

# The History of Argentina

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Francisco Buera

Washington University in St. Louis

Juan Pablo Nicolini

Federal Reserve Bank of Minneapolis and Universidad Torcuato Di Tella

## Major fiscal and monetary events, 1960–2017

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<b>1962</b> Balance of payments crisis	<b>1990</b> Mandatory swap of short-term bank deposits for long-term government bonds (Bonex Plan)
<b>1975</b> First hyperinflation	<b>1991</b> Currency board
<b>1978</b> Stabilization plan with crawling peg ( <i>tablita</i> )	<b>1993</b> Brady Plan (Par Bond)
<b>1981</b> Balance of payments crisis	<b>1995</b> Banking crisis Currency board maintained
<b>1982</b> Banking crisis and default on government debt	<b>2001</b> Banking crisis Abandonment of currency board Default on government debt
<b>1985</b> Second hyperinflation Stabilization plan with fixed exchange rate (Austral Plan)	<b>2005</b> First debt renegotiation
<b>1988</b> New stabilization plan (Spring Plan)	<b>2010</b> Second debt renegotiation
<b>1989</b> Third hyperinflation	<b>2016</b> Third and final debt renegotiation

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## Introduction

In this chapter, we review the monetary and fiscal history of Argentina from 1960 to 2017, a period that witnessed the highest level of macroeconomic instability in Argentina's history. During that time, the economy was characterized by very disappointing growth performance, particularly during the three intervening decades: per capita income in 2003 was roughly the same as it was in 1973. This growth performance can be seen in Figure 1, which plots the logarithm of income per capita along with the logarithm of a trend that grows at 2 percent per year. The vertical lines in this figure, and in the figures that follow, visually divide the period we analyze into four subperiods, which we use to organize the discussion of Argentina's macroeconomic history. We explain this choice of subperiods below. The economy did reasonably well until 1974, keeping pace with the 2 percent trend, the long-run growth rate of per capita output in the United States. But

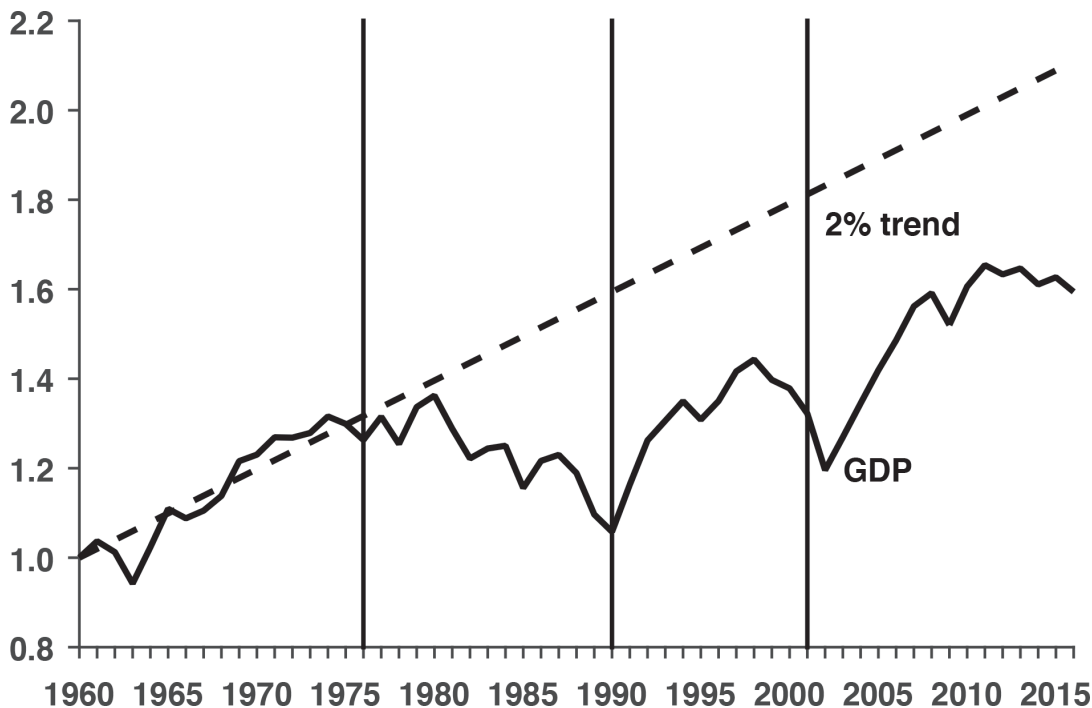


Figure 1. Log of per capita GDP

afterward it entered into a three-decades-long stagnation with highly volatile growth rates. Sustained growth resumed in 1991 but was stopped by a major depression that started in 1998 and bottomed out in 2002. The recovery from the depression was fast, and several years of high growth followed until 2010, when the economy again stagnated until 2017, the last year of the period we study.

Figure 2 plots the inflation rate for the period. Owing to the magnitudes of the rates, and as was done in this volume for other countries that experienced periods of hyperinflation, we plot the equivalent monthly rate that, being constant, would imply the same yearly rate as the one observed in the data.<sup>1</sup> Inflation, chronic for the first decade but moderate, became uncontrollable for a decade and a half and was terminated in 1991, the year in which a currency board was imposed. The following decade was the only one in which the inflation rate was the same as in developed countries, averaging 2.7 percent per year. It then jumped up, following the traumatic ending of the currency board in early 2002, but remained at low levels, similar to those of the late 1960s.

Figure 3 depicts the fiscal deficit for the period as a fraction of total output. It includes the deficits of both state-owned enterprises and the provinces. Chronic but relatively low deficits characterize the first decade and a half, with an average value of 3.2 percent from 1960 to 1973.

But the trend changes in 1973, and a sequence of higher and more volatile deficits accompanied the high-inflation period, averaging 6 percent from 1974 to 1990. In 1991,

