

SEBASTIÁN GALIANI  
DANIEL HEYMANN  
MARIANO TOMMASI

## Great Expectations and Hard Times: The Argentine Convertibility Plan

**T**he Argentine experiment with convertibility ended in collapse. There is no shortage of after-the-fact explanations of what went wrong, but the search for lessons presupposes that by studying the experience, analysts can gain some knowledge that was not available beforehand. Any analysis of a case like that of Argentina must address the issue of how and why agents behaved in such a way that produced such disastrous aggregate outcomes. This implies asking what expectational “errors” were made by private individuals and policymakers, why they made them, and how their decisions interacted. One should also consider what incentive problems and gaming might have affected the choice of policies and their impact on private expectations. Such matters are the focus of this paper.

Two arguments are often encountered in the discussion of the Argentine case: first, that fiscal policies were inconsistent with the fixed exchange rate, implying that the political system was incapable of adjusting itself to the discipline of budget constraints and that it let the public debt grow along an explosive path, and second, that the convertibility regime induced a sustained overvaluation of the currency and was thus bound to end in a collapse. There are elements of validity in both arguments, but they are incomplete; they cannot by themselves provide the full picture.

A government that declares default on its debt has obviously spent beyond its means. In retrospect, public expenditures were clearly excessive, especially when measured in dollar terms. The same holds for private

Sebastián Galiani is with the Universidad de San Andrés. Daniel Heymann is with CEPAL and the Universidad de Buenos Aires. Mariano Tommasi is with the Universidad de San Andrés and CEDI. The comments of A. Burstein, A. Coremberg, J. De Gregorio, E. Engel, E. Espino, E. Kawamura, B. Kosacoff, A. Ramos, E. Scharngrodsky, L. Servén, C. Terra, and especially A. Velasco are gratefully acknowledged.

spending, however. The persistence of fiscal deficits throughout a period of high domestic demand and real activity points to a lack of policy consistency, and it indicates that fiscal policies did not take precautions against adverse disturbances. But if the decade of the 1990s appears now as a long cyclical phase of transitorily high real incomes, it does not seem to have been perceived as such at the time. Not only the government, but also asset holders and the public in general acted during a good part of the decade as if the evolution of the economy and the fiscal situation, in particular, need not cause big concerns. The Argentine government had quite fluid access to credit markets during most of the decade, indicating that although the scenario of default was always assigned a nonnegligible probability, its occurrence was far from taken as a foregone conclusion. The behavior of private spending suggests that agents did not recognize that the public sector was overextended and, thus, did not react in Ricardian anticipation of an adjustment to come.

When the real exchange rate jumps by more than 150 percent in the lapse of a few months, as it did in Argentina at the start of 2002, it may seem natural to conclude that the currency was overvalued. But it remains to be explained why the exchange rate was under no pressure for a good part of the decade, and why many agents appear to have acted during extended periods as if they believed that convertibility was a durable and robust framework for their decisions. In the early 1990s, private consumption increased sharply, and it remained high until the end of the decade. Investment also rose strongly, and much of it was destined to the production of nontraded goods. While expectations were probably quite heterogeneous, this pattern seems to correspond to a perception that the level of real income and the dollar price of domestic goods had risen permanently.

In short, a coherent explanation of the Argentine crisis must take into account the interaction between wealth perceptions and the decisions of government and private agents. The dynamics of both the fiscal accounts and the real exchange rate have to be placed in the context of the expectations that domestic and foreign agents had about the future path of the economy. The policy reforms adopted in the 1990s played a critical role in the formation of those expectations. The role of the monetary system of convertibility went much beyond its function as nominal anchor. In the 1990s, Argentina searched for a new growth trend. Over time, more and more contractual promises were predicated on the presumption that the

economy could sustain real growth under convertibility. In an economy still haunted by credibility problems, the authorities responded to macroeconomic disturbances by doubling the commitment to the fixed exchange rate and implicitly supporting the dollarization of contracts. The government promised that one peso would equal one dollar and that its bonds would be punctually repaid in dollars. Privatized utilities set their prices in dollars; banks promised to return deposits in dollars; borrowers signed large volumes of promises denominated in dollars. All those commitments required that the economy produce sufficient income in terms of dollars. The system could work well in an expansion, and it showed the capacity to absorb quite large financial shocks. The seemingly unconditional promises were contingent, however, on the realization of a good set of productivity effects, international conditions for exports, consistent fiscal policies, and a willingness on the part of foreign lenders to supply credit to an economy with growth prospects. When a large shock to those expectations hit, the economy was unprepared to make a significant adjustment in the dollar value of spending and incomes without calling into question the whole contractual framework.

The argument that large swings in aggregate spending and real activity can result from changes in wealth perceptions has been made in the past with reference to the Latin American crises of the early 1980s.<sup>1</sup> Wealth perceptions can change for different reasons. The value of income streams and the sustainable levels of spending may be modified by real or financial external shocks, such as the sudden stops in foreign financing stemming from the idiosyncratic behavior of credit markets.<sup>2</sup> In more general terms, agents have trouble projecting a growth trend in their incomes when the fundamental configuration of incentives and opportunities can change substantially over short periods. This, we believe, was a relevant issue in the Argentine economy in the 1990s. Agents could entertain the belief that an economy with considerable resources, after reforming its policies and solving such a major and long-standing problem as high inflation, would allow residents to sustain high spending, on the basis of improved growth prospects. The contractual system that developed under convertibility was consistent with those beliefs, since the use of the dollar as a unit of denom-

1. Heymann (1984) and Barandiaran (1988) made this point, respectively, for the Argentine and Chilean episodes of the time.

2. See Calvo, Izquierdo, and Talvi (2002).

ination presumed that incomes could be maintained in terms of that unit. It was vulnerable, however, to macroeconomic contingencies such as large movements in the real exchange rate. Toward the end of convertibility, strong doubts developed about the solvency of many agents. The collapse of the monetary regime coincided with a widespread breakdown of contracts, which included the destruction of the financial system, as well as the bankruptcy of the government.

Contracts matter in Argentina not only because of the “original sin” of a government that cannot issue debt in domestic currency.<sup>3</sup> Under convertibility, the dollarization of most financial transactions between private residents made the solvency of large groups of individuals contingent on the real exchange rate. This meant that the perceived exit costs of the fixed exchange rate were extremely high: it was this financial effect that induced such a strong fear of floating and made governments of different parties so reluctant to abandon convertibility even when the economy was experiencing strong disturbances. The dollarization of contracts was also a major factor in the traumatic exit from convertibility.

## **Wealth Perceptions and Economic Decisions**

In the 1980s, Argentine residents had to cope with the inconveniences and costs of price instability. One of its consequences—combined with those of the debt overhang and the large budget deficits—was the very scarce supply of financing to the private sector and the almost total absence of credit with maturities longer than a few weeks. Under hyperinflation, even everyday transactions were disrupted. Argentines were thus receptive to large-scale reforms in economic policies. Such reforms took place in the 1990s, with convertibility as the centerpiece. The reforms and the renewed international willingness to supply credit represented a drastic change in the economic environment. This modified the prospects and opportunities of most agents, but in ways that were not easy to specify. The questions to be addressed in forming expectations were far from trivial. How strong would the effects of price stabilization be on productivity and investment? How would the economy respond to trade liberalization, privatization, and changes in taxes and regulatory policies? What outside shocks might affect the economy, and what was their likely

3. See Hausmann and Panizza (2002).

impact? What were the chances that convertibility would be maintained, and what were the conditions under which it would be abandoned? What would the economy be like in case of an exit from convertibility? Even in retrospect, it is hard to clearly assess the likelihood of different scenarios and their characteristics.

It was quickly apparent that stabilization and reforms would initially bring a substantial increase in output and a real appreciation. Agents had to establish (implicitly or explicitly) how they viewed the expansion, with possible perceptions ranging from considering the recovery of real (and dollar-valued) incomes as a reversible cyclical episode to treating it as the start of a trend of persistent growth. The gyrations of the Argentine economy in the past offered no clear focal point to guide expectations. At the same time, the mood of the times both in the country and abroad seemed to promote optimism about the potential aggregate effects of the reforms.<sup>4</sup> The expansionary expectations could be self-reinforcing for a while if agents positively interpreted the observed increases in output and aggregate demand.<sup>5</sup> In any case, the problem of defining and projecting permanent incomes was posed throughout the period; it sometimes faded into the background, but it emerged prominently in times of crisis. Indeed, the identification of trends in Argentina has traditionally been difficult, and it was particularly so in the 1990s.<sup>6</sup>

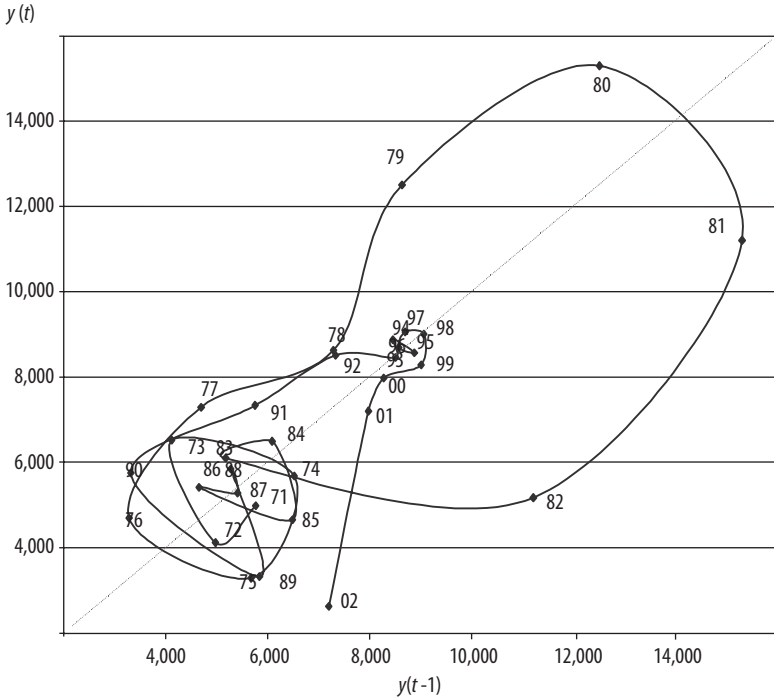
The dollar value of gross domestic product (GDP) displayed very large oscillations in Argentina over the last three decades. The data seem clustered in distinct sets (see the phase diagram in figure 1), with a group of points corresponding to the seventies and eighties, a short but highly visible excursion around 1980 when per capita GDP rose to a maximum above U.S.\$15,000, and a quite tight set of observations for the convertibility period. With all due regard for the statistical problems involved in trend fitting, the contrast between the lines that can be identified at different moments seems quite illustrative. Standard Hodrick-Prescott trends calculated with data up to the late 1990s and early 2000s coincide in their sharp difference relative to the estimate made, say, in 1989, but they generate

4. The prevailing views of the time are well reflected by Lora and Barrera (1997), who estimate that reforms in Latin America had a permanent effect on growth of around 2 percent. Lora and Panizza (2002) review those estimates with updated information; they find a much more modest impact.

