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# The Case of Bolivia

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## **The Monetary and Fiscal History of Bolivia, 1960–2015\***

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### **ABSTRACT**

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After the economic reforms that followed the National Revolution of the 1950s, Bolivia seemed positioned for sustained growth. Indeed, it achieved unprecedented growth during 1960–1977. Mistakes in economic policies, especially the rapid accumulation of debt and a fixed exchange rate policy during the 1970s, led to a debt crisis that began in 1977. From 1977 to 1986, Bolivia lost almost all the gains in GDP per capita that it had achieved since 1960. In 1986, Bolivia started to grow again, interrupted only by the financial crisis of 1998–2002, which was the result of a drop in the availability of external financing. Bolivia has grown since 2002, but government policies since 2006 are reminiscent of the policies of the 1970s that led to the debt crisis, in particular, the accumulation of external debt and the drop in international reserves due to a fixed exchange rate.

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## 1. Introduction

In the early seventeenth century, Bolivia was so famous for its mineral wealth that Miguel Cervantes in his *Don Quixote* used the phrase “valer un Potosi” (to be worth a Potosi) to indicate something of great worth, referring to the Bolivian silver mining city of Potosi. The phrase had become popular in the late sixteenth century, and its use by Cervantes cemented it into the Spanish language where it is still used, often with a small *p*. Unfortunately, Bolivia’s exports of its proverbial wealth in natural resources—first silver, then tin, and now natural gas—have not prevented it from becoming the poorest major country in South America today.

We study Bolivia’s poor economic performance, focusing on its modern economic history, 1960 to the present. Figure 1 presents a graph of the evolution of real GDP per working-age person (15–64 years) in Bolivia, in which we divide its modern economic history into five distinct periods. The first period runs from 1960 to 1977 and is the period during which the most rapid economic growth took place in Bolivia. It is followed by the second period of debt crisis and hyperinflation that runs from 1977 to 1986. The third period is a slow recovery, which extends from 1986 to 1998. The fourth period is the 1998–2002 financial crisis. The fifth and final period starts in 2002 and runs to the present. This period is characterized by rapid growth and, starting in 2006, by an increase in the participation of the state in the economy through the nationalization of enterprises in key economic sectors.

We develop a narrative for the uneven economic development depicted in figure 1 that focuses on monetary and fiscal policies, particularly on the external debt and the finances of state-owned enterprises. Our narrative is compatible with other theories for Bolivia’s uneven development. The most common narrative for Bolivia’s economic problems stresses that the country’s continuing dependence on the export of a few natural resources makes its economy sensitive to external shocks (see, for instance, Peñaloza Cordero 1985). Tin represented at least 50 percent of total exports from 1904 to 1985; after a short period of export diversification, natural gas exports have represented at least 40 percent of total exports throughout the twenty-first century. Many economists have stressed the country’s dependence on foreign aid in terms of debt, grants, and foreign direct investment (Huber Abendroth et al. 2001; Peres-Cajías 2014). Other economists point to the low level of industrialization (Rodríguez Ostría 1999; Seoane 2016). Production of manufactured goods has stagnated at around 15 percent of GDP since the early 1940s.

Although these narratives differ in their focus, they agree that government intervention in the economy has been critical in either driving or impeding economic development. This government intervention took the form of intervening excessively in production activities in the 1960s, 1970s, and recently and took the form of intervening in allocation of resources through regulations in the 1990s or early 2000s. Given this common agreement about the centrality of government policies, we stress the need for a comprehensive analysis of these policies that focuses on the government's intertemporal budget constraint.

A special feature of Bolivia's modern economic history is that it received subsidized loans. It has also defaulted frequently. Although it has been in default on some loans during most years since 1960, Bolivia nevertheless continued receiving loans. In fact, it is the only country in South America that has benefited from the joint IMF–World Bank programs to reduce the debt of very poor countries, the Heavily Indebted Poor Countries (HIPC) Initiative and the Multilateral Debt Relief Initiative (MDRI). Figure 2 shows the evolution of Bolivia's external debt. Notice that Bolivia's debt peaks at over 80 percent of GDP during the debt crisis of the 1980s.

As figure 3 shows, Bolivia has experienced only one period of hyperinflation that resulted from a balance of payments crisis, while other countries such as Argentina and Brazil have experienced multiple episodes of hyperinflation.<sup>1</sup> In contrast, Bolivia adopted a fixed exchange rate policy several times, which has allowed it to maintain inflation at low levels.

Our general argument is as follows. After the economic reforms that followed the National Revolution of the 1950s, Bolivia was well positioned for sustained growth. Indeed, it achieved unprecedented growth during the period 1960–1977. Mistakes in economic policies, especially the rapid accumulation of debt and an unchanged exchange rate policy during the 1970s, led to a debt crisis that began in 1977. From 1977 to 1986, Bolivia lost almost all the gains in GDP per working-age person that it had achieved from 1960 to 1977. In 1986, Bolivia started to grow again, albeit slowly, interrupted only by the financial crisis of 1998–2002, which was the result of a drop in the availability of external financing. Bolivia has grown since 2002, but government policies since 2006 are reminiscent of the policies of the 1970s that led to the debt crisis, in

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<sup>1</sup> The scale for inflation in figure 3 is  $100 \cdot P_t / P_{t-1}$  where  $P_t$  is the consumer price index, rather than  $100(P_t / P_{t-1} - 1)$ . Consequently, the numbers on the vertical axis correspond to the rate of inflation in percent plus 100. We do this so that we can use a logarithmic scale and include years like 1963 when the inflation rate was negative.

particular, the accumulation of external debt and the drop in international reserves due to a fixed exchange rate.

We carry out a systematic data analysis of Bolivian monetary and fiscal policies and their effects on the economy. We use Kehoe and Prescott's (2007) growth accounting analysis to identify the real impact of government policies, and we use Kehoe, Nicolini, and Sargent's (2010) government budget accounting analysis to identify changes in government policies .

In section 2, we perform the growth accounting analysis. Section 3 describes the different periods in Bolivia's modern economic history of Bolivia between 1960 and 2015. In section 4 we perform the budget accounting analysis. In section 5, we present our conclusions. We also provide an appendix in which we present a brief historical overview of Bolivia's economic history before 1960, focusing on the National Revolution of 1952 and its aftermath.

## 2. Growth accounting

Figure 4 summarizes the macroeconomic history of Bolivia from 1960 to 2015 with the results of a growth accounting exercise based on those in Kehoe and Prescott (2007). We use a Cobb-Douglas production function for real GDP:

$$Y_t = A_t K_t^\alpha L_t^{1-\alpha}, \quad (1)$$

where we cumulate investment deflated by the GDP deflator to measure capital and number of workers to measure labor. Our growth accounting rewrites this production function as

$$\frac{Y_t}{N_t} = A_t^{\frac{1}{1-\alpha}} \left( \frac{K_t}{Y_t} \right)^{\frac{\alpha}{1-\alpha}} \left( \frac{L_t}{N_t} \right), \quad (2)$$

where  $N_t$  is the number of working-age (15–64 years) persons. The advantage of this growth accounting is that, in a balanced growth path,  $(K_t / Y_t)^{\alpha/(1-\alpha)}$  and  $L_t / N_t$  are constant, and growth in  $Y_t / N_t$  is driven by growth in  $A_t^{1/(1-\alpha)}$ . The usefulness of this decomposition is shown precisely in Kehoe and Prescott (2007) and other papers, whereby considering data for the United States, they show that the US growth path is close to balanced: in particular, the growth in  $Y_t / N_t$  is close to that in  $A_t^{1/(1-\alpha)}$ , and  $(K_t / Y_t)^{\alpha/(1-\alpha)}$  and  $L_t / N_t$  are close to constant.

In figure 4, four features are worth noting. First, fluctuations in GDP per working-age person in Bolivia are mostly driven by fluctuations in total factor productivity (TFP). Second, during the 1960s and the early 1970s, we observe a remarkable expansion in TFP that is almost completely lost during the debt crisis period. Third, although devaluation took place in 1972 and 1973, TFP continued growing; it is in 1978 that it starts to fall. Fourth, TFP falls in 1999 to 2001 because of the financial crisis.

The capital stock series is calculated using the perpetual inventory method, based in the law of motion for capital,

$$K_{t+1} = (1 - \delta)K_t + I_t, \quad (3)$$

where  $\delta$  is the depreciation rate that we assume is equal to 0.05, a standard value for yearly data. We employ a value of 0.42 for the capital share in the production function, following the estimate of Machicado (2012).<sup>2</sup>

The beauty of this growth accounting is that we can identify the deviations from balanced growth. In fact, in this paper, we attempt to relate the major deviation from balanced growth in Bolivia to shocks, both internal and external, and to monetary and fiscal policy. Our hypothesis is that Bolivia followed economic policies up through 1985 that left it very vulnerable to shocks. Starting in 1985 with its New Economic Policy (NPE, *Nueva Política Económica*), the Bolivian government implemented a series of reforms that successfully isolated the economy from shocks, which continued to buffet Bolivia.

### 3. Periods of economic development in modern Bolivia

#### 3.1. Stabilization and growth (1960–1977)

In 1960, the Bolivian government enacted the Eder Plan.<sup>3</sup> It was a stabilization plan intended to drastically reduce the liquidity available in the economy by cutting public expenditures and credits and by liberalizing prices, beginning with the exchange rate and then prices for goods. The plan also modified budget procedures by including the deficit of public enterprises, established a mining royalty and new tariffs, and restructured the tax system.

