such as beef (an item in short supply, as disincentives to livestock production had led to reductions in the size of the herd), but reaching across the spectrum of goods. The possibility that the inflation rate could step upwards, with higher volatility and a shortening of the periods of price and wage revisions, became a matter of public discussion and concern. Those macroeconomic conditions opened new policy tradeoffs in an economy which, as discussed in the next section, had developed behavioral patterns in the evolution of prices quite different from those of both high and very low inflation regimes, and where the criteria and procedures of monetary management were to about to be re- defined.

#### 3. Patterns of price performance and monetary policies<sup>6</sup>

#### a. Features of price dynamics

The post- crisis experience that we have reviewed in the previous section shows, as two noticeable characteristics, that: i) the abrupt depreciation of the currency had a relatively small, and transitory impact on the rate of price increase, so that the fears of relapse into a high inflation regime were far from realized, and ii) the post-depreciation response ended up being not merely a price level adjustment at gradually declining rates, but rather took the form of a low initial inflation, which increased over time to an inflation plateau well into the two-digit range. Several empirical studies have analyzed the performance of prices after the collapse of convertibility and the initial shock of devaluation, and compared it with past episodes. In general terms, these works (which use data covering up to 2007, approximately, that is, do not include observations corresponding to the higher end-of-decade inflation) tend to find that the price process had broad characteristics of a moderate/ low inflation, but also

<sup>&</sup>lt;sup>6</sup> In preparing this section we have benefited particularly from the input provided by H. Aguirre.

some particularities that distinguished it from the previous period of extremely small or negative price changes.

In an analysis that considers the evolution of prices between 1980 and the first months of 2007, D'Amato et al. (2007) find that the data for the whole interval going from stabilization under the currency board to the end of the series in the mid-2000s "belong together statistically" when compared with those for the rest of the period. These observations (which match with the visual impression in graph 1) point to continuities in behavior before and after the crisis. This seems also the case with money- inflation correlations, which are similar in the convertibility regime and in the managed floating system, and lower, at short lags, than under high inflation (Basco et al., 2009, also Carrera and Lanteri, 2007). However, a look at the time series properties of inflation indicates that (leaving aside the "abnormal" data for 2002), the rates of price increase had an upward trend post- crisis, and were more persistent after the breakdown of convertibility than before (D'Amato et al., 2007).

With disaggregated CPI series reaching until 2006, Castagnino and D'Amato (2008a,b) report that the whole period since the early nineties shares (in comparison with the high inflation past) smaller co- movements between the price changes of the different components of the CPI, while the aggregate rate of price growth (measured as the principal component of sectoral price increases) correlates more with the inflation rate of non-tradable goods than with that of tradables (which was not the case in the high inflation period of the eighties). In the context the macroeconomic evolution of the times, that feature marks a link in both the convertibility and immediate post- crisis periods between inflation and real exchange rate appreciation, which may be interpreted as a nominal price- level adjustment to a relative price shift in systems with non- floating exchange rates. Still, there appear to be differences between the currency board and the managed floating regime: post- crisis data show more relative price variability (especially at higher frequencies), and a higher correlation between short- run relative price variability and inflation.

Estimations of a Phillips curve with the usual specification (with effects of past and expected inflation together with exchange rate and output gap factors) find that both the "backward- looking" inflation coefficient and that of the "forward looking" variable (proxied by the observed inflation rate in month t+1) are higher under the managed floating exchange system than under the currency board, with a lower parameter for the contemporaneous output gap (D'Amato and Garegnani, 2009). This again indicates the shift in persistence (which propagates the effect of the activity and exchange rate variables); the interpretation of the substantial "expected inflation" term is less obvious, particularly given the way in which it is measured in the estimated equation.

#### b. Monetary policies and their reaction functions

Post- crisis monetary policies, as mentioned before, stressed considerations of sustainability and the ability to absorb shocks, and were reluctant to allow large exchange rate movements. In addition, the interest rate channel of transmission was judged unreliable after the financial crisis, while banks could be vulnerable to interest rate variability (Balzarotti, 2007). The objectives of the central bank featured exchange rate stabilization (but without a peg, either formal or informal) and reserve accumulation as a precautionary instrument (Redrado et al, 2006, Bastourre et al.

(2009)). Operations in domestic assets were used to seek quantitative monetary targets and to offset monetary effect of balance of payments flows.

In a cross country analysis of monetary policies in recent years, which compares estimates of "Taylor rules" (interest rates as function of inflation, the exchange rate and the output gap), Sturzenegger and Talvi (2008) suggest that Latin American policy- makers show more "fear of floating" (a stronger response to the exchange rate) than their counterparts in other developing economies or in developed countries but, on the whole react strongly to changes in the inflation rate. Within this picture, Argentina appears as particularly focused on the exchange rate, and less responsive to inflation.