5. See Heymann and Sanguinetti, (1998, 2000).

6. See Kydland and Zarazaga (2002).

**FIGURE 1. Phase Diagram of Per Capita GDP in Constant 2000 U.S. Dollars, 1970–2002**



Source: CEPAL.

very different descriptions of the behavior during convertibility: the line with observations until 1998 describes a series with a sizable growth; the line built with data up to 2000 would suggest a gradual convergence to a new level; and the inclusion of the sharply lower observation of 2002 shows a cycle in the 1990s, with all the points during convertibility being located well above the trend line.

The performance of the dollar value of GDP is relevant as a measure of the levels of spending power that agents may have incorporated in their decisions. The dollar value of incomes is, of course, a critical variable in determining the capacity to serve dollar-denominated debts. Also, in a simple intertemporal model of a small open economy with traded and non-traded goods, the current consumption demand of both goods and the desired capital stock in the production of nontraded goods depend on the

perceived level of wealth. Since the real exchange rate is endogenously determined, that price and the demand for consumption and investment are functions of the current and anticipated supply conditions of the goods, the evolution of fiscal policies, and the world interest rate, as incorporated into those wealth perceptions. Given that the value of the nontradable component of the representative agent's income is determined by the value of spending, the present value of the output of traded goods (that is, the tradable component of wealth) will have a crucial role in the system, particularly in determining the sustainable levels of the consumption of tradable goods and the real exchange rate (see the appendix).

In such a framework, a sharp increase in consumption and a real appreciation combined both with a rise in investment, particularly directed toward the future production of nontraded goods, and with a current account deficit would quite naturally be interpreted as an outcome of the perception of a permanent upward shift in the value of income in terms of traded goods, supported by the expectation of a future growth in the supply of tradables.<sup>7</sup> This elementary model is too simple to give more than suggestive results, but the picture seems reasonably clear: the qualitative features of the Argentine economy in the early 1990s look like outcomes of behavior relying on the anticipation of future productivity effects (which would touch tradables sectors, in particular, and generate output growth at a lower real exchange rate) and a fluid supply of foreign credit in the transition. It was as if the expectation of a new growth trend was discounted in the decisions of both private agents and the government, and this led to a jump in the dollar value of domestic spending. To sustain those decisions, the dollar value of incomes had to be sufficient to maintain spending and service debts, and for that to happen, a sufficient growth in the output of tradables had to materialize before the supply of credit dried up.

While on aggregate the economy was generating positive signals in terms of price stabilization and output growth, there were also important potential sources of uncertainty, given the possibility of outside shocks to trade or financing and the risk that productivity in traded goods would not grow sufficiently to validate the levels of spending in dollar terms that had already been attained. Such uncertainties were shared in principle by the government and private agents, while the latter also had to consider the chance that fiscal policies would not behave consistently. These were

7. Other impulses would generate some of the qualitative outcomes in the simple model, but they would not fit that configuration as easily (see Heymann, 1994).

motives for precautionary behavior on the part of spenders and lenders, who had reason to weigh the expected performance in bad states, when repayment was likely to become problematic. Agents did, in fact, make clear distinctions between peso and dollar assets, and voters and politicians showed much dislike for a possible devaluation, indicating that they judged that an exit from convertibility would bring large economic losses. Agents did take actions that provided for the case of shocks, especially after the financial disturbance triggered by the Mexican depreciation in late 1994. Prudential regulations and the government's debt management established buffers against swings in the supply of credit that might affect liquidity, and the net foreign asset position of the private sector declined, especially with regard to foreign direct investment (FDI) operations. At the same time, private residents accumulated financial assets abroad, indicating that a relevant group of agents sought cover against currency and country risks. On the whole, however, the spending and savings decisions of the government and the private sector did not reveal much concern for getting insurance against the chance that aggregate demand and the prices of nontradables had risen too much and might have to adjust sharply downward at some point. It would seem that once the real exchange rate and the volume of output had reached levels that allowed the dollar value of GDP to attain its typical size of the 1990s (about U.S.\$8,000 per capita), most agents viewed it as a permanent level, subject to fluctuations but not to catastrophic declines.<sup>8</sup>

Consumption has been very volatile in Argentina.<sup>9</sup> Between 1990 and 1994, private consumption rose nearly 40 percent in real terms, and its dollar value practically doubled. The private savings rate declined, when measured both at constant and at current prices.<sup>10</sup> After the 1995 recession,

8. In this regard, the variability of per capita GDP in dollars in Argentina during the period of convertibility was substantially lower than that of other emerging economies in Latin America and Asia. This was associated, of course, with the constancy of the exchange rate with the dollar. In any case, it meant that if the estimation of permanent incomes had some adaptive element, the evidence would have tended to confirm the belief that the observed values were not far from normal. It is clear that a small variability (actual and expected) of dollar incomes was functional with a dollarized financial system. However, there remained the fundamental question of whether that small variability was compatible with the required adjustments to the shocks acting on the economy.

9. See Ahumada and Garegnani (2002), who find evidence suggesting significant wealth effects in the adjustment of consumption.

10. In 1994, private consumption at constant 1993 prices represented 69.4 percent of GDP, against 66.7 percent four years earlier. (The average of the 1982–90 period was



household spending again increased rapidly: by 1998, the share of consumption in GDP at constant prices was only slightly lower than at the previous peak (68.6 percent, well above the preconvertibility figures), and private savings at current prices remained below 15 percent. Consumption declined steeply in the long recession that followed, so that by 2002 its real volume had fallen to the levels of the early 1990s (see figure 2). The wide swings in the real prices of assets, which seem to have caught many people unprepared, and the variation in the consumption of large groups of individuals are hardly reconcilable with decisions made under foresight: they invalidated widely held beliefs.

## Fiscal Policy and Politics

Budget imbalances have been stressed as a major factor behind the Argentine crisis.<sup>11</sup> Several aspects of fiscal policies were indeed central to the economic and political dynamics in the period of convertibility, but as stated in the introduction, the full story needs to incorporate considerations of wealth perceptions such as those emphasized in the previous section. Both changing perceptions and the political and institutional details underlying the policymaking process were relevant for fiscal behavior. In the end, the country could neither enjoy the benefits of countercyclical policies, nor gain the reputation for fiscal soundness that could have improved the perception of sustainability at key times.

Convertibility and other policy reforms did introduce some fundamental changes in the public sector. The relationship of the central government

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67.3 percent, with a maximum of 68.3 percent, indicating that the share of consumption in the first years of convertibility was quite a bit higher than in the previous period.) These figures are based on official national accounts. The data presented in Summers and Heston indicate a smaller proportional increase of consumption compared with that of GDP between 1990 and 1994 (see Robert Summers and Alan Heston, *Penn World Tables 2002* [pwt.econ.upenn.edu]; see also Terra, in this volume). However, those results are derived from a much larger estimate of GDP growth than that shown in the national accounts; in particular, the Summers and Heston figure for 1993 is an increase of more than 16 percent, against nearly 6 percent in the national data at constant prices (according to these data, none of the major sectoral components of GDP rose by more than 11.1 in that year). With regard to the evolution of private savings at current prices, Martínez and Ramos (2002) estimate that they declined as a proportion of GDP from 21.4 percent in 1990 (20.2 percent on average for the period 1982–90) to less than 15 percent in 1994.

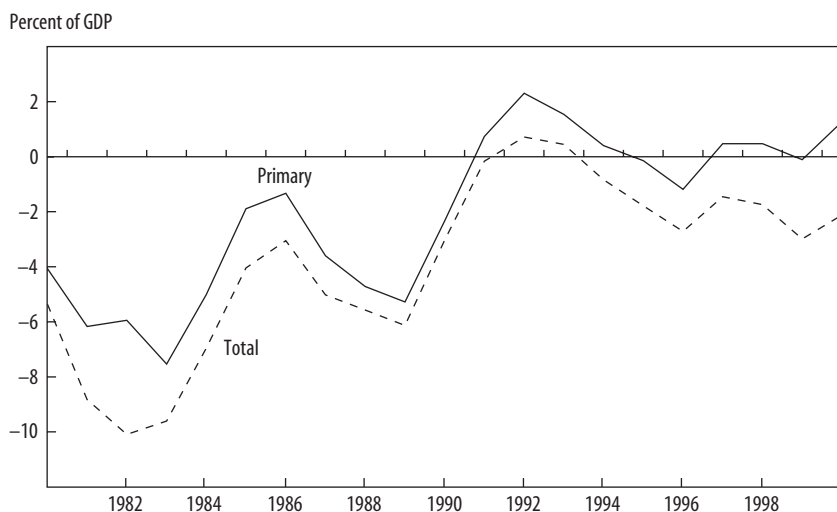
11. See Mussa (2002).