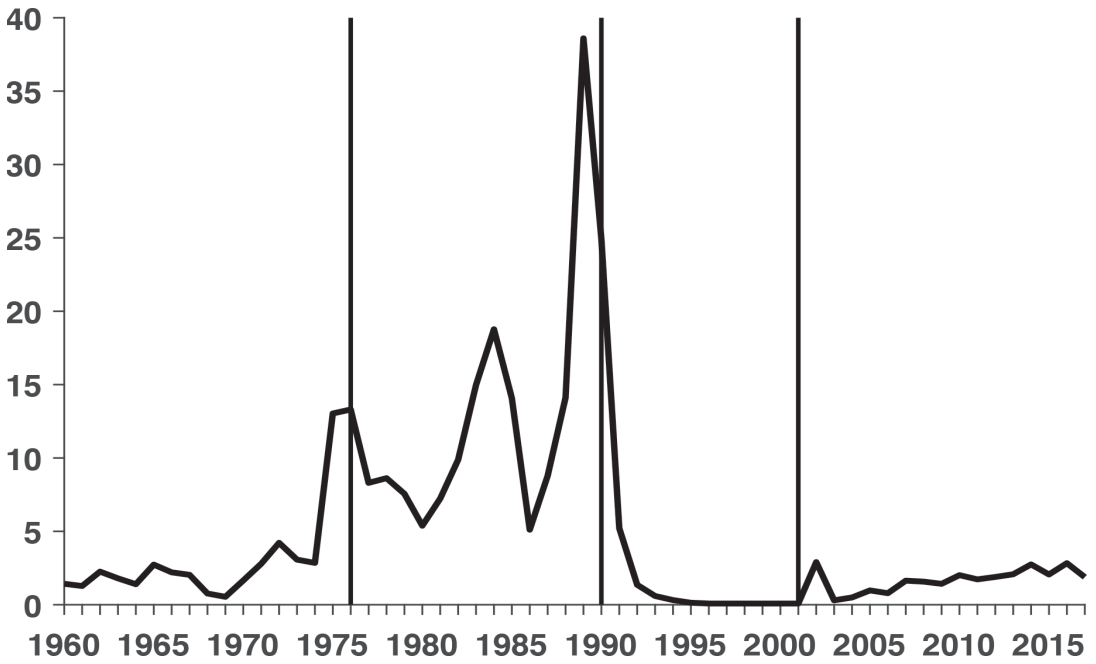


Figure 2. Inflation, average monthly inflation rate per year

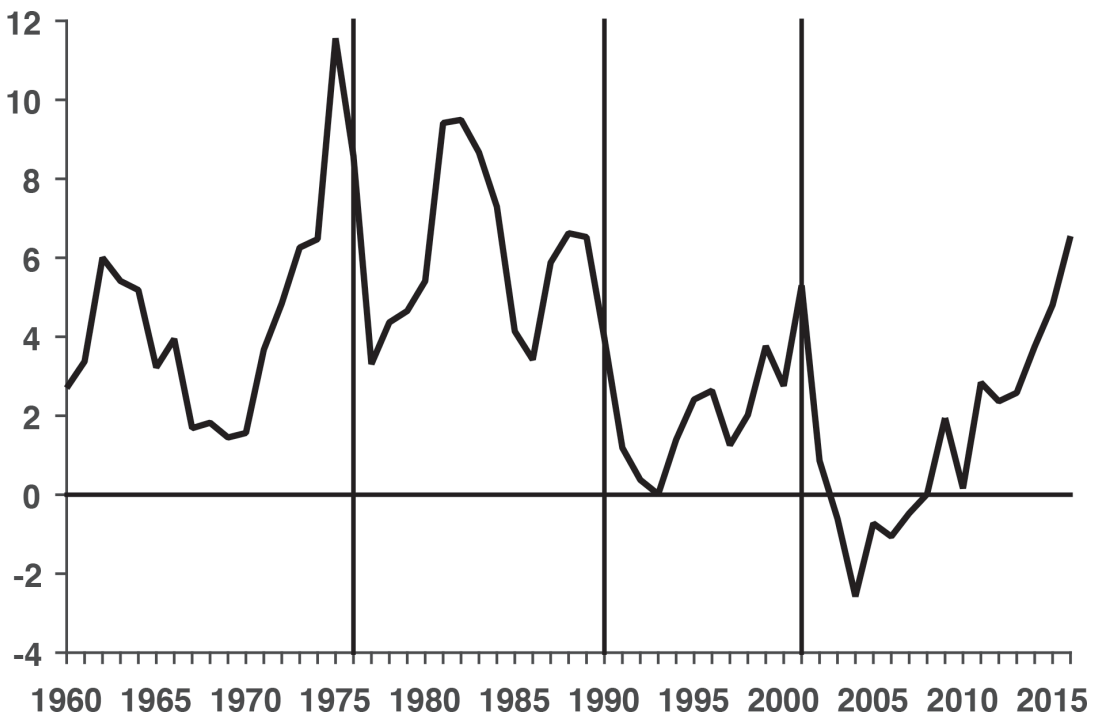


Figure 3. Government deficit, percent of GDP

inflation abruptly ends. That year coincides, as implied by the conceptual framework discussed in the preceding chapter, “A Framework for Studying the Monetary and Fiscal History of Latin America,” with the year in which a structural break occurred in the behavior of the deficit. While the deficit was almost always above 2 percent from 1960 to 1990 and averaged 4.7 percent in that period, it was almost always below 2 percent from 1991 to 2010 and averaged 0.6 percent. This finding is remarkable, given that the period includes the massive crisis Argentina endured between 1998 and 2002. Starting in 1998, Argentina entered into a recession that transformed into a depression by 2001, with an output drop of almost 20 percent from peak (1998) to trough (2002). The crisis included a major banking crisis, a default on debt, and, as mentioned above, the traumatic end of the decade-long currency board. Despite all these events, the deficit in those years was remarkably low, reaching a peak of slightly above 4 percent in the midst of the worst recession in decades. The years that followed the crisis were characterized by sustained fiscal surpluses, a feature unseen in Argentina not only during the period we study but also since World War II, which is when credible data became available. But this surplus did not last long: the fiscal deficit gradually worsened, increasing by 2017 to levels that had not been seen since the hyperinflation years. As Figure 2 makes clear, though, the impact on inflation has been very moderate, at least until 2017, the final period we study.

A comparison of Figures 2 and 3 clearly shows that from the beginning of the sample until 1973, the deficit was moderately low, as was inflation. Healthy growth characterizes this period. In contrast, the period of very high deficits and high inflation that started in 1973 and ended in 1991 coincides with the worst experience in terms of output growth, as Figure 1 makes clear: per capita GDP, which had grown by around 30 percent from 1960 to 1973, went back in 1991 to the same level it was in 1960. After the sudden and very successful end of inflation in 1991, the economy ran for a decade with low inflation rates, a period that coincided with a remarkable convergence of output to the trend. Both the low inflation and the convergence to the trend ended abruptly with the 2001 crisis. The economy very quickly recovered from the crisis by 2003 and, at the same time, managed to keep inflation at very low rates until 2010. This period is accompanied, as Figure 3 makes clear, by the lowest deficits for the whole period, averaging  $-0.4$  percent and including six consecutive years with fiscal surpluses. This period coincided with a strong convergence of per capita GDP to the 2 percent trend. Then, after 2010, inflation started rising again, and per capita income stopped growing. Both events coincided with the worsening of the fiscal deficit.

In what follows, we explain in more detail the evolution of the deficit and the way it was financed. In this way, we explain the evolution of government debt during the period, as well as the different policies that were implemented at various points. As we argue, the discussion will help us understand the roots of all the main macroeconomic events that unfolded in Argentina during the period, including several balance of payments crises, periods of hyperinflation, banking crises, and defaults. All the analysis will follow the conceptual framework described in “A Framework for Studying the Monetary and Fiscal History of Latin America.” As the framework makes clear, the way a given

deficit is financed is crucial to understanding the evolution of the main macroeconomic variables. However, the ability to finance the deficit with debt depends on the government's access to either domestic or international markets. Therefore, the government's ability to borrow is the main element we consider when choosing the starting and ending years for each subperiod.

The first subperiod we will analyze starts in 1960 and runs until 1976. During these years, the economy was closed to capital movements. The domestic credit market was heavily regulated and not very developed. Therefore, the government's ability to borrow was rather limited.

The second subperiod is from 1977 to 1990. This period witnessed the first liberalization of domestic financial markets, with a market-determined interest rate and a substantial entry of new financial institutions. At the same time, the capital account was opened, so the credit market was integrated with the world markets. This integration allowed the government to borrow in international markets, which it did. Within a few years, the government's foreign debt increased rapidly. But in 1982, Argentina defaulted on its foreign debt, as did many other countries in the region. A natural consequence of this default was that the only remaining source of financing for the government was printing money. A decade of very high inflation followed, which ended when the currency board was adopted in 1991.

This is the starting point of the third subperiod, 1991–2001, characterized by a second liberalization of financial and international markets and a successful debt renegotiation process. This process allowed the government to borrow in international markets again. A decade of low inflation and high growth ensued. However, the debt kept growing and a new crisis developed in 2001, a year that saw the currency board collapse in the midst of a banking crisis and a new default on government debt.

The final subperiod starts in 2002, with Argentina excluded again from international markets because of the default during the previous year.<sup>2</sup> A bargaining round with bondholders was held in 2005, when around 75 percent of the debt was renegotiated. A second round took place in 2010, and the proportion of the debt renegotiated went up to 93 percent. The remaining bondholders went to court and were finally paid in 2016. Thus this period is characterized by the government's inability to borrow abroad. The recovery from the 2001 crisis was fast, leading to high growth rates in per capita income, with higher inflation rates than in the 1990s, but very moderate and stable relative to the Argentinean experience of the second half of the twentieth century. This discussion rationalizes the vertical lines in Figures 1 to 3.

The rest of the chapter evolves as follows. In the second section we discuss the evolution of the debt of the Argentinean government, as well as some of its characteristics. The third to sixth sections describe in detail the main macroeconomic events of each of the subperiods. In each of those sections, we also discuss how well the events can be understood using the conceptual framework in "A Framework for Studying the Monetary and Fiscal History of Latin America." In the seventh section we present the budget constraint decomposition discussed in "A Framework," and in the final section, we provide some concluding remarks.

## The Evolution of Government Debt

The value of Argentina's government debt in 1996 U.S. dollars is depicted in Figure 4. The figure represents total federal government debt, including bonds, banking debt, and debt with other governments and financial institutions, as well as the debt of the provinces and public enterprises when information is available.<sup>3</sup>

The level of the debt was small and relatively stable during the first subperiod. However, starting in 1975 and until the default of 1982, the yearly average growth rate of the debt was close to 30 percent. From the time of the default until the end of the decade, the debt remained roughly constant again, its movements essentially explained by two factors: first, by the arrears that resulted from the default, and second, by the liabilities that resulted from the balance of payments and banking crisis of 1981, which were gradually accounted for as they matured. Starting in the early 1990s, as the government regained access to international capital markets, the debt started to grow again, at the average yearly rate of 10 percent. This persistent increase in debt continued until the 2001 crisis. At that point, the evolution of debt is characterized by a sharp increase from 2002 through 2004 and a drastic reduction in 2005. These fluctuations represent the fiscal cost of the crisis and the subsequent debt renegotiation that included a substantial haircut on capital. By 2011, government debt was at the value it had been prior to the 2001 crisis. Then debt rose again as the fiscal deficit grew. Since a fraction of the debt defaulted in 2001 was still in default until 2016, most of the new debt issued was domestic. After the final agreement in early 2016, the government regained wide access to foreign

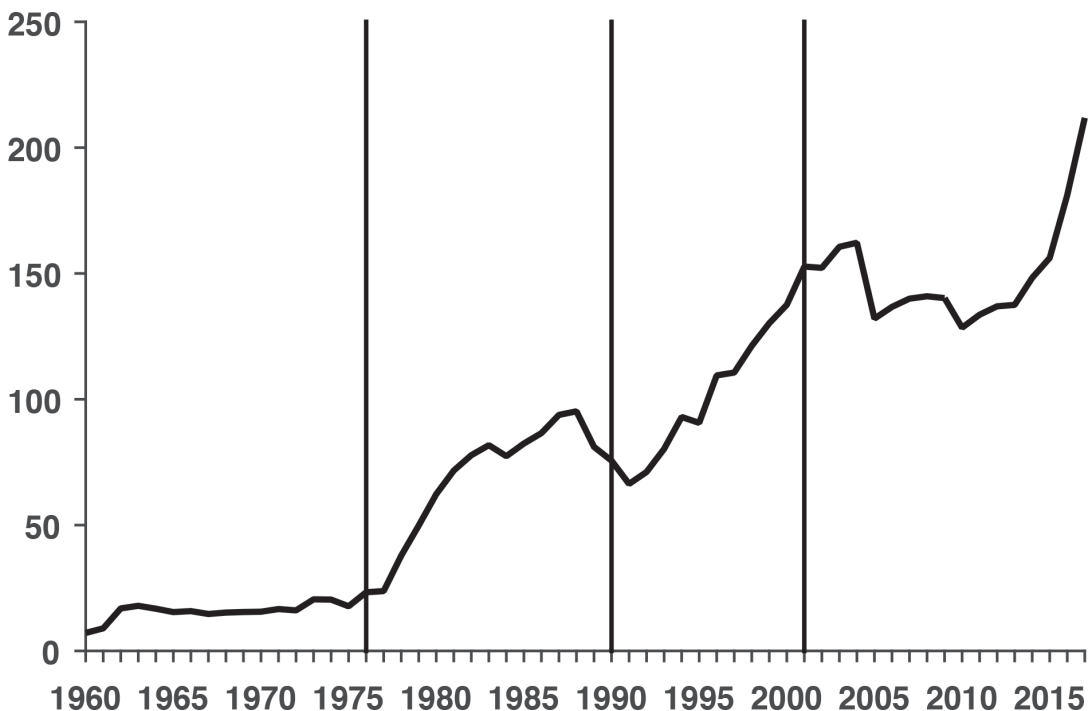


Figure 4. Total public debt, 1996 billion U.S. dollars

borrowing, and the increase in the deficit in the last years explains the corresponding sharp increase in total debt.

Figure 5 depicts the debt-to-GDP ratio. Two main developments affect this figure relative to the one before. The first one—GDP growth—is obvious. The second, which is very important for Argentina during the period, is real exchange rate movements between the peso and the dollar. GDP as well as peso-denominated debt are deflated using peso price indexes, while the dollar-denominated debt is deflated using the U.S. price indexes and the nominal exchange rate between the peso and the dollar. Any movements in the real exchange rate will affect the figure. This is important to consider because it implies movements in the debt-to-GDP ratio that are associated not with the evolution of the deficit but with relative price changes, and substantial relative price changes took place in Argentina during the period considered here, as we now show.

