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Lessons from the Monetary and Fiscal History of Latin America*

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ABSTRACT

Studying the modern economic histories of the ten largest countries in South America and Mexico teaches us that the lack of fiscal discipline has been at the root of most of the region's macroeconomic instability. The lack of fiscal discipline, however, takes various forms, not all of them measured in the primary deficit. Especially important have been implicit or explicit guarantees to the banking system, denomination of the debt in US dollars and short maturity of the debt, and large transfers to the private sector, which are large in times of crisis and are not part of the budget approved by the national congresses. Comparing the histories of our eleven countries side by side, we see that, rather than leading to an economic contraction, in general fiscal stabilization leads to growth. On the other hand, rising commodity prices are no guarantee of economic growth, nor are falling commodity prices a guarantee of economic contraction.

Keywords: Monetary policy, Fiscal policy, Debt crisis, Banking crisis, Off-budget transfers

JEL Codes: E52, E63, H63, N16

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1. Introduction

When we started the project on the Monetary and Fiscal History of Latin America in 2010, our hypothesis was that the inability, or unwillingness, of governments to limit their spending to their own ability to raise tax revenues has been the driving force behind the macroeconomic instability that prevailed in Latin America during the last quarter of the twentieth century.

In 2019, at the end of the road, after overseeing the application of our common framework to the recent macroeconomic history of our group of eleven countries, we conclude that our hypothesis is correct. Seven of our eleven countries have learned the lesson and have run conservative fiscal policy for more than a decade. This decision has allowed all of them to run monetary policy so as to achieve the macroeconomic stability that they had not attained for decades, in spite of the global financial crisis of 2008–2012.

In contrast, in the region there is currently one dramatic case of a country that has not learned that lack of fiscal discipline leads to bad economic outcomes—namely, Venezuela—and three problematic cases: Argentina, Bolivia, and Brazil. The problems in each of these four countries reinforce our conclusion that our hypothesis is correct in the sense that the underlying cause of the problems is lack of fiscal discipline.

- The virulent economic crisis that has led to hyperinflation, economic misery, and political chaos in Venezuela, which unravels as we write these concluding lines, started when the government did nothing to rein in spending in spite of a sharp fall in oil revenues.
- During 2018, Argentina went through a recession that followed a run on its currency and a dramatic increase in country risk that led the country to ask for IMF support, a very unpopular measure. The fiscal deficit in Argentina, which had been either negative or small until 2010, started to grow at that point. The principal condition of the IMF assistance was that Argentina rapidly reduce its deficit.
- Brazil, a country that was considered one of the giants of the emerging world a decade ago, is agonizing over a high deficit that has persisted for several years. The probability of the

newly elected government succeeding depends, to a large extent, on its ability to tame the fiscal deficit.

- Bolivia is less problematic than Argentina and Brazil. Nonetheless, the increase in external debt caused by increasing deficits since 2012, coupled with a loss of foreign reserves, is reminiscent of policy mistakes in the region that led to debt crisis and inflation.

Thus, the current state of affairs in the region suggests that the main lesson of the last decades has not been learned by some of the countries. The amount of pain and misery imposed on the people of Venezuela and the uncertainty faced by Argentineans and Brazilians has a feeling of déjà vu about it that, as opposed to natural disasters such as hurricanes and earthquakes, is self-inflicted.

This is not a statement regarding left versus right, regarding more government or less government, or regarding more or less redistributive policies. To be precise, the key variable in our main hypothesis is not the size of government. What matters is not how much the government spends; rather, what matters is the difference between how much the government spends compared to how much it raises in revenues. Norway provides an example that clarifies this distinction: its government spends more than any Latin American government as a fraction of total output, but it raises even more revenues, to the point that it owns assets that are worth about three times the yearly GDP of the country. No fiscal clouds appear on Norway's horizon.

The cross-country analysis in this volume makes clear that those countries with large and sustained deficits ended up having substantially more macroeconomic instability than the countries that did not. For instance, Chile and Argentina ran large deficits in the first half of the 1970s, compared, for example, to Paraguay and Peru, and therefore faced much more macroeconomic instability during that decade. Chile made structural changes to its fiscal policy following its debt crisis in the early 1980s, while Argentina did not. Sure enough, while Chile managed to have very stable macroeconomic indicators, the 1980s brought a sequence of crises for Argentina. Eventually, in the 1990s, Argentina did make a structural change to its deficit and managed to stabilize the economy until the end of the decade.

Paraguay and Peru, as mentioned above, had relatively conservative fiscal policies in the 1970s. As a consequence, macroeconomic instability was relatively low. For example, inflation in Paraguay was, on average, 11 percent per year, while in Peru it was 26 percent per year. While Paraguay maintained fiscal discipline, Peru started spending beyond its means during the 1980s, a process that led to hyperinflation.

The lesson seems to have been learned in most of the region. It is worth mentioning an interesting anecdote from Paraguay, which we learned when we visited Asunción, its capital, for the local workshop. The government, at the time managed by a center-right party, prepared and eventually launched its first issue of bonds into the market. Before that, all government debt had been with international organizations or foreign governments. The fiercest opposition to the executive branch were the congresspersons from the left parties, worried that the possibility of issuing bonds would induce a spiral of overspending, as had happened in too many of the countries in the region.

The histories told in these chapters, while reinforcing our hypothesis that lack of fiscal discipline has been responsible for the macro instability in Latin America, also provide interesting examples of other ways that economic policies can lead to poor economic outcomes. In particular, some crises occur even without large government deficits. Lack of fiscal discipline is sufficient for generating crises, but not necessary. These exceptions allow us to draw some useful lessons.

The rest of this paper is organized as follows. In the next section, we provide an application of the budget accounting framework developed by the editors of this volume to provide a narrative about the policy mistakes in Mexico that led to its great depression in the 1980s. We illustrate the role of bad fiscal policy in the crisis, but other factors were important as well.

The Mexican crisis that erupted in 1982 was a perfect storm of lack of fiscal discipline combined with the external shocks of falling oil prices and rising international interest rates and a series of devaluations that sharply increased the value of dollar-denominated public and private debt. The crisis simultaneously involved a default on sovereign debt and a domestic banking crisis, which resulted in the Mexican government taking control of the banking system and paying for some of the banks' losses by reducing the value of dollar-denominated deposits with a system of

multiple exchange rates. We study Mexico's 1982 crisis because these elements were repeated over time and across countries in Latin America. We then move to discuss other factors that interact with lack of fiscal discipline in generating crises. In section 3, we discuss the role of banking crises, and in section 4, we discuss how denominating sovereign debt in dollars left Latin American countries vulnerable to debt crises. In section 5, we provide partial explanations of the transfer term in the budget constraint accounting. Section 6 discusses external factors, mainly the role of international banks and foreign bank regulators. Finally, we discuss some general lessons that arise from the country cases we studied. In section 7, we discuss the impact of inflation stabilization on output. Section 8 discusses the role of primary commodity price movements. Section 9 concludes the paper with a discussion of lessons for policy.

2. Budget accounting for Mexico in the 1980s

In August 1982, Mexico defaulted on payments on its dollar-denominated foreign debt. This led to Mexico being excluded from international financial markets until it was able to renegotiate this debt under the Brady Plan in 1989. Kehoe and Prescott (2007) classify the period 1982–1995 in Mexico as being a great depression, meaning that the fall in GDP per working-age person from its long-term trend was at least 20 percent in total and 15 percent during the first ten years of the period.

We use the budget accounting framework from Kehoe, Nicolini, and Sargent (2019) to develop a narrative for the role of monetary and fiscal policy in Mexico during its 1982 debt crisis. The budget accounting provides guidance for our narrative and suggests that factors besides large fiscal deficits played important roles in causing the crisis and delaying the subsequent recovery.

Kehoe, Nicolini, and Sargent (2019) develop the budget accounting framework starting with the government budget constraint

$$B_t + B_t^* E_t + M_t = P_t(D_t + X_t) + B_{t-1}(1 + r_{t-1}) + B_{t-1}^*(1 + r_{t-1}^*)E_t + M_{t-1}.$$

On the left-hand side of this equation, B_t is the stock of peso-denominated domestic debt; B_t^* is the stock of dollar-denominated foreign debt; E_t is the pesos-per-dollar nominal exchange rate;

and M_t is the stock of high-powered money. On the right-hand side, $D_t + X_t$ is the total primary deficit of the government, where D_t is the deficit as is recorded in the national budget, X_t is a residual term that makes the budget constraint hold, and P_t is the domestic price level in the form of the GDP deflator; $B_{t-1}(1+r_{t-1})$ is the value of domestic debt and debt service requirements inherited from the previous year; and $B^*_{t-1}(1+r^*_{t-1})E_t$ is the corresponding term for foreign debt. A series of simple algebraic steps transforms the budget constraint into our budget accounting equation. We start by dividing each term through by the value of nominal GDP in year t, P_tY_t:

$$\frac{B_t}{P_tY_t}+\left(\frac{E_tP^*_t}{P_t}\right)\frac{B^*_t/P^*_t}{Y_t}+\frac{M_t}{P_tY_t}$$
$$=\frac{P_t(D_t+X_t)}{P_tY_t}+\left(\frac{P_{t-1}Y_{t-1}}{P_tY_t}\right)\frac{B_{t-1}(1+r_{t-1})}{P_{t-1}Y_{t-1}}+\left(\frac{E_tP^*_t}{P_t}\right)\left(\frac{P^*_{t-1}Y_{t-1}}{P^*_tY_t}\right)\frac{B^*_{t-1}(1+r^*_{t-1})/P^*_{t-1}}{Y_{t-1}}+\frac{P_{t-1}Y_{t-1}}{P_tY_t}\frac{M_{t-1}}{P_{t-1}Y_{t-1}}$$

where P^*_t is the US price level. We redefine terms as fractions of GDP:

$$\theta_t=\frac{B_t}{P_tY_t},\ \theta^*_t=\frac{B^*_t/P^*_t}{Y_t},\ m_t=\frac{M_t}{P_tY_t},\ d_t=\frac{D_t}{P_tY_t}\ x_t=\frac{X_t}{P_tY_t}.$$