**FIGURE 2. Per Capita Private Consumption at Constant Prices**

Source: CEPAL, based on data from the Argentine Ministry of the Economy.

to public enterprises, which had been a source of soft budget constraints, was fundamentally altered by privatization, but privatization also provided an important source of funding at certain points in the decade. One of the main purposes of the tight monetary rule was to force the government to do without the inflation tax. In fact, the fiscal deficit was noticeably lower than in the previous decades.

The government had to deal with its budget constraint quite differently than in the past, given that it lacked sizable seignorage revenues yet had renewed access to bond markets after a long period of completely restricted financing. Instead of focusing on day-to-day management, fiscal decisions came to be predicated on longer-term prospects, as viewed by the authorities and financial operators. Fluctuations in economic activity created trade-offs between trying to apply standard countercyclical measures and adopting tighter policies to ease tensions in credit markets. At the same time, the unavailability of monetary and exchange rate policy

**FIGURE 3. National Public Sector Balance**

Source: Cetrangolo and Jiménez (2002).

instruments imposed new demands on fiscal policies in the areas of competitiveness and employment generation.

Varying beliefs about the prospects of the economy influenced decisions over time. The large increase in government spending in the early 1990s probably responded to a view by the authorities that, overall, the growth in revenues was well supported by a trend in economic activity and a sustainable rise in nontraded goods prices, all of which would allow the issuing of debt to instrument previously unrecognized liabilities (such as those with pensioners) and the transfer of social security contributions to private funds through the pension reform. The government may have wished to signal that it had strong confidence in the success of its policies in order to induce the private sector to react to the growth opportunities that the authorities perceived in the economy.<sup>12</sup>

12. An earlier version of this paper includes a policy signaling game that captures this effect. See Working paper 55 (appendix 2), Universidad de San Andrés, Departamento de Economía.

The public debt continued to rise in the second part of the 1990s, partly as a result of successive reductions in social security taxes, as unemployment became a prominent issue. Primary spending increased in absolute terms, but as long as real activity expanded, it declined as a proportion of GDP. Thus the evolution of public finances was not a big cause for alarm. Fiscal adjustment only became an everyday concern when the economy had already been in recession for some time and the creditworthiness of the government came under question. At this point, proposals to cut public expenditures (or raise taxes) had to overcome the resistance of a population increasingly worried about unemployment, income inequalities, and political corruption. The perception that the economy had reached a critical state could perhaps induce the public to resign itself to adjustments, but it did not help in fostering expectations of an improved fiscal position. This tension was one of the features of the last phase of the crisis.

The public sector accumulated deficits during the convertibility period, but these were not particularly large as a proportion of GDP until revenues collapsed. However, the government had established a level of spending and had issued bonds denominated in dollars. Its solvency therefore required a continued increase in the dollar value of receipts, anticipated by financial operators so as to induce lending at moderate rates. While a growing economy might have rendered prudent fiscal policy sustainable, no insurance—in the form of either the denomination of debt or surpluses in the period of expansion—had been taken against the chance that the dollar value of incomes and tax revenues would fall considerably, possibly triggering the realization of contingent liabilities originating in the financial system if the solvency of private debtors was also impaired. When this danger was present, decreasing receipts and much higher interest rates compounded the fiscal problem, until devaluation and default finally made insolvency explicit.

Political problems continued to influence the design and implementation of policies. Traditionally, the Argentine polity has been unable to strike the intertemporal political agreements that are necessary to instrument effective public policies in a cooperative manner.<sup>13</sup> Key actors (corporatist, partisan, institutional) have tended to behave opportunistically and noncooperatively when dealing with one another. Areas such as the federal fiscal system keenly revealed the noncooperative nature of inter-

13. See Spiller and Tommasi (forthcoming).

actions and the inability to sustain political agreements. This generated policy inconsistencies and variability.<sup>14</sup> Conversely, the often large changes in economic conditions created frequent and tough dilemmas for policy, and they led to sudden reversals at critical moments. In such a context, political actors tended to behave myopically, with sporadic attempts at containing instability by adopting rigid policy mechanisms. The breakdown of such attempts was an important element in determining the intensity of policy cycles. In Argentina, neither discretion nor policy rigidity proved successful.

The lack of sustainable compromises among key politico-institutional actors hindered the development of credible alternatives to the rigid monetary regime of the currency board. Judicial, fiscal, monetary, or other institutions that might have alleviated the burden on the exchange rate regime to support the contractual system clearly were not present at the beginning and were not developed over time. Even though attempts were made to establish new fiscal and monetary institutions and to improve the workings of the judicial system, it all proved to be just ink on paper when put to the test: fiscal responsibility laws, federal fiscal pacts, Central Bank independence, and deposit guarantees were ignored at crucial times. This was determined, in part, by the absence of monetary instruments for dealing with shocks, which indirectly burdened other policies: the drastic changes in the economic performance put legislative agreements under strong stress. Once more, economic instability and broken policy promises reinforced one another in an explosive spiral.

The shortcomings of the policy process, which often relied on the personal influence of particular individuals in the government, became salient during the crisis of 2001–02. While the crisis would have been extremely difficult to handle in any case, the relevant actors, including international agents like the International Monetary fund (IMF), were unable to establish a precise policy course. At the same time, the urgent problems that emerged in rapid succession frequently led executive authorities to design measures of great importance on the spot (sometimes through emergency decrees), without going through a process of detailed discussion and legislative decision, which they judged unacceptably slow and uncertain. Parliament voted in laws that questioned central elements of economic policy

14. Spiller and Tommasi (forthcoming) document policy volatility in Argentina. An index of macroeconomic policy volatility ranks the country seventh in a sample of 106.

and threatened to create unsolvable dilemmas. The Judiciary—itself without a reputation for impartiality—often reversed government decisions. The outcome was that policies did not follow a definite direction and were thus perceived as arbitrary and without legitimacy, causing further damage in an already very difficult situation.

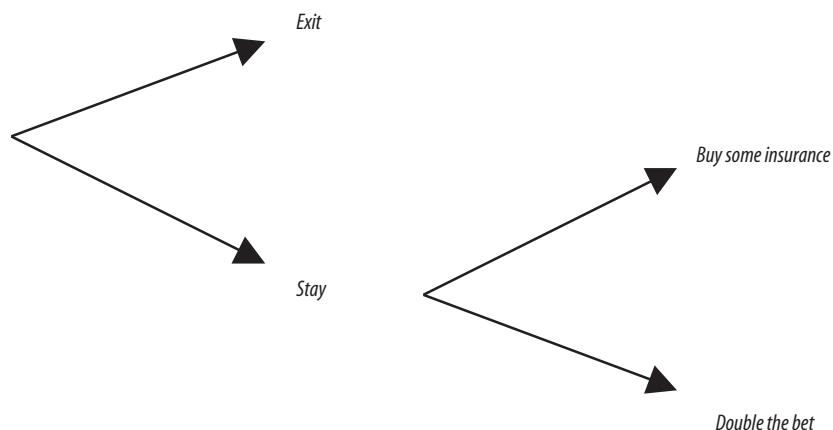
### **Maintaining and Managing Convertibility: Policy Choices**

Convertibility lasted for over ten years, which is a very long period by the standards of Argentine policymaking. Its collapse was associated with one of the deepest economic crises in the country's history. Both these characteristics of the regime deserve attention. They were linked to the high exit costs of the system, which made it robust in the event of not-too-large shocks. At the same time, however, high exit costs implied that if and when the regime was abandoned, it would be very traumatic and it would occur when the economy was subject to a very strong disturbance. The dramatic end of convertibility was in correspondence with the high exit costs that were determined by initial design and by the dynamics of economic and policy choices throughout the decade.

To analyze the dynamics of policy choices during the period of convertibility, we use a stylized decision tree that characterizes very schematically the decision faced by Argentine policymakers at key nodes after the introduction of the regime.

On several occasions, the option of exiting convertibility was on the table, mostly recommended by foreign analysts and feared by most locals. If the authorities chose not to exit convertibility, then their options included designing complementary policy measures geared toward providing some insurance against the worst possible scenarios, or allowing exit clauses in the event of shocks. Alternatively, they could attempt to signal an even stronger commitment by raising exit costs.<sup>15</sup> The upper branches of the tree would be associated with precautionary behavior, while the lower ones represent riskier options for signaling toughness in maintaining the monetary rule. Measures to buffer the economy against some bad states (originating in financial shocks) were indeed adopted by

15. In this context, the dollarization proposals would count as a particularly strong form of raising the bet, by exiting convertibility in the other direction.

**FIGURE 4. Schematic Policy Decision Tree under Convertibility**

strengthening prudential regulations on banks, especially after the Mexican crisis. On the whole, however, most of the policy choices made throughout the decade took the lower branch of the tree, in that they contributed to raising the difficulty of abandoning the fixed exchange rate. These measures had an effect on expectations, but in the end it became clear that the state of the economy, and not only perceptions of the type of government, condition credibility.<sup>16</sup>

The costs of leaving convertibility, a summary of a very complex tree opening up in case of exit, are a key state variable in the analysis. Those costs were not simply determined by the institutional design of the monetary system, since they depended on the evolution of policy decisions and the behavior of private agents, particularly with regard to the denomination of contracts. Even so, it is useful to consider what criteria may have determined the selection of the size of initial exit costs (as in the models of rules with escape clauses à la Flood and Isard).<sup>17</sup> It is a standard result that the desired exit cost would vary positively with the magnitude of the time-inconsistency distortion that provides the motivation for imposing

16. See Drazen and Masson (1994); Drazen (2000). Pessimistic beliefs about the type of government were in part confirmed ex post, when the dynamics after the explosion of the crisis moved in the direction of a less market-friendly equilibrium political behavior and discourse.