To decompose the effect of real exchange rate changes in the evolution of debt, Figure 6 depicts a counterfactual value of the debt-to-GDP ratio. The simulation is made assuming a value for the real exchange rate that is, for the whole period, equal to the value it had in 1991. This real exchange rate is used to value the fraction of total debt that was denominated in dollars.<sup>4</sup> The differences between the two curves are very large, making evident the role of the real exchange rate in explaining changes in the debt-to-GDP ratio.<sup>5</sup> Thus, while the debt-to-GDP ratio could be low by international standards, a large and sudden real exchange rate appreciation can substantially modify this ratio. As it turns out, large and sudden real exchange rate appreciations are not uncommon events.

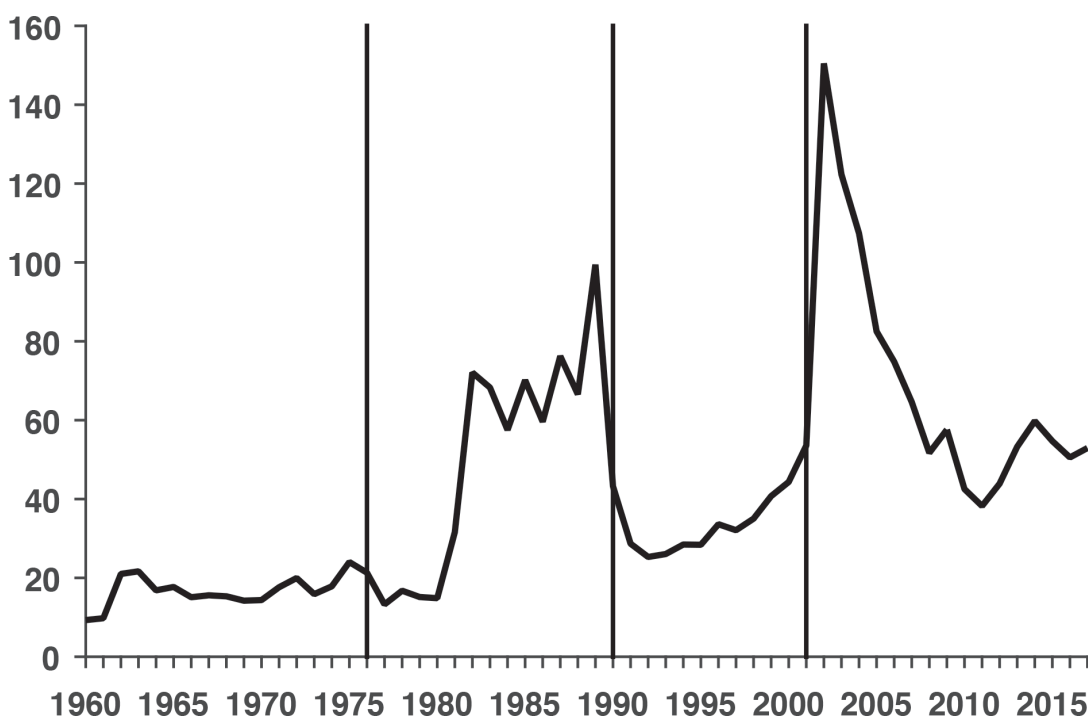


Figure 5. Total public debt, percent of GDP

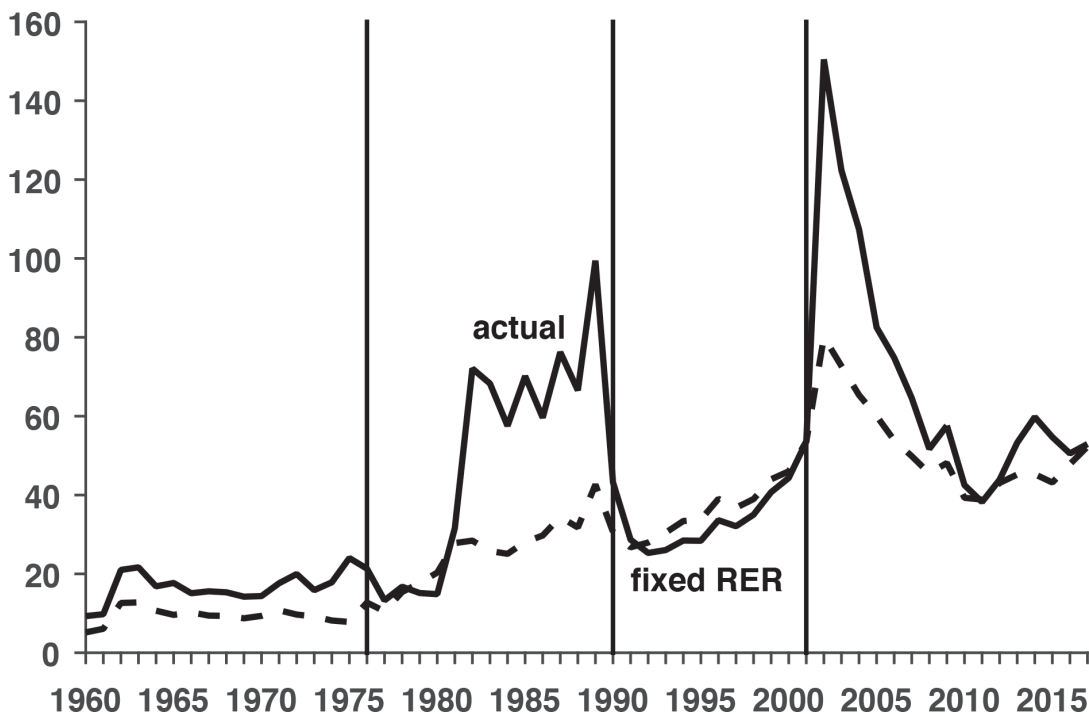


Figure 6. Simulated public national debt fixing the real exchange rate (RER), percent of GDP

To further understand the previous two figures, in Figure 7 we plot the ratio of total debt denominated in pesos to total debt denominated in foreign currency, as well as the ratio of nonindexed debt to indexed debt, starting only in 1962, the first period for which we have data. The share of peso-denominated debt was important (about a third of total debt) during the 1960s and vanished during the high-inflation period. It then had a modest increase in the 1990s and only became significant again after the 2001 crisis. Most of the peso-denominated debt issued during the 1990s is nonindexed debt, while in the 2000s the opposite was true. Figures 5, 6, and 7 together show that while the debt-to-GDP ratio was low in normal times, albeit trending up, the exposure of this number to real exchange rate fluctuations was very important. For most of this period, around 90 percent of the debt was dollar denominated, which means that a real exchange rate depreciation would substantially affect that ratio. For instance, to increase the debt-to-GDP ratio from 25 percent to 40 percent, the government should have a deficit (including interest payments) three points higher than the growth rate of output sustained for ten years. A crisis that conveys a 50 percent real depreciation—a modest number given the recent experience—would achieve that change instantaneously.

Another feature of the debt that is relevant for the discussion that follows is its maturity structure, as discussed in “A Framework for Studying the Monetary and Fiscal History of Latin America.” Figure 8 depicts the evolution of the maturity of government debt, as measured by the share of debt maturing in one year. As shown in the figure, substantial changes have taken place over the years. The stabilization period of the late 1970s

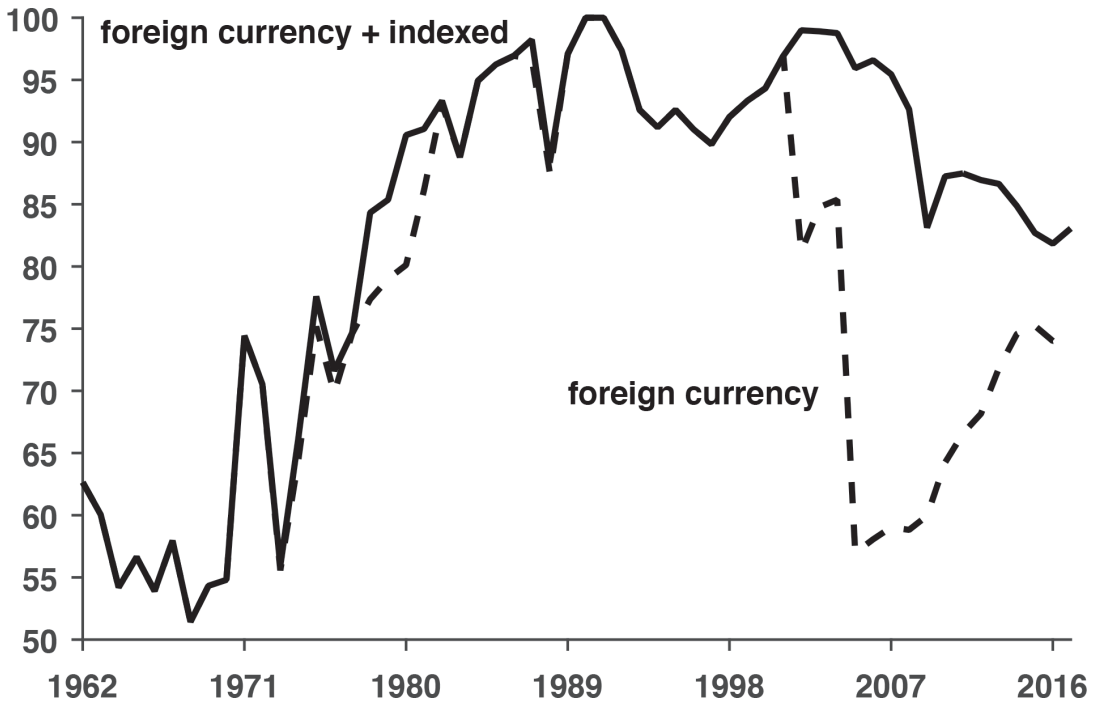


Figure 7. Types of public debt, percent of total public debt

inherits a distribution of maturities that are highly biased toward short-term debt. Almost a third of the debt was due within a year. The bias toward short-term debt continues up to the default, suggesting that rollover risk may have been a key aspect of the debt crisis. Following the debt restructuring under the Brady Plan, less than 10 percent of the debt was due in a year. This is a reflection more of the negotiations between the government and the creditors that took into account the government's inability to quickly generate surpluses to pay the debt than of an explicit policy to manage the maturity of the debt.