We let

$$\xi_t=\left(\frac{E_tP^*_t}{P_t}\right),\ g_t=\frac{Y_t}{Y_{t-1}},\ \pi_t=\frac{P_t}{P_{t-1}},\ \pi^*_t=\frac{P^*_t}{P^*_{t-1}}$$

be the peso-dollar real exchange rate, the domestic growth factor, the domestic inflation factor, and the US inflation factor, respectively. Notice that θ^*_t is defined so that

$$\xi_t\theta^*_t=\left(\frac{E_tP^*_t}{P_t}\right)\left(\frac{B^*_t/P^*_t}{Y_t}\right)=\frac{E_tB^*_t}{P_tY_t}$$

is the value of foreign debt as a fraction of GDP. Subtracting some terms from both side of the budget constraint, we obtain our budget accounting equation:

$$(\theta_t - \theta_{t-1}) + \xi_t(\theta_t^* - \theta_{t-1}^*) + (m_t - m_{t-1}) + \left(1 - \frac{1}{g_t \pi_t}\right) m_{t-1}$$
$$= d_t + \left(\frac{(1+r_{t-1})}{g_t \pi_t} - 1\right)\theta_{t-1} + \xi_t \left(\frac{(1+r_{t-1}^*)}{g_t \pi_t^*} - 1\right)\theta_{t-1}^* + x_t .$$

In our discussion of the terms of this budget accounting equation, we will focus much attention on the term x_t. We will often refer to it as a transfer because it includes losses of public enterprises and government-operated development banks that are ignored, or poorly accounted for, in the budget, or implicit transfers to private agents who benefit from increases in inflation or from systems of multiple exchange rates.

Table 1 presents this accounting for 1982 in Mexico as well as the three years before the crisis and the three years after.[1] The numbers are flows as a percentage of GDP, which we refer to as percentage points (pp). To put these flow numbers into perspective, the stock of debt in 1978 was 34 percent of GDP.

Table 1: Budget Accounting for Mexico, 1979–1985

	1979	1980	1981	1982	1983	1984	1985
Sources							
Domestic debt issuance	0.52	-5.13	2.51	7.11	1.10	-1.59	-1.24
Foreign debt issuance	-1.21	-0.60	6.38	6.05	-5.82	2.95	7.79
Money issuance	0.42	0.18	0.89	2.94	-2.33	-1.01	-4.26
Seigniorage	3.48	4.25	4.12	6.10	8.47	6.58	6.03
Total	3.21	-1.29	13.90	22.20	1.42	6.94	8.32
Obligations							
Primary deficit	7.10	2.86	7.61	3.37	-4.62	-5.21	-3.49
Domestic debt service	-3.14	-1.88	0.23	3.85	-0.33	0.47	0.87
Foreign debt service	-3.03	-1.40	-0.29	1.39	4.15	1.20	1.09
Transfer	2.28	-0.87	6.35	13.59	2.23	10.47	9.85
Total	3.21	-1.29	13.90	22.20	1.42	6.94	8.32

We see in table 1 that the Mexican government ran large primary deficits up until 1982 and subsequently ran primary surpluses. Notice that in 1981, the primary deficit was 7.61 pp. One narrative that we could tell is that the 1982 debt crisis was the result of lack of fiscal discipline.

[1] A detailed description of all the data in this paper can be found in the data appendix.

There is some validity to this narrative, and the government deficits played a central role in the balance of payments crisis and the debt crisis of 1982. This simple narrative leaves out other factors, however, that caused the crisis to escalate to devastating proportions for the Mexican economy. As we have explained, the crisis in 1982 in Mexico was a perfect storm of lack of fiscal discipline combined with external shocks and a series of devaluations that sharply increased the value of dollar-denominated public and private debt compared to output. The devaluations of the peso that occurred in August 1982 and afterward were part of the debt crisis, which started in August, but the large devaluation in February 1982 was an attempt to avert a crisis. Unfortunately, the increase in the value of dollar-denominated private debt compared to output caused by the February devaluation led to a banking crisis, and the Mexican government nationalized the banks and assumed their debts. The Mexican government resorted to increasing inflation and imposing multiple exchange rates, which led to large transfers to some economic agents at the expense of others and distorted incentives, thereby prolonging the crisis. We see evidence to support this perfect storm narrative in table 1 in the large values of transfers starting in 1981, in the foreign debt service terms that become positive starting in 1982, and in the increasing importance of seigniorage starting in 1982. We discuss each of these patterns in the data in table 1 in turn, although they are all related.

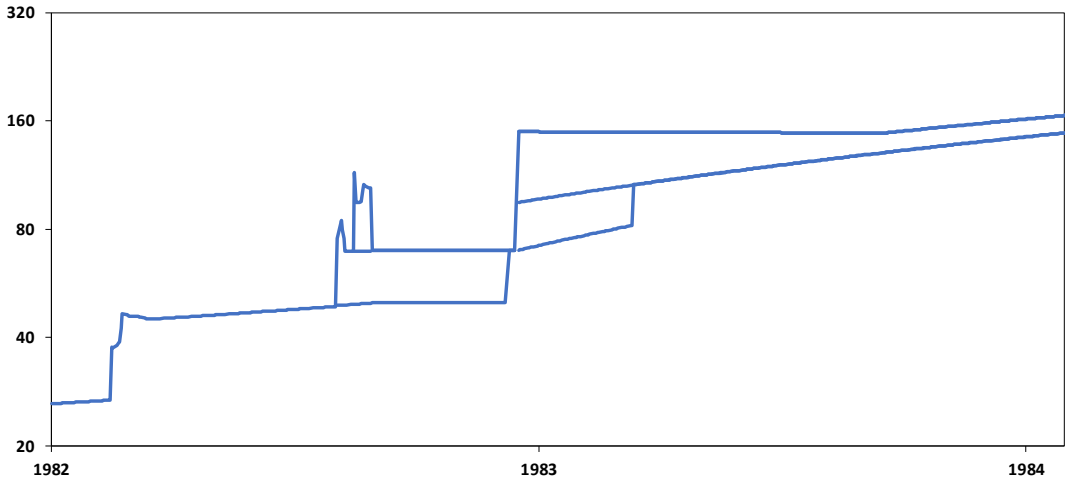
Although the Mexican government's primary budget deficits were large in the late 1970s and early 1980s, it is worth putting these numbers in some perspective. Between 2009 and 2014, the Spanish government ran primary deficits that averaged 8.8 percent of GDP per year, and Spain's government debt went from 39.5 percent of GDP in 2008 to 100.4 percent in 2014. The period 2011–2013 was one of crisis for Spain, but nowhere near as severe as Mexico's crisis of the early 1980s.

Notice that, in table 1, the debt service terms for both domestic debt and foreign debt go from negative in the late 1970s to positive in the 1980s. Our measures of debt service include changes in the ratio of domestic debt to GDP due to Mexican inflation and changes in the ratio of foreign debt to GDP due to US inflation and devaluation. In Mexico and the United States, inflation was higher than interest rates in the later 1970s, but this changed, particularly in the United States, during the early 1980s with the sharp increase in US interest rates to combat inflation. Our

budget accounting also includes changes in both the ratio of domestic debt to GDP and foreign debt to GDP due to Mexican GDP growth. Mexican GDP was growing up until 1982, reducing the debt service terms, but then it started to contract, increasing the debt service terms.

Notice that the transfers during 1981–1985 were much larger on average than were the primary deficits during 1979–1982. Transfers not included in the government's budget of expenditures and receipts increased the government's need to borrow more than did the primary deficits. Parts of these transfers are easy to identify. Some of the 13.59 pp transfer in 1982 was the cost of nationalizing the failing banks. Other parts of the transfers are harder to identify, but we can hypothesize about them.

Figure 1. Mexico: MXP-USD nominal exchange rates



Some of the transfers were the result of multiple exchange rates imposed by the Mexican government starting in August 1982 and continuing through November 1991. Figure 1 presents data on the exchange rates. Overall, there were nine different exchange rates, with some overlapping periods, but at any point in time, there were no more than three. Consequently, there is no easy way to distinguish all nine in the same figure. As an indicator of how complex the exchange rate regime was, we note that there were three exchange rates during part of August 1982 and from December 1982 through March 1983. The system of three exchange rates officially continued through August 1985, but the two lower rates, the special rate and the controlled rate, were virtually identical after March 1983 and were lower than the free rate. As an indicator of how different the prevailing exchange rates were during some periods, we note

that, during most of December 1982, the free rate was more than 100 percent higher than the special rate (Banco de México 2009). The Mexican government forced exporters in the maquiladora sector (in-bond manufacturers who purchased intermediate inputs for processing and reexport) to do all transactions on imports and subsequent reexports at the controlled rate, rather than the higher free rate official rate; this was an implicit tax on their net exports (Gómez-Palacio 1984). The government also allowed some importers to buy dollars at the controlled rate; this was an implicit subsidy on their imports. We do not have data on these taxes and subsidies, so they end up in the transfer. If we redo the budget accounting using the controlled exchange rate rather than the free exchange rate, we find the transfer declines from 13.59 pp to 12.06 pp in 1982, giving us a very rough estimate of 1.53 pp as the transfer generated by the multiple exchange rate system. Since the Banco de México intervened in all three exchange rate markets simultaneously, the transfer could have been much higher.