17. Flood and Isard (1989).

the rule, and negatively with the typical intensity of the shocks that may hit the economy and require flexibility of the variable that the rule fixed (here, the exchange rate). In the Argentine case, the costs of discretion were very salient, but in 1991 the perception of potential shocks was probably not as vivid; also, the benefits of a tight rule were likely to be realized soon, whereas the potential risks were more of a medium-term nature. These considerations may have tipped the scale in favor of the adoption of a tight rule.

After convertibility was launched, private agents had to find out how the economy would function under new conditions; the same applied to policymakers, who had incentives to behave strategically in order to influence the beliefs of the public. Reinforcing the commitment to the fixed exchange rate could be seen as a signal that the authorities had strong confidence in their policies. Moreover, once a tight rule was introduced, option value arguments (à la Dixit and Pindyck) may have implicitly influenced decisions, since exit was clearly an irreversible action.<sup>18</sup> In the event of a shock, sticking to the system left open the option of managing the disturbance without a policy reversal, with definite benefits for the government.

The arguments presented so far would apply even if policy were decided by (imperfectly informed) benevolent planners. But the asymmetric information policy games observed in Argentina were deeply political, with politicians trying to convey messages about the connection between policies and outcomes in order to affect people's beliefs about their competence and intentions. At some key moments, such as the 1995 and 1999 electoral campaigns, such considerations and their interactions with citizens' beliefs also tilted the balance toward the narrow corridor of an all-or-nothing bet on convertibility.

## Events and Decisions

Fixing the exchange rate implies well-known policy dilemmas.<sup>19</sup> The commitment to an exchange rate fixing can vary by degrees: it can range from

18. Dixit and Pindyck (1994).

19. See, for example, Calvo and Végh (1993); Guidotti and Végh (1999).



a de facto peg hardly distinguishable from a very dirty float to an institutional provision that completely deprives policy managers of discretion. The authorities have to decide whether to fix the exchange rate for the time being or to commit themselves to enforcing a preset parity indefinitely. Pegging as a transitory measure causes so-called peso problems, as expectations incorporate the possibility that the anchor may be lifted in response to even a moderate disturbance.<sup>20</sup> An indefinite promise of enforcing a hard peg, on the other hand, trusts that inflation will come down to international levels soon enough and that the real exchange rate will remain at a value that proves sustainable.

The incentives and perceptions of the Argentine government in 1991 weighed heavily on the side of defining a tight rule. However, the convertibility system could conceivably have been used as a transitory instrument to stabilize prices and then been replaced after a few years, either because economic policies had gained sufficient strength and reputation to allow a move to a more flexible system without losing control over inflation, or because of a shock. Neither one occurred. Confidence in policy-making capacities did not develop much, if at all; rather, the persistence of convertibility served as a fixed point within the set of policies and thus made up for the low reputation of the policymaking system. Instead of diminishing, the importance of convertibility as a basic economic institution grew over time.

The authorities introduced the new system to guarantee that there would be no more discretion in monetary matters and that the Central Bank would definitely stop offering credit to the government. The announcement of the rule acted as a definite signal for private agents, and it induced rapid reactions. However, despite the fact that convertibility was established by a parliamentary act (as was, some time later, the norm that reformed the Central Bank charter and gave it independence from the Executive) and that another law was necessary to modify it, it remained to be seen to what extent the system was meant to be durable, that is, what circumstances would trigger an escape clause and how probable those circumstances were.<sup>21</sup>

20. See Krasker (1980).

21. See Fanelli and Heymann (2002).

*The Boom Years: Doubling the Bet*

The public responded strongly to the change in monetary policies. Their willingness to supply and demand credit, in particular, revealed a considerable change in expectations about the economy's real performance. Private spending and real output rose rapidly, though it was unclear whether the observed evolution indicated a cyclical recovery or the start of a trend. In this regard, the government attributed much importance to the conditions that would stimulate investment, including a fluid supply of credit.<sup>22</sup> Given the experience of recent years, there were reasonable doubts about the possibility of quickly developing a thick financial market with contracts denominated in domestic units, especially since the convertibility law banned formal indexing. It appeared that either the economy would have a dollarized financial system or credit would remain restricted. In this setting, the choice was risky growth (to the extent that it was recognized that the dollar value of incomes was subject to the possibility of large unexpected movements) or slow growth. The authorities viewed the increase in the volume of dollar deposits and loans as a very important means to mobilize resources for investment purposes, particularly foreign currency balances hoarded by residents in periods of instability, and they did not show much concern for the possibility of mismatches between commitments and repayment capacities. This seemed consistent with trying to induce decisions that would generate economic growth, while treating the search for insurance against negative shocks as a secondary consideration.

As the trade balance rapidly switched from a large surplus to a deficit, and as domestic prices rose relative to the exchange rate, the future of convertibility was a matter of discussion even in government circles.<sup>23</sup> This generated uncertainty among asset holders. By mid-1992, the extraordinary boom in stock prices, which had multiplied by around a factor of

22. The 1992 annual report of the Economy Ministry states, "The productive recovery was driven by . . . consumption and an increased availability of credit. . . . The growth observed in 1991 and 1992 may be the beginning of the country's economic takeoff. But several decades of stagnation have deteriorated the productive infrastructure. In those conditions, investment is the basic tool for growth" (Economy Ministry of Argentina, *Annual Report 1992*, p. 2).

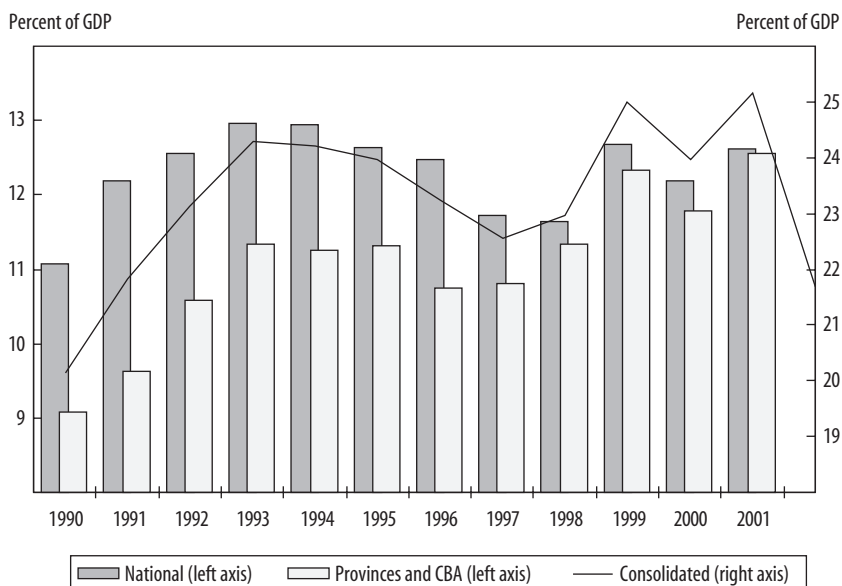
23. In an academic meeting, the finance minister mentioned the possibility of replacing, at some undefined moment, the fixed exchange rate to the dollar with a peg to a basket of currencies.

three in the space of a few months, was sharply reversed. The growth in real activity decelerated noticeably, though transitorily, in the second half of that year. Financial markets showed signs of doubts about the fixed exchange rate: interest rates went up, the increase in peso deposits was interrupted, while dollar deposits kept rising and foreign reserves stopped growing and even fell briefly in November. This did not amount to a full-scale attack, but it did pose a concrete question as to whether convertibility was to be considered as a more or less permanent system or as a transitory instrument for disinflation. The government chose to signal a firm commitment to the fixed exchange rate, through financial measures that clearly conveyed the message that, when tested, the policy response was to stress the credibility of the monetary rule and the currency's definite link to the dollar.<sup>24</sup> At that point, the authorities chose to double the bet on convertibility.

Once the government made it clear that it remained strongly committed to maintaining the parity of the peso with the dollar, the question, at least in retrospect, was how to build safeguards against the event of a significant increase in the sustainable real exchange rate. This required that the government be perceived as solvent even in very bad states of the world.

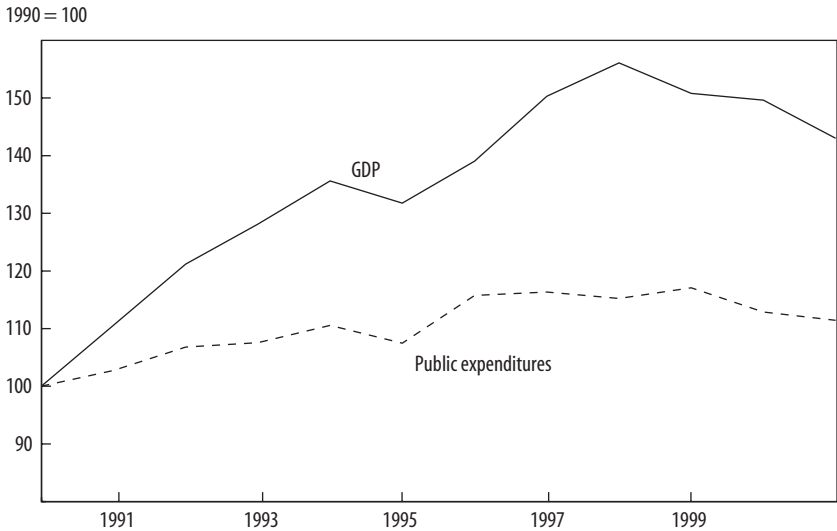
The fiscal situation changed rapidly as a result of policy measures and macroeconomic developments. The government showed much concern with improving tax collection, and revenues rose sharply. Nevertheless, the government's primary expenditure as a proportion of GDP increased noticeably in the first part of the decade (see figure 5). This increase had both price and quantity components. Price effects were important, as the implicit deflator of public consumption rose much more than the GDP deflator. If we use these indexes as the deflators for the corresponding nominal variables, primary spending shows a smaller growth than GDP (see figure 6). This negative terms-of-trade effect for the public sector had a macroeconomic element, given the real appreciation and the increase in real wages throughout the economy; another factor that increased the unitary price of public spending was the adjustment in the value of pensions to bring them in line with the legislated amounts.