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<sup>2</sup> Other estimates of the capital share for Bolivia include Humérez and Dorado (2006) with a value of 0.35 and Jemio (2008) with a value of 0.69.

<sup>3</sup> The plan is named after George Jackson Eder, an economist sent by the United States as part of the technical assistance provided to Bolivia.

The Eder Plan planted the seeds for the rapid growth that the Bolivian economy subsequently experienced because it managed to control inflation, reducing it from 178 percent in 1956 to 11.5 percent in 1960. In fact, between 1960 and 1969, the Bolivian economy grew by 3.0 percent per year in terms of GDP per capita, a rate higher than those of Brazil and Chile, which grew by 2.6 percent per year.

An important feature of this period is that external debt increased, mainly to finance macroeconomic stability and the fiscal deficit, in particular, to finance the expenditures of public enterprises. Overall external debt increased from USD 181.5 million in 1960 to USD 1,412.3 million in 1977. Figure 5 depicts the evolution of the ratio of external debt to GDP. This ratio increased from 48.2 percent in 1960 to 60.3 percent in 1972 (the highest value) and then decreased to 46.7 percent in 1977.

As we can see in figure 6, between 1960 and 1970, private debt represented the largest source of external credit, although it showed a decreasing pattern. In 1960, bilateral debt represented around 30 percent of total debt, but in 1970 it represented only 22 percent. Multilateral debt increased during the 1960s, but then decreased in 1970. In fact, during the 1970s and mid-1980s, multilateral debt was not as important and was below bilateral debt and far below private debt.

During the period 1960–1977, external financing was employed primarily to maintain macroeconomic stability. In addition, the successive net disbursements allowed a sustained positive balance in the capital account of the balance of payments, which was larger than the deficit of the current account. Therefore, there were increases in net international reserve, as seen in figure 9. From 1964 to 1978, net international reserves as a share of GDP were positive, with the highest value of 8 percent occurring in 1974.

In Figure 7, we see that net transfers from international creditors were always positive and large during the 1960s and 1970s, although they were very volatile. They increased from 4 percent in 1969 to 10 percent in 1970, and then they fell to 0.2 percent in 1973, increasing again to 8.8 percent of GDP in 1977. According to figure 21, this is a period during which sovereign debt in default was low. Some foreign currency bonds were in default during the 1960s, but between 1970 and 1977, foreign currency bonds in default represented on average only USD 5 million, an amount so small that it is difficult to see in figure 21.

The Bolivian government maintained a fixed exchange rate regime during the Bretton Woods period, up until 1971. It devalued in 1972, but then maintained a fixed exchange rate again from 1973 to 1978. In figure 8, we see that, during the fixed exchange rate regime, there was a continuous real appreciation, with a jump in 1973. The devaluation in 1972 cannot be cataloged as a balance of payments crisis because it was not accompanied by a fall in international reserves, as seen in figure 9.

In the 1970s, Bolivia enjoyed excellent external economic conditions that provided solid bases for sustainable development. The country had access to vast foreign credit, and the export prices of tin and petroleum, the major exports, were high. As shown in figure 10, the trade balance displayed a large positive value in 1974 of 8.5 percent of GDP. Unfortunately, Bolivia did not take advantage of these favorable conditions because it failed to reverse the historical trend of being a producer and exporter of raw materials. During this period, fiscal policy was criticized for using external resources to finance the public enterprises and not to reduce social inequality.

Between 1960 and 1970, current revenues of the general government increased from 5.9 percent of GDP to 9.4 percent of GDP, while expenditures increased from 8.0 percent of GDP to 10.3 percent of GDP, as seen in Figure 16. This allowed the fiscal deficit to decrease as a share of GDP. Figure 16 shows that the fiscal deficit decreased from 2.1 percent of GDP in 1960 to 0.9 percent of GDP in 1970.

In the 1970s the trend in the deficit of the general government reversed. We see in figure 17 that, instead of diminishing, the fiscal deficit increased from 2.4 percent in 1971 to 4.4 percent in 1977 as a share of GDP. In all the years, the existence of global deficits and primary deficits is explained mainly by a boom in public investments financed by the large inflow of external resources, both from trade surpluses and foreign borrowing. According to Otalora (2002), during the years 1975–1979, there were currency surpluses that financed only a minor part of the public investments. The sharp break in fiscal policy during the 1970 from fiscal policy previously and from fiscal policy after the debt crisis shows up clearly in figure 10. During the period 1974–1986, the correlation between net exports and the primary fiscal surplus was  $-0.42$ ; that is, when revenues from the sale of tin and petroleum by public enterprises increased, the government reduced its surplus by making it more negative, in other words increased its deficit. In contrast, during the rest of the period that we study, 1960–1973 and 1987–2015, the correlation was  $0.57$ ; that is, when revenues from sales of exports increased, the government decreased its deficit.



In figure 12 we can also see that, while the general government reduced its debt during the 1960s and mid-1970s, public enterprises increased their debt from 8.4 percent of GDP in 1969 to 24.2 percent in 1973, remaining at around 20 percent of GDP during the 1970s. This indicates that the fiscal problems came mainly from public enterprises. Policy makers have told the authors that the government officials were frustrated that public enterprises, particularly those involved in extracting tin and petroleum, could not increase output during the period when the prices of their output increased. This led them to massively increase investment in the public enterprises and thereby increased public debt.

### **3.2. Debt crisis (1977–1986)**

Between 1977 and 1986, Bolivia suffered an economic crisis of extraordinary proportions. During the 1970s Bolivia, like other Latin American countries, enjoyed large inflows of credit mainly from international banks. In the 1980s, the situation reversed and external credit was severely constrained or cut off. This period was also characterized by internal political chaos between 1978 and 1982, overlapping with the onset of high international interest rates and a global recession. Between 1982 and 1985, Bolivia experienced a period of democratic governance during the administration of Hernán Siles Zuazo of the Unidad Democrática y Popular (the UDP party). Unfortunately, the economic crisis caused the Siles Zuazo government to lose internal support, and it had to rely on foreign support. The principal source of internal opposition that confronted the government came from the Bolivian Labor Union (la Central Obrera Boliviana), which not only was a confederation of guilds, with demands of increased wages and stability of employment, but also viewed itself as a political party whose aspiration was to control the government (Toranzo 2009). Its main demand at that time was a minimum living wage with a sliding scale, which was meant to increase at a rate equal to past inflation. This sort of sliding scale would have built inflationary inertia into the economy: past inflation would cause current inflation. By 1985, annual CPI inflation was above 11,000 percent and the fiscal deficit was around 25 percent of GDP. Morales (1988) and other authors attribute the hyperinflation to the financing of the fiscal deficit by increased money printing.

In this period, external debt doubled from USD 1,412.3 million in 1977 to USD 3,240.2 million in 1986. As a share of GDP, debt jumped from 45 percent to 66 percent between 1981 and 1982, and it reached its highest value, 86.3 percent, in 1984. Much of the increase in external

debt/GDP between 1977 and 1986 was due to real exchange rate depreciation, which made the value of GDP lower in terms of US dollar, the currency in terms of which almost all of Bolivia's debt was denominated. Figure 2 shows a series, the RER adjusted debt-to-GDP ratio, which is what the debt-to-GDP ratio would have been during the entire period 1960–2015 if the real exchange rate had remained constant at its 1980 value. Notice that real exchange rate depreciation causes external debt to be 30 percentage points of GDP larger in 1984.

The crises that started in July 1978 with the resignation of President Hugo Banzer Suárez was a balance of payments crisis of the sort analyzed by Krugman (1979): the government had no other option but to devalue in 1979, as net international reserves fell sharply. Figure 9 shows that net international reserves as a share of GDP started falling in 1978 and by 1979 were negative. As international reserves started to recover, the government tried to fix the nominal exchange rate again in 1980–1981, but reserves started to fall again, so there was no other option than to devalue. Inflation and dollarization followed.

Prevailing conditions in the international financial markets allowed Bolivia to increase its external debt by a factor of 1.8 between 1978 and 1985. The stock of external debt was USD 1,799.7 million in 1978 and USD 3,294.4 million in 1985. Figure 21 also shows that sovereign debt in default increased sharply during this period, from USD 6.6 million in 1978 to USD 2,236.69 million in 1986. In that year, Bolivia defaulted on debt with all types of creditors, but most of the debt was in foreign currency bank loans and bilateral debt.

In 1982, Bolivia ended a period of several successive military dictatorships with the election of Hernán Siles Zuazo as President. The political uncertainty involved in the return to democracy that characterized the early 1980s was reflected in the government's debt policy. Even though there was an international movement in favor of a suspension of the service of debt, the Bolivian government renounced this possibility. International creditors, in particular international banks, implemented a policy to solve the payment limitations of the large debtors (Mexico, Brazil, and Argentina), but they did nothing to solve the problems of the small debtors. In this setting, the Bolivian government, fearing punishment by the international creditors, decided to impose discipline on its external financial obligations to maintain its internal legitimacy. Notice in figure 7 that net transfers were negative between 1982 and 1985. This means that, although Bolivia defaulted on some creditors, it made substantial payments to others. In fact, this is a particular

feature of Bolivia's debt policy. It seems that it managed its debt portfolio by paying some creditors, while acquiring new debts, possibly by using some of the new debt to pay old debts.<sup>4</sup>

Figure 6 shows that a change in creditors took place between 1982 and 1985. The proportion of debt owed to private creditors dropped to 22.8 percent because the government initially paid this debt. Simultaneously, the proportion of debt owed to bilateral creditors rose to 50.7 percent, which is explained by the US government's and other official organizations' support of the democratic process initiated in Bolivia. Of course, the government's decision to pay as much service on its debt as possible had drastic implications for the economy. The ratio of debt service to exports reached 42 percent in 1984, which was an unsustainable level if we consider that a large drop in net exports due to the internal production crisis also occurred.<sup>5</sup> We can also observe in figure 10 that between 1978 and 1984 net exports increased from -7.5 percent of GDP to 13.5 percent of GDP and then fell abruptly. This is a sign that the Bolivian economy experienced a major sudden stop.