Another transfer related to the multiple exchange rate system was the liquidation of Mex-dollar accounts in the banking system. The Mexican government had encouraged banks to set up dollar-denominated accounts to allow middle-class Mexicans to keep their savings in domestic banks in spite of their fears of devaluation. In August 1982, the Mexican government authorized the banks to convert these accounts into peso-denominated accounts at a special Mex-dollar rate of 69.5 MXP per USD rather than the fluctuating rate of more than 100 MXP per USD prevailing in the free market. This meant that Mexican depositors lost more than 30 percent of the value of their savings and paid much of the costs of the nationalization of the banks that took place immediately after the liquidation of the Mex-dollar accounts (Serrano 2015). It is worth noting that the Argentinean government resorted to a similar mechanism, called “pesification,” in 2002 to pay for most of the cost of a bailout of the banking system.

Our examples show that some transfers were positive and others were negative, but, as the data in table 1 show, they tended to be positive during the early 1980s. It is worth noting that transfers averaged 5.58 pp per year during the 1980s, while afterward they averaged 0.62 pp. In particular, the large transfers that the residual in our budget accounting identifies is much larger in periods of crisis than it is in normal periods.

A major element of our perfect storm narrative for Mexico's debt crises was the series of devaluations in February and August 1982 and which continued during the rest of 1982. This increased not only the foreign debt of Mexican banks but also that of Mexico's government. We have seen that most of the increase in debt to GDP in Mexico between 1981 and 1982 was due to devaluation, not to more borrowing. To see how this fits into our budget accounting, let us decompose the foreign debt issuance term,

$$\xi_t(\theta_t^* - \theta_{t-1}^*) = (\xi_t\theta_t^* - \xi_{t-1}\theta_{t-1}^*) - \theta_{t-1}^*(\xi_t - \xi_{t-1}).$$

The first term in this decomposition tells us how much the value of foreign debt as a fraction of GDP changed from year $t-1$ to year t. The second term tells us how much of this change in value was due to the change in the real exchange rate. In 1982, the value of the ratio of external debt to GDP, $(\xi_t\theta_t^* - \xi_{t-1}\theta_{t-1}^*)$, increased by 17.19 pp, but 11.14 pp was due to the real devaluation that occurred between 1981 and 1982, $\theta_{t-1}^*(\xi_t - \xi_{t-1})$, leaving 6.05 pp as the value of the increase in foreign debt deflated by inflation in the United States and real GDP growth in Mexico. It is noteworthy that foreign debt increased in Mexico in 1982, 1984, and 1985, even though Mexico was excluded from private international debt markets because it received loans from the US Treasury and the International Monetary Fund, most of which were intended to help it continue to pay debt service on its debt to US banks.

During the 1980s, the inflation rate in Mexico increased from an average of 24 percent per year during 1979–1981 to an average of 66 percent per year during 1982–1985. (It was even higher in 1986 and 1987, before starting to fall rapidly in 1988.) The increase in inflation allowed some agents to reduce their real tax payments by paying as late as possible, and it made it possible for the government to reduce real expenditures also by paying as late as possible. The primary deficit data mix early expenditures with late expenditures and early revenues with late revenues. In principle, it is possible to do a careful accounting of the deficit considering the dates of expenditures and revenues, but, using the data that we have, we can just say that the difference between the ideally measured deficit and that in the data shows up in the residual.

3. Banking crises

A common and sometimes recurrent phenomenon in the histories of these countries, and which almost always has a large fiscal impact, is the eruption of banking crises like that in Mexico in 1982. These crises are typically characterized by a run on bank deposits that lead to a sizable fraction of the banks to either fall or be forced to merge. Examples of this phenomenon abound in the chapters of Kehoe and Nicolini(2019). The typical outcome of this sort of crisis involves some form of public bailout of the banks' liabilities and some form of confiscation of deposits. Also typical is some sort of debt reduction to those who had bank loans.

Briefly, the crises follow the same general pattern. Starting from a heavily regulated financial sector a—typically new—government administration would decide to reform the capital markets. This happened in most countries since these markets were heavily regulated in the early 1960s. The reforms often involved liberalizations of the financial sector and the opening of the current account. These two reforms were regarded as desirable, and defended by supporters of the Washington Consensus, which served as a role model of reforms for developing countries in the 1990s. The outcome was typically a large inflow of private borrowing, channeled through a vibrant and growing banking sector. Following several years of boom, the fraction of nonperforming loans would build up to the point at which a run on bank deposits would lead to a full-blown banking crisis. The resolution of the crisis typically included nationalization of private debts. This happened frequently all over the region. Even countries with conservative fiscal policy relative to the region, such as Paraguay and Colombia, faced that problem. Most experiences of liberalization of the financial sector and opening of the current account ended in a banking crisis and a bailout of private debt.

In some cases, the crisis can be associated with banks having high exposure to government debt. This would typically be the result of government policy: unable to raise enough to finance expenditures, the government would pass regulation forcing the banks to buy its bonds. The likelihood of a default of the government on its own bonds would raise doubts about the solvency of the banks and increase the probability of a run. The experience of Argentina in 2001 features these characteristics.

In several of the cases, however, such as in Chile in 1982, the crisis appears not to be the result of profligate spending by the government. Rather, it is private spending that explains most of the borrowing. But it turns out that after the crisis, the government nationalized the private debt. The occurrence and recurrence of these crises in Latin America led to the notion of "excessive borrowing" as one of the causes of the region's economic problems. An interesting question raised by these experiences is, Why would the private sector borrow beyond its means, risking its own bankruptcy? The resolution of the crises points to a hypothesis: it is the probability of a future bailout that gives the private sector the incentive to borrow. To the point where agents can anticipate that, in the event of a crisis, the government would bail out the financial sector if the problem was large enough, a coordination problem arises. If enough agents are borrowing enough funds, the problem of nonperforming loans becomes a social problem rather than a private problem. It may be individually rational to borrow more than what the private return suggests. Bailouts have been too frequent in the region to assume that agents would not take that possibility into account in making their economic decisions.

As mentioned above, the reforms of the financial sectors would typically be accompanied by the deregulation of the capital account. The access to foreign borrowing would exacerbate the excessive borrowing, making the crisis of a substantially larger magnitude.

These experiences suggest that prudential regulation measures such as limits on the debt-to-asset ratios and restrictions on foreign currency–denominated borrowing by individuals, together with capital requirements and liquidity provisions much larger than the ones adopted in developed economies for banks, ought to be considered. Opting for a gradual liberalization, in which restrictions are high initially or even facing out the deregulation, starting with the financial sector first and deregulating the current account later on, could be desirable. Regrettably, we do not yet have quantitative models that have been tested enough so as to provide clear answers to these problems. However, the evidence points out clearly that the frictionless models that imply that the immediate joint liberalization of the financial sector and the current account are sound policy decisions, as the Washington Consensus recommended, are clearly at odds with the evidence. Prudent and gradual deregulation seems to be the safe choice (see Nicolini 2018 for further details).

4. Denomination and maturity of sovereign debt

Another feature that also had a large fiscal effect, and which has been present in all the countries analyzed in this volume, is that the government issued debt instruments denominated in foreign currency. The degree and the persistence of this phenomenon have varied substantially across countries and over time for each country. For example, Brazil has mostly issued domestic currency–denominated debt, with some form of indexation during the high inflation years. While Brazilian dollar-denominated debt was zero for most of the period, it did reach 30 percent of total federal government debt in some years. In contrast, Argentina's dollar-denominated debt has always been over 60 percent of the total, reaching values higher than 95 percent in some years. The comparison between these two countries is particularly interesting, since they had very similar inflation histories. Both countries had very long periods with high chronic inflation with recurrent bursts of hyperinflation, and both countries eventually conquered high inflation during the 1990s.

It has long been recognized that a major source of volatility has been the sensitivity of debt-to-output ratios to variations in the real exchange rate. The series of studies in this book provide a quantitative measure of this by comparing the measured debt-to-output ratio to a simulation in which the real exchange rate is maintained constant at a specific value. The data in table 2 show the ratio of the standard deviation of the debt-to-output ratio as observed in the data to the standard deviation of the simulated series maintaining a fixed real exchange rate.