However, the debt expansion of the 1990s evident in Figure 4—most of it voluntary debt floated by the government in international capital markets—managed to preserve a favorable maturity structure. Thus by 1997 less than 40 percent of the debt was due in the following four years, and only 8 percent was due in the following year. By 2000 the maturity problem worsened somewhat. The fraction of debt due in the following year increased to 14 percent of GDP. Nevertheless, while substantial, the maturity problem was less significant than it had been prior to the 1982 crisis. By 2009 the structure was similar to that in 2000 and worsened somewhat by 2017: the debt maturing in one year was then slightly less than 20 percent of the total stock of debt, which is equivalent to roughly 12 percent of GDP, a relatively large number that needed to be rolled over during the following year.

A final factor that determines the evolution of the debt is the real interest rate faced by the country. Movements in that rate can be explained by changes in the international risk-free rate or in the default risk; this last component may be driven by fundamentals or

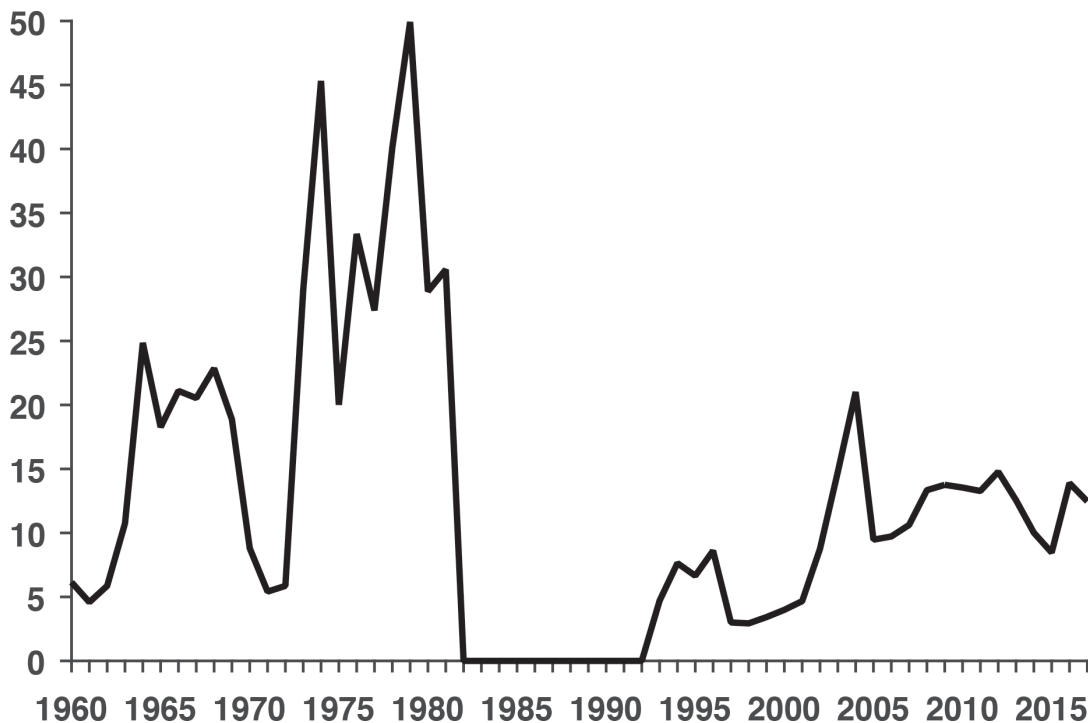


Figure 8. Short-term public debt, percent of total

multiplicity, as explained in “A Framework for Studying the Monetary and Fiscal History of Latin America.” In Figure 9, we plot total interest payments over GDP. As the figure shows, in both default episodes, interest payments to GDP reached very high values. In the first case, 1981, it coincides with high real interest rates in the United States. But in the second, 2001, it is less obvious that the international risk-free rate had a spike, suggesting that default risk may have played an important role. While movements in the interest rate can explain the behavior in Figure 9, another factor should be considered, one related to the nature of the bonds issued and the accounting practices that were followed. The total interest paid on the accounts corresponded to the interest that actually accrued. Thus the amount of interest paid depended on coupons paid by the type of bond that was issued. At the time of the debt renegotiation in the early 1990s, some of the bonds were structured to back-load the interest payments, a feature that also explains part of the sharp increase shown in the figure during the second half of the 1990s.

## 1960–76

During the first decade and a half of the period we study, Argentina was closed to international capital movements. At the same time, the domestic financial market was heavily regulated. The interest rate was fixed by the government, and credit intermediation was

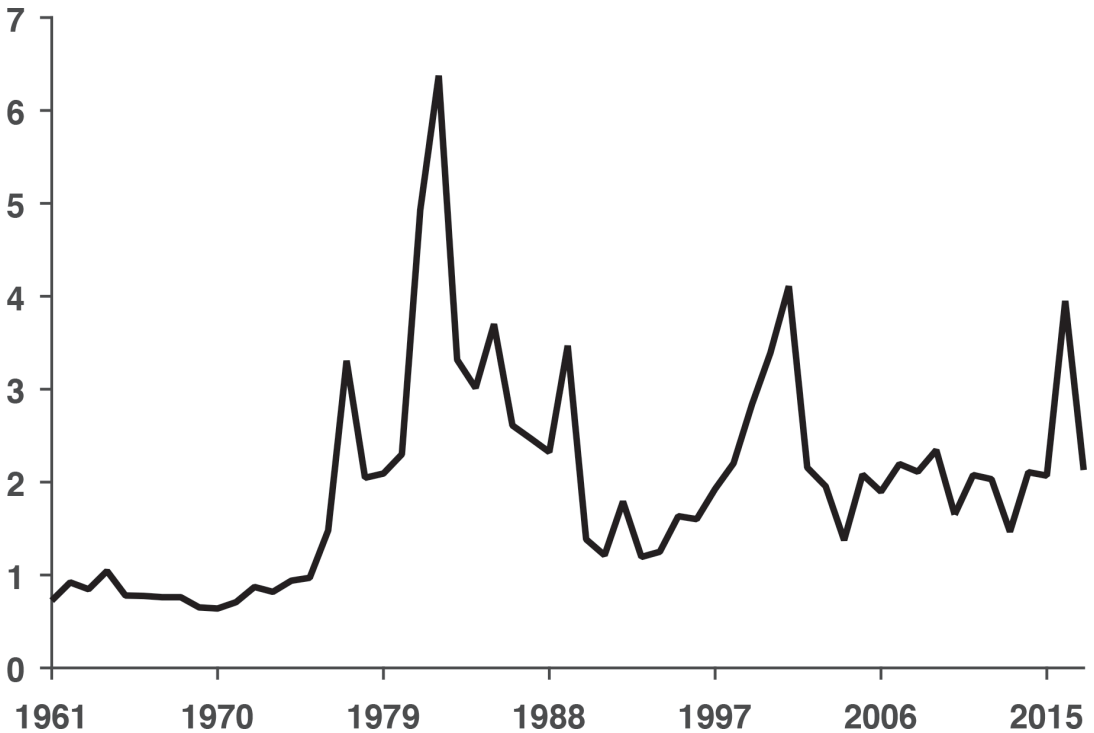
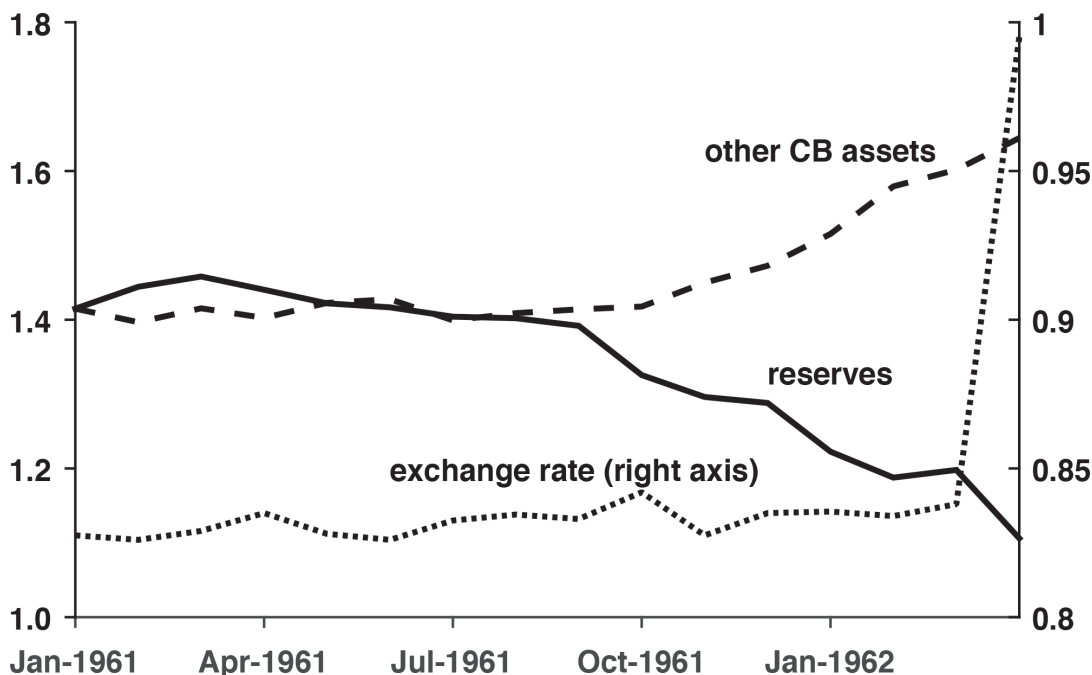


Figure 9. Interest payments, percent of GDP

mostly done through government-owned banks. As a result, there was very little room for financing fiscal deficits with debt. In 1960, the ratio of government debt to GDP was a mere 9.8 percent.

The period we discuss in this section starts in the middle of a stabilization plan that had been launched in 1959, the objective of which was to reduce the inflation rate. The nominal anchor chosen was the exchange rate. But, as Figure 3 makes clear, the required fiscal adjustment did not complement the stabilization efforts and rose from 2 percent in 1960 to around 5 percent by 1962. As a result, and as explained in “A Framework for Studying the Monetary and Fiscal History of Latin America,” because of the difficulties of borrowing, part of that deficit was financed by monetary expansion from the central bank. We show this expansion in Figure 10, which plots two components of the monetary base: the international reserves and the credit to the domestic market.<sup>6</sup> The figure shows that, starting in early 1961, the increase in domestic credit is accompanied by a reduction in international reserves, to the point where half of the reserves had been lost by the end of the year. This trend lasted until February 1962, when the fixed exchange rate policy was abandoned and a devaluation of 60 percent followed in the subsequent three months, pushing inflation all the way up to 30 percent by the end of 1962. Figure 10 is a transparent example of the mechanics of a balance of payments unraveling due to a monetary financing of the deficit, as described in “A Framework for Studying the Monetary and Fiscal History of Latin America.”