24. Other policies adopted in the first years of convertibility also tended to reinforce dollarization. For example, the government renegotiated price-setting regulatory schemes with privatized companies, replacing a CPI-based price cap with one denominated in dollars and adjustable with the U.S. price level.

**FIGURE 5. Public Sector Primary Expenditure at Current Prices**

Source: CEPAL, based on data from the Argentine Ministry of the Economy.

The reform of the social security system was approved in 1993 and implemented in 1994. It had big effects over time. It created a dual system for the personal contributions of active workers, who could opt to remain in the public segment (although they were induced not to do so, especially the young) or move to the newly created private segment operated by pension funds under a funded system. The government would still collect payroll taxes from employers; it remained responsible for the payment of existing pensions, and it was committed to complementing the pensions of future retirees in the pension fund segment. A related measure increased the retirement age. One of the objectives of the new system was to channel long-run financing to the private sector. However, to generate an aggregate change in the allocation of credit, the government had to allow the crowding-in effect by absorbing at least part of the drop in revenues that would now go to the pension funds (on the order of 1.5 percent of GDP) without raising its borrowing requirements. For this, the authorities counted on positive effects on the government's social security receipts

**FIGURE 6. National Public Sector Primary Expenditure and GDP at Constant Prices**

Source: ECLAC, based on data from the Economic Ministry of Argentina.

from improved incentives to contribute and from economic growth itself. To the extent that the implementation of the new system proved feasible over time, the public sector was reducing future liabilities; however, these liabilities under the old regime were not contractually binding in definite amounts, whereas the bonds that the government would now sell to finance the transition represented mostly dollar-denominated fixed commitments.<sup>25</sup> The reform thus hardened the government's intertemporal budget constraint and made it even more dependent on the evolution of the real exchange rate. This was certainly at odds with the need for insurance in the convertibility system.

The national public sector deficit fell from 3 percent of GDP in 1990 (around 6 percent for the 1982–90 average) to 0.8 percent in 1994 (1.1 percent excluding privatizations). The authorities did not perceive the rapid increase in tax revenues and in the value of primary spending as cyclical effects; rather, they indicated through their statements and behavior that they expected growth to continue at a fast pace. Both the public sector and

25. See Hausmann and Velasco (2003).

private agents made decisions that implied strong bets on the sustainability of the real exchange rate and on a rising trend in real output, while narrowing their options for the case that future performance would not fulfill those expectations.

### *Surviving the Tequila Crisis*

With reduced tax receipts following the pension system reform and a substantial current account deficit, the economy became more vulnerable to shocks. It suffered a large financial disturbance in late 1994 as a result of the Mexican devaluation. That event triggered a sharp fall in the price of Argentine bonds, a marked drop in Central Bank reserves, and withdrawals of bank deposits that soon reached the intensity of a run. At the same time, the convertibility system greatly restricted the possibility of applying monetary policies for lender-of-last-resort purposes, and it prevented the exchange rate from depreciating to accommodate the excess demand for foreign currencies. The central question was whether the government was willing and able to sustain convertibility.

A financial shock induced by an outside event could have been taken as a chance to replace the fixed exchange rate system without too much loss of reputation. The authorities also had strong incentives not to exit, however, particularly since they had been raising the stakes of the game and stood to face large costs if they abandoned convertibility. The public (and financial operators) understood that the crisis had an external origin, but they also understood that the shock would test the strength or weakness of the economy, as well as the behavior of a government still haunted by severe credibility problems. Ending convertibility would probably have signaled that the economy was weak and that the stabilization game was over, and it may have induced a wave of pessimism symmetric with the boost to expectations that the start of the program had generated. Conversely, the government saw that convertibility would have passed a big test of strength if it survived the shock, which would greatly enhance its credibility, as in fact it did. The large number of people who had contracted dollar debts, together with those who feared a return of high inflation if convertibility was abandoned, created a very strong constituency against devaluation.<sup>26</sup> Indeed, in the presidential campaign of 1994, the

26. A survey carried out by Centro de Estudios por una Nueva Mayoría in March 1995 (when the financial crisis was in an acute phase) received the following answers to the ques-

incumbent's main electoral argument was that his administration had ended hyperinflation and constituted the only political force that would maintain convertibility.<sup>27</sup> The strategy worked, and it led to the reelection of the president by a large margin.

The government stuck to the tight exchange rate rule and strongly signaled its commitment to it. This policy received crucial backing with a large and rapidly decided package of multilateral credit. The provision of funds at a moment when the future of the financial system was very much in doubt, together with the announcement effect of the international assistance, was probably essential for the favorable resolution of the crisis.<sup>28</sup> International conditions also allowed for a rapid increase in exports.

As the government had expected, convertibility came out of the shock with a stronger reputation. The experience added to the credibility of the system as a stabilization device, fostering the perception that it could withstand even strong shocks if only political firmness was applied in defending the system. This again increased exit costs, which became even higher later on as the volume of dollarized financial contracts continued to grow.

The policy responses after the tequila crisis were focused on financial markets. The government actively moved to lengthen maturities and issue bonds in advance of the requirements of funds. Financial regulations raised the capital and liquidity requirements of banks. The Central Bank negotiated a contingent credit line from international banks, with the purpose of reinforcing its availability of resources in the event of a shock. These policies were precautions against liquidity problems: they were aimed at creating buffers to be used in case of a sudden tightening of the international supply of credit or extemporaneous reductions in the demand for bank deposits. They worked to that effect during the long contractionary phase that started in 1998, until this came to be perceived as a widespread solvency crisis: at this point, financial markets served as large amplifiers of the disturbance.

The recovery from the 1995 shock and recession led to a phase of renewed optimism about the economy's growth capacity, although the persistence of high unemployment and the widening of income inequalities

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tion of whether Argentina should devalue: no: 80 percent; yes: 5 percent; don't know: 15 percent.

27. See Starr (1999).

28. See Ganapolsky and Schmukler (1998).

were matters of public concern.<sup>29</sup> This aggregate expansion had different characteristics than the expansion of the early 1990s. Internal prices practically stopped rising, and the bilateral real exchange rate with the dollar gradually increased. Exports rose very fast, mostly in their quantity and especially (but not only) to Brazil. Investment in machinery and equipment also increased rapidly. The current account deficit was widely interpreted as an element of the growth process. International investors joined actively in the optimistic mood, not only through increased demand for Argentine bonds, but also through the large flows of FDI that entered the country in those years, destined for a wide range of sectors including services, finance, manufacturing, and primary activities. The government did not seem worried about the evolution of the economy, especially when the Asian crisis of 1997 did not produce very noticeable effects, apart from a short-lived impact on financial markets.<sup>30</sup>

By the end of the expansion in 1998, however, government and private sector debt was quite high. The question of how to manage decisions to avoid a solvency problem was already there. Increases in tax revenues had to come mainly from higher output. Output growth, in turn, could not be based on persistently large current account deficits. Correcting this required a strong upward trend in exports. Thus the 1999–2000 shocks on exports—namely, lower prices, reduced demand from Brazil, and an appreciated dollar—hit the economy at a particularly vulnerable point. If exports did not continue to grow, then the dollar value of incomes would not be sustainable, the government would be unable to service its mostly dollar-denominated debt, and the strength of the financial system itself would ultimately be endangered. There was a visible tension between fiscal and external adjustments.<sup>31</sup> This tension, in an economy that had been

29. By the late 1990s, only the households in the highest brackets of the distribution had real per capita incomes higher than at mid-1994.

30. “The solidity of the fundamentals of the Argentine economy and the policies that were carried out, including the reforms introduced since 1995 to strengthen the financial system, encapsulated the effects of the crisis exclusively in capital markets. . . . In the financial system, the volume of deposits and loans kept increasing, and the most negative consequences were transitory increases in interest rates, a light fall in peso deposits, and a transitory drop in international reserves. The uncertainty in financial markets was not transmitted to the real economy, since production and investment continued to rise” (Economy Ministry of Argentina, *Annual Report 1997*, p. 7).

31. Elementary computations for the national government accounts and the balance of payments, starting from actual data for 1998, suggest that a feasible path satisfying external



growing rapidly but in which unemployment had remained very high, caused increasingly difficult dilemmas in the following years.