Table 2: Ratio of Standard Deviation of Debt–Output Ratio to Standard Deviation of Simulated Series

VEN	MEX	CHL	ARG	PER	ECU	BRA	URU	PAR	BOL	COL
2.8	2.0	1.9	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.1

The relevance of the numbers in table 2 lies in the role that the debt-to-output ratio plays in the conceptual framework that guides the explorations performed in this book. The total obligations for a government in a particular period are given by the primary deficit and by the interest payments on the existing debt. Those interest payments are high when the debt-to-output ratios

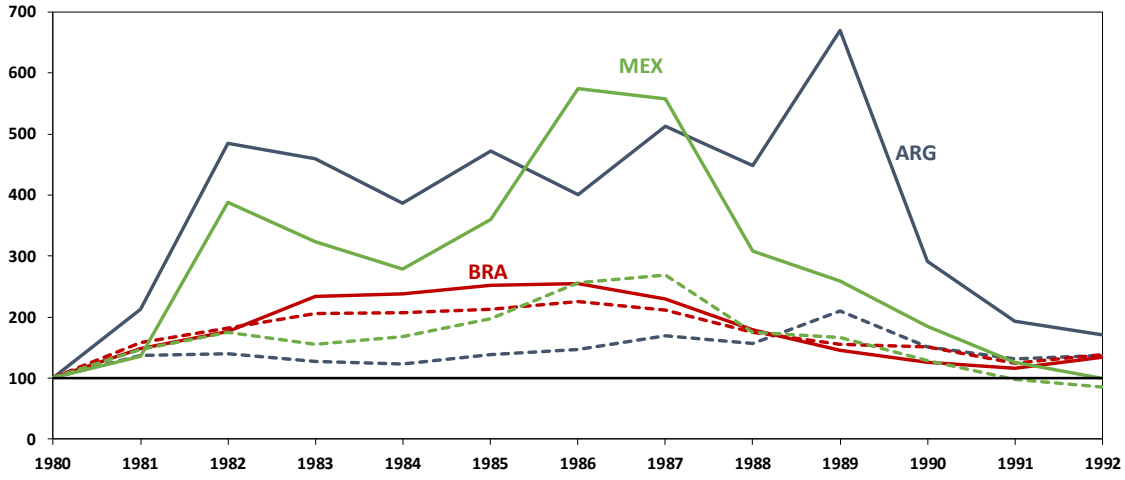
are high. It is the sum of these two concepts that the government must finance by printing money or by issuing new debt.

At the same time, in many models of sovereign debt, the ability of the government to borrow is lower—or the interest rate it must pay on newly issued debt is higher—when the debt-to-output ratio is higher. Thus, variations in the real exchange rate can have a substantial impact on the amount the government needs to finance, at the precise moment in which floating bonds becomes particularly expensive.

The quantitative implications of this discussion become evident once we notice that the volatility of the real exchange rate is very high in general, and particularly so for these countries. In figure 2, we plot the evolution of the debt-to-output ratios for serval countries, normalizing then to be equal to one in 1980.

All the countries in the figure defaulted in the early 1980s. And all the countries had substantial depreciations of their currencies. For each country, we show the evolution of the debt-to-output ratio as in the data, and also as simulated assuming that the real exchange rate remains constant at its value of 1980.

Figure 2. Evolution of the debt-to-GDP ratio observed and with fixed RER, 1980=100



The effect of exchange rate volatility combined with a high degree of debt dollarization can have dramatic effects. For example, the debt-to-output ratio went from 0.15 in 1980 to 0.68 in 1983 in Argentina, mostly due to the effect of the exchange rate depreciation. To achieve the same

effect through primary deficits, it would require a yearly deficit of more than 17 percent of GDP for those three years. There has never been a period of three consecutive primary deficits of that magnitude for any of the eleven countries covered in this volume during the almost 70-year period considered.

Following the international financial crisis of 2008, the United States and many European countries ran very large deficits for several years. Spain's debt, for example, went from 36 percent of GDP in 2007 to 88 percent in 2012; Portugal's debt went from 68 percent to 126 percent; and Greece's debt went from 103 percent to 126 percent.

For the countries whose data is depicted in figure 2, the exchange rate movements achieved the same effect in just a couple of quarters, without any fiscal expansion.

In Mexico in December 1994 and January 1995, a devaluation coupled with the short maturity of its dollar-indexed debt, tesobonos, caused a balance of payments crisis and would have caused a default if not for the bailout put together by US president Bill Clinton and offered to Mexico in January 1995. Mexico had a primary surplus in 1994, making it difficult to ascribe the 1994–1995 debt crisis to lack of fiscal discipline. The problem was that the Mexican government had allowed most of its debt that was not in Brady bonds to become dollar-indexed tesobonos with very short maturities during 1994. In fact, the average maturity of the debt that was not in Brady bonds was nine months by the end of 1994 (Cole and Kehoe 2000). The short maturity of the debt meant that, although the tesobono debt was relatively small, much of it became due every week. This made Mexico vulnerable to a self-fulfilling crisis, as discussed in Cole and Kehoe (1996): investors believed that if they did not buy new tesobonos at the weekly auctions held by the Banco de México, the government would not be able to pay off the old tesobonos becoming due. The beliefs of these investors seemed to be realized until President Clinton intervened with a USD 50 billion loan package with funds put together from the US Treasury, the International Monetary Fund, and other official lenders. The loan had a high-penalty interest rate and relied on the receipts from Mexico's oil exports as collateral. Mexico borrowed only USD 22 billion of the loan offered and had no problem paying off the loan early.

5. The transfer

From the budget constraint accounting exercises, three cross-country patterns emerge. First, with the exception of Ecuador and Peru, the sign of the transfer term is, on average, positive. Second, the transfer is much larger in times of economic distress. For example, the average of the transfer term in Argentina and Mexico is 1.9 and 0.5 percent of GDP, respectively, but it was 35 percent for Argentina in 2002 and 22 percent for Mexico in 1982. Third, the accumulation of the transfer term over time explains a substantial portion of the debt-to-GDP ratios in 2017. For example, Argentina's debt-to-GDP ratio would have been half of what it was in 2017 had the transfer term been zero; however, there are cases like Ecuador, where persistently negative transfer terms imply that debt would have been twice as large had these transfers been zero.

The positive sign of the transfer term means that governments find ways to increase spending and keep it outside the reach of their national congresses, who typically approve the budget. In the chapters in Kehoe and Nicolini(2019), we identified some of the sources of these hidden expenses. One of the most important is the bailout of the banking sector, a recurrent pattern in most countries. In some cases, the bailouts were the natural result of previously announced government-sponsored deposit insurance. In others, the bailouts were decided ex post. More generally, due to the recurrence of crises, these governments are exposed to contingent liabilities that are absent from studies of debt sustainability and, in some cases, are hard to measure.[2]

In other cases, positive and large residuals are present. Sometimes it was through relatively large deficits in government-owned enterprises, as in the cases of Bolivia and Argentina in the 1970s and the 1980s. The most common mechanism, however, was the losses incurred by government-owned development banks.[3]

The main channel through which spending could be increased bypassing Congress was through direct transfers from the central bank to the development banks. In some cases, the banks would

[2] This is not exclusive to developing countries. Government finances in the United States, for example, do not explicitly account for the contingent liabilities implied by the current social security system.

[3] These banks were popular during the period of import substitution, a strategy that dominated economic policymaking after the Great Depression. In many countries, these banks started to be closed or privatized in the 1980s. Currently, although government-owned banks still represent a large fraction of the banking system in some countries, these development banks no longer exist or are not important.

have an account at the central banks, with instantaneous credit. For instance, the authors of the Brazil chapter discovered that the Bank of Brazil, which managed most of the government's operations for subsidized credit, had the ability to make automatic withdrawals from its account at the central bank, without any authority from either the executive or the legislative power to authorize those transactions. Even though the balance of this account was meant to average zero, in practice this mechanism gave the Bank of Brazil control over money issuance since it could withdraw funds that would automatically be matched with an expansion of the monetary base.

Another source of transfers represents recognition of debts incurred in periods of fiscal hardship and therefore high inflation. When inflation is high, just delaying payments is a way to reduce the real value of expenditure. Another is to delay increases in compensation of public servants or pensioners. In many circumstances, however, these practices ended up in the courts. Legal resolutions in these countries take several years. Thus, there may be issuances of bonds in a particular period that are unrelated to expenditures of that period. Rather they are the explicit recognition of implicit arrears. The issuance of several series of bonds in Argentina during the early 1990s provides a clear example.

In many cases, however, the authors of the chapters have not been able to identify the origins or the recipients of these transfers, even though these transfers do account for a sizable fraction of the increases in the debt-to-output ratios in many occasions. An important implication of our analysis of transfers is the conclusion that running a responsible fiscal policy goes beyond the debate about the budget in Congress. Effectively controlling spending requires a transparent relationship between government-owned banks and enterprises and the Treasury and, most importantly, the central bank.

A large literature has stressed the importance of central bank independence in the conquest of inflation. This literature stresses the time inconsistency problem of a centralized government. The experience of some of these countries suggests that it may also be important as an effective

tool to control spending by individual units in a multiunit government, a feature that has not been addressed in the literature.[4]

These increases in net spending without any oversight by Congress also have important implications for redistribution and growth. Episodes of high spending typically end up in either hyperinflation or large devaluations, accompanied by severe measures such as capital controls, dual exchange rates, and pesification of deposits. The fact that the transfer term is large in these distressed periods implies that these severe measures create large transfers of resources from the government to some private agents—resources that are being redistributed to these specific agents from the rest of the population as in a zero-sum game.

Our guess is that these zero-sum games played by private agents in times of economic distress imply that talent is not allocated to lower production costs—which increases productivity, making it a positive-sum game—but rather to rent-seeking activities to capture large government transfers that are not closely scrutinized. The way to become rich is not through the creation of wealth, but by being the winner of a zero-sum game by outsmarting the typical working-class family that is saving in simple instruments. This, in turn, implies there is no net wealth creation, which transforms into poor total productivity performance. This may explain the severity and length of crises in Latin America, especially the one that occurred during the 1980s.

A silver lining from this analysis of the transfer term is that it became significantly lower for some countries after 1989. The most drastic changes have been for Brazil, Mexico, and Uruguay, where the average transfer term went down from 3.4, 5.6, and 4.7 percent of GDP on average during the 1980s to 0.5, 0.6, and 1.3 percent, respectively, from 1990 onward. Argentina, Chile, and Paraguay are also in this group of countries where the transfer term has been low in recent years. Our interpretation is that these economies have somewhat successfully moved away from institutional environments that incentivize rent-seeking activities, especially during periods of economic crisis.