**Figure 10.** 1962 BoP crisis, Reserves and other Central Bank assets, billion U.S. dollars, ER in pesos/US dollar

The rest of the decade showed a gradual adjustment of the deficit, followed by a similar gradual adjustment in the inflation rate, which reached a one-digit yearly rate in 1969. Argentinians had to wait more than two decades, until 1993, to live in a one-digit-inflation economy again.

Starting in 1970, the healthy downward trend in the deficit reverted, and it started growing again every year, reaching a record high of 11 percent of GDP by 1975. Given the difficulties of borrowing, our conceptual framework implies that inflation should also increase, which is exactly what happened (see Figure 2), consistent with the fact that total government debt barely changed during this fifteen-year period. An apparent contradictory feature between Figures 2 and 3 is the drop in the inflation rate in 1973 and 1974 in spite of the rampant deficits. These years were characterized by policies of price controls that at times generated shortages of products. These price controls were eliminated in July 1975, and the first outburst of inflation ensued, reaching values between 300 percent and 700 percent annually during several months of 1975 and 1976.

Total public debt dropped substantially between the crisis of 1962 and 1968, in both constant dollars and as a fraction of GDP. We conjecture that part of this reduction can be explained by negative ex post returns on peso-denominated debt, induced either by unexpected inflation or by direct controls in the nominal interest rate. As we mentioned, during the period, the domestic financial sector was heavily regulated, including the imposition of ceilings on nominal interest rates. Note that by 1975, more than 90 percent of the debt was either indexed or in dollars (see Figure 7). This result was very likely the

outcome of past experiences during which the government inflated away part of its debt.

In summary, this period matches the analysis in “A Framework for Studying the Monetary and Fiscal History of Latin America” remarkably well. The government did not have access to international credit markets, and the domestic market offered limited financing. Thus the fiscal deficit was driving inflation during this period. As the fiscal deficit went out of control by 1975, so did the inflation rate.

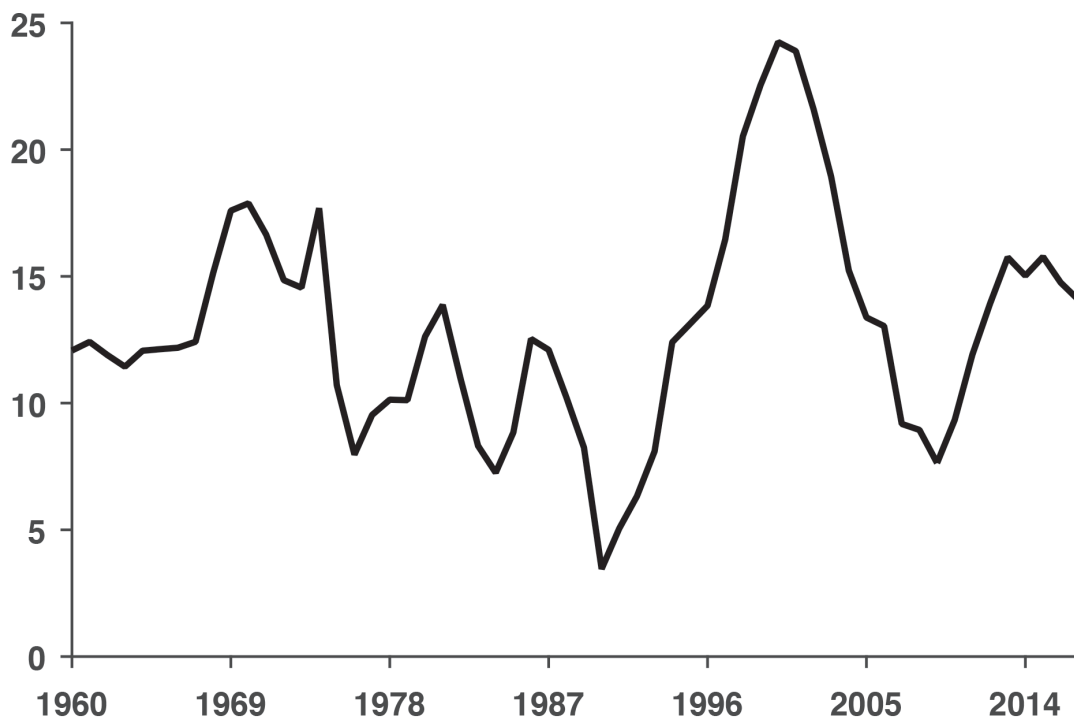
## 1977–90

The early years of the period 1977–90 are marked by widespread deregulation of the economy. Trade barriers were substantially reduced, and the capital account was liberalized, allowing for both private and public borrowing. This allowed the government to finance its deficit abroad at a time of highly liquid international markets. In addition, the domestic credit market was also deregulated. Entry restrictions for private financial institutions were relaxed, and the interest rate was left to be market determined. As is customary in many countries, the government decided to provide deposit insurance.

Following these changes, many banks entered the market, and the size of the financial sector as a proportion of GDP increased dramatically. This is reflected in Figure 11, where we plot the total liabilities of the financial sector, minus the international reserves of the central bank, divided by GDP.<sup>7</sup> The measure in Figure 11 represents the contingent liabilities held by the government, which are not recorded in the debt measures—as long as a banking crisis does not occur. In this case, where there was deposit insurance, the figure represents explicit contingent liabilities. Because Argentina experienced three major banking crises during the period we study, this measure will help us understand the behavior of total government debt on some occasions, as we discuss below.

A final feature relevant to understanding the early years of this period is that the government also adopted a crawling-peg system as a way to gradually stop inflation. The scheme, which was very similar to the ones adopted by Chile and Uruguay at the same time, involved a sequence of preannounced and decreasing rates of devaluations of the peso versus the U.S. dollar. This system would gradually reduce the inflation rate, which had been over 700 percent in 1976. With the hope of making the exchange rate mechanisms more credible, the government offered exchange rate insurance in the event that a devaluation occurred.

The behavior of the deficit in 1977 was consistent with this gradual dis-inflationary approach, since it was brought down from over 8 percent in 1976 to less than 4 percent in 1977. However, as can be seen in Figure 3, it immediately started rising again, to above 8 percent in 1981. The crawling-peg system was successful at the beginning, so inflation continued to decline until 1981. This could happen, in spite of the increasing deficits, because the government could access the foreign debt markets in those years (see Figure 4). However, as Figure 12 shows, starting in 1980 the central bank began financing the rampant deficit by increasing the domestic credit component of the monetary base. Therefore, the international reserves started declining, just as they did during the



**Figure 11.** Financial exposure as a fraction of GDP

1962 crisis discussed above and in line with the discussion in “A Framework for Studying the Monetary and Fiscal History of Latin America.” The devaluation in 1981 and the consequent burst in inflation were thus unavoidable.

The devaluation triggered the two mechanisms discussed above. First, the exchange rate insurance contracts had to be paid. Second, because of a currency mismatch in the assets and liabilities, the devaluation affected the banking sector. On top of this, very weak regulation of financial institutions, coupled with deposit insurance, created a systemic moral hazard problem, inducing a high fraction of nonperforming loans on financial institutions’ balance sheets. This explosive combination generated a massive banking crisis and a decision to nationalize the debts of the banking sector. The rampant deficits, plus the realization of these contingent liabilities, led to a very high level of debt, high inflation, and the default on government debt in 1982.

The theory that emphasizes maturity is an attractive way to understand this episode. As mentioned above, the government accumulated contingent debt through the exchange rate and deposit insurance mechanisms. The deposits of the financial sector were of very short maturity, mostly a few months. The foreign exchange rate guarantee started for debts of over a year and a half but was rapidly extended to short-term liabilities too, so this bailout also included short-term debt. At the same time, the maturity of the existing debt in 1982 had an important bias toward the short term. According to Figure 8, more than 40 percent of the debt was due within a year. Thus 1982 and 1983 were years in which substantial amounts of liabilities were due.

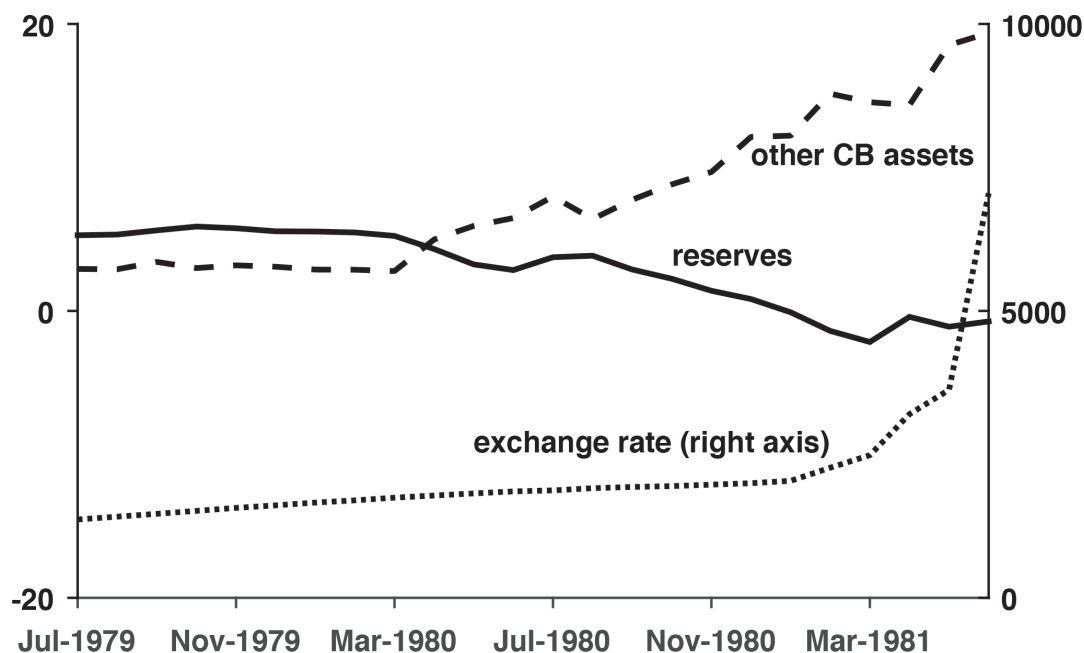


Figure 12. 1981 BoP crisis, billion U.S. dollars, exchange rate in pesos/U.S. dollar

