

# Discussion of the History of Paraguay 2

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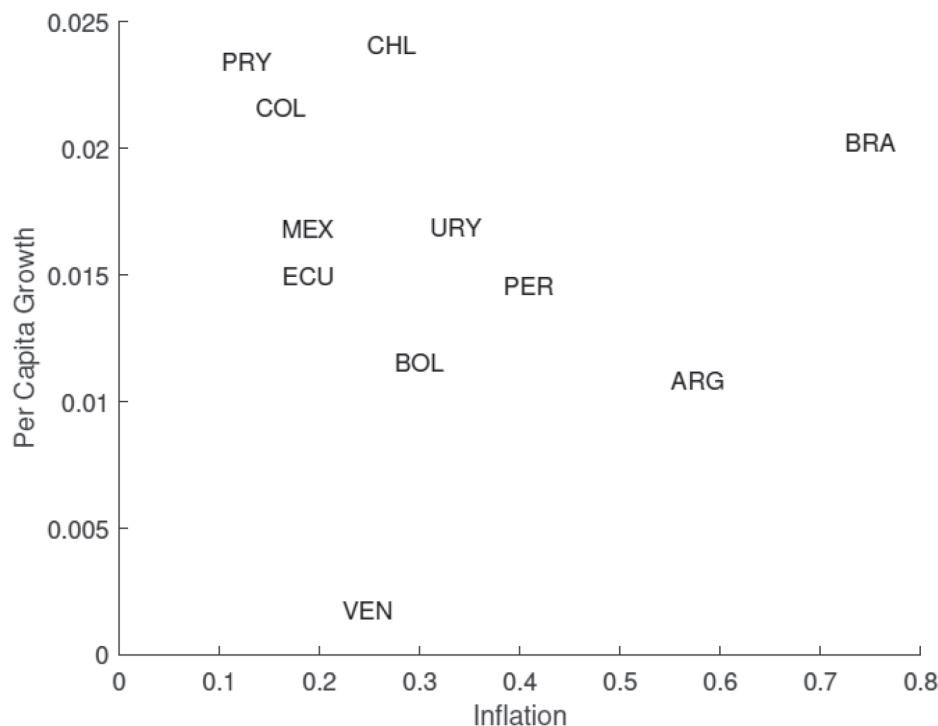
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Paraguay is the country with the best macroeconomic performance in the book's sample of eleven Latin American countries.<sup>1</sup> Figure 1 shows that, judging performance by the average inflation rate and the average per capita growth rate of each country in the sample, Paraguay is the clear winner. Paraguay's growth was a close second to Chile's. Per capita income grew from 26 percent of the eleven-country average in 1960 (the lowest in the sample) to 42 percent of the sample average. The average inflation rate for Paraguay in the sample period was the lowest in the region at 10.2 percent per year. This chapter on the monetary and fiscal history of Paraguay tells the story of the quest for stability of one of the poorest countries in Latin America.

A notable aspect of Paraguayan monetary history is its political will to keep inflation low. Figure 2 illustrates how low Paraguayan inflation was relative to its peers in the region. These comments center on the policies that allowed Paraguay to accomplish nominal stability. From an analytical point of view, it is useful to distinguish three monetary regimes in Paraguay. Between 1960 and 1980, there was a fixed exchange rate regime; between 1981 and 1990, the central bank financed government deficits; and after 1992, an independent central bank conducted monetary policy to keep inflation low.

## Inflation under a Fixed Exchange Rate

The guaraní was officially pegged to the U.S. dollar at a rate of 126 guaraní per U.S. dollar between October 1960 and February 1984.<sup>2</sup> Despite the fixed exchange rate, Paraguay suffered two bouts of inflation during this period. These bouts of inflation were the result of real shocks accommodated by the monetary dynamics inherent in fixed exchange rate regimes. We can write the price level as  $P = p_n \alpha EP^*$  where  $E$  is the exchange rate,  $p_n$  is the relative price of nontraded goods in terms of tradable goods, foreign prices are denoted by  $P^*$ , and  $\alpha$  is the share of nontraded goods in consumer expenditures. Thus under a fixed exchange rate regime, fluctuations in domestic inflation are the result of real shocks affecting the relative price of nontraded goods (the inverse of the real exchange rate depicted in Figure 11 in the chapter) and of variations in foreign prices. Figure 3