[4] An exception is the work of Zarazaga (1993), who uses a game-theory approach to model the behavior of different government entities competing to appropriate seigniorage. The positive probability of very high inflation periods acts as a self-enforcing mechanism to restrain this competition for seigniorage and support periods of relatively low inflation.

6. International banks and US banking regulators

We now discuss the role of external factors in the evolution of the region. The eleven countries studied in this book are small open economies, which means they are exposed to international shocks that are beyond their control but, affect their economic performance to varying degrees.

During the 1970s, there was a substantial increase in credit to emerging economies, including Latin America. The banking sector in the United States went through major structural changes that reduced profit margins in the domestic market. For example, the rapid growth of the commercial paper market implied that banks that were losing big clients sought other forms of financing.[5] At the same time, important financial liberalizations in Latin America opened the door to foreign financial flows, which allowed US banks to allocate credit there.

The oil boom in the 1970s increased the liquidity of banks in the United States and, thus, the size of the credit flows to Latin America and other emerging economies. Additionally, near-zero real interest rates on short-term loans allowed US banks to provide credit to foreign countries at a very low cost. Even though economists and some authorities were concerned, most of their warnings were frequently disregarded as exaggerations, and the general opinion of US regulators was that the likelihood of a banking crisis was low.[6]

By the end of the 1970s, concerns about high inflation in the United States rose, and in 1982 then Federal Reserve chairman Paul Volcker decided to raise the federal funds rate. This decision increased the funding costs of commercial banks, which restricted the amount of credit that could flow to Latin America. This reduction in credit availability put significant stress on public finances in most countries in the region.

Almeida et al. (2019) show how high risk-free interest rates induce countries to default on their debt because they expect favorable renegotiation terms in the future. When the reference rates

[5] This topic is discussed in detail in Federal Deposit Insurance Corporation (1997).

[6] In 1977, in a speech at Columbia University, Arthur Burns, chairman of the Federal Reserve Board, criticized commercial banks for assuming excessive risks. Also, a 1977 published staff report from the Senate Subcommittee on Foreign Relations noted its concern about the exposure of US commercial banks to loans in emerging economies.

are high, the opportunity cost of banks holding up renegotiation on defaulted loans is higher, inducing them to accept higher haircuts when renegotiating defaulted debt. In August of 1982, Mexico defaulted on most of its loans from US commercial banks, an action followed by Argentina and Venezuela, and, later in the same decade, Brazil.

Reference interest rates in the United States, however, remained high for only a short period of time, going back to pre-1982 levels by the end of 1983. Through the lens of the mechanism in the paper by Almeida et al. (2019), this implied less favorable renegotiation prospects for the Latin American governments in default. Additionally, as documented on the Federal Reserve History website (Sims and Romero 2013), US banking regulators allowed lenders to delay recognizing the full extent of the losses on defaulted loans. They were worried that, had the losses been fully recognized, the banks would have been deemed insolvent, which would have led to potential bank runs and a financial crisis in the United States. This relaxed regulation delayed the renegotiation of Latin American debt until the Brady Plan was enacted in 1989. In effect, the loans from the US Treasury and the International Monetary Fund to countries such as Mexico were a stopgap that gave vulnerable US banks time to build up their capital before they had to renegotiate their debt with Latin American countries, but they also left these Latin American countries frozen out of international capital markets until the enactment of the Brady Plan.

The loans to Latin American governments were, at the time of the debt crisis of 1982, very similar to the total capital of the banks that issued the loans. This risk exposure clearly reflects bad bank supervision. Still, an interesting question remains: Why did the individual banks put themselves in that position? These were large and nondiversified syndicated loans, suggesting that defaults would put the system in jeopardy. Were these banks making the decision to lend to these few governments under the veil of the “Too big to fail” doctrine? The intervention of the monetary and regulatory authorities in the United States postdefault suggests that this may well have been the case.

The chapters in Kehoe and Nicolini(2019) offer multiple examples of how bad economic policies by Latin American governments generated crises in the region. Nevertheless, from this section we conclude that US economic policies set the table, triggered, and amplified the Latin American

debt crisis of the 1980s, a period of time often referred to as “the lost decade” because of its length and severity.

7. The real effects of inflation stabilization

The eleven countries studied in this volume provide the most varied experience in inflation episodes, both across countries and over time for any single country. Consequently, the eleven stories combined contain a very rich set of experiences on inflation stabilization. The list of successful stabilization plans to stop inflation is almost as large as the list of stabilization plans that failed. The experience of these countries makes clear the need for fiscal adjustment as a means of stopping inflation permanently, while other policies such as fixing the exchange rate can be very effective at stopping very high inflation temporarily. These two policy measures, fiscal restraint and a fixed exchange rate, proved to be a powerful combination: they are behind many of the successful stabilization plans (although fixing the exchange rate was not always used).

Besides being laboratories to evaluate policies to stop inflation, the histories of these countries can also be used to make a first evaluation of a notion that has become conventional wisdom in many policy and academic circles: the real costs associated with reducing inflation. This conventional wisdom was born out of the evidence relating reductions in the rate of inflation to increases in the rate of unemployment, the Phillips curve. This wisdom was consolidated following the 1982 recession in the United States, associated with the inflation stabilization plan successfully undertaken by the Fed under the leadership of Paul Volcker—so much so that the 1982 recession is too frequently called the “Volcker recession.”

An alternative interpretation was provided by Sargent (1986) in the same book that set the foundations of the conceptual framework we have used to analyze the eleven countries. Thus, the argument can be laid out using the government budget constraint and the money demand equation, which are the two main foundations of the conceptual framework discussed in Kehoe, Nicolini, and Sargent (2019). At the time the Federal Reserve announced that it was vigorously tightening its policy, the Treasury increased its deficit, as a result of both a reduction in taxes (supply-side economics) and an expansion in military spending (Star Wars program). The natural consequence of the reduction of seigniorage on the one hand and the increase in the deficit on

the other was a rapid increase in government debt. This rapid increase in debt, Sargent argued, would strain the relationship between the Fed and the Treasury, and would put pressure on one of them to switch its policy. A reasonable probability that the Fed would relax its policy tightening reduced the credibility of its plan to defeat inflation. It is this increase in macroeconomic uncertainty that may have been responsible for the recession of 1982. The persistently high long-term nominal rates following the inflation stabilization provide some evidence of lack of credibility in the long-run success of the Volcker strategy.

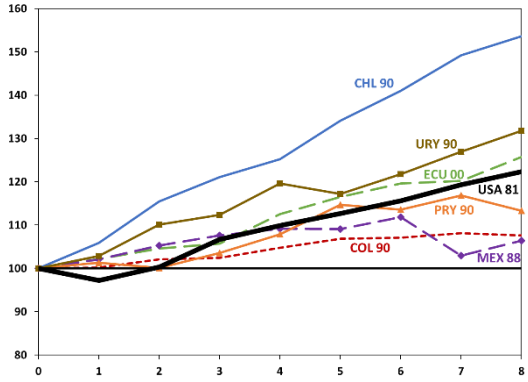
We certainly lack enough theory to provide a quantitative appraisal of that debate. But the region offers five episodes of successful stabilizations of extremely high inflation (from over 600 percent per year in Chile in 1973 to over 10,000 percent in Bolivia in 1985) and six instances of successful stabilizations of more moderate inflations (from about 25 percent per year in Chile in 1990 to 130 percent in Uruguay, also in 1990). As a first approach to the debate, we take a first and simple look at the data.

Panel (a) of figure 3 plots the evolution of real GDP per capita after the stabilization of chronic inflation for six Latin American countries, as well as for the United States. For each country, we set the year before the stabilization plan to be time zero. We then plot the evolution of per capita income for the next eight years. The number that accompanies the name of the country refers to the year the stabilization plan was launched. In all countries, output expanded after stabilization. For the three countries that launched their plan with inflation close to or above 100 percent per year (Mexico 1988, Uruguay 1990, and Ecuador 2000), growth was very fast during the years following the plan. The three countries chose to control the nominal exchange rate as the policy instrument to lower inflation, but whereas Mexico and Uruguay chose a gradual plan that brought inflation to one digit in six and eight years, respectively, Ecuador did it by adopting the US dollar as its currency, so inflation was at one digit by year 2. In terms of the evolution of income per capita, Mexico and Ecuador behaved similarly in the first few years following the stabilization, but Uruguay did even better. Mexico then had a severe crisis in 1994 (year 7); that crisis, however, was not related to the stabilization plan but rather to the dollar indexation and short maturity of its debt, as we have discussed. The three countries that launched their stabilization plans starting from much lower inflation rates chose a gradual program. To bring

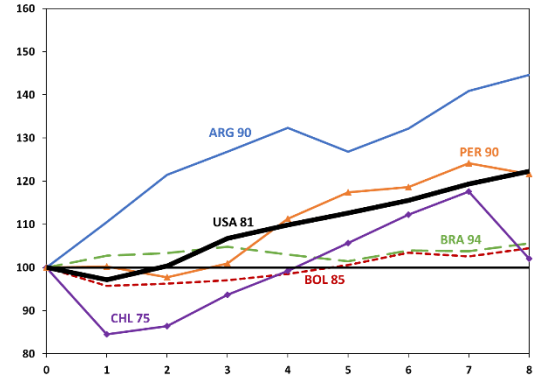
inflation down to one digit, Chile took five years and Paraguay six, and Colombia had still two-digit inflation (around 15 percent) by year 8. No evidence of real costs associated with reducing inflation can be detected.