The 1982 default forced the government out of the international capital markets until the early 1990s; hence, the fiscal imbalances had to be financed by seigniorage. The budget constraint discussed in “A Framework for Studying the Monetary and Fiscal History of Latin America” has a direct implication: deficits imply inflation, and that is the dominant characteristic of Argentina during this period. The hyperinflation of 1985 is the result of a declining but still high deficit.<sup>8</sup> The Austral Plan of June 1985 immediately brought down inflation, and a fiscal effort drove the deficit down to 3.7 percent and 2.9 percent of GDP in 1985 and 1986, respectively. But this effort reversed, and the deficit grew to around 5 percent in the following three years. Consequently, a new hyperinflation period developed by 1989. This decade is perhaps the most dramatic and clearest example of the forces behind the conceptual framework of the government budget constraint discussed in “A Framework for Studying the Monetary and Fiscal History of Latin America.”<sup>9</sup>

The lack of access to credit markets is reflected in the flat portion of total debt exhibited during the 1980s (see Figure 4). In fact, during this period, the only source of financing for the government, other than printing money, was through the financial system, by increases in the reserve requirements of commercial banks deposited at the central bank. These reserves were remunerated at market-determined interest rates. In this way, an important fraction of domestic savings in the form of deposits financed the central government. The central bank was thus effectively acting as the financial arm of the Treasury. As we discuss below, this mechanism created a short-maturity, peso-denominated debt that planted the seeds for a high-cost debt problem that led to the Bonex Plan in December 1989.

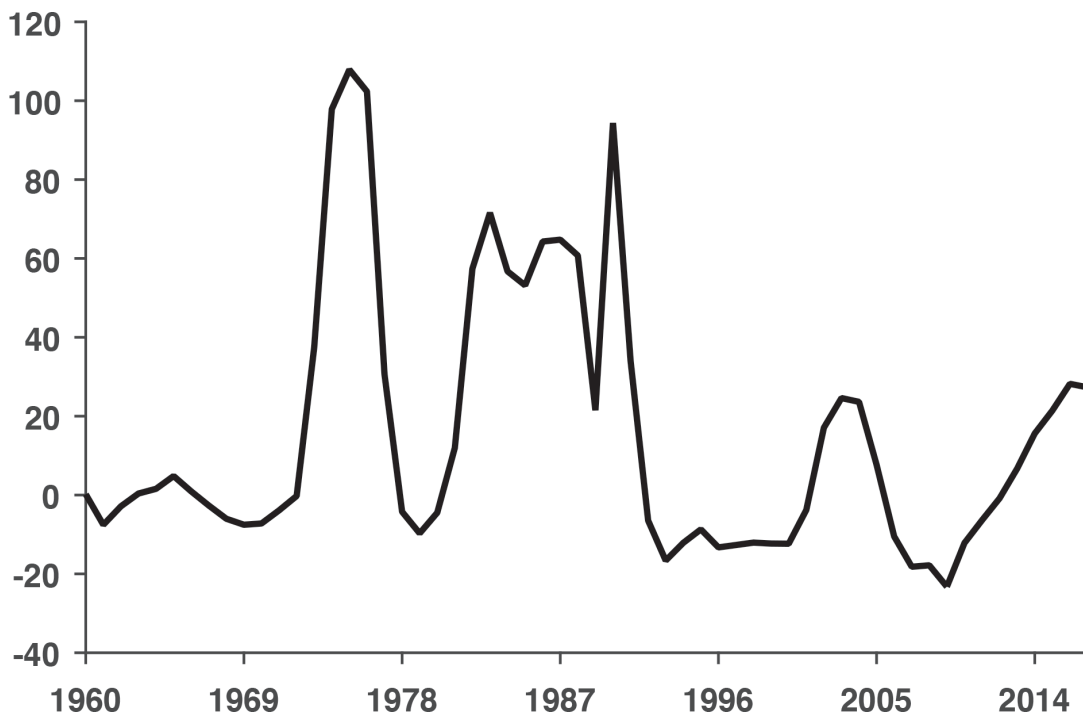


Figure 13. Central bank liabilities, percent of liabilities of financial sector

Figure 13 depicts the interest-bearing liabilities of the central bank, net of the international reserves, as a fraction of the total liabilities of the financial sector.<sup>10</sup> This is a key element in understanding some developments of the period 1989 to 1991. The implicit maturity structure of this debt is the maturity structure of the financial system liabilities, mainly deposits. During the period, the most common maturity for deposits was a week, almost never above a month. Thus the government was indebted to the private sector through the financial system at very low maturities for deposits. This form of financing—at very short maturities and very high interest rates—is the genesis for another episode involving rollover risk: the Bonex Plan of December 1989.

In order to understand the main forces behind this plan, let us go back to Figure 13. By 1989, almost 90 percent of the lending capacity of the banking sector went toward financing the government. Because of the extreme instability of the time, with highly volatile inflation rates, the most common maturity of deposits was a week. Thus the liabilities of the central bank represented very short-term maturity debt. On the verge of a stabilization plan, this very short-term, peso-denominated debt represented both a maturity and a denomination overhang, which can both be understood by using the conceptual framework of “A Framework for Studying the Monetary and Fiscal History of Latin America.” The Bonex Plan was a swap of maturities and a swap of denomination. It mandatorily changed the peso-denominated short-term deposits of the private sector to dollar-denominated bonds with a ten-year maturity. The effect of the plan can be seen in Figure 11, which shows the large drop in the liabilities of the banking sector in 1989.

The Bonex Plan swap may have prevented bad equilibria, in which high interest rates justify a higher probability of default (either explicit or through future inflation), and the higher probability of default justifies those higher interest rates. This is one potential implication of the models in Calvo (1988), Cole and Kehoe (1996, 2000), and Calvo (1998) reviewed in “A Framework for Studying the Monetary and Fiscal History of Latin America.” The reason is that the plan changed the denomination and the maturity of the debt the government had when the currency board was launched the following year. Thus the plan was in all likelihood an important ingredient in taming the high inflation in Argentina during the last decade of the last century. The deposits were swapped with Bonex, domestically issued dollar-denominated bonds. Several series of Bonex bonds were in circulation at the time, and the government never defaulted on them. The Bonex issued for this plan were fully paid by the government in due time. However, in the week immediately after the plan, the newly issued debt was selling at thirty cents per dollar. Thus it implied a substantial wealth redistribution from deposit holders, for whom their (one-week) term deposits were transactional assets and who needed to liquidate these deposits to pay incoming obligations, to deposit holders with deep pockets and no liquidity constraints.

## **1991–2001**

The Bonex bonds may have been instrumental in improving the characteristics of the debt by 1990. However, besides the effort to lower the fiscal deficits that averaged 6.5 percent of GDP from 1987 to 1989, by 1990 the deficit was still 4 percent of GDP, inconsistent with low inflation rates, given the lack of access to foreign credit. A new burst of inflation, reaching a monthly rate of almost 100 percent in March 1990, was a dramatic beginning for a year that ended with an overall inflation rate exceeding 700 percent, and it paved the way for the currency board adopted in April 1991, the starting point of the third subperiod. The currency board established a fixed exchange rate between the U.S. dollar and the newly created peso at a price of 1. It also, by law, changed the mandate of the central bank of Argentina and imposed a 100 percent U.S. dollar backing of the monetary base.<sup>11</sup> In this way, the central bank could only print pesos to buy U.S. dollars, shutting down monetary financing of the deficit. The logic of the currency board was simple: by law, it made the inflation tax term in the budget constraint equal to zero. Thus any remaining deficit ought to be financed by issuing debt. This was a new attempt to end the policy regime of fiscal dominance that had prevailed in Argentina for decades and to begin a new regime of monetary dominance. Consistent with that notion, Congress passed a law that gave independence to the central bank—a law that has also been modified after the 2002 crisis.

The government was in default at the time, however, so the ability to borrow abroad was severely limited; that was why inflation was unavoidable during the 1980s, given the high fiscal deficits. Thus the currency board strategy was to put all eggs in the same basket: only fiscal surpluses would make the currency board viable. And so it

was. As can be seen in Figure 3, the deficit was practically eliminated in 1991 and 1992, and a surplus was generated in 1993. One factor that explains this behavior is the privatization of state-owned companies in the beginning of the decade, which directly added to available resources.<sup>12</sup> The government accepted its own bonds as a means of payment in the auctions, so to some extent, the privatization process was a state company stocks-bond swap.

There is a sense in which the logic of the currency board had a substantial impact. As mentioned, it was designed to force a dramatic reduction in fiscal deficits, and along that dimension it was successful: monetary dominance prevailed in the years that followed. As can be seen in Figure 3, between 1960 and 1990, the deficit was below 2 percent only from 1966 to 1970. All other years it was above 2.5 percent, and during those thirty-one years, it averaged 4.7 percent of GDP. On the other hand, since 1991 it was above 2 percent (but barely so) in 1996, 1999, and 2001 and more recently in 2011 and 2013, but again, barely so. From 1991 until 2013, it averaged 0.75 percent. It seems apparent that the year of the structural break is 1991.

The fiscal effort is more radical than the numbers in Figure 3 suggest, since in 1993 Argentina reformed the social security system, which transitioned from a pay-as-you-go system to a fully funded one with private accounts. This transition had an important effect on the fiscal deficit, since the obligations to the current pensioners had to be partially absorbed with regular taxes.<sup>13</sup>

By 1993, with the economy growing at high rates, the government signed on to the Brady Plan, which was intended to restructure the debt in default—mostly bank debt—and transform it, after some debt forgiveness, into sovereign bonds. Following the plan, the government was able to borrow again in international markets, and this explains the expansion of the debt during the 1990s, which is clear in Figure 4. The natural reading of this event, using the budget constraint, is that the Brady Plan allowed the government to run the deficits from 1994 onward.