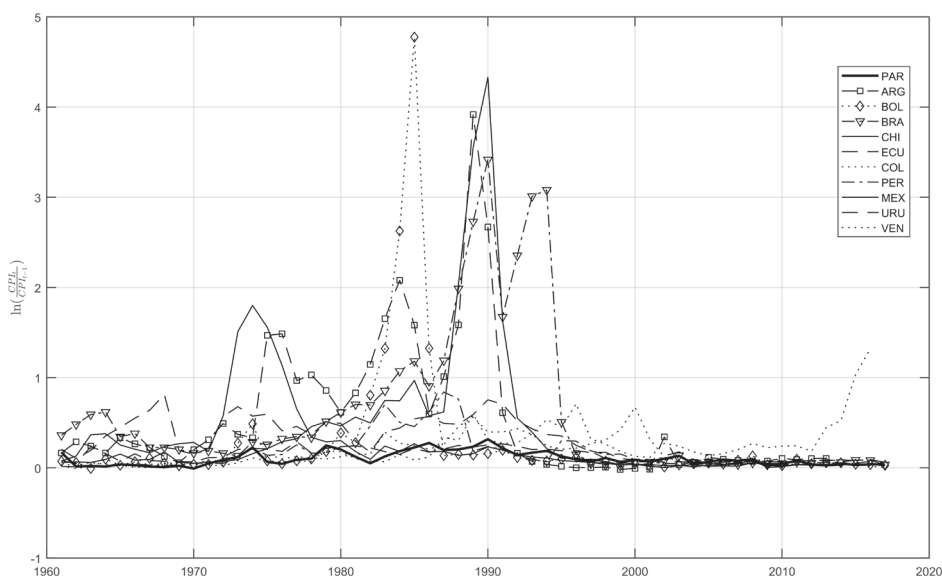
**Figure 1.** Inflation and per capita growth

Source: World Development Indicators from the World Bank

Note: Per capita growth is the average over the nonmissing values in the sample period 1960–2017 of the log difference between GDP per capita measured in local currency units in consecutive years. Inflation is the analogue for the consumer price index.

shows the evolution of inflation in Paraguay, the U.S. producer price index, and oil prices (right scale) while Paraguay was under a fixed exchange rate. It shows that the two large spikes in inflation in 1974 and 1979 are associated with imported inflation. Figure 11 in the chapter also shows a significant real appreciation of the guaraní between 1971 and 1981. This appreciation is likely to have been the consequence of large expenditures in nontradable goods associated with the construction of the Itaipú hydroelectric dam. Table 1 shows the magnitude of the expenditures made by the binational entity that built the Itaipú dam as a share of GDP as well as the evolution of aggregate gross fixed capital formation.

The endogeneity of the money supply inherent in a fixed exchange rate regime provided the monetary fuel for the inflation spikes. Under the rules of the fixed exchange rate regime, the increase in the nominal demand for money due to an increase in  $p_n$  and  $P^*$  is automatically translated into an increase in the money supply, implemented through the purchase of international reserves.<sup>3</sup> In the case of Paraguay, direct credit from the central bank to the private sector was also a source of expansion of the monetary base during the two spikes in inflation in the 1970s. On the liability side, commercial bank reserves