Figure 3. Real GDP per capita, year of inflation stabilization=100

(a) After stabilization of chronic inflation



(b) After stabilization of extreme inflation



Panel (b) of figure 3 presents the evidence for the five extreme inflation episodes. Hyperinflation was conquered and its control immediately spurred in Argentina and Brazil. In both countries, the hyperinflations were ended successfully and quickly: in less than several months, monthly inflation went from almost 100 percent in Argentina and 42 percent in Brazil to 5 and 15 percent, respectively. By the third year, yearly inflation was one digit in both countries. In both cases, output grew as a result of the stabilization. The other three countries followed a more gradual policy. In Bolivia and Peru, inflation was still very high one year after the plan (around 280 percent for Bolivia and 410 percent for Peru). Only in the second year was inflation brought down to two digits, and it took the countries eight and seven years, respectively, to bring inflation down to one digit. It took Peru three years to start growing and five years for Bolivia, though its growth rate was very low. In Bolivia, the hyperinflation was accompanied by a long-lasting banking crisis that was not necessarily associated with the stabilization plan. The case of Chile, the country that chose a very gradual strategy, is the most dramatic: it took four years for Chile to bring inflation down to two digits—to about 40 percent per year. The stabilization plan started while the country was undergoing a major recession, emerging from the high level of social unrest that led to the coup of 1973.

Overall, the experiences of these countries seem to suggest that a gradual reduction of moderate inflation or a sudden stabilization of high inflation does not seem be associated with output costs.

8. The role of primary commodity prices

A common theme in the discussions we had with economists and policymakers from these countries was the role of primary commodity prices. All eleven countries are net exporters of primary commodities. Invariably, the fate of these countries was associated with the price behavior of those commodities. They play no role in the framework used in this book, except in relation to the direct impact they may have in the evolution of the fiscal deficit. Indeed, in many cases, the government is directly involved in the production of the export commodity, such as oil in Mexico, which owns Pemex, the only oil company, or copper in Chile, where the state company, Codelco, has a large share of copper production. But primary commodity prices can also affect total revenues through their effect on royalties from the direct taxation of these activities. We have explored whether commodity-exporting countries exhibit different price behavior, especially during commodity booms. We have classified the eleven countries into three groups according to the importance of their commodity exports on GDP, and table 3 summarizes this classification.

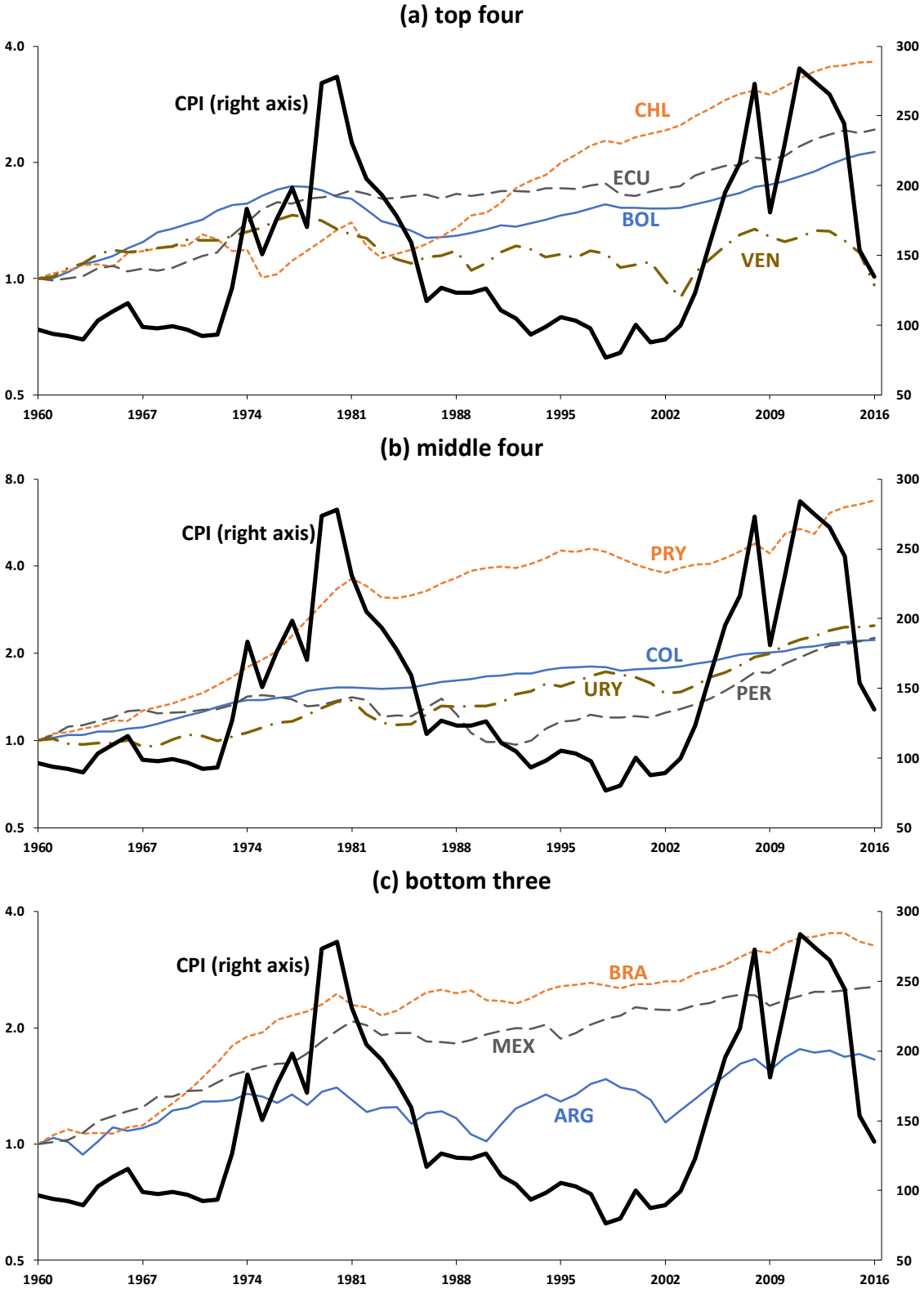
Table 3: Importance of Commodity Exports

Group	Country	Commodity exports (percentage of GDP)	
		2000	average 1989–2017
Top 4	Venezuela	23.6	20.8
	Ecuador	21.9	17.7
	Chile	14.8	17.3
	Bolivia	8.0	15.8
Medium 4	Colombia	7.7	11.3
	Peru	7.4	11.2
	Paraguay	6.5	7.7
	Uruguay	4.6	7.1
Bottom 3	Argentina	3.8	4.5
	Mexico	3.0	4.1
	Brazil	2.4	3.8

In figure 4, we plot the evolution of real GDP per capita for each of the three groups and an index of international prices for a basket of primary commodities.

Panel (a) of figure 4 shows the evolution of per capita GDP for the four highest commodity exporter countries. The most striking feature of the data in the figure is the behavior of output in Venezuela, which exhibits a very close relationship with the swings in the price of oil. Note an important exception, though: the peak per capita income in Venezuela is in 1975, several years before the peak in the price of oil. In 1976, Venezuela nationalized the oil industry, and oil production steadily declined for many years after that. In comparison, the evolution of output in Chile is much less closely correlated with the prices, and Ecuador, the other big commodity exporter, is somewhat in between. In panels (a) and (c) of figure 4, we show the data for the other countries. There seems to be some correlation between the long period of low prices in the 1980s and poor output performance, and the period of high prices in the first years of this century and good economic performance. With the exception of Venezuela, however, there is little evidence that the swings in commodity prices are the most relevant determinant of the fate of these countries. For example, income per capita in Mexico (panel [c] of figure 4) did decline with the drop in oil prices after 1981. The recovery started in the late 1980s, however, coincidental with the years in which Mexico started a successful plan to stabilize its macro economy, not the years in which oil prices recovered. The 1995 crisis was unrelated to commodity prices, and the 2009 recession coincided with a drop in the price of oil, but also coincided with a world recession. In any case, both events were highly transient. It is also the case that the recoveries for Argentina in 1991 and for Brazil in 1994 (panel [c] of figure 4) coincide with the periods in which they finally controlled inflation, and those were the years with the lowest prices for commodities during the period. Finally, note also that both Chile and Bolivia started growing in the middle and late 1980s, respectively, once they stabilized their economies when commodity prices were at very low levels and declining.