In early 1995, a severe bank run began, during which total deposits of the banking sector fell by almost 20 percent in five months. The same year, output dropped by 4 percent. The 1995 banking crisis was particularly difficult, since the currency board implied that the central bank was severely limited in acting as a lender of last resort. Had the banking crisis been much more severe, it would have forced the government to increase financing because of the existing contingent liabilities. Figure 11 shows that total financial exposure was around 13 percent of GDP. In the same period, the ratio of total debt to GDP was around 25 percent. It is unclear whether the government could have borrowed abroad to face additional liabilities equivalent to the total financial exposure. But, as it turned out, it did not need to: by mid-1995, the run on deposits was over. As we will see, this problem was substantially more severe in 2001.

Starting in 1994, deficits were positive, so debt started rising, doubling in about ten years. However, the size of the reported deficits, shown in Figure 3, does not seem to justify such a large increase in debt. As we show in the seventh section of this chapter, part of the increase in debt can be explained by unrecorded liabilities from the previous decade that were recognized later during this time period.

Starting in 1998, the country faced a sudden reversal of its current account, following the financial crisis of Southeast Asia in 1997 and the Russian default of 1998. A recession started in 1998 that ended a strong recovery with GDP growth rates that had been around 6 percent a year. This effect interacted with a feature that responded to the Brady negotiations of half a decade earlier. At the time, the debt payments, in terms of both capital and interest, had been back-loaded, and an important fraction of the debt was maturing starting in 2001, a year in which interest payments alone were above 4 percent of GDP (see Figure 9). The apparent difficulties in dealing with the payments on the foreign debt, together with the prolonged recession, started weakening the credibility of the currency board. As the financial system was highly dollarized, this raised doubts regarding the soundness of the banks, and a run on deposits started in early 2001. By then, as Figure 11 shows, the total exposure of bank liabilities was over 16 percent of GDP. Thus while the currency board implied that the central bank could back 100 percent of the monetary base, it could certainly not act as a lender of last resort unless it could obtain foreign borrowing in those amounts. But this banking crisis was unraveling at the time of a major credit crunch!

The deposit run lasted almost the whole year, mostly owing to the heavy capital requirement and liquidity provisions imposed on the banking sector by the central bank. But by November 2001, over 27 percent of the deposits had left the banking system. The inability of some banks to respond to their depositors led to a deposit freeze by the end of November. The freeze lasted only a few weeks, however, and the crisis, which implied the fall of the acting administration, ended in default on foreign debt and the abandonment of the currency board by January 2002, in the midst of the worst depression Argentina had experienced in decades.

During the decade we are considering, the values for inflation, the deficit, and the debt-to-GDP ratio for Argentina all satisfied the values required in the Maastricht Treaty, which established conditions for entry in the Eurozone. During the few years following the treaty, none of the European countries that signed the treaty satisfied those conditions. In spite of this, the country risk that the Argentinean government faced on the bonds it issued was on average around 6 percent a year. This country risk implied (assuming one-period debt, just to simplify) an extra payment during the decade of more than 15 percent of GDP. A counterfactual in which Argentina faced zero country risk, where those funds were used to cancel debt, would have left the country a debt-to-GDP ratio in 2000 equal to 25 percent instead of the 40 percent it had. Would Argentina have defaulted with that debt-to-GDP ratio? The models with multiple equilibria discussed above suggest that this may have been a critical factor during the 1990s.<sup>14</sup>

## **2002–17**

The bottom of the recession was the first quarter of 2002, after a drop in GDP since 1998 of close to 18 percent. Unemployment reached unprecedented levels, and poverty rates rose above 40 percent. The crisis was very expensive in terms of its effect on public

debt, as the jump in 2002 in Figures 4, 5, and 6 shows. Three factors are important in explaining this jump. The first was a bailout to the banking sector, which was bankrupt because of an asymmetric conversion of bank assets and liabilities to pesos. Indeed, while the dollar-denominated deposits were transformed to pesos at a 1.4 exchange rate, the dollar-denominated loans were transformed to pesos at the value of 1.0. The second factor is that by 2002, several provincial governments had debts that were absorbed by the federal government. The third was the launching of ad hoc social programs designed to cope with the impact of the crisis on the poorest share of the population. The 2005 debt renegotiation explains the large drop in debt in that year. The offer made in 2005 was accepted by a fraction of bondholders that was large enough to amount to almost three-quarters of the total owed. A second round of renegotiation in 2010 took that figure to 93 percent. The remaining 7 percent won the right in court to be paid in full, and a final agreement with creditors was reached in 2016.

It is worth mentioning that even after the debt forgiveness of 2005, total debt in 1996 dollars (Figure 4) and the debt-to-GDP ratio (Figure 5) were higher in 2006 than the value of 2001, just before the default. An important ingredient in many theoretical models of default like the ones revisited in “A Framework for Studying the Monetary and Fiscal History of Latin America” is that countries that go through a default episode may pay costs arising from different sources, but they end up with substantially lower levels of debt. At least in the case of Argentina, this does not seem to be the case.

The recovery from the Great Recession of 1998–2002 was very fast and was accompanied by six consecutive years of fiscal surpluses—a completely unprecedented event in Argentina. Those surpluses implied that the natural exclusion from credit markets that followed the default did not have any consequences for the inflation rate: there was no need to raise seigniorage. As a result of those surpluses, inflation remained mostly at a one-digit level from 2003 to 2007, and the dollar value of the debt in 2010 was very similar to what it had been in 2006, the year following the first and larger step in the long debt renegotiation process.

Things changed between 2008 and 2010. The healthy surpluses started to disappear and became a 2 percent fiscal deficit by 2013. The deficit then continued to increase, reaching a worrying value of close to 6 percent by 2017. Given the lack of access to foreign borrowing that lasted until 2016, the deficits had to be financed by seigniorage, and inflation rose again, to an average close to 25 percent a year, remaining around that value until the end of the sample. Not all the deficit was financed by the central bank during the period: domestic debt instruments were issued, explaining the upward trend in debt since 2010. Finally, the agreement with all bondholders by 2016 allowed the government to again borrow abroad, which explains why the large deficits of 2016 and 2017 did not put pressure on seigniorage but rather were financed by foreign debt, as Figure 4 makes clear.

The structural change in the behavior of the deficit in 1991, visible in Figure 3, did revert sometime between 2008 and 2010, and it has gone back to levels that resemble the period before 1991 and all the way to 2017, the last year covered by this study. One implication of the theories discussed in “A Framework for Studying the Monetary and Fiscal History of Latin America” is that if this deficit process is not modified, macroeconomic

instability may eventually resume in Argentina. As we finish the last version of this chapter at the end of 2018, those signs of instability are already clearly visible, as discussed in the conclusions.

## Budget Constraint Decomposition

In this section, we present the decomposition of the budget constraint discussed in “A Framework for Studying the Monetary and Fiscal History of Latin America,” which is the basis for our summary and conclusions in this section. Table 1 presents each of the main components for the four subperiods studied. The top two rows are the sources of financing: change in debt and seigniorage. The bottom two rows are the needs for financing that is, the primary deficit and interest payments.

As discussed in “A Framework for Studying the Monetary and Fiscal History of Latin America,” we have used independent measures for all the components of the budget constraint. Thus the numbers will not necessarily match in any particular period. We mentioned above several reasons why this may be the case. For example, the payments made for deposit and exchange rate insurance in the early 1980s were contingent liabilities that became explicit liabilities. At the same time, the resolution of the banking crisis in 2002, in which dollar-denominated assets and liabilities of the banking sector were transformed to pesos at different rates, involved the issuance of bonds to recapitalize the banks.

To make progress in quantifying these off-the-books measures, we then use the government budget constraint to compute a transfer, as explained in “A Framework for Studying the Monetary and Fiscal History of Latin America.” This transfer measures the excess spending in that period if it turns out to be positive. And it measures unrecorded taxes or confiscations when it is negative. The average value of this transfer for each of the subperiods is depicted in the bottom row of Table 1.<sup>15</sup>

The first subperiod is characterized by sizable primary deficits of 3.6 percent and small interest payments. As we mentioned above, given the lack of access to credit markets, it was hard for the government to finance them with debt, which is reflected in the slow average increase in debt during the period. On the other hand, monetary financing was important in that seigniorage net of money creation was a large fraction of financing,

**Table 1.** Budget constraint decomposition

	1960–75	1976–90	1991–2001	2002–17
<b>Change in debt (A)</b>	0.9%	2.9%	0.4%	−0.1%
<b>Change in real money (B)</b>	−0.4%	−0.3%	0.1%	0.2%
<b>Seigniorage (C)</b>	2.4%	3.8%	0.3%	1.8%
<b>Primary deficit (D)</b>	3.6%	3.1%	0.0%	−0.5%
<b>Interest payments (E)</b>	0.1%	2.3%	−0.3%	−0.3%
<b>Transfers = (A + B + C) − (D + E)</b>	−0.8%	1.0%	1.2%	2.7%

which explains why inflation was high during the period. Finally, this is the only subperiod in which the transfer is negative—probably explained by the fact that many of the local debt instruments were denominated in pesos, so increases in inflation diluted the real value, which is equivalent to a confiscation of private-sector assets. As shown in Figure 7, Argentines quickly learned this lesson, and the ability of the government to issue peso-denominated nonindexed debt was very limited from then on.

The second subperiod is also characterized by high primary deficits—though a bit lower than the previous decade and a half—but substantially larger interest payments. This reflects the large increase in government debt (see the top row of Table 1) during the early years of this period. Seigniorage was substantially higher than the period before, which also explains the higher inflation rates in this subperiod. Notice, however, that overall, inflation allowed the government to collect an additional 1.6 percent of GDP, compared with the previous fifteen years. The price paid during times of higher inflation seems to be excessively high, as Figure 2 makes clear.

The radical change in the behavior of the primary deficit starting in 1991 can also be seen in Table 1. Seigniorage became negligible in the 1990s because of the currency board. All increases in the debt are explained by positive transfers. Most of these transfers arose in the years immediately after the inflation rate was stabilized and can be explained by a series of bonds issued to pay unrecorded debts, mostly with pension holders, that had been taken to court.

The final period is characterized by the resurgence of seigniorage as a major source of revenue, as was the case in the first two periods. The primary deficit is negative on average, but, as we mention in the text, worsens during the last years. The very large value of the transfers can be explained mostly by the large increase in debt during the 2002 crisis, as can be seen in Figure 4. The off-budget expenses of those years were so large that they more than compensated for the write-off obtained in the first step of the debt renegotiation process in 2005, which can also be seen in Figure 4.