A rule based exclusively on feedback from inflation to interest rates, without intervention in the foreign exchange market, need not be the only alternative to regulate inflation; for example, Chang (2008), has argued that the policies of Latin American "inflation targeters" differ from the standard pure-floating-exchange- rate approach. In a similar vein, Aguirre and Burdisso (2008) suggest that, especially in developing economies, less flexible exchange rate arrangements may be associated with lower inflation, whether monetary policies follow a specific inflation target or not. In an analysis applied specifically to Argentina, Escudé (2008, 2009) estimates/calibrates a DSGE model for the period 2002- 2007 equipped with reaction functions for both the interest rate and the exchange rate (where this variable depends on inflation, the output gap, international reserves, the trade balance and measures of the real rate). He concludes that the exchange rate remained a central concern for monetary policy in Argentina in the post-convertibility period, and that the authorities paid attention to the multilateral real exchange rate, but made the rate of depreciation respond also to inflation (negatively) and to the output gap; in this system of "multiple policy feedback rules", the model does show divergent dynamics despite a lowintensity reaction of interest rates to inflation. On their side, Aguirre and Grosman (2009) use a smaller scale model (with aggregate demand and Phillips curve equations, a Taylor rule and a policy function that defines foreign exchange interventions to smooth the nominal exchange rate). They compare the actual performance under the observed (estimated) shocks and reaction functions with counterfactuals under different policies, and suggest that additional output and inflation volatility may have resulted with pure floating or a strictly pegged exchange rate.

As a whole, these results confirm the importance that the exchange rate had in Argentina both as a target and as an instrument of monetary management, and identify policy responses to the inflation rate. They also suggest that a welfare analysis of policy alternatives may depend on non- trivial considerations regarding the (uncertain) economic mechanisms at play, and the weighs placed on different macroeconomic objectives. Still, inflation grew over time to become a salient problem.

#### 4. Concluding remarks

The recovery from the crisis of the convertibility regime and the adjustment to the overshooting of the real exchange rate in an expanding economy implied a drift in the price level, given the policy choice of avoiding large nominal appreciations, with the (understandable) fear that nominal, and real, exchange volatility could create disturbance after the recent traumatic shock, and revive behaviors that had led to much macroeconomic instability in the past. This choice by itself ruled out policies

(like the theoretical standard of inflation targeting with floating exchange rates) focusing narrowly on price stability, but it did not exclude a convergence to low inflation, after the price level transition. However, over the course of a remarkable phase of economic expansion, the process of price changes seemed to turn into an entrenched inflation.

This remained very far from the old- fashioned Argentine high inflation regime. The fuel of large- scale monetized deficits was lacking: although the "inflation tax" reached non- trivial values, and seigniorage made significant contributions to the public sector's access to resources, over much of the period these funds were mostly used in the accumulation of foreign assets at the central bank. Moreover, the large trade surplus and the volume of foreign reserves allowed the central bank to keep the evolution of the exchange rate under control. The demand for transactions money stayed high and did not show perturbations despite the presence of international shocks and political uncertainties.

Why bother about an inflation which, for the country's standards, remained at moderate levels and at some moments could be seen as the other side of high growth? Except in the midst of the 2002 disruption, the standard reference to annual inflation rates suggested that the public did not perceive much price uncertainty over time spans of that length. Anticipations of changes in the aggregate price level did not seem to play a substantial role in everyday decisions until late in the decade. No significant "demand for stability" emerged in public opinion, in the sense of a revealed willingness to approve policies that may reduce inflation with some current sacrifice in terms of real objectives. This social tolerance for inflation may have been related to the lack of longer- run references left by the crisis: in a case like Argentina price instability of not too high intensity may prevent potentially welfare- enhancing changes to take place but, in contrast with countries with less extreme macroeconomic experiences, it need not disturb greatly the actual functioning of an economy in transition where, as one of the residues of a recent crisis, decision horizons would have stayed short anyway "for real reasons". However, inflation did not seem costless from the perspective of the search for a growth trend (Heymann, 2006)

Beyond the comparatively mild distortions of anticipated inflation at moderate rates (the inflation tax, with its certainly relevant distributive implications, the changes in relative prices associated with non -synchronic adjustments), the main problems caused by price instability derive from the noise that it introduces in economic decisions, and in progressive shortening of the time period for which agents can make meaningful and more or less mutually consistent aggregate price forecasts (Heymann and Leijonhufvud, 1995) This affects investment and financial decisions at the "long end" of the time scale (with a varying specification of the notion according to the nature of the inflationary process, going to the limit of a few days in hyperinflation).