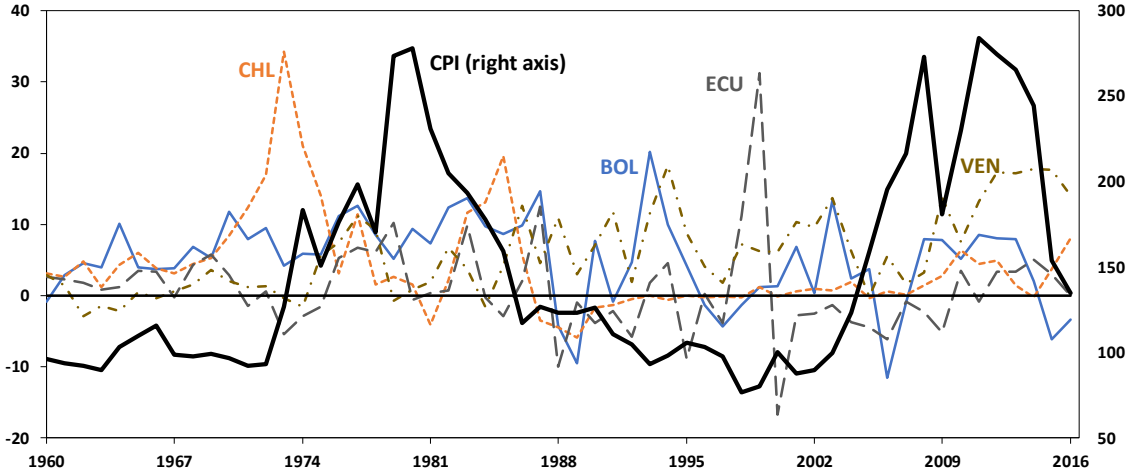
Figure 4. Real GDP per capita, 1960=1, and primary commodity price index, 1960=100



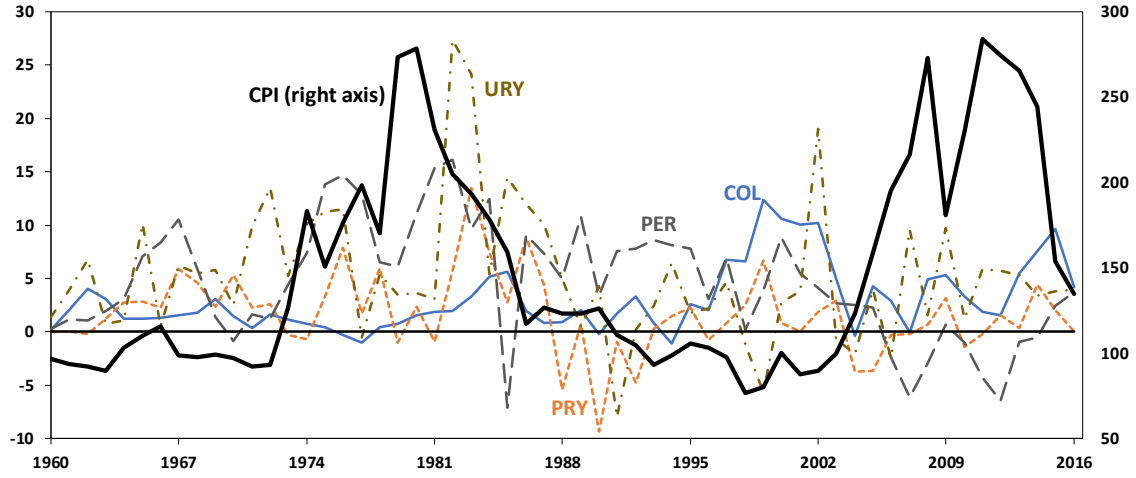
To explore the role that commodity prices may have played through their impact on the government's revenues, in figure 5 we show the relationship between the movements in primary commodity prices and the sum of total fiscal deficits plus the transfer term from the budget accounting exercises, grouping countries the same way we did in figure 4. These sums of total deficits and transfers are rather volatile, but a careful inspection of the three panels in the figure shows no evident worsening of fiscal policy during primary commodity price booms, with the clear and single exception of Venezuela.

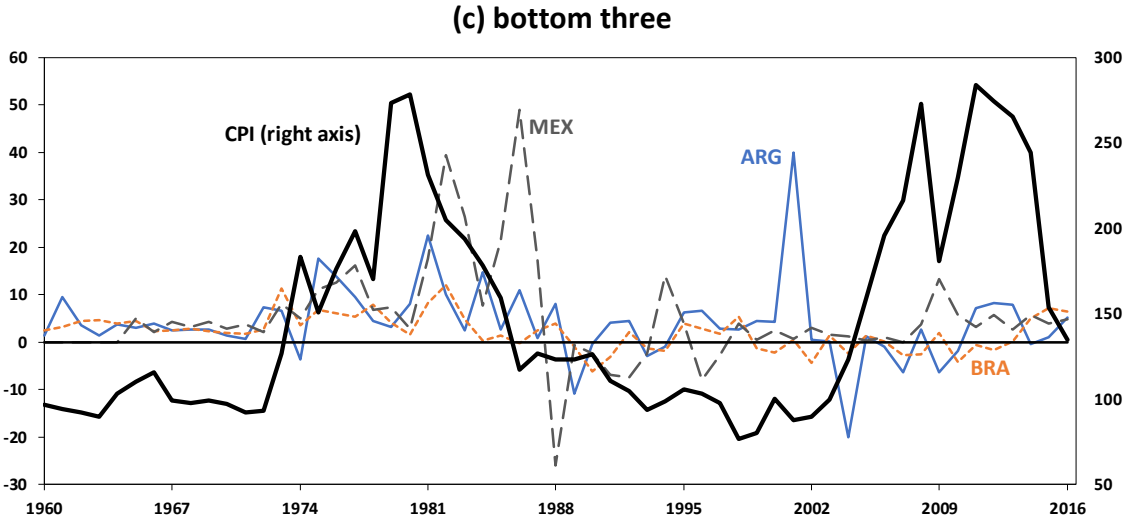
Figure 5. Total deficit plus transfers, percentage of GDP, and primary commodity price index, 1960=100

(a) top four



(b) middle four





To a lesser extent, Brazil and Argentina also show a deterioration in their fiscal position that follows the boom in primary commodity prices. Those countries were precisely the ones in trouble by the end of 2018. For the other countries, we can find no evidence of a worsening in their fiscal accounts during booms in primary commodity prices.

As we have pointed out, the policy mistakes that led to—or worsened—crises are common to all countries, regardless of how dependent they are on exploiting natural resources. The downward phase of commodity prices goes from 1980 to 2000. It is indeed the case that the period of the 1980s was a lost decade. By 2000, however, almost all countries had recovered what they had lost in the 1980s. The link that we can clearly identify in each country is from macro stability to output growth. In fact, on average, commodity prices were higher in the 1980s than in the 1990s. The first of the two decades, however, was much worse than the second for all the countries.

9. Lessons learned for Latin America

What have we learned by studying all these countries together? We have isolated economic forces behind the major macroeconomic events. In many cases, the causes were common—such as crawling pegs in the 1970s, exchange rate controls and stabilization attempts in the 1980s without any fiscal adjustments, and banking crises in the 1990s. Experts in each country believe that their problems are unique and their causes country specific. The first lesson we take away from this book is that this belief is misguided: most of the economic problems in Latin America, as well as their causes, during the last fifty-seven years had several common factors.

When this project started, we focused on the six largest countries in South America and Mexico. Later we expanded to include the ten largest South American countries and found many common factors in their economic crises and causes. An interesting topic for future research would be to expand this framework to the rest of Latin America and potentially to other regions, where the idea of problems being country specific may also be misguided. We started our analysis in 1960 so we could have ten years of data before things started to go wrong. We considered starting in 1950 but were limited by data availability for some of the countries.

Similar to the case of high inflation episodes, most balance of payments crises were the result of high sustained deficits. There are also some exceptions, such as Mexico during 1994–1995; however, the common pattern suggests that lack of fiscal discipline can also result in important external imbalances, with the subsequent costly adjustments.

Another important lesson is related to the series of debt defaults that started with Mexico in 1982. Ex post, we suspect the defaults were not entirely justified, especially considering the huge costs that ensued. The role of US regulators and policymakers before, during, and after the crisis is key to understanding its buildup as well as its long duration. Structural changes in the US financial sector, along with a worldwide oil boom and financial openness in Latin America, fueled the flow of lending into the region. Then, drastic policy changes to tame inflation in the United States triggered a series of defaults, whose costs and duration escalated because of relaxed regulation in the US banking sector. These events indirectly prevented the Latin American governments from successfully renegotiating their debt until the enactment of the Brady Plan in 1989.

To conclude, based on the common elements that we identified as causes of poor economic performance, we identify four conditions that could avoid future crises that resemble those from the 1970s and 1980s:

- Solid fiscal policy
- Gradual and prudent liberalization of financial markets and the current account
- Low exposure of government debt to real exchange rate movements

- Careful monitoring and control of the expenditure of independent government institutions

Those countries that satisfy these policy guidelines will continue to have stable and good economic performance in the long run.

There is no reason to limit the discussion above to the countries studied in this project. The conceptual framework used to study the history of these eleven Latin American countries has no specific element that is exclusive to the region. Rather, it identifies policies that make countries more prone to macroeconomic instability. As it turns out, many countries in the region adopted those policies at one or more points in their recent histories. As we mentioned above, some countries learned the lesson early on, others later, and others are still struggling with it. What makes these countries similar in some—but not all—periods of their histories is the macro policies adopted, not the continent to which they belong.

One could, of course, adopt an alternative view that focuses on some Latin American virus, whose origin could be found in the common history of centuries as a Spanish colony, the distance from the rest of the world, or some other fateful common feature. Under this view, the Latin American dummy in cross-country regressions does indeed account for that unobserved structural feature.

We believe that the series of studies in this volume show that there is enough cross-country and within-country variation in the macro policies adopted and the macroeconomic outcomes to enable us to disregard that view. Therefore, the lessons drawn from these experiences are not limited to the region. We now briefly discuss a few examples.

The European debt crisis

In the first months of 2012, the spread between the interest rate of sovereign bonds in Italy, Portugal, and Spain against the German sovereign bond, which had been very small since the adoption of the euro, started to go up, reaching a staggering 500 basis points. These dramatic changes in sovereign spreads did not seem to be accompanied by a corresponding change in fundamentals.