### *Recession and Collapse: No Way Out*

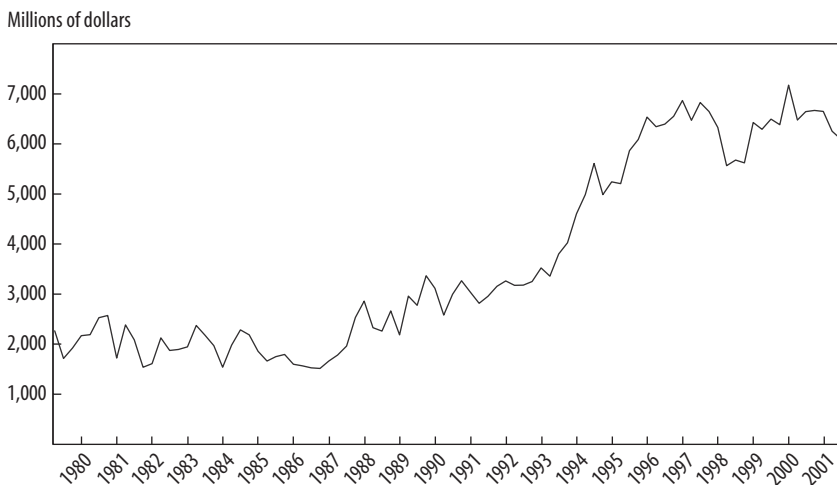
By the end of 1998, unit export prices were 20 percent lower than at their peaks about two years earlier.<sup>32</sup> The demand from Brazil had stagnated, and the process that led to the depreciation of the Brazilian real in early 1999 was under way. The economy was receiving a substantial real shock that contributed to the stagnation in the value of exports in the following years (see figure 7). The Russian debt crisis also had a strong effect on Argentine credit markets; after the tension eased somewhat, the Brazilian devaluation in early 1999 induced another steep rise in the yield on Argentine bonds.

The government reacted to the financial shocks by trying to differentiate the economy from those of the countries in crisis and by insisting on the strength of the fiscal and financial positions. This aimed at reassuring financial operators in the hope of reducing the level of country risk. Proposals for dollarization were widely discussed: proponents argued that there was a correlation between the sovereign debt spread and the peso-dollar interest rate differentials, and they tried to infer that devaluation risk drove those changes. In their view, the problem with the monetary system was the persistence of an implicit exit clause, not insufficient flexibility to respond to real shocks. The appropriate action, therefore, was to signal that there were additional institutional guarantees against policymakers with misguided opinions or biased incentives trying to tamper with monetary policies. Dollarization did not find significant international support, however. In any case, it could not restore export growth or solve the fiscal problems if the economy stagnated or went into a recession for more fundamental economic reasons than fear of an arbitrary policy reversal.

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and fiscal constraints required (in addition to fiscal restraint and sufficient supply of credit) a considerable increase in exports and, possibly, a substantial slowdown for some time in aggregate domestic spending, but within limits that would avoid causing too much pressure on public finances.

32. In an economy with dollarized debts, a neutral deflation of export and import prices (that is, one that does not modify the terms of trade) can have strong real effects, since it reduces the equilibrium price level in dollar terms and, therefore, causes a fall in the wealth of debtors relative to their liabilities.

**FIGURE 7. Quarterly Exports<sup>a</sup>**

Source: Instituto Nacional de Estadística y Censos (INDEC).

a. Tics are at fourth quarter of given year.

The basic issue remained the same: what were the prospects of the value of aggregate output and incomes in terms of dollars (as the main denominator of contracts)? Those prospects depended on fiscal prudence, through its influence on interest rates, but they relied especially on the behavior of exports and traded-goods production in general.<sup>33</sup> A sufficiently strong export performance could maintain the current account and the fiscal balance within manageable bounds at levels of real activity and prices that—although lower than the trends projected some time before—would not cause much stress on the repayment of debts. Otherwise, there was a risk of a spiral of adjustments in private and public spending (see the appendix). Quite apart from the matter of price flexibility, such a spiral could result in a debt deflation process that might eventually endanger the financial system and convertibility itself.

Even though the shocks on trade, if persistent, would increase the sustainable real exchange rate, a preventive devaluation (against a worst-case

33. One of the characteristics of the post-1998 recession was that exports did not behave countercyclically, as would have been expected if the driving impulse had been solely an increase in interest rates for reasons unrelated to the performance of foreign trade.

crisis scenario) was not a concrete policy option, since it meant breaking a highly valued policy commitment and facing agonizing choices on how to handle dollar-denominated contracts. In fact, during the presidential campaign of 1999, the maintenance of convertibility was again one of the principal electoral arguments. Public opinion seemed to demand clear changes in political mores and increased attention on unemployment and social issues, but suggestions that the exchange rate system could be called into question caused fear and visible opposition.<sup>34</sup>

Fiscal policies were probably influenced by electoral considerations, and they thus operated as if there were no urgent need for adjustment. In 1999, primary spending both at the national level and in the provinces rose in absolute terms and sharply as a fraction of GDP. The authorities applied some expansionary measures, like a subsidy scheme to stimulate purchases of new cars. Fiscal revenues declined: once again, lower social security taxes were an important factor, in part owing to reductions in rates. The consolidated budget deficit jumped to 3 percent of GDP—or almost 4 percent excluding privatization revenues.

By the end of 1999, real output and consumption showed a rebound, and the possibility that the recession had ended received much attention. However, the current account deficit indicated that there could be a tight constraint for a recovery without a renewed increase in exports, while government finances looked far from balanced. Both the general public and financial operators waited for signals from the government that was taking office in December 1999. The market seemed to demand fiscal measures showing that the new authorities were reliable. The public seemed quite prepared to support cuts in wasteful government expenditures, but it was not keen on deep adjustments. Everybody seemed to be expecting good news about the economy, that is, signs that growth would restart.

The government expected that the effects of productivity gains and improvements in international conditions would permit exports to increase again, and this would be compatible with a moderate rise in GDP. Consequently, the fiscal situation seemed like the most immediate problem.<sup>35</sup>

34. Support for convertibility remained very strong as the crisis developed. In January 2001, a poll found that 67 percent responded positively (and only 12 percent negatively) to the question, Should the government maintain convertibility? See Graciela Römer & Asociados ([www.romer.com.ar](http://www.romer.com.ar) [2001]).

35. “The . . . public debt has increased to about 45.7 percent of GDP in 1999. Although this level is not particularly high in comparison with other emergent economies, the rapid

The most salient policy announcement made in the inauguration was a package that raised a variety of taxes, most noticeably the income tax.

Financial markets reacted calmly to these announcements, although influential analysts criticized what they saw as insufficient emphasis on spending cuts. For the public, the tax increase was the prelude to more difficult times, not only because of its direct impacts, but because it indicated that the economic situation was worse than expected. People seemed to be revising their income prospects downward, although they had not yet lost confidence in the financial system (deposits increased, and the banks were active in offering loans, especially mortgages). In fact, domestic demand again declined in the first months of 2000, which affected tax revenues. The authorities reacted by announcing spending reductions, including cuts in the higher salaries in the national government. Private expectations grew more and more sensitive to short-run news, and policy responses were influenced by the immediate market mood, as indicated in the oscillations of country risk spreads.

As time passed without signs of recovery, future prospects and plans were probably revised downward. The government's financing constraint became tighter when tax revenues did not grow, and the pressure for additional fiscal retrenchment increased. Apart from their direct effect on aggregate spending, new measures of fiscal adjustment had the risk of being interpreted pessimistically, with secondary effects on revenues. Aggregate demand (and the tax base) also depended on the availability of funds to finance the current account and thus on the anticipated performance of exports. Questions about the robustness of the convertibility system were increasingly posed. In international circles, fixed exchange rates came to be regarded much less favorably than in the past, particularly as analysts appeared to interpret the recent Brazilian experience as an indication that devaluation and later floating need not be too traumatic.

At the same time, the political scene became increasingly complicated. The vice president resigned in October 2000, criticizing the government for not doing enough about allegations that senators had been offered bribes to vote in a law reforming the labor legislation. That resignation and its motives clearly weakened the ruling coalition, especially given

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rise in recent years is a cause of concern. Even more worrying was the perspective for 2000. Even accepting that nominal GDP would grow by about 5 percent, the budget deficit of the national government would exceed . . . 3 percent of GDP, a totally unacceptable value" (Economy Ministry of Argentina, *Annual Report 1999*, p. 7).

that the lack of improvement in social and economic conditions was also eroding support for the ongoing policies. This was an important shock to expectations.

In the last part of the year, the country risk indexes rose substantially, and the future rollover of the public debt appeared problematic. At this point, the government negotiated a package of loans (popularly known as *blindaje*) from the IMF and other international financial institutions. The package implied a bet on a number of conditions: that the announcement of the agreement would produce a sufficient immediate effect on interest rates, that the economy showed signs of recovery without excessively large current account deficits, and that fiscal policies would manage to generate a rising primary surplus, all of which would prove the problems the economy was facing to have been transitory financing difficulties. Either agents would identify a concrete recovery scenario or there would be deep troubles ahead. The burden of proof had gradually shifted, such that now the possibility that the Argentine economy could still work was the case to be proven. There was no solid argument that a sustainable recovery was highly probable, especially considering that the movements in the currencies of major partners still went in the direction of appreciating the peso. It was also less than obvious, however, that absolutely nothing could be done (or nothing could happen) to avoid a major collapse and irreversible events like a default, a termination of convertibility, or a forced dollarization. In any case, neither internally nor abroad was a complete plan designed to consistently address the problems of dealing concretely with the prospect of external and fiscal insolvency. The lack of a specific exit alternative was a characteristic of the last months of convertibility.

The announcement of the credit package eased financial conditions in the first few months of 2001. Real activity did not recover, however, and fiscal performance deviated from the targets of the IMF program. In March, a new economic team proposed a program of cuts in government spending. The plan received support from the IMF and business groups, but it faced sharp opposition from much of the political system, including cabinet members who resigned and an important fraction of the government's coalition. It was also received with skepticism by the public.<sup>36</sup> The measures had unpopular contents, and while they were interpreted as

36. Two polls conducted by a newspaper (*Clarín*, 16 and 17 March 2001) report the following results. What are your expectations about the economic program? Good:

indicating that the economic situation was very serious, that perception was probably not strong enough—and the improvements that the measures might generate not clear enough—to generate sufficient acceptance as the only possible alternative. Whether because of the political resistance to the fiscal adjustment or because of negative expectations about the economy, country risk indexes increased while the program was under discussion. Bank deposits started to drop noticeably, which was a particularly ominous sign given that it created a new and strong factor of disturbance out of something that had seemed until then one of the few strong points.