By early 1985, the most severe economic crisis in Bolivia's history was under way. A hyperinflation of unprecedented magnitude that occurred as a direct consequence of printing money to finance the fiscal deficit. Notice in figure 3 that inflation reached a value of 11,750 percent. Friedman (1970, p. 11) asserted that "Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output." Figure 10 shows that hyperinflation coincided with a large increase in the rate of growth of the monetary aggregate M1. Thus, hyperinflation was a monetary phenomenon, but with deep structural causes on the fiscal side. Notice, however, that M1 did not increase as much as did the price level, nor, except for 1985, the year of the hyperinflation, did the increases in M1 exactly coincide with the increases in the price level.

The decline in tax revenues, that is, of current revenues, and the increase in current expenditures during the years 1978–1979 had a substantial impact on the global deficit. This decline in revenues and increase in expenditures coincided with a decline in exports as a percentage of GDP, an increase in external debt service, and a decline in disbursements. All these factors

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<sup>4</sup> At the conference on "La Historia Monetaria y Fiscal de Bolivia: 1960-2014," one of the presidents of the Banco Central de Bolivia during this period, when asked if Bolivia intended to pay its debt, answered, "We wanted to pay, but we are not able to."

<sup>5</sup> According to the International Debt Statistics (IDS) data, the total debt service as a percentage of exports of goods and services and primary income was 63 percent in 1984.

contributed to the deterioration of the financial position of the National Treasury (TGN for Tesoro General de la Nación), which manifested itself in primary deficits not only in the later years of the 1970s but also during the following years. Notice in figure 17 how the global and primary deficit rose in the early 1980s, reaching levels of 17 percent and 15 percent of GDP, respectively.

If we look at the deficit of the nonfinancial public sector (NFPS) in figure 18, we can observe that it increased after 1982. In particular, it rose from 17.0 percent as a share of GDP in 1983 to 21.1 percent of GDP in 1984. This growth is explained in part by the Olivera-Tanzi effect—where inflation reduces real fiscal revenues because of lags in tax payments (Tanzi 1977)—and in part by an increase in government spending due to the wage policy indexed wages to past inflation. In the figure 18, we also see that the expansion of money supply allowed the government to cover its deficit.

Two features of the economic instability in the late 1970s and early 1980s should be stressed. First, as the crisis deepened and external financing options were limited by the Latin American debt crisis of 1982, the government developed a greater confidence in the inflation tax as a mechanism of financing. This attitude reinforced the capital outflow and increased the public's preferences for the use of US dollars. Second, because the banks had guaranteed access to dollars, they rejected the payments in national currency for foreign currency-denominated debt, thus creating a parallel exchange market where borrowers kept buying dollars, which they kept as a store of value to protect against devaluation and inflation (Antelo 1996).

The lack of fiscal discipline led the government to eliminate deposits in foreign currency in the domestic financial system and to impose capital controls. By the end of 1982, several attempts were made to stabilize the exchange rate. An official exchange rate was established with state control of foreign exchange, based on controls on foreign trade and compulsory delivery of foreign currency to the state. In addition, the Foreign Exchange Policy Commission was created to allocate the scarce foreign exchange according to criteria and rules determined by the government.

Part of these measures was the “de-dollarization” program, which consisted of converting all obligations contracted in dollars or indexed to dollars into national currency, including deposits in the banking system, at the exchange rate determined by the government on a given day. This measure created a mismatch in the banking system, hurting creditors and those with deposits in foreign currency in the banking system, but favoring debtors. The policy of de-dollarization failed

because dollar transactions increased, rather than decreased, and the government had to refinance debts and deposits in dollars with currency creation, thus increasing inflation (Cariaga 1996). This program also generated a run on the banking sector as seen in Figure 19. Deposits as a share of GDP fell from 14.8 percent in 1982 to 4.0 percent in 1985.

Morales (2012) argues that the de-dollarization program forced the Banco Central de Bolivia to use all of the foreign currency (or dollar indexed) reserves of the banking system to finance (partially) the fiscal deficit. According to Antelo (1996), the goals of the de-dollarization program were as follows: first, to reduce the demand for dollars by giving back to the government control over the money supply and to concentrate the stock of dollars in external debt repayments; second, to restore the government's ability to raise funds through inflation; third, to encourage sectors stifled by their dollar debts; and fourth, to lower investment costs in sectors where debts would depreciate with inflation. The de-dollarization program fell short of these goals resulting in financial disintermediation and informal dollarization.

### **3.3. Recovery and slow growth (1986–1998)**

1986 marked the beginning of a period of recovery and growth and the replacement of the state by the market. Between 1986 and 2000, 94 public enterprises were privatized (Garrón, Capra, and Machicado 2001). In the second half of 1985 a restructuring process was initiated that had two main objectives: first, to stabilize the economy and, second, to implement structural reforms in which national or foreign enterprises would be the main economic actors. According to Antelo (2000), the structural reforms implemented in Bolivia were framed in line with the Washington Consensus. This period lasts until 1998 and includes different subperiods of structural reforms: economic stabilization and first-generation reforms (1986–1989), deepening of the first generation reforms (1990–1993) and second generation reforms (1994–1997).<sup>6</sup>

The guiding framework of these reforms was the New Economic Policy (NEP), a stabilization plan whose primary objectives were to reduce inflation and generate foreign resources. The structural reforms included the liberalization of goods and financial markets, capitalization through privatization, a tax reform, commercial policies to stimulate exports and foreign direct investment (FDI), and fiscal decentralization by giving more fiscal resources and

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<sup>6</sup> See Barja (2000) for a detailed explanation of the specific reforms that occurred in each period.

responsibilities to municipalities. The period 1986–1998 was characterized by slow growth: GDP per working-age person grew by 1.1 percent per year on average between 1986 and 1998.

The NEP was implemented in August 1985, with Supreme Decree 21060 (DS 21060). As Jemio (2001) indicates, the framework of incentives adopted under the NEP included free convertibility of foreign exchange, elimination of price controls, reduced government intervention in labor contracts, financial liberalization, and commitment to price stability. All these actions were designed to encourage greater private sector participation in the economy. The core of this stabilization program were elimination of multiple exchange rates, drastic measures to control the fiscal deficit, and a very tight monetary policy.

Exchange rate unification was achieved by the liberalization of the exchange market, accompanied by restrictive monetary and fiscal policies, and an ingenious mechanism of intervention by the Banco Central, known as “el Bolsín.” In the Bolsín the demand for foreign exchange that could not be satisfied by private operators was covered by the Banco Central through an American auction with a reserve price. The price resulting from this auction served to define the official exchange rate. Once the exchange market was controlled, the devaluation rate was reduced from 336.8 percent in 1986 to 6.9 percent in 1987. After that, a crawling-peg regime was adopted with mini-devaluations, as seen in Figure 8. This regime lasted until 2005, when a real appreciation occurred.

The NEP allowed transactions in US dollars within the financial system, and with the reestablishment of foreign currency deposits, a bimonetary system was established where transactions could be made in dollars or in local currency. This, in combination with the crawling-peg regime, generated the incentives for an increase in dollarization from 48 percent in 1986 to 90 percent in 1997 as seen in figure 20, where dollarization is measured as the ratio of deposits in dollars over total deposits in the banking system.

Macroeconomic stabilization was achieved in two years. Antezana (1988) argues that the stabilization was achieved by the combination of fiscal and monetary policy. The fiscal policy combined a reduction of public expenditure with the increase in revenues through increases in prices and taxes on goods and services sold by the public sector, mainly fuels, and the consequent increase in indirect taxes. Monetary policy aimed to control the money supply by tightly restricting net lending to the public sector and to development banks. The inflation rate was reduced from

more than 11,000 percent in 1985 to 256.3 percent in 1986 and to 14.6 percent in 1987, as seen in Figure 2.<sup>7</sup>

Monetary policy was fundamental in stabilizing prices. DS 21060 required the Banco Central to submit a monetary program to the Ministry of Finance with reports every ten days so allow it to closely monitor the money supply. This mechanism made it possible to coordinate efforts to reduce the fiscal deficit with control of fiscal credit, both to the TGN and to decentralized entities, public companies, and departmental and local administrations. Although the Ministry of Finance monitored the monetary management, the Banco Central defined its operational objectives independently. In this way, the monetary policy ceased to be subordinated to fiscal financing needs.