This fact led many to argue that multiplicity of equilibria could be behind the unraveling debt crisis. Essentially, the argument boils down to a shift in expectations that increases the interest

rate, which imposes a higher fiscal burden on the country, increasing the probability of default and thereby confirming the shift in expectations.

As it turns out, theories that rationalize this behavior also imply that deep-pocket lenders can adopt policies that rule out the bad expectations equilibrium at no fiscal cost (see, for instance, Lorenzoni and Werning 2013 and Ayres et al. 2015).

This is a possible interpretation of the end of the European debt crisis, marked by a sustained drop in spreads following the announcement by the European Central Bank that it would lend to troubled countries to end the crisis. An interesting feature is that the policy announcement alone was enough to end the crisis, as is implied by the theory.

As the Mexico chapter in Kehoe and Nicolini(2019) shows, this phenomenon is not a novel one. The financial crisis experienced by Mexico following the devaluation of December 1994 ended after the so-called Clinton bailout with the announcement of a debt relief package that was close to USD 50 billion. Mexico used only a fraction of the package and returned the funds in less than a year.

A reasonable conjecture is that the debt relief packages that Mexico received from the United States, and which Italy, Portugal, and Spain received from the ECB, avoided defaults that could have been very costly. Is it possible that without those relief packages, those three European countries could have been dragged into a lost decade, similar to the one endured by several of the Latin American countries? We believe so. If this were the case, belonging to the European community and the euro system may have substantial benefits that are not always acknowledged.

Though some details of the Mexican crisis are different from the European one, the same logic of a policy action by a large lender solving a multiple equilibria–driven crisis lies behind the Mexican crisis (see Cole and Kehoe 1996).

A reasonable conjecture is that the success of the Clinton bailout, now well understood by the profession, played some role in the decision of Mario Draghi, then president of the European Central Bank, to grant the debt relief packages for Italy, Portugal, and Spain.

The Asian financial crisis

The outbreak in balance of payments and banking crises that hit the fast-growing economies of Southeast Asia in 1997 took everyone by surprise. The understanding was that these systemic crises seemed to grow only on Latin American soil. At first sight, the nature of the crises seemed to be different from those that plagued Latin America in the early 1980s, since the measures of deficits were much smaller than the ones observed in Latin America during those years. Upon closer scrutiny, however, we see that the crises share several features. One important contribution to understanding the Asian crisis points out that once prospective deficits are taken into account, a crisis may unravel through essentially the same mechanism that allows current deficits to cause a crisis, as demonstrated by the conceptual framework used by the country cases in this book (see Burnside, Eichenbaum, and Rebelo 2001).

As it turns out, the role played by prospective deficits has been already pointed out as a potential cause of the Mexican crisis of 1995 (Calvo and Mendoza 1996). Those two contributions suggest that we can draw useful lessons from the crises in Mexico and Asia.

Financial market and capital account liberalizations

All too often, as illustrated in this book, financial liberalizations ended in banking crises with very large fiscal costs. In many of those cases, countries were unable to finance those sudden increases in spending, so the financial crisis was accompanied by defaults on government debt. Most of the time, these defaults were very costly with respect to output performance. This was particularly the case for financial liberalizations that were adopted at the same time that capital controls were eliminated and both the government and the private sector started borrowing heavily in international financial markets.

A remarkable feature of the Latin American debt crises is that they occur at levels of debt to total output that are much lower than those observed in many developed economies. Kehoe, Nicolini, and Sargent (2019) briefly describe theories that could rationalize this feature, based on the credit history of these countries. All the countries studied in this volume were isolated from

international financial markets until the early 1970s. The theories described in Kehoe, Nicolini, and Sargent (2019) imply that in the early stages of participation in credit markets, participants are constrained by how much debt they can raise in a single period. Eventually, after a long period of compliance with debts, those constraints cease to bind. An "emerging" economy would thus be one that is still in transition, with tight debt limits that eventually disappear once the economy becomes "developed."

Currently, a few countries in Asia have started a growth process that nurtures the hope of poverty rates falling dramatically in the next couple of decades. And many of us hope to live long enough to see many countries in Africa following that path. The industrial revolution has been spreading at a remarkable rate in the last few decades, and if the world maintains that pace, we may end the twenty-first century living on a planet where poverty is studied only in history courses.

We do not know what ignites an industrial revolution in a particular country. But the case studies in this book suggest that some combination of policies can kill an industrial revolution once it has started. Clearly, more research is needed in order to provide more conclusive evidence. We believe, however, that the Latin American experience suggests that governments should be very cautious before proceeding with a joint and sudden liberalization of the financial market and the capital account in the early stages of a country's development.

Modern monetary theory

As a final example of the lessons that the experiences of these countries have to offer for other countries, we now use a couple of examples, described in detail in this book, that shed light on a current debate in the United States. Recently, some politicians in the United States have proposed increasing spending on social programs, detaching that decision from taxation, based on some academic formulations that have collectively been called "modern monetary theory" (MMT).

What MMT accounts for is not precisely defined. The discussion in policy circles does not necessarily reflect what is being discussed in academic circles. Our purpose is not to debate the merits of the academic discussions on the topic, about which we have far too many reservations.

Rather, we want to bring to the discussion two examples discussed in the chapters for Argentina and Chile.

Briefly, one of the first major policy implications of most versions of MMT is that countries whose governments issued debt in domestic currency may never default, since they can print the money they need to pay for their debt. A second main implication is that those governments can finance social spending by issuing money and that, to the extent that output is below potential, this policy will not generate increases in the rate of inflation.

Our conceptual framework allows a government to inflate away the domestic currency–denominated debt and allows the government to raise revenue by printing money—although limited by the interest rate elasticity of the demand for real money. It also implies that inflation will follow and that it can be stopped by raising taxes or issuing bonds (albeit limited by the willingness of credit markets to lend to this government). However, our conceptual framework is not consistent with the latter part of the second implication, since the economy, being at full employment, is not a prerequisite for inflation.

The key assumption in MMT is that government debt must be denominated in its own currency. This assumption clearly omits from consideration most of the crises that plagued Latin America starting in the early 1980s, since in most cases the share of dollar-denominated debt was sizable. Nonetheless, this assumption is a good description of the state of affairs in Argentina and Chile in the early 1970s. In both countries, government debt was very small and mostly denominated in local currency. Both countries ran rampant deficits for two years in a row and financed those deficits by printing money. Neither of the two governments defaulted on their debt, since they inflated away the debt. Inflation in Chile was over 700 percent during 1973, however, and it was over 500 percent in Argentina in 1975. In both cases, total output and total labor experienced severe drops, as documented in the corresponding chapters, showing that full employment is not a prerequisite for inflation. The experiences of these countries clearly show that following the tenets described above will seriously jeopardize the price stability mandate of the Federal Reserve.

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Data appendix

This appendix describes the data for figures 1 through 5 and tables 1 through 3, along with their sources.

Table 1

The numbers in table 1 are taken from the budget accounting analysis in Meza (2018). The data for GDP, domestic debt from 1960 to 1977, and GDP deflator are from INEGI. The data for monetary base, nominal exchange rate, primary deficit and all debt from 1977 onward, and debt service are from Banco de México. The data for primary deficit from 1960 to 1977 and foreign debt from 1960 to 1977 are from the Secretaría de Hacienda y Crédito Público, the Ministry of Finance in Mexico.

Figure 1

Figure 1 shows the time series of all the exchange rates that coexisted during different periods of time in Mexico. The source is the historical exchange rate time series with daily frequency from Banco de México.

Table 2 and figure 2

The data in table 2 show the ratio of the standard deviation of the debt-to-output ratio as observed in the data to the standard deviation of the simulated series maintaining a fixed real exchange rate.

The data in figure 2 show the evolution of the observed debt-to-output ratio and the counterfactual case assuming that the real exchange rate remains constant at its value of 1980.

The sources are the exercises of counterfactual debt with fixed real exchange rate in each of the eleven chapters of Kehoe and Nicolini (2019).

Figure 3

The data in figure 3 show the evolution of real GDP per capita after the stabilization of chronic and hyperinflation for some selected cases. The sources are figure 1 and figure 2 in each of the eleven chapters of Kehoe and Nicolini (2019).

Table 3

Table 3 classifies the eleven countries in three groups according to their exports of primary commodities as a share of GDP. The data for exports is from UN Comtrade, United Nations Statistics Division. The data for nominal GDP to calculate the shares is from the World Bank's World Development Indicators database. We classify primary commodities following Ayres, Hevia, and Nicolini (2017).

Figure 4

Figure 4 shows the evolution of real GDP per capita from 1960 to 2017 and the evolution of a primary commodity price index. The sources of real GDP data are figure 1 in each of the eleven chapters of Kehoe and Nicolini(2019).

To construct the primary commodity price index, we calculated a weighted average of the price indexes of the ten most exported commodities in the region: crude oil, copper, fish, iron ore, coffee, soybeans, beef, aluminum, gold, and wood. We used the shares of exports of each commodity on total primary commodity exports in the region in 2000. The source of the primary commodity price indexes is the World Bank's Commodity Price Data with monthly frequency. The data depicted in figure 4 correspond to the yearly average of the constructed index, setting 1960=100.

Figure 5

Figure 5 shows the evolution of the sum of total deficit and transfers as a share of GDP from 1960 to 2017 and the evolution of the same primary commodity price index depicted in figure 4. The sources of the ratios of total deficit and transfers over GDP are the budget accounting exercises in each of the eleven chapters of Kehoe and Nicolini(2019).