The country's experience of the nineties had shown vividly the problems of using foreign currencies as units of denomination. In the post- crisis period, formal indexing (which remained subject to some legal constraints) did not arise as a widespread alternative, even before the public started to distrust the official price indices. The absence of more or less reliable parameters to anticipate future price trends restricted the development of nominal contracting beyond the short- run. The comparatively small and "shallow" financial sector showed itself resilient to the impacts of international and domestic shocks. But, with a forward view, the special conditions of the first period of the phase of expansion which had reduced the importance of intermediated credit for the financing of production and investment (large volumes of

under- utilized capital, high profit margins) could hardly be extrapolated to the future. An extension of the time period for which aggregate prices could be considered predictable thus appeared as an important element for growth purposes.

More immediately, the lack of a reference concerning the degree of price instability which would trigger effective moderating policies ended up making behaviors sensitive to shocks in observed inflation, with the prospect of building up propagation mechanisms of short- term inflationary volatility. After three years of inflations surrounding 20%, which the government did not appear to recognize as a relevant issue in its statistical measurements or in its analysis, sustained price increases of that order of magnitude had become built into expectations, and economic agents did not discard the likelihood of further accelerations. By the start of 2010, attention was focused on the evolution of monthly inflation rates, revealing a significant shortening of horizons and, for the first time in almost twenty years, demands for stabilization policies were beginning to appear in public debates.

Over the decades, the country had experimented, unsuccessfully, with extreme forms in the design and the institutional framework of macroeconomic policies. As the limit case of complete monetary- fiscal symbiosis and absolute policy flexibility, the hyperinflationary episodes showed the great disruptions associated with regimes where, overall, the central bank operates like an agency for the monetary financing of a government who acts on a day-to-day basis responding to various pressures and demands. Symmetrically, the convertibility experiment indicated the problems of single- objective schemes based on tight rules which rendered policies unable to process errors and mistakes, and under which "exit costs" were allowed, or desired, to become so high that the capacity for policy management could only be regained after an economic collapse. Financial crises and deep recessions, like the one which marked the end of convertibility, and the recent international crash, highlight the relevance of maintaining policy flexibility to prevent or handle shocks, and stress the fact that, ultimately, macroeconomic policies have multiple objectives and act in conjunction, beyond the procedural provisions that may be defined to induce a division of labor and areas of responsibility between agencies and instruments (see Basco et al., 2007).

The "divine coincidence" propositions which tried to give analytical support to monetary systems strictly and singly committed to inflation targets, in the sense that price stabilization would lead by itself to real output stabilization, hold only in special cases (see for example Blanchard and Galí, 2005 for a discussion which remains within the framework of general equilibrium models with frictions; also Blanchard et al. 2010). There is no presumption that monetary policies should be unconcerned with the levels and volatilities of real variables (output, interest rates, exchange rates), and even less disregard the sustainability of wealth valuations and debt positions. After the international crisis, these more or less commonsensical arguments seem to have gained wide circulation. But a policy which intends to be exclusively focused on real objectives lacks well defined nominal anchors (with the mundane meaning of variables which will be allowed to lag in real terms for the sake of acting on inflation), and can easily become self- defeating.

In order to allow flexibility in "spreading" the task of regulating inflation among several variables while avoiding price instability (and its real costs), the design and administration of systems with multiple anchors seem to require a subtle management of tradeoffs (between real targets, in order to avoid inconsistencies, and between inflation and other objectives), and means to communicate effectively the policy criteria and thus guide expectations. A system that seeks to facilitate decisions over more or less long horizons requires definite feedbacks from inflation to policy variables that would dampen deviations from some long- run objective trend such that, irrespective of its precise numerical values, and the allowances made for shortrun management of shocks, agents may trust that inflation would be "mean reverting" and act in consequence. In the Argentine policy transitions of the 2000's, those feedback mechanisms were not developed, or lacked strength. A slowly varying exchange rate, monetary sterilization and fiscal surpluses (together with wage guidelines, subsidies, and interventions on price determination) were not sufficient to determine a macroeconomic regime generating a predictable price path.

The setup of macroeconomic policy decisions implied that no single or collective agency "took specific responsibility" for inflation. The central bank, as discussed, saw its mission as a multi-task activity weighing heavily objectives of smoothing volatilities in the exchange and credit markets. Fiscal policies maintained sizable surpluses until 2009, but real and nominal government spending grew at very high rates, and the also very rapid increase in tax collection did not restrict much the rise in private expenditures. The rapid growth in domestic demand was also a prominent policy objective, clearly signaled (before the international crisis) in the arguments that the economy could and should be stimulated in order to maintain "Chinese growth rates", in a commonly used expression. In fact, the policies of the executive branch in the second half of the decade were influenced by views that minimized the importance of demand effects on inflation, or attributed them to opportunistic behaviors of oligopolists, which should be addressed case by case by direct regulation or government-firm negotiations. An also influential proposition was that the preferable way to deal with inflation was by expanding supply, and therefore investment, which required the stimulus of a sustained demand and ample availability of credit. These arguments truly carried a very long way their rejection of monetarism.