Hyperinflation left the country with no way to pay its external debt. Consequently, the NEP aimed to promote exports to generate foreign resources. Thus, the orientation of the NEP in terms of its relationship to the multilateral organizations was linked to a solution of this incapacity to pay the debt. As the general government was the main debtor (see Figure 12), the initial goal of the NEP through its Programa de Ajuste Estructural (PAE) was to reduce and control the fiscal deficit. In May 1986, a new tax structure was imposed.<sup>8</sup>

A priority of the NEP was the reduction and payment of the accumulated foreign debt. In February 1987, the 131 creditor banks of Bolivia approved a refinancing agreement (Enmienda al Convenio de Refinanciamiento) originally proposed in 1981 that gave creditor banks the opportunity to purchase bonds on the secondary market and also to exchange the debt for investment bonds. The solution consisted of the buildup of a fiduciary fund administered by the IMF so that it could collect resources donated by developed countries and move them to the secondary market to acquire debt at a lower price. Bolivia reduced its debt by purchasing it on the secondary market at 11 cents per dollar. This form of reduction was also supported by the approval of the Brady Plan. Between 1987 and 1989, Bolivia reduced its external debt by USD 797.4 million.<sup>9</sup>

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<sup>7</sup> Once stabilized the currency, the Bolivian peso was replaced by the boliviano, equivalent to 1 million Bolivian pesos. This change took effect in January 1987.

<sup>8</sup> This tax reform reduced the tax structure to seven taxes of which the value-added tax was the most important. The reform, in its 1986 version, did not include a tax on labor income or on capital income, and until today a tax on labor income is absent from the Bolivian tax structure.

<sup>9</sup> Bulow and Rogoff (1988) are highly critical of this form of debt reduction.

The success of this repurchase of debt led to a second round. Between 1992 and 1993, the Bolivian government bought its external debt on the secondary market at a value of 16 cents per dollar. It also exchanged long-maturity bonds for short-maturity bonds. In total, these repurchases reduced Bolivia's external debt by USD 170 million. Furthermore, in 1989 the Banco Central de Bolivia issued investment bonds with the aim of exchanging them for international private debt. The bonds had a present value of 11 cents per dollar, and they were redeemed in twenty-five years.<sup>10</sup>

To reduce its bilateral debt, the Bolivian appealed several times to the Paris Club, to restructure its debt with foreign governments and official organizations. In July 1988, the Bolivian government entered into an agreement with the IMF, the Servicio Reforzado de Ajuste Estructural. This agreement allowed the Bolivian government to continue restructuring its debt with the Paris Club. As a result of all these negotiations, which started in 1986 and ended in 1996, Bolivia managed to significantly reduce its external debt. Table 1 lists the debt negotiations according to the type of creditors and Figure 23 shows the impact of these negotiations on the total stock of Bolivia's external debt.

**Table 1: Debt negotiations according to creditors**

Private	Bilateral	Multilateral
1988 (buyback)	1986 (Paris I)	1998 (HIPC-1)
1992 (buyback)	1988 (Paris II)	1999 (HIPC-2)
	1990 (Paris III)	2005 (MDRI)
	1992 (Paris IV)	
	1995 (Paris V)	
	1996 (Paris VI)	

Source: Banco Central de Bolivia

As a result of the structural reforms, in particular the privatization (capitalization) of public enterprises, in the 1990s, there was a large inflow of foreign resources in the form of FDI. The entry of FDI in such sectors as oil, energy, and telecommunications allowed the economy to grow. On average, the Bolivian economy grew by 2.0 percent per year between 1990 and 1997 in terms of GDP per working-age person. In 1994 the rate of growth was 2.3 percent as a result of

<sup>10</sup> These bonds were equivalent to AAA bonds and were sold through Merrill Lynch. The bonds were collateralized by fiduciary documents from the World Bank, the IMF, and the United States.



capitalization, but the ratio of external debt to GDP reached a maximum value of 75 percent. Afterwards, this ratio declined to 57.2 percent in 1997, a value that was still high for a country that needed to reduce its poverty levels. Nevertheless, public enterprises were able to use the capitalization program to reduce their debt as a percentage of GDP from 11.5 percent in 1995 to 1.2 percent in 2005.

The composition of debtors also changed dramatically during the implementation of the PAE, as seen in Figure 13. After 1985 the general government, and in particular the central government, became the largest debtor, owing 74.0 percent of total debt in 1997. The central government allocated these resources primarily to public investment because the tax policy did not generate sufficient internal resources to cover both capital and current expenditures. The financial public sector (the Banco Central and development banks) became the second largest debtor. Its relative weight of its debt doubled in ten years and represented 18.7 percent of total debt in 1997.

During this period, defaults on sovereign debt were also large. In particular, as is seen in Figure 22, the Bolivian government defaulted on USD 1,363 million of its bilateral debt in 1995, and it defaulted on USD 669.1 million in 1996 and USD 417 million in 1997 of its multilateral debt. By the late 1990s, multilateral debt accounted for more than 40 percent of GDP and was already the largest component of total debt.

The NEP allowed Bolivia to reduce the fiscal deficit of the nonfinancial public sector (NFPS) from 8.1 percent in 1985 to 2.3 percent in 1986, with a reversal of the Olivera-Tanzi effect, because inflation was drastically reduced from 276.3 percent in 1986 to 14.6 percent in 1987 as seen in Figure 2. In 1987, however, the fiscal deficit increased again to 6.8 percent of GDP as seen in Figure 19. To reduce this deficit, the government implemented a tax reform in 1987. Between 1989 and 1997 the fiscal deficit was on average 3.8 percent of GDP. The final impact of the NEP, especially the privatization program, was to reduce the fiscal deficit to 1.8 percent of GDP in 1995 and 1.9 percent of GDP in 1996. See Garrón, Capra, and Machicado for a review of the three waves of privatization in Bolivia, including the capitalization program.

### **3.4. Financial crisis (1998–2002)**

Starting in 1998, the Bolivian economy entered a slowdown phase, induced by external shocks, such as the fall in the terms of trade and the reversal in capital flows. During the period 1998–2002, financial flows, with the exception of FDI, reversed significantly. FDI remained at

relatively high levels (USD 770 million on average per year) because of commitments from foreign investors through the capitalization program.

Public external debt increased to finance the growing fiscal deficit that resulted from the economic slowdown and the implementation of structural reforms. Among these reforms, the pension reform implemented in 1996 had the largest fiscal impact. Bolivia changed its pension system from a system of mutual funds to a system of individual capitalization. In 1999 the global deficit of the NFPS was 3.0 percent of GDP, but the global deficit without pensions was a surplus of 0.7 percent of GDP. In 2002 the global deficit was 8.5 percent of GDP, of which half represented came from pensions.

In September 1996, the IMF and the World Bank created the HIPC Initiative to provide financial support to a limited number of countries characterized by poverty and debt service obligations that were higher than what these countries could afford. The argument for this initiative was that, by reducing the external debt of these countries, it would free up resources that could be used to attack poverty. This was the first time that a debt-forgiveness program included multilateral debt, which, as we have seen in figure 6, constituted Bolivia's largest debt obligations by the end of the 1990s.

The IMF and World Bank imposed conditions in terms of macroeconomic policies and structural reforms as part of the concession of the HIPC debt reduction. Bolivia met all of these conditions and it was selected to participate in this initiative. Through the HIPC I program, implemented in 1998, the reduction of multilateral debt was planned to be equivalent to 24 percent of the 1998 stock of debt over a period of forty years, although the largest part of this reduction would be take place during the first years. HIPC I managed to reduce the debt service over exports to 25.5 percent in 1999. Unfortunately, starting in 1998 external shocks counteracted the beneficial effects of HIPC I. The worsening of trade terms drastically reduced the level of national savings. There was a huge drop in output and exports, and the negative balance of the current account could be compensated only with the inflow of FDI. It can be seen in Figure 4 that the debt as a share of GDP remained constant during these years at an average of 55 percent.

The possibility of obtaining additional resources through the forgiveness of the debt under the HIPC II initiative was possible with the approval of the so-called Bolivian Strategy for Poverty Reduction. The HIPC II strategy consisted of the reduction of multilateral debt in fifteen years, starting in 2001. The application of HIPC I and HIPC II allowed an increase in forgiveness of the

average debt of 1999-2000 by 44 percent. These initiatives allowed the Bolivian government to reduce its external debt by USD 50 million between 1999 and 2000, but this reduction was not sufficient. By 2001 external debt represented the same proportion of GDP as it was in 1999 as seen in figure 4.

Figure 18 shows that the fiscal situation worsened at the beginning of the 2000s. The global deficit increased from 3.9 percent to 7.2 percent between 2000 and 2001, and the primary deficit increased from 2.2 percent to 5.2 percent. These fiscal problems made it impossible for the government to continue paying its debt obligations. In 2001, Bolivia defaulted on USD 685.0 million in its bilateral debt and on USD 488.4 million in its multilateral debt as seen in figure 22.

We characterize the 1998–2002 period as one of financial crisis. Jemio (2006) explains that, starting in 1998, the Bolivia experienced a fall in the growth rate, high unemployment, and financial disintermediation. The financial sector suffered the most, experiencing a credit crunch due to the contagion effects of the international financial crisis.

The contraction of international demand reduced prices of the main export commodities, principally crude petroleum, affecting the income of the exporting companies, and reducing their cash flows and their capacity to service their debts. Net exports as a share of GDP fell to -12.9 percent in 1998 as seen in Figure 10. Additionally, the economy was affected by a lower availability of external financing.