The adjustment plan was eventually abandoned, and Minister López Murphy resigned after a short time in office. This brought back Domingo Cavallo, the original architect of convertibility. After obtaining emergency powers from Congress, the new economic authorities initiated very active fiscal and monetary/financial policies, with multiple targets and with the aim of rapidly inducing a recovery. The drain of bank deposits stopped for a while, but tough dilemmas and difficulties quickly emerged.

The government generated a small depreciation of the currency for commercial transactions by pegging the exchange rate for those transactions to a dollar-euro basket. This measure, together with disagreements about the management of bank liquidity requirements, caused a conflict with the president of the Central Bank, who had earlier encouraged dollarization proposals. He was soon forced out of office as a result of the conflict. The episode induced a negative response in financial circles, and the introduction of the dollar-euro basket was interpreted by the public as a signal of further moves to end convertibility.

Government financing became increasingly complicated. With a restricted access to international markets, more debt was sold internally, mostly to banks and pension funds. The persistent increase in the country risk indexes indicated that bondholders were assigning a substantial probability to nonpayment and that the rollover of the debt was problematic. The government decided to perform a so-called megaswap, exchanging titles with shorter maturities for longer-term bonds. This was meant to keep the risks of a liquidity crisis at bay, but the new issues validated inter-

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25.8 percent; Fair: 16.8 percent; Bad: 57.6 percent. Do you think that the adjustment will induce economic growth? Yes: 30 percent; No: 70 percent.

est rates around 15 percent, which posed a question about solvency.<sup>37</sup> The country risk indexes soon increased explosively, while bank deposits again declined rapidly. At this point, pessimistic expectations had changed into a widespread attitude of running for cover. Private capital flight was reaching very high proportions, such that international reserves dropped considerably even with a large use of multilateral financing. Real activity was falling precipitously, tax revenues were much lower than a year before, and the sources of market financing for the public sector were closed.

The authorities reacted by announcing a zero deficit policy, in which they stressed cash management of the government so as to make monthly payments match monthly receipts. As part of this policy, Congress voted a 13 percent cut in higher brackets of public salaries and pensions. Highly painful measures were taken to address the worsened economic outlook, but under those conditions (and beyond the political credibility of the zero-deficit criterion) the incentives to spend and to lend in the country were much diminished. The authorities turned to the IMF for emergency assistance.

By that time, the so-called Argentine D's of devaluation, default, dollarization, and measures to stop the deposit outflow were the subject of much public discussion.<sup>38</sup> The Argentine government was urged to implement "sustainable" policies; the term was left undefined, although it seemed to encompass devaluation or possibly default on the public debt, or both. However, those statements and opinions were far from specifying a precise policy design. The income the economy could generate was lower than expected, and a large variety of contracts were based on expectations that now seemed very unlikely to be fulfilled. The problems reinforced one another, and they had to be addressed simultaneously. The prospect of default on the public debt raised the fundamental fears of depositors, since banks had large bond holdings; the run on deposits put convertibility into imminent danger; and devaluation would likely cause a collapse of the financial system and aggravate the debt problem of the

37. Compare the interpretation in Mussa (2002, p. 67): "... an act of desperation of a debtor who can promise almost anything in the long run in exchange for a relatively modest short-run relief."

38. See, for example, Eichengreen (2001).

government and of many firms. The anticipation of such a catastrophe prolonged the vertical fall in real activity, such that government revenues dropped lower and lower.

The state of the economy was such that widespread bankruptcies seemed likely. Finding a least cost response would have required an extraordinary capacity for policy design and an equally extraordinary degree of coordination and willingness to compromise on the part of large sets of agents—including lenders, borrowers, taxpayers, public sector workers and pensioners, privatized utilities, banks, business firms, government authorities of different jurisdictions, and international institutions—many of whom had strong feelings about their rights and about the wrongs of others. The solution appeared to be beyond the grasp of economists of different persuasion, politicians, and international agencies, and certainly far beyond the institutional and political capacities of the country.

The IMF finally granted an emergency loan, but this did not generate much relief. It seemed as if the system was overdetermined, and the inconsistencies became evident one after the other in rapid succession. The authorities announced their intention to restructure the public debt. While public spending was falling, the rapid drop in revenues led the government to use unorthodox financing means, such as the issuing of *bonos* (emergency monies) by local jurisdictions. The supply of these instruments was another drop in the bucket of motives for the drain of deposits and the loss of reserves. Finally, faced with a frantic run, the government decided to apply restrictions on the withdrawal of deposits and to introduce exchange controls. This meant suspending convertibility, and after some weeks and several presidential changes, the regime was formally terminated. Convertibility was suspected to have big exit costs; they proved to be very high indeed.

## Parting Thoughts

The hyperinflationary experience of the 1980s led to a general recognition of the costs that high inflation and the lack of a framework for contractual and investment decisions had inflicted on the economy. Convertibility tried to provide such a framework by restricting monetary policies and validating the widespread use of the dollar as a unit of denomination for domestic transactions. The common view was that such measures were



necessary to induce the emergence of credit markets. This, in turn, would make it possible to take advantage of large growth possibilities left unexploited in an unfavorable macroeconomic environment. At the same time, a large set of economic reforms were put into place, broadly following an international consensus on the policies that would foster growth.

Convertibility formed the basis for an elaborate system of contracts that clearly signified a break with the past in an economy in which, for instance, private mortgage loans had been a rarity for decades. This increase in contractual density enlarged the consumption and investment opportunities of big sets of agents and contributed to the growth in economic activity. This generated expectations of further improvements in real income. At the same time, contracts became contingent (although not explicitly) on the realization of a sufficiently strong economic performance to sustain dollar incomes at the historically high levels which agents had incorporated in their anticipations. The seemingly unconditional promises were vulnerable to an overshooting of expectations or to external shocks that would make those incomes much lower than predicted, since they contained no escape clause.<sup>39</sup> The increasing volume of dollar-denominated contracts indicated the willingness of both private and public agents to enter into agreements that in fact implied those risks while simultaneously operating as a lock-in effect for convertibility by visibly increasing its exit costs.

Over time the government became increasingly committed to the fixed exchange rate in several ways. Since alternative mechanisms for gaining policy credibility did not arise, strict adherence to the existing monetary rule continued to be identified with stability and predictability. By issuing large volumes of dollar-denominated bonds, the government made its solvency dependent on maintaining the exchange rate. In its role of regulator, the government had legally fixed utility prices in dollars, a provision that could hardly be enforced if the real exchange rate increased significantly. The private sector had accumulated large dollar debts and assets, so an exit from the one-peso-one-dollar status quo would clearly generate a disturbance of unpredictable, but certainly very painful, consequences. This set of promises either held together or broke down together. To make them hold, the public sector had to be intertemporally solvent and also to be perceived as such until it was eventually able to reduce its debt. This required

39. Haussmann and Velasco (2003); Perry and Servén (2002).

external balance (that is, meeting the economy's aggregate budget constraint) at real exchange rates that would not disturb the repayment of debts.

This last condition ruled out devaluation and a sizable debt deflation. Avoiding those outcomes was feasible only if the equilibrium exchange rate was not too far from the prevailing values. Accordingly, the trend growth of exports had to be high enough—and, again, perceived as high enough—to sustain aggregate domestic demand without running into a foreign financing constraint. Otherwise, if a considerable drop of aggregate spending was required, fiscal adjustment would run against a fall in revenues (in terms of the denominator of assets), and it would likely contribute to a deflationary spiral that would become amplified through its financial effects. The fulfillment of contracts relied on the behavior of fiscal policies, but it ultimately depended on whether international conditions and the actual strength of the effects of productivity and investment on the productive capacity of traded goods were in correspondence with the evolution of the economy implicit in the expectations entertained by agents when they had decided to lend or borrow.

In the end, the bet on rapid growth was not successful. As income levels became unsustainable, large sets of debtors (noticeably the government) were seen as unable to service their obligations. There were probably ways to deal with the crisis that might have brought less traumatic outcomes than those observed. It is difficult, however, to see how these alternatives could have avoided a widespread revision of contracts, with all the associated conflicts, legal uncertainties, and reputation costs.

The disappointment of expectations turned out to be dramatic. It caused poverty levels the country had not previously known and deep economic uncertainties in the midst of a big depression. Credit transactions almost stopped altogether; the legal status of reprogrammed, or pesified, bank deposits and loans was still undefined after months of litigation; and the political system had been discredited. Real activity plunged and the real exchange rate jumped, to the extent that the (constant) dollar value of per capita GDP dropped to its lowest level in decades. As a legacy of the years of price stability and as a consequence of the depressed domestic spending, the demand for local currency for everyday transactions and its use as a denominator of prices proved notably resilient, even while the nominal exchange rate multiplied by four.

How can outcomes like this be prevented? Buying insurance against such a collapse can be costly in terms of economic performance in good states of the world. In the Argentine case, the post-hyperinflation recovery would have been much weaker without the anchor provided by convertibility and the use of a dollar denominator for financial assets. A less strict monetary system without a definite link to the dollar would likely have implied much higher interest rates and lower investment. Moreover, trying to apply convertibility with fiscal insurance might have generated quite difficult policy problems, as the government would have been required to generate a buffer stock of resources while leaning against the wind—for instance, through consumption taxes—if the increase in aggregate demand was seen to be rising too fast. However, the experience indicates how a system that makes little provision for unfavorable events can end up reversing any gains it obtained in the meantime.