**Figure 2.** Inflation in Latin America

Source: World Development Indicators from the World Bank

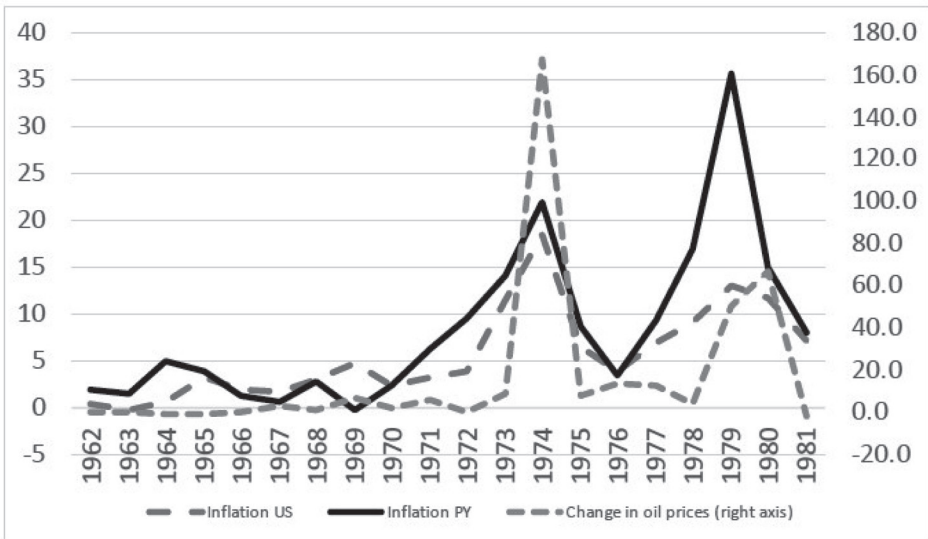
Note: Inflation measured as the log difference of the consumer price index between two consecutive years.

at the central bank grew considerably as a share of the monetary base due to increases in reserve requirements (i.e., financial repression). Seigniorage during this period was quite high, averaging 1.9 percent per year (see Table 1 in the chapter), and was mainly used to accumulate reserves.<sup>4</sup> Deficits were financed with foreign debt, which started at around 10 percent of GDP in 1960 and practically doubled by 1980.

## Monetary Financing of Deficits

Paraguay's nominal stability tumbled in the 1981–90 period as inflation averaged 23 percent in the decade with a peak of 44 percent in 1989. In spite of this, Paraguay's inflation was among the lowest in the sample of eleven Latin American countries during this period. For example, the average inflation for Paraguay's neighbors, Argentina, Bolivia, and Brazil, in this decade was in the triple digits (see Figure 2).

Several shocks disturbed the Paraguayan economy, putting it off balance. The end of construction in Itaipú and major devaluations in Brazil and Argentina increased pressure for a depreciation of the domestic currency. The debt buildup of the previous period, the real devaluation, and a drop in government revenues stressed public borrowing. As a result, the central bank financed the Treasury issuing money, and the Treasury used the central bank reserves to service the public debt. This simultaneous growth of domestic credit and the servicing of the public debt induced a rapid fall in international reserves and a succession of devaluations consistent with Krugman's balance of payments



**Figure 3.** Oil shocks

Source: World Development Indicators from the World Bank

Note: U.S. Inflation is measured by the producer price index.

**Table 1.** Investment and other expenditures on Itaipú (% of GDP)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Itaipú</b>	3.0	4.5	7.4	8.0	8.1	6.3	5.4	5.4	4.3	2.9	1.8
<b>Investment</b>	19	20	21	23	24	24	25	22	18	19	18

Source: Charotti, Hevia, and Neumeyer (2017).

Note: Itaipú is the ratio of investment and other operational expenditures of the Itaipú Binational entity to nominal GDP. It only includes expenditures paid in Paraguay. Investment is the ratio of nominal gross fixed capital formation to nominal GDP.

model (Krugman 1979). Between 1981 and 1985, the cumulative central bank credit to the Treasury added up to almost 6 percent of GDP.

The low inflation in Paraguay relative to its peers in the 1980s is explained by the relatively low deficits (2.2 percent of GDP on average for the decade) and by its decision to partially service the public debt. In 1985, the government decided to fall into arrears in servicing the public debt as a way of reducing public expenditures and, hence, the need for the monetary financing of deficits.

Paraguay’s inflation could have been even lower. The ratio of the average seigniorage for this period, 1.9 percent of GDP, to the average monetary base, 11 percent of GDP, implies a steady-state annual inflation rate of 17 percent.<sup>5</sup> Inflation was higher due to a systematic fall of the monetary base from 15 percent of GDP in 1978 to 7 percent of GDP in 1991, a consequence of an increase in the cost of holding money and of a continuous reduction in reserve requirements. This is the flip side of the monetary dynamics of the

previous two decades, when the monetary base was rising as a share of GDP. The government's revenues from money creation in this high-inflation period were the same as in the previous two decades of nominal stability.