This situation resulted in a fall in international reserves and a contraction in the money supply. Figure 9 shows that net international reserves fell from 13.2 percent to 10.8 percent of GDP between 2001 and 2002. The lack of liquidity exacerbated the drop in economic activity. Additionally, the devaluation of the Brazilian real represented reduced the competitiveness of Bolivia's tradable sector and exerted pressure on the exchange rate. The rate of depreciation of the real exchange rate was of 5.0 percent in 2000 but increased to 8.1 percent in 2001 and 9.2 percent in 2002, as seen in figure 8).

Monetary and fiscal policies were procyclical during this period. The Banco Central used monetary policy tried to maintain stable growth through open market operations, domestic credit, and to a lesser extent the level of bank reserves. The central government used fiscal policy to reduce public investment to reduce the deficit, but this amplified the adverse effect of real shocks on the economy. The financial system responded to this situation by rationing credit, a step encouraged by the enactment of a stricter prudential regulation by the Superintendencia de Bancos

y Entidades Financieras (SBEF) in November 1998. Credit rationing and stricter regulations resulted accumulation of reserves by banks, lower interest rates, lower deposits and loans, and an increase in bank spreads.

The regulations in force until 1998 allowed an expansion of bank credit during the 1990s, but this expansion increased the risk in the financial system and was one of the main causes for the subsequent contraction of credit after 1998. Although the tightening of regulations by the SBEF in November 1998 was aimed at correcting the overexpansion of credit up until 1998 by requiring banks to increase their reserves, it had the opposite effect, because it was too late. According to Morales (2012), between 1999 and 2003, the banking system reduced its deposits by 24.6 percent and its loans by 43.4 percent.

### **3.5. Nationalization and growth (2002–2015)**

The slowdown that began in 1999 created a climate of social and political conflict, which became critical after 2002 when a new president was elected.<sup>11</sup> The economic and social crisis that the new president inherited created a climate of uncertainty for savings and investment. Morales (2012) argues that the unexpected result of the election increased the nervousness of the depositors in the banking system. As a result, a huge outflow of deposits occurred between June and July 2002. In six weeks the financial system lost more than 23 percent of total deposits. In fact, deposits as a share of GDP fell from 49.0 percent in 1998 to 35.4 percent in 2006, as seen in figure 20.

In 2002, external events seemed to indicate that the crisis in Bolivia would worsen. As Morales (2012) explains, Argentina's abandonment of its convertibility plan and its moratorium on its debt, the Uruguayan banking crisis, and the rapid depreciation of the Brazilian real, created serious threats to the financial system. Nevertheless, the structural reforms that had been made in the 1990s endowed Bolivia with an unexpected robustness and thus the economic collapse was avoided.

What could not be avoided was the political collapse. In 2003, when the fiscal deficit had reached unsustainable levels, the Bolivian government decided to implement an income tax, which had never previously existed nor does it exist today. This policy generated a resounding rejection by the population. In October 2003, after having lost its legitimacy and facing serious conflicts in the city of El Alto, the government elected in 2002 was forced to resign.

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<sup>11</sup> Gonzalo Sánchez de Lozada became president for the second time, after going to a runoff with Evo Morales.

International economic conditions began to recover in 2003. Most importantly, Bolivia increased its natural gas exports to Brazil. The total value of natural gas exports increased from USD 265.5 million in 2002 to USD 389.5 million. In addition, there was a rise in external prices of Bolivian exports. As seen in figure 10, net exports showed a surplus between 2004 and 2014.

Even though the economy was showing signs of recovery, the social and political instability continued because the presidents who followed Sánchez de Lozada did not have support in the Congress. In addition, the export boom, mainly from the hydrocarbon industry, led to questions about how incomes were distributed. The capitalization program had led to foreign control of the hydrocarbon sector, and the government received only taxes from exports.

In 2005 new elections were held, and Evo Morales became president in January 2006. His administration was implemented policies that the economy to one in which the state played the leading role through the nationalization of the main companies in strategic sectors such as oil, electricity, and telecommunications.

Favorable external conditions, especially high commodities prices, along with the nationalization of the hydrocarbon sector, allowed Bolivia to experience, for the first time in its modern economic history, a continuous nonfinancial public-sector surplus between 2006 and 2013. As can be seen in figure 19, the fiscal surplus was 4.5 percent of GDP in 2006 and remained at an average of 1.8 percent until 2013.

The stock of foreign debt as a share of GDP declined from 55.2 percent in 1999 to 51.7 percent in 2005. Even larger decreases occurred after 2005: the stock of debt was reduced to 28.4 percent of GDP by 2006 and to 16.8 percent of GDP by 2007. The total decline in the stock of debt was USD 2,732.9 million. Since 2008, the stock of foreign debt has remained around 15 percent of GDP, but in 2015 it started to increase, reaching 19 percent of GDP.

The most of the huge reduction of external debt is explained by an extension of the HIPC Initiative. In 2005, during a meeting of the leaders of the G8 countries, a complete forgiveness of debt was announced for the HIPC countries, Bolivia included, through a program called the Multilateral Debt Relief Initiative (MDRI). The reduction in external debt was also aided by the improvement in external economic conditions after 2005. These favorable conditions coincided with the end of the social crisis that Bolivia experienced between 2000 and 2003 and the end of the so-called neoliberal period, when the economy was based on the free market.

The windfall of funding received by the NFPS and the trade surplus allowed the Banco Central to accumulate reserves to levels never seen before. Net international reserves increased from 12.0 percent of GDP in 2003 to 51.8 percent of GDP in 2012. Since then, reserves have fallen as external conditions have deteriorated, as seen in figure 9.

The current account surplus that the Bolivian economy started to experience in 2004 generated an excess of dollars in the economy that pushed the nominal exchange rate to appreciate. In 2005, the nominal exchange rate reached its highest value of 8.08 bolivianos per US dollar. As can be seen in figure 8, the real exchange rate experienced a real appreciation starting in 2005 that continues today. In fact, in November 2011, the Banco Central adopted a fixed exchange rate policy. Since then the nominal exchange rate has been fixed at 6.96 bolivianos per dollar. This policy explains the fall in international reserves in recent years seen in figure 9.

By 2015, international reserves were on the order of 40 percent of GDP, there was a fiscal deficit of 6.9 percent of GDP, and the current account deficit was 6.0 percent of GDP. External debt increased to USD 6,341.1 million. Although this level of debt is larger than what Bolivia had in 2005 (USD 4,941.6 million), it represents only 19.4 percent of GDP.

The policies that are being implemented today have the following features in common with policies that were implemented in 1970s:

- Nationalization of the enterprises in strategic sectors (oil and energy).
- Economy based on the role of the state as producer (state capitalism in the 1970s), where the surplus generated by strategic enterprises was used (or supposed to be used) to finance other enterprises.
- Adoption of a fixed exchange rate policy that led to an overvaluation of the local currency.
- Ambitious investment plans that did not have clearly identified sources of financing.
- Increasing fiscal deficits, mainly due to the increase in the deficit of public enterprises.
- Fall in reserves due to an expansion of domestic credit.

These similarities in policies lead us to ask the question: Is the Bolivian economy heading toward a balance of payment crisis?

#### 4. Budget accounting analysis for Bolivia

Before performing the budget accounting analysis, we need to explain the credit conditions under which Bolivia contracted its foreign debt. Figure 13 shows the average nominal interest rates per year of external credits, and Figure 14 displays the average maturity of debt. In these figures, we plot the nominal interest rates and maturity computed with Banco Central data and those reported by the World Bank in its International Debt Statistics (IDS). The trajectory of the interest rates is similar in both databases, but the maturities differ.<sup>12</sup>

Our analysis uses the Banco Central data because these data cover a longer period. Notice that, when interest rates rise, maturities decrease. In the 1960s, interest rates were low (below 4 percent on average) and maturities were long; that is, most of the credits were contracted for thirty years. In the 1970s Bolivian debt and its cost increased. According to Requena (1980), in 1979 around 45 percent of the net debt had a maturity below ten years and 30 percent of it had an interest rate above 18 percent (compared to a LIBOR rate of only 16.5 percent).

Recall that, during the 1970s, private banks were the principal holder of Bolivian debt. The capacity for negotiation with these creditors was strained as the country increased its debt. Therefore, Bolivia had no other option but to contract credits under more severe conditions, meaning that interest rates were higher and maturities were lower. Furthermore, in the early 1980s there was a rise in world interest rates and most of the loans that Bolivia contracted in the 1970s reached their maturity. These facts, together with the inability of Bolivia to generate foreign resources and a large fiscal deficit set the stage for debt crisis of the 1980s.

In the 1990s, with the consolidation of structural reforms and the change in international creditors, maturities started to rise and interest rates decreased. By the end of the decade, interest rates were 3 percent on average and maturity was fifteen years on average. It is important to also mention that credit conditions changed with the debt forgiveness and reductions from which Bolivia benefited during the 1990s.<sup>13</sup>

Figure 15 shows the denomination of public and publicly guaranteed debt. Between 1988 and 2000 there was an increase in debt contracted under multiple currencies, but that most of this debt was contracted in US dollars. In 2005, 75 percent of total debt was in dollars. Debt contracted

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<sup>12</sup> This divergence could be likely explained by the fact that the World Bank data consider only new external debt commitments.

<sup>13</sup> For a complete review of Bolivia's debt history, see Huber Abendroth et al. 2001.

in deutsche marks never reached more than 10 percent of total debt, and debt contracted in yen reached its highest share of 14 percent in 1994.

We have modified the budget equation in Kehoe, Nicolini, and Sargent (2010) to incorporate not only nominal and indexed internal debt, but also dollar internal debt, as Bolivia has a bimonetary system, and the Banco Central as well as the TGN can issue debt.