Finding out behavioral patterns for analytical or practical purposes is especially difficult in economies in transition after structural breaks, due to the small size of the period for which available data provides presumably relevant information<sup>7</sup>. This holds for Argentina, and specifically for the analysis of price dynamics sketched in the previous section. In any case, although the time series data does not show a strong direct link between contemporaneous activity and inflation (as indicated, in particular, by the coefficient in a price equation of the current output gap, with all its conceptual and measurement issues), the cumulative effects of demand pressures, the propagation of past increases through backward looking adjustments, and through anticipations that price (wage) hikes would not restrict sales (employment), certainly were important factors in establishing an inflationary trend. The oscillations of spending (and international prices) seemed to be related with the deceleration of price increases in 2009 and the following rebound. Apart from the uncertainties about the specific mechanisms of aggregate price determination and about the transmission of policy instruments, one should not belabor the obvious point that the nature of the inflationary regime depends strongly on the setup and performance of macroeconomic policies which regulate the evolution of aggregate demand.

At some moments during the convertibility regime, particularly in its declining phase, it was common to find claims that there should be an urgent implementation of "structural reforms" in order to send immediate signals to financial markets. In a very different context, the country saw in recent years several policy changes with

<sup>&</sup>lt;sup>7</sup> See Weitzman (2009) for an analysis of fundamental issues related to the bounded and possibly small size of the "relevant sample" of data used to form expectations in systems subject to structural change. In particular, Weitzman argues that in such a setting, the weight of prior beliefs in forecasts may never vanish, because that sample size does not "go to infinity" as more observations are added.

institutional impact, decided and implemented in haste. The debates which erupted in the first months of 2010 regarding the governance and the functioning of the central bank was a symptom of current problems in the management of monetary and fiscal policies and, at the same time, it also showed the existence of unsolved debates about the desirable configuration of macroeconomic institutions.

In the event, the episode made prominent a peculiarity of the Argentine economy, with a public sector which was not highly indebted and came from a succession of budget surpluses, but still remained cut away from international bond markets. Both history and expectations seemed to play a role in making it so. In any case, that fact implied that the government had to turn to domestic sources of credit. But the local financial system was not of a size to provide many resources (the pension reform had simply transformed into current revenues the funds that the pension funds would have previously lent to the public sector). In those circumstances, the central bank was not that low in the priority list as lender to the government: even without having large deficits the public sector required monetary financing of one type or another (the treatment as current government revenues of nominal profits of the central bank meant that the public sector was "internalizing" gains analogous to an inflation tax). In those conditions, the uncertainties over fiscal performance could raise the prospect of "fiscal dominance".

The organization of the central bank inherited from the charter which was voted in 1992, shortly after the established of the convertibility system (and with many of its provisions still nominally in effect at the beginning of 2010), was based on the notions of a strict separation between monetary and fiscal policies, and of central bank independence, embodied in the prescriptions that allowed the removal of its president only for motives of misconduct (and not for policy reasons). In its origin, this formal structure, linked as it was to the currency board system, meant to establish a leadership of the tightly constrained monetary policy over other macroeconomic areas. The new outlook, by contrast, seemed to move towards the other end of full monetary flexibility and close coordination with other policies (possibly tending to accommodation of fiscal demands). The former system was unable to bend, and it broke; this one was liable to show an inflationary bias.

The large potential supply of foreign currencies derived from the trade surplus and the stock of foreign reserves provided an insurance against a big market-induced depreciation, and thus weakened a crucial mechanism of inflationary accelerations. However, inflation had emerged as a visible macroeconomic issue, to be addressed sooner or later; ultimately, the institutional framework for macroeconomic policies was open for reconsideration. Inflation is at the same time a symptom and a cause of conflicts and behavioral inconsistencies, manifested in pressures on fiscal and monetary policies and in spirals of "price increases chasing price increases chasing money injections chasing price increases". Although matters of diagnosis and policy design are certainly crucial, and subject to debate (especially in Argentina, as it has been seen) dealing with processes of price instability is not merely a "technical" question. In some way, the conflicts and inconsistencies underlying inflation have to be confronted: stabilization can be seen as a "social investment" project, requiring the support of groups who value the future benefits to be obtained, and a concrete set of policies that may coordinate effectively individual behaviors. In Argentina, after six years of high growth (plus a recession which turned out to be relatively mild, given the troubled international environment) and a sharp increase in the volume of public spending, the fiscal balance was under pressure, and the set of macroeconomic relative prices (such as the real price of agricultural goods, or public utility services) was under discussion. From this perspective, the treatment of inflation looked as part of a renewed search for a macroeconomic configuration that may contribute to define a path of sustained growth after a period of transition, which combined quite novel features with traditional Argentine issues.

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