## Central Bank Independence

Paraguay initiated a series of economic reforms after a coup ended President Alfredo Stroessner's thirty-four-year dictatorship in February 1989. The most important of these reforms, from the perspective of this book, were the adoption of a new democratic constitution in 1992, which established the independence of the central bank, and a fiscal reform. Tax revenues increased by 3 percent of GDP in 1989 and by 9 percent of GDP in 1990. Thereafter, they grew at the same speed as expenditures, yielding ten years of budget surpluses. The government also negotiated a settlement on the arrears on the foreign public debt.

On the monetary front, Paraguay adopted a monetary-based stabilization plan with a floating exchange rate. After an initial jump in the price level associated with increases in public utility prices and the removal of price controls, inflation fell from 44 percent in 1989 to 8 percent in 1995. Inflation then remained under 10 percent until Paraguay started



**Figure 4.** Output and inflation, 1980–95

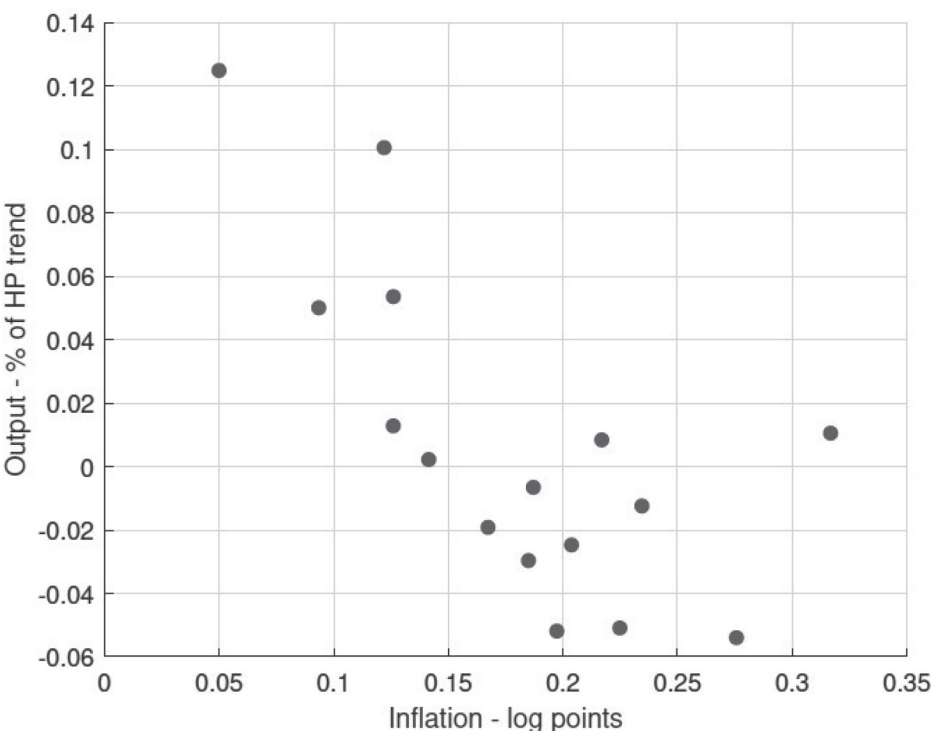
Source: World Development Indicators from the World Bank

Note: Output is the logarithmic deviation from the Hodrick-Prescott (HP) trend, and inflation in year  $t$  is the logarithmic difference of the consumer price index between year  $t$  and year  $t - 1$ .

a gradual migration to an inflation-targeting regime in 2004. The initial inflation target was 5 percent plus or minus 2.5 percent, and the monetary policy instrument switched to the nominal interest rate. Contrary to conventional wisdom (see Calvo and Végh 1999), there is no evidence that this monetary-based stabilization plan was contractionary. Figure 4 shows that there is a mild V-shaped recession only three years after the beginning of the stabilization plan. Figure 5 plots output against inflation for the 1980–95 period. It shows a negative correlation between output and inflation.

The low-inflation regime survived two important challenges: a banking crisis and an increase of 50 percent in government expenditures.