The Bolivian government started to issue internal debt in 1988 and it became important in 1996 after the pension reform. With the new pension system, the newly created pension funds considered treasury bonds as the most attractive way for investing their funds. In fact, the government thought of the pension system was thought both as source of financing for the government and as an incentive for the creation of a stock market in Bolivia.

Between 1988 and 2000 most of the internal debt was also debt that the Banco Central, issued to sterilize the monetary effects of the high accumulation of international reserves through open market operations (OMAs). This is an important fact, because it means that in Bolivia a significant share of internal debt in local currency was issued for financing needs but to control excessive liquidity.

Figure 22 depicts the evolution of internal and external debt as a share of GDP since 1993. Notice that, since 2003, the stock of external debt as a share of GDP decreases, while the stock of internal debt as a share of GDP showed an increase until 2004, even surpassing external debt in 2007. Afterwards, it decreased and equaled external debt in 2012.

The modified period-by-period budget constraint of the government in nominal domestic currency is

$$B_t + M_t + b_t P_t + b_t^d E_t + b_t^* E_t = (DG_t + X_t)P_t + B_{t-1}R_{t-1} + M_{t-1} + b_{t-1}r_{t-1}P_t + b_{t-1}^d r_{t-1}^d E_t + b_{t-1}^* r_{t-1}^* E_t, \quad (4)$$

where  $B_t$  is nominal internal debt,  $M_t$  is the stock of money,  $b_t$  is indexed internal debt,  $b_t^d$  is dollar internal debt and  $b_t^*$  is the dollar external debt,  $P_t$  is the price level,  $E_t$  is the nominal exchange rate,  $R_t$ ,  $r_t$ , and  $r_t^d$  are the gross returns on nominal, indexed, and dollar-denominated internal debt and  $r_t^*$  is the gross return on external debt,  $DG_t$  is the general government deficit and  $X_t$  is the residual. We are not sure exactly what the residual includes, but it certainly includes the deficit of public enterprises.

If we assume that  $X_t$  represents the deficit of public enterprises only, we can consider



$DG_t + X_t$  as the deficit of the nonfinancial public sector, for which we have information only since 1980. Since we have information of the central and general government since 1960, however, we calculate  $X_t$  as a residual. This residual is important since because balances the budget equation every period.

The budget constraint can be written in terms of real GDP as

$$(\theta_t^N - \theta_{t-1}^N) + (\theta_t^r - \theta_{t-1}^r) + \xi_t(\theta_t^d - \theta_{t-1}^d) + \xi_t(\theta_t^* - \theta_{t-1}^*) + (m_t - m_{t-1}) + m_{t-1} \left(1 - \frac{1}{g_t \pi_t}\right) = dg_t + x_t + \theta_{t-1}^N \left(\frac{R_{t-1}}{\pi_t g_t} - 1\right) + \theta_{t-1}^r \left(\frac{r_{t-1}}{g_t} - 1\right) + \xi_t \theta_{t-1}^d \left(\frac{r_{t-1}^d}{g_t \pi_t^W} - 1\right) + \xi_t \theta_{t-1}^* \left(\frac{r_{t-1}^*}{g_t \pi_t^W} - 1\right), \quad (5)$$

where the first three terms on the left-hand side represent the increases in the debt-to-output ratios for the three different types of internal debt, and the fourth term is the increase in the foreign debt-to-output ratio. The last two terms represent increases in high-powered money and the seigniorage. The first two terms on the right-hand side represent the deficit of the general government and the residual as a fraction of output, respectively, and the final terms represent the real returns on all types of debt.<sup>14</sup>

For each year we computed the terms in equation (5), and the respective accounting results are reported in table 2. We refer to the residual as the public enterprises deficit only to facilitate the interpretation of the results.

**Table 2: Accounting Results across Subperiods**

Period	1960-1971	1971-1977	1960-1977	1977-1986	1986-1998	1998-2002	2002-2015	2006-2015	1960-2015
<b>Sources</b>									
(1) Internal debt in local currency	0.00	0.00	0.00	0.00	0.27	2.24	-0.31	-1.00	0.11
(2) Internal debt in dollars	0.00	0.00	0.00	0.00	0.81	0.00	-0.75	0.18	0.05
(3) Internal debt indexed	0.00	0.00	0.00	0.00	0.00	0.00	0.34	-0.66	0.08
(4) External debt	0.73	1.26	0.88	3.10	-3.03	-2.96	-1.99	-2.02	-0.80
(5) Money issuing	0.25	0.07	0.13	-0.72	0.05	-0.64	1.65	2.12	0.38
(6) Seigniorage	1.07	2.27	1.55	6.01	1.31	0.54	1.64	2.01	2.19
Total	2.05	3.60	2.56	8.38	-0.60	-0.81	0.58	0.62	2.02
<b>Obligations</b>									
(1) Internal return in local currency	0.00	0.00	0.00	0.00	0.02	0.38	-0.55	-0.81	-0.11
(2) Internal return in dollars	0.00	0.00	0.00	0.00	0.08	0.25	-0.19	-0.18	-0.01
(3) Internal return indexed	0.00	0.00	0.00	0.00	0.00	0.00	-0.21	-0.32	-0.05
(4) External return	-2.76	-3.84	-3.16	0.27	-1.96	-1.07	-1.11	-0.84	-1.79
(5) General government deficit	0.82	2.74	1.54	7.02	0.41	3.46	0.21	-1.10	2.03
(6) Public enterprises deficit	3.98	4.70	4.18	1.09	0.85	-3.83	2.43	3.87	1.95
Total	2.05	3.60	2.56	8.38	-0.60	-0.81	0.58	0.62	2.02

Source: Authors' calculations

<sup>14</sup> The term  $\pi_t^W$  is inflation of the dollar price level of traded goods consumed in Bolivia; since we do not have information of this variable, we have used inflation in the United States.

Table 2 highlights the importance of seigniorage as a source of financing. In the period 1960–1977 it represented 60 percent of the financing needs and in the period 1977–1986 it represented 71 percent. During the debt crisis, external debt was also an important source of financing, covering 3.1 percentage points (p.p.) of GDP on average of financing needs.

Notice also that during almost the entire period the contribution to obligations of the external return on debt has been negative, except for the period between 1977 and 1986, the debt crisis, when Bolivia defaulted several times and with different creditors. These negative returns to debt mean that external inflation and GDP growth were higher than the interest rate on external debt. In fact, interest rates were subsidized (concessional terms of the external debt, mainly multilateral). Thus, the real interest payments of Bolivia were negative.

Also noteworthy is that the public enterprise deficit (if we consider the residual to be only that) had been the most important source of financing needs for the government between 1960 and 1977. By dividing this period in two, we can see that the general government deficit was not important between 1960 and 1971 but became more important between 1971 and 1977. This is a sign that government policies during the rapid growth period of 1960 through 1977 should explain the severe crisis of the mid-1980s.

During the debt crisis the general government deficit became the most important obligation, averaging 7.02 p.p. of financing needs. The deficit of the public enterprises averaged only 1.09 p.p., because the general government absorbed their obligations as most of them were close to bankruptcy.

In table 2, we see that the fiscal reform implemented in 1986 managed to reduce the general government deficit contribution to financing needs between 1986 and 1996. In fact, the general government deficit decreased to 0.41 p.p. between 1986 and 1998, but then it increased greatly to 3.46 p.p. during the financial crisis of 1998–2002. As we have explained, the fiscal deficit and, in particular, the government deficit contributed significantly to the financial crisis. The increase in government deficit in 1998–2002 was offset by an increase in the surplus of public enterprises. In fact, this surplus is explained by the privatization policy that the governments implemented during the 1990s, which reduced both the current expenditures and revenues of public enterprises.

Notice that during the periods of recovery and growth (1986–1998) and financial crisis (1998–2002), the financing needs were negative, -0.6 p.p. and -0.81 p.p., respectively. This reinforces our argument that the structural reforms implemented between 1986 and 1998 helped

to mitigate the impact of the financial crisis of the late 1990s. Although the government deficit was high, public enterprises had a surplus, and therefore financing needs were negative.

External debt as a source of financing turned negative in 1986 because Bolivia started to pay back its debt to different types of creditors as already seen in table 1. In table 2, external debt shows reductions of 2.02 p.p. in the years between 2006 and 2015. This reduction is explained by the MDRI.

In the period of nationalization and growth (2002–2015), we can see that, while in the previous period, public enterprises generated a surplus, in this last period they ran a deficit—and a large one, 2.43 p.p. Moreover, the public enterprises deficit increased to 3.87 p.p. in the period of 2006–2015. In the period 2006–2015 we observe, in Table 2, an increase in the deficit of the public enterprises compared to the overall period 2002–2015. This large deficit is partially compensated by a surplus of the general government of 1.1 percent and also by the other obligations that have negative signs. That is why we observe only a small increase in total obligations from 0.58 percent (2002–2015) to 0.62 percent (2006–2015).

During the period 2006–2015, we can also observe that there is an increase in money issuance, 2.12 p.p. as a source of financing. This is explained by the “bolivianization” (the opposite of dollarization) that allowed real money demand to increase and also by an increase in money demand because of economic growth. In table 2, we also see that external debt and internal debt in dollars became important and increasing sources of financing.