A plausible conclusion is that, especially in an economy in transition, the risks to be contemplated include those derived from model uncertainty: policies that follow what at the time is believed to be good practice have no guarantee of success.<sup>40</sup> In the Argentine case, the combination of stabilization and reforms could have indeed resulted in high growth, but there was no firm basis for taking that result as a foregone conclusion, and even less to allow a precise point estimate of the likely increase in income. Incorporating that type of uncertainty poses subtle, and tough, analytical questions.<sup>41</sup> In practice, it requires policymakers with sufficient time perspective and self-restraint to allow more or less explicitly for the fallibility of their preferred model. Policymaking in transitions cannot but have an important element of judgment; even in developed countries, the borderline between well-founded optimism and irrational exuberance can sometimes be difficult to identify. This is one important reason why policy flexibility remains especially valuable in those conditions, even after recognizing the trade-off with addressing credibility problems. An economy will have a hard time establishing an appropriate framework for

40. This is also true in developed countries. Blinder (2000) states that the main difficulty in conducting monetary policy that he encountered at the Federal Reserve was model uncertainty: “In practice, of course, we do not know the model but must estimate it econometrically. Since economists agree neither on the ‘right’ model nor on the ‘right’ econometric techniques, this is a nontrivial problem.”

41. See Hansen and Sargent (2001).

policymaking if future conditions are quite uncertain and government discretion is greatly distrusted. Corner solutions are unlikely to be the right responses, however. If the time discount is not too large, investment in reputation can substitute profitably for tight constraints, although all of this remains fundamentally parameter dependent.<sup>42</sup>

Acknowledging that economic transitions are especially fraught with uncertainty forces one to focus on one key issue raised by the recent Argentine experience: the correspondence between the features of contracts, including institutionally based policy promises, and the nature of contingencies the economy may be subject to. A shock that can be handled by one set of contracts (through an explicit or implicit escape clause) can cause the collapse of others. In Argentina, residents eventually realized that the economy could not maintain more or less steady incomes in dollar terms, and this caused the breakdown of many contractual arrangements. Why agents would want to write contracts that are open to large shocks (and whether they recognize the risks associated with different types of contracts) is a matter that we are not prepared to discuss here. It is a major policy problem, however, to design a system that ensures that the agreements between parties will not be modified by arbitrary policy interventions and, at the same time, that agents are not induced to take unnecessary real risks. The rigid peg induced remarkable changes in behavior by eradicating chronically high inflation. It did not induce a full stabilization, however, as it did not provide a serviceable domestic denominator of contracts. The Argentine economy now faces major challenges. One is to gradually reconstitute a credit system in which typical macroeconomic contingencies such as movements in the real exchange rate do not cause the danger of a breakdown. Because future prospects will remain uncertain, the problem of contractual design is also relevant for the renegotiation of the public debt: making large unconditional promises could well prove self-defeating, since it may discourage a recovery that would make repayment more likely.

42. A similar argument for purchasing flexibility would apply to fiscal policies: the ability to use resources countercyclically depends critically on the perceived solvency of the government when a shock hits.

## Appendix: Macroeconomic Framework

We start with a brief refresher on simple open-economy models. Consider a very simple model of a representative-agent, pure endowment economy producing tradable goods (denoted  $T$ ) and nontradable goods ( $N$ ). The economy participates in an international credit market, where the interest rate is known to be constant and equal to the rate of time preference of the representative consumer of the economy. Instantaneous preferences over goods  $T$  and  $N$  are such that the consumer allocates the value of spending in constant proportions,  $\gamma$  and  $1 - \gamma$ , respectively (the parameter  $\gamma$  relates to the degree of tradability of the economy, defined as the share of sector  $T$  in total output). The value of consumption in terms of traded goods is the return on perceived wealth in terms of those goods. The primary spending of the government consists of nontraded goods. The conditions for Ricardian equivalence are assumed to hold.

Let  $Y_{Tk}$ ,  $Y_{Nk}$  represent the outputs of goods  $T$ ,  $N$  in period  $k$ ;  $C_{Tk}$ ,  $C_{Nk}$  the volumes of consumption of those goods;  $G_{Nk}$  government spending in period  $k$ ;  $p_{Nk}$  the price of good  $N$ , with  $T$  as numéraire;  $A_0$  the financial assets held by the representative consumer at the start of period 0; and  $B_0$  the public debt at the same moment. Then, private wealth is

$$(1) \quad W_0 = A_0 - B_0 + \sum_{k=0}^{\infty} \frac{Y_{Tk}}{(1+r)^k} + \sum_{k=0}^{\infty} \frac{P_{Nk}(Y_{Nk} - G_{Nk})}{(1+r)^k}.$$

In equilibrium, the nontradable component of wealth is given endogenously by the decisions of the consumer. It therefore can be written as a function of wealth, since

$$(2) \quad P_{Nk}(Y_{Nk} - G_{Nk}) = P_{Nk}C_{Nk} = (1-\gamma)\frac{r}{1+r}W_0.$$

A self-consistent estimate of wealth is therefore given by

$$(3) \quad W_0 = \frac{1}{\gamma} \left( A_0 - B_0 + \sum_{k=0}^{\infty} \frac{Y_{Tk}}{(1+r)^k} \right) = \frac{1}{\gamma} W_{0T}.$$

This implies that consumption of traded goods and the value of consumption of nontraded goods are proportional to the traded-goods component of perceived wealth, given by the level of net foreign assets and the present

value of the flow of traded-goods output. This very basic framework has several implications.

—The sustainable sequences of spending, defined as the paths of the demand for goods compatible with foresight, cannot be determined except with reference to the future evolution of output (and incomes). By itself, past information does not establish whether, say, a current account deficit is too large or too small, or whether the real exchange rate is misaligned.

—An anticipated increase in the future output of traded goods raises the consumption of traded goods (and reduces the trade balance) and the price of nontraded goods in proportion to the rise of traded-goods wealth, independently of the future evolution of the output of nontraded goods.

—Similarly, a transfer of traded goods increases aggregate demand in proportion to its effect on traded goods. In particular, for given transfer/GDP values, the consequent real appreciation will be larger in a more closed economy (lower  $\gamma$ ).<sup>43</sup>

—An increase in traded-goods wealth, through its effect on equilibrium prices, drives the government spending/GDP ratio upward.

—A higher volume of public spending (in nontraded goods) implies, *ceteris paribus*, a real appreciation, because the supply of goods for private consumption diminishes while the value of private consumption does not vary. It has no effect, however, on the consumption of traded goods and the trade balance.

We now examine an adjustment without credit constraints and with tax revenues proportional to GDP. The exercise consists in studying the effects of a shock on the supply of traded goods (or, equivalently, a fall in the dollar price of traded goods), assuming that the government's revenues are a proportion,  $\tau$ , of the value of output. (In this simple framework, the assumption does not modify the Ricardian proposition.) The shift is an unexpected permanent decline in the output of traded goods; for simplicity, the levels of  $Y_T$  are considered to be constant over time before and after the shock. It is assumed that government spending adjusts once and for all to a new constant value consistent with the new intertemporal budget constraint. Credit conditions do not vary: access to financing remains unrestricted, and the interest rate does not change.

Let  $\gamma' = \gamma / (1 - \gamma)$  represent the ratio between the values of private consumption of traded goods and nontraded goods. Given that  $Y_N$  is fixed by

43. See Perry and Servén (2002).

hypothesis, the elasticity of the equilibrium price of nontradables with respect to the output of traded goods is

$$(4) \quad \frac{\hat{P}_N}{\hat{Y}_T} = \frac{k}{\gamma'} \frac{(1 + \gamma'\tau)}{1 - \tau},$$

where  $k$  indicates the ratio between the values of output of traded and non-traded goods. The dependence of the volume of public spending on the value of output generates a fiscal amplifier of the shock.

Our final experiment considers an adjustment with constrained public and foreign debts. It is similar to the previous one, except that now the level of public debt is constrained as a proportion of the value of GDP, while the foreign debt must remain, at most, equal to a certain proportion of the output of traded goods.<sup>44</sup> The parameters that measure the constraints are, respectively,  $\beta$  and  $\alpha$ . It is assumed that before the shock, the constraints were already binding. Government spending and the consumption of traded goods are limited, respectively, by:<sup>45</sup>

$$(5) \quad B_0 + P_{N0}G_{N0} - \tau(Y_T + P_{N0}Y_N) = \beta(Y_T + P_N Y_N) \text{ and}$$

$$(6) \quad B_0 - A_0 + C_{T0} - Y_T = \alpha Y_T.$$

After some manipulations, the elasticity of the equilibrium price of non-traded goods is obtained as

$$(7) \quad \frac{\hat{P}_{N0}}{\hat{Y}_T} = \frac{k}{\gamma'} \frac{(1 + \alpha + \gamma'(\beta + \tau))}{(1 - \beta - \tau)}.$$

The multiplier is now clearly larger than in the previous case. If debt deflation effects were present, they would add to the impact of the shock.

44. The foreign debt constraint generates an endogenous sudden stop (Calvo, Izquierdo, and Talvi, 2002). The production of traded goods seems a straightforward indicator of the capacity to serve foreign debts. In the case of the government's constraint, it may be preferable to represent it as a function of future expected values of GDP. The distinction is relevant, since there will be an overshooting in the value of aggregate spending as the levels of debt adjust to their constraints. However, the simpler construction used here serves the purposes of the exercise.

45. The exercise concentrates on the immediate impact of the shock (that is, in the period in which spending adjusts to the change in the debt constraints).