An alternative way to evaluate the overall impact, throughout the period, of these off-budget expenses is to simulate what total debt would have been in each year if these transfers had been zero every year.<sup>16</sup> The result can be seen in Figure 14, where we plot the result of the simulated debt-to-GDP ratio, together with the observed value. As expected, during the first subperiod, the simulated debt is higher than the observed one. This pattern started changing in the early 1980s, and the difference was likely the result of the deposit and exchange rate insurance that had to be paid in 1982. The difference then becomes larger in the early 1990s, related to the issuance of bonds to pay for unrecorded debts, as mentioned above. It then becomes very large during the crisis, moderating the year of the debt renegotiation but increasing again after that year. Our interpretation of the difference between the true values for the debt and the simulated values is precisely those off-the-books expenses created by the contingent liabilities.

Overall, the picture describes a dramatic fact. By the end of 2017, the debt-to-GDP ratio of Argentina was somewhat above 50 percent. This calculation shows that if it had been based only on the recorded deficits, the ratio should have been just 20 percent. Thus more than 60 percent of the total debt can be explained by “accidents” rather than conscious and agreed-upon decisions to change government spending.

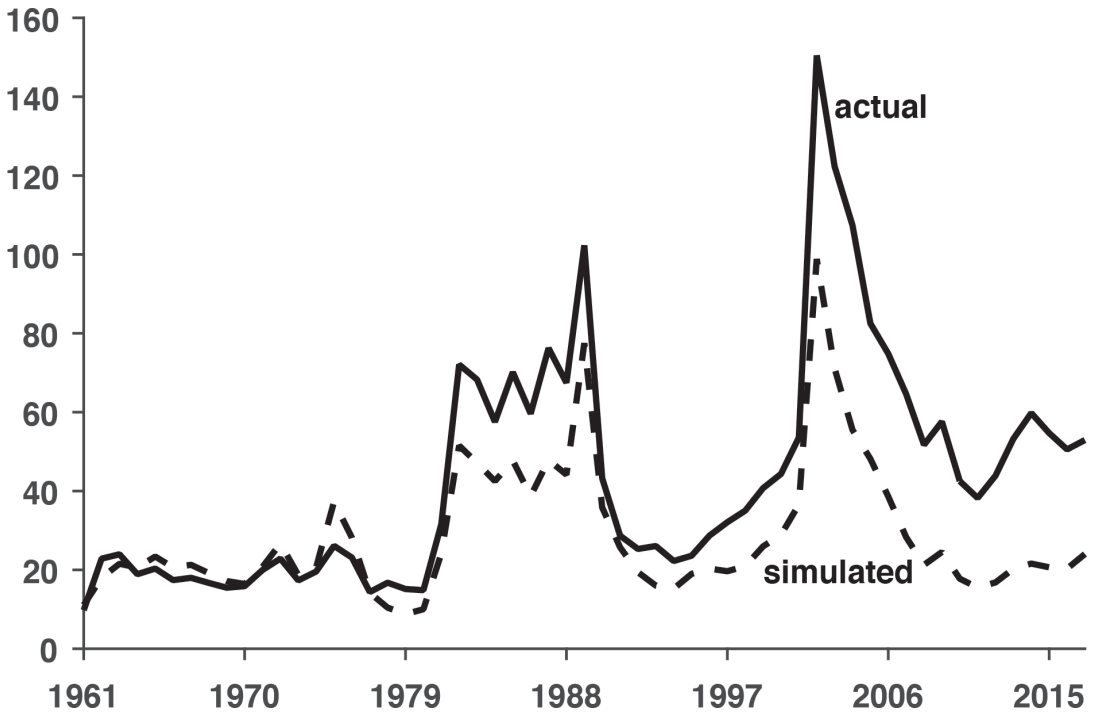


Figure 14. Simulated vs. actual debt, percent of GDP

## Conclusions

Our analysis strongly supports the view that from 1960 to 1990, a systematic imbalance between government revenues and outlays explains the chronic and high inflation rates that Argentina experienced during those three decades. At the same time, the economic performance of the country during the fifteen years of the highest inflation rates was extremely disappointing: per capita income in 1990 was essentially the same as in 1960 (see Figure 1). The analysis also explains why, starting in 1991 and until 2001, Argentina used over 2 percent of its output, on average, to service its debt, since its primary deficit was zero on average. The increase in the debt incurred to pay that interest explains most of the debt increase during the 1990s that led to the 2001 debt crisis. The debt crisis was very expensive fiscally, and the government ended with a higher level of debt, even taking into account the haircut agreed upon in 2005, in the first step of the debt renegotiation process. That debt burden remains today, and it has been exacerbated by a substantial deterioration of the primary deficit, with values that resemble the ones that prevailed during the times of high inflation and bad economic performance. As we finish writing this chapter, at the end of 2018, some of the potential risks of that deterioration of the primary deficit, together with the debt burden, have already been realized, and their impact has become visible. The inflation rate has been higher than the government anticipated, and there was a run on the dollar that generated a doubling of the exchange rate in just a few weeks, leading to two changes in central bank authorities during 2018. At the same

time, the interest rate charged on Argentinean bonds has increased dramatically, to the point where the government has been forced to ask for financial assistance from the International Monetary Fund (IMF).

The last half century of Argentina's macroeconomic history is infamously rich in terms of extraordinary events. These events have offered the average Argentinean only misery and pain, and, we argue, all seem symptoms of the same disease: the government's inability to restrict spending to genuine tax revenues. The disease became active again around 2010, and its symptoms worsened dramatically in 2018. A cure has been proposed by the government, with the support of the IMF. Whether this effort will be the final cure remains to be seen.

It may be the case that the Argentine society has not learned its lesson, and as too often in the past, the disease will spread and a new macroeconomic crisis will unravel, repeating the alternating cycle of optimism and frustration.

But if it is the final cure, we may be witnessing the end of macroeconomic instability in Argentina for good. And to the extent that this instability is responsible for some sizable fraction of the difference between the evolution of income per capita and the 2 percent trend in Figure 1, one could even hope that, if the cure works, several years of high growth rates and economic prosperity await the average Argentinean as income per capita closes a fraction of the wedge with that trend. The American dream that many immigrants were after when they came to the country in the first half of the twentieth century may eventually come true, albeit delayed by only a few generations.

## Notes

The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.

- 1 Specifically, we computed the ratio of the price level at year  $t + 1$  over the price level at  $t$ . Then we raised that ratio to  $1/12$  and subtracted 1.
- 2 The default occurred in the last days of December 2001, a few days before the abandonment of the currency board.
- 3 The figure includes the external debt of the public enterprises and provinces for the period 1962–77. The total debt of the provinces is included for the period 1996–2017. We also included the external debt of the central bank and its issues of domestic bonds net of its holding of international reserves.

- 4 We have data on dollar-denominated, indexed, and peso-denominated debt only starting in 1975. To make the adjustment for the first fifteen years, we assumed that the fraction of dollar-denominated debt during those years was similar to the value in 1975, about 70 percent of the total.
- 5 In Figure 5c of the online appendix (<http://manifold.bfi.uchicago.edu>), we show the debt-to-GDP ratio together with the real exchange rate, where the comovement is transparent.
- 6 Total domestic credit and reserves are in billions of U.S. dollars. To have a scale that facilitates comparison in the figure, we added US\$1 billion to the reserves data.
- 7 This measure is a variation of the one proposed by the Calvo (1996) ratio, which expresses M2 as a proportion of central bank reserves.

- 8 The calendar inflation rate in Figure 2 for 1984 is higher than in 1985. However, the highest monthly inflation rate was in May 1985. In June of that year, a stabilization plan was launched that substantially lowered inflation from that month through the rest of the year. This makes the calendar inflation rate in 1985 lower than in 1984.
- 9 A comparison of Figures 2 and 3 reveals a striking feature. The comovement between inflation and the deficit is clear: the three local maxima in the deficit correspond to the three spikes in inflation. But it is not the case that higher deficits imply higher inflation spikes. Quite the contrary: while the local maxima in the deficit go down over time, the inflation spikes go up over time. For an attempt at explaining this behavior, see Marcet and Nicolini (2003) and Sargent, Williams, and Zha (2009).
- 10 Among the interest-bearing liabilities of the central bank, we include the domestic bonds issued by the central bank, the deposits of the financial system during the period of nationalization of deposits (1973–76), and the bank reserves, which for various sub-periods were remunerated.
- 11 Technically, a fraction of the requirement could be fulfilled with dollar-denominated domestic assets, making the true backing less than 100 percent.
- 12 The income from privatizations added an extra 0.7 percent of GDP a year from 1991 to 1993 on average.
- 13 In 2008, the reform ended, and Argentina reverted to the old pay-as-you-go system. The extra revenues the government obtained by reverting the reform make the fiscal expansion that started in 2010 even more dramatic.
- 14 For a theory along this direction, see Ayres et al. (2015).
- 15 In the online appendix, we present the time series of all the rows in Table 1. See <http://manifold.bfi.uchicago.edu>.
- 16 The details of this computation are explained in “A Framework for Studying the Monetary and Fiscal History of Latin America.”

## References

- Ayres, Joao, Gastón Navarro, Juan Pablo Nicolini, and Pedro Teles. 2015. “Sovereign Default: The Role of Expectations.” Working paper 723, Federal Reserve Bank of Minneapolis.
- Calvo, Guillermo A. 1988. “Servicing the Public Debt: The Role of Expectations.” *American Economic Review* 78 (4): 647–61.
- . 1996. “Capital Flows and Macroeconomic Management: Tequila Lessons.” *International Journal of Finance and Economics* 1 (3): 207–23.
- . 1998. “Varieties of Capital-Market Crises.” In *The Debt Burden and Its Consequences for Monetary Policy*, edited by Guillermo A. Calvo and Mervyn King, 181–207. London: Palgrave Macmillan.
- Cole, Harold L., and Timothy J. Kehoe. 1996. “A Self-Fulfilling Model of Mexico’s 1994–1995 Debt Crisis.” *Journal of International Economics* 41 (3–4): 309–30.
- . 2000. “Self-Fulfilling Debt Crises.” *Review of Economic Studies* 67 (1): 91–116.
- Marcet, Albert, and Juan P. Nicolini. 2003. “Recurrent Hyperinflations and Learning.” *American Economic Review* 93 (5): 1476–98.
- Sargent, Thomas, Noah Williams, and Tao Zha. 2009. “The Conquest of South American Inflation.” *Journal of Political Economy* 117 (2): 211–56.