Until now, we have described the results considering the residual as the deficit of public enterprises deficit, but, being a residual, it can and does include other things. Figure 24 shows a comparison between the residual and the constructed residual, which is the sum of variables that could be included the residual. This residual includes transfers and contingent liabilities; for the Bolivian case, we hypothesize that three are of particular interest:

- The deficit of the public enterprises was not computed correctly, neither in the 1970s nor in recent periods. Most of the time the investment was not accounted for—only the flows of income and expenditures. Often the sales income of these enterprises was used to finance general government expenditures; therefore, these transfers were also not accounted for in the balance sheets of these enterprises. Another problem was that most of these enterprises

suffered corruption problems, and their balances did not reflect the actual financial states of the enterprises.<sup>15</sup>

- In 2002, Bolivia started to accumulate international reserves as never before, from 10.8 percent of GDP in 2002 to 40.5 percent in 2007. This accumulation of reserves reached its maximum point in 2012, at 51.4 percent of GDP.
- Bolivia has always received donations from other countries or governments, or from international organizations such as USAID (the United States Agency for International Development). Most of these donations were to attack poverty through specific projects and programs.

In general, figure 24 shows that we cannot match the residual, except for the early 1960s and some specific years during the whole period studied. This finding indicates that something else besides changes in international reserves, donations, and the deficit of public enterprises must explain the residual. Here are some of our hypotheses:

- The deficit of public enterprises deficit is not very well measured. This measurement is likely to be a major problem during the second half of the 1960s, the 1970s, and recently, when public enterprises were very important in the economy but where their accounts were not very transparent because of corruption or simply because the government wanted to hide the actual financial states of public enterprises. For instance, many public enterprises report their cash flows but not their investment or capital expenditures.
- In standard fiscal accounting, the receipts from privatizations during the 1990s should have been accounted for as a decrease in assets and therefore as an increase in net liabilities. In the accounts of the NFPS, they cannot be identified, however, and it seems that they were not accounted for, at least not in the standard way. Conversely, the nationalization process in recent periods did not involve a confiscation of the private companies; rather, they were bought by the government. For instance, in the hydrocarbon sector the nationalization of strategic companies began in May 2006, with the approval of Supreme Decree 28071, which allowed the Bolivian government, through the YPFB (the public oil company), to recover “ownership, possession, and total and absolute control” of the country's hydrocarbon resources. For this

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<sup>15</sup> Somewhat reliable data for public enterprises, or at least consistent data, is available from 1980 on.

purpose, the decree forced the purchase of the total or majority shareholding in the companies Chaco, Andina, Transredes, Petrobras Bolivia Refining (PBR), and Compañía Logística de Hidrocarburos de Bolivia (CLHB). The same mechanism was applied in the other sectors and so up until 2010, the government had already paid USD 476 million in nationalizations. These costs are also not accounted for in the NFPS accounts.

- During the 1970s, the government created three state banks: Banco Minero, Banco Agrícola, and Banco del Estado. These banks were intended to give loans to producers but were captured by special interest groups that siphoned off the credits for their own interests. Thus, these banks gave loans without the sufficient guarantees and, of course, most of them were not repaid. The government assumed all these unpaid liabilities.
- During the 1990s something called “gastos reservados” (reserved expenditures) were intended to be used in the battle against drug traffic. Later these reserved expenses were also used to give special, but unofficial payments, to public servants.<sup>16</sup>

## 5. Conclusions

In this paper, we have analyzed the modern economic history of Bolivia, with an emphasis on the policies that were implemented between 1960 and 2015. In this whole period, it is possible to identify five well-marked subperiods: the first period (1960–1977), characterized by rapid growth and stabilization; the second period (1977–1986), characterized by the hyperinflation and rapidly falling output; the third period (1986–1998), characterized by recovery and slow growth; the fourth period (1998–2002), characterized by a financial crisis and the onset of political instability; and the fifth and final period (2002–2015), characterized economic growth and by government-implemented nationalizations. In brief descriptions of the fiscal policies implemented in these subperiods, we have been able to identify the close relation between fiscal policy and external debt. In fact, we have described the evolution of the long- and mid-term external debt in Bolivia because it has determined the interaction between fiscal and monetary policy in Bolivia.

In addition, we have performed a growth accounting exercise for the whole period, which has enabled us to identify TFP as the main determinant of the deviations from the balanced growth

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<sup>16</sup> These expenses were used to eradicate the coca plants under the so-called Plan Dignidad. Some estimates indicate that this plan caused an outflow of about USD 500 million from the economy.

path. Further research is needed to analyze how fiscal and monetary policies could explain fluctuations in the growth of TFP in the different periods of analysis. To the extent to which the evolution of debt has determined the way in which fiscal and monetary policies were conducted in Bolivia, it might be important to explain the evolution of the growth rate. For example, the constraints that the debt policy implied in the mid-1980s might have dampened growth in the following period. We need a model to analyze between the inactions between fiscal and monetary policy variables and TFP because economic growth could also explain the evolution of debt, fiscal, and monetary policy.

The budget accounting exercise carried out at the end of this paper revealed that the fiscal deficit and the accumulation of debt in the period of stabilization and growth (1960–1977) account for the debt crisis of the 1980s to a large extent. In particular, in the 1970s the deficit of public companies became more important, and, at the same time, external debt also grew in importance as a source of financing. We have also seen that seigniorage was always a source of financing to which governments frequently resorted.

The crisis that the Bolivian economy experienced shows that multiple and similar mistakes were committed by different governments, which allows us to affirm that Bolivia did not learn Sargent’s lesson about fiscal deficits.

The current economic situation in Bolivia is very similar to that of the 1970s. There is a fixed exchange rate, international reserves are falling, and the fiscal deficit is growing. If corrective measures are not taken, this situation could evolve into a balance of payments crisis, as agents perceive that international reserves are running out and that the Banco Central will not be able to sustain the fixed exchange rate.

Finally, it is important to mention that this study contributes to the analysis of economic history in Bolivia—a potentially important contribution, given the lack of detailed and comprehensive analysis of the country’s modern economic history that is based on quantitative models and a rigorous analysis of data.<sup>17</sup>

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<sup>17</sup> Most of the recent literature on Bolivian economic history focuses on a description of economic events, but not with an appropriate analysis of data that could substantiate these descriptions. For example, Machicado (2010) describes modern Bolivian economic history, but from the point of view of policymakers.

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## **Appendix: Economic history of Bolivia before 1960**

Bolivia became an independent republic in 1825, one of the last countries in South America to achieve its independence from Spain. As a Spanish colony Bolivia, in particular the city of Potosi, was economically important. In 1650, Potosi had 160,000 inhabitants and was larger than Paris or New York. Its main economic activity was mining, in particular silver extraction (Bakewell 1985; Menegus Bornemann 1999).

Despite the economic importance of Potosi and the surrounding region (Assadourian 1982), Bolivia emerged as a country with many difficulties and lack of integration, with the majority of its population being indigenous and poor (Klein 2011; Pentland 1975). During the following decades, the country was characterized by political instability (Barragan 2002). Although this instability was tamed by the end of the nineteenth century, the country lost significant pieces of its original territory until the early 1930s through wars with its neighbors (Fifer 1972). Furthermore, despite having vast natural resources, particularly minerals, Bolivia did not manage to consolidate a national market until 1952, when the National Revolution took place. The most important economic features of the National Revolution were the nationalization of mineral extraction and the distribution of agricultural lands to peasants (Peres-Cajías 2017; Rodriguez Ostria 2012; Sandoval et al. 2003).

This process of market integration both in geographic and social terms was accompanied by other radical economic transformations that, in turn, were related to profound political changes (Zondag 1966). These transformations had long-lasting effects that persisted (Grindle and Domingo 2003). Economic historians traditionally date modern economic history to the economic transformation that followed the 1952 National Revolution. For the sake of consistency with the other papers in this project, however, we start our history in 1960.

Bolivia is a clear example of a “reversal of fortune” (Acemoglu et al. 2002): it was among the most important economic territories during colonial times and today is among the poorest countries in the region. For instance, the Bolivian pc GDP as a share of the US pc GDP has declined from 20 percent in 1950 to 12 percent currently; likewise, it has declined from 51 percent of the Chilean pc GDP to 24 percent during the same time span.<sup>18</sup> However, this process has not been constant throughout time (Herranz-Loncán and Peres-Cajías 2016). Indeed, the economic gap

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<sup>18</sup> Notice that this low and declining relative income is common to all Latin American countries and it is what Restuccia (2008) calls the Latin American development problem.

between Bolivia and the most dynamic economies in the Americas increased during the nineteenth century and during two specific periods in the twentieth century: the 1950s and the 1980s.

This concentration of the Bolivian divergence in certain periods is explained by the marked cycles of the Bolivian economy, as seen in Figure 1. As for the nineteenth century, the existence of a constant low economic dynamism stands out. For instance, the available evidence on Bolivian pc GDP shows an annual average growth rate around 0.7 percent from 1846 to 1900. Alternative indicators such as population growth or levels of urbanization also point to a (absolute and relative) low economic dynamism. Up to the 1870s, this process seems to be explained by the difficulties in overcoming the economic and political instability brought about by the direct and indirect costs of independence (Langer 2009; Mitre 1981; Prado 1995; Prados de la Escosura 2009). From the 1870s onward, backwardness is related to the relatively low level of the mining export sector, the most dynamic sector of the economy.

Economic growth accelerated during the first third of the twentieth century thanks to the constant expansion of tin exports. The consolidation of tin as the main export product was in turn related to infrastructure expansion and a clear state support of export activities (Contreras 2003; Mitre 1993; Peres-Cajías 2017). On this subject, this period is also featured by noticeable political changes, such as the centralization and expansion of education spending or the progressive centralization of money issuing (Peres-Cajías 2014). In spite of this progress, different economic imbalances were noticeable: export concentration in one single product and few producers increased the negative effects of commodities volatility and the dependence on very specific economic agents (Peres-Cajías and Carreras-Marín 2017); the economic dynamism in the west of the country was in sharp contrast to the stagnation in the east (Rodríguez Ostría 1994); the modernization of the export sector was contemporaneous to a backward agrarian sector dominated by few landowners and dispersed indigenous communities (Larsson 1988); political voice as well as economic rights were unfairly distributed (Klein 2011b). After the economic crisis generated by the Great Depression and the Chaco War (1932-1935), economic dynamism resumed thanks again to tin exports and industrial production, which for the first time in Bolivian history became relevant. However, war efforts and the post-war political instability increased the political pressure toward state involvement in the economy. Because of this and the inability to increase revenues in the short term, macroeconomic instability expanded in the late 1930s and early 1940s. Moreover,

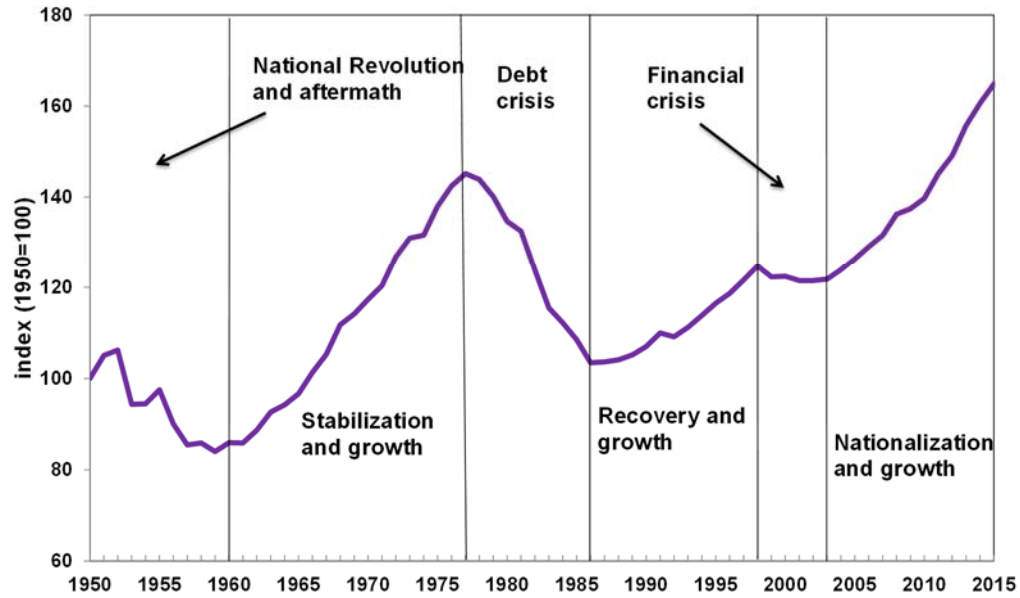
beyond the recovery of positive economic growth rates, the previously stressed economic imbalances persisted.

The National Revolution of 1952 sought to overcome these imbalances through different radical reforms: it nationalized the three biggest mining companies and created a new state-owned company (COMIBOL); it pursued an agrarian reform that radically changed land ownership in the west of country by distributing land to farmers and releasing farmers from debts to landowners; it redistributed state resources to the east of the country, either in the form of infrastructure investment (mainly roads), state-owned-companies, or soft credits; it promoted industrial production through the redistribution of cheap foreign exchange (Sandoval et al. 2003; Zondag 1996). Initially, however, these structural reforms generated a clear economic downturn. On the one hand, this can be explained by the economic agents' realignment to a new economic structure. For instance, small farmers did not have the same skills as landowners regarding agricultural production (Informaciones 1962). On the other hand, the heterodox way of financing state expansion had negative consequences: the Bolivian government applied an overvalued exchange rate on COMIBOL revenues that were redistributed to other economic agents through an undervalued exchange rate. This measure, as well as the determination to increase miners' wages (a key political ally) and to contract those miners who lost their jobs in the previous years, widened the company deficits. Thereafter, these deficits were financed through direct credits from the Banco Central, which were backed by inorganic emission. This, in turn, increased inflation rates that were higher than 100 percent in 1953 and 1956, higher than 50 percent in 1954 and 1955, and close to hyperinflation rates in different months during these years (Peres-Cajías 2014).

The initial macroeconomic shake-up of the 1952 Revolution was tamed by an orthodox stabilization plan pursued under the close cooperation of the US government and the IMF at the end of 1956. The stabilization plan comprised the elimination of price controls, the unification of the exchange rate, a tax reform, and a plan of wage setting in public companies. Thanks to these changes, the structural reforms of the revolution were not reversed and state intervention continued but in a sounder macroeconomic context.

**Figure 1**

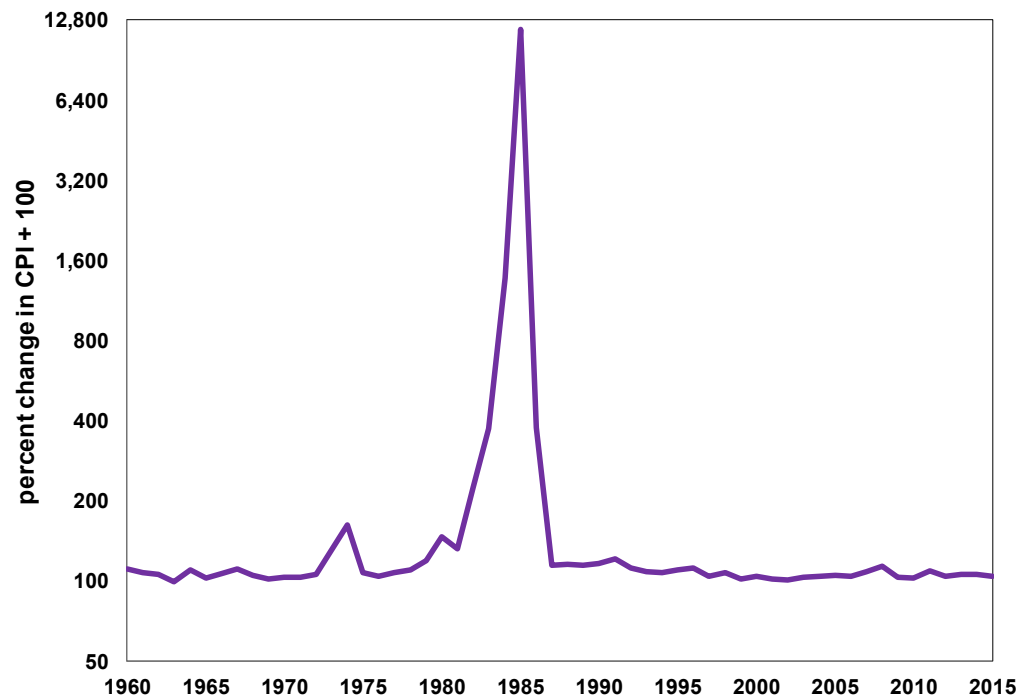
**Modern economic history of Bolivia: Real GDP per working age person**



Source: Maddison

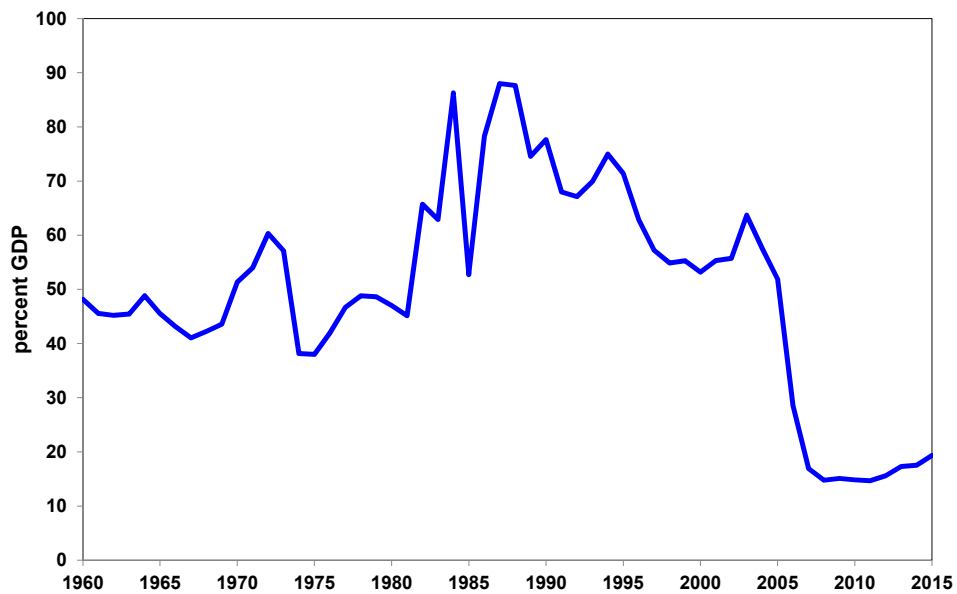
**Figure 2**

**Inflation**