The free market reforms that started in 1989 included a financial liberalization that freed interest rates and adopted a fractional reserve banking system. As was the case in the Southern Cone after the financial reforms in the 1970s (see Diaz-Alejandro 1985), the end of financial repression quickly turned into a financial crash. As in the Southern Cone before, an implicit deposit insurance without the appropriate institutions for effective bank supervision ended in a protracted banking crisis from 1995 to 2003. The cost of bailing out depositors in failed banks was almost 16 percent of GDP and was financed with central bank debt. GDP per person fell 12.5 percent between 1997 and 2002.



**Figure 5.** Output and inflation, 1980–95

Source: World Development Indicators from the World Bank

Note: Output is the logarithmic deviation from the Hodrick-Prescott (HP) trend, and inflation in year  $t$  is the logarithmic difference of the consumer price index between year  $t$  and year  $t - 1$ .

Starting in 1998, fiscal profligacy once again challenged monetary stability. Public expenditures climbed from 20 percent of GDP in 1998 to an average of 29 percent for the period 1999–2015 (see Figure 7 in the chapter), eliminating the primary surplus of the previous years.<sup>6</sup> The accumulated deficit between 1997 and 2002 was 7 percent of GDP. This led Paraguay to miss payments on its foreign debt. As was the case in the 1980s, the government decided not to raise revenues from inflation in order to pay foreign creditors. Paraguay emerged from this scenario under the umbrella of two successive precautionary standby agreements with the International Monetary Fund (2003–8). It adopted fiscal reforms to balance the budget and an inflation-targeting regime to consolidate price stability.

## Final Remarks

My personal takeaways from reading about the Paraguayan experience are four. First, macroeconomic stability founded on small public deficits and conservative monetary policies enabled Paraguay to have the best macroeconomic performance in the eleven-country sample in this book. In times of financial stress, Paraguay chose to reprofile its foreign debt instead of abusing the monetary financing of government expenditures. Most notably, in 2003, the central bank managed to continue its disinflationary program in spite of the government's need to restructure its foreign debt. Second, fiscal deficits are not the only cause for inflation and money creation. In the 1970s, imported inflation and the fixed exchange rate regime brought about two inflationary spikes and a monetary expansion. Third, the control of monetary aggregates is an effective tool for managing inflation. Paraguay successfully lowered inflation after 1989 with a floating exchange rate and with no, or minimal, output costs. Fourth, Paraguay failed to learn from its neighbors the importance of bank regulatory and supervisory institutions to prevent banking crises. Unlike its monetary and fiscal policy, its banking policies in the 1990s replicated the mistakes of the liberalization of financial markets in Argentina and Chile two decades earlier.

## Notes

- 1 The countries are Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela for the period 1960–2017.
- 2 The source for the official exchange rate reported in the text is the International Monetary Fund. According to other sources, the exchange rate was pegged at 124 guaraníes per dollar between 1960 and

1975 and thereafter at 126 guaraníes per dollar. The exchange rate reported in the chapter differs from the official exchange rate because some restrictions on the foreign exchange market were in place. The average premium of the shadow exchange rate reported in the chapter during the period 1960–80 computed from yearly averages was 7 percent with a 4 percent

standard deviation. Starting in 1981, the black market premium was much higher, and the central bank introduced multiple exchange rates for different types of transactions.

- 3 To illustrate this, consider the following simple version of the quantity theory of money. The money demand is given by  $Md = pnaEP^*y/v(i)$ , where  $y$  is real output and  $v(i)$  is the velocity of money, an increasing function of the nominal interest rate. Shocks to  $pn$  and  $P^*$  have a direct impact on the money demand.

- 4 I consider seigniorage to be

$$\frac{M_t - M_{t-1}}{Y_t} = m_t - m_{t-1} + m_{t-1} \left( 1 - \frac{1}{(1 + \pi_t)(1 + g_t)} \right)$$

where  $M$  is the nominal quantity of money,  $m$  are real money balances,  $\pi$  is the inflation rate, and  $g$  is the growth rate of real output.

- 5 See endnote 4.

- 6 The increase in expenditures is from higher pensions and from public-sector wages. It excludes the cost involved in bailing out bank depositors.

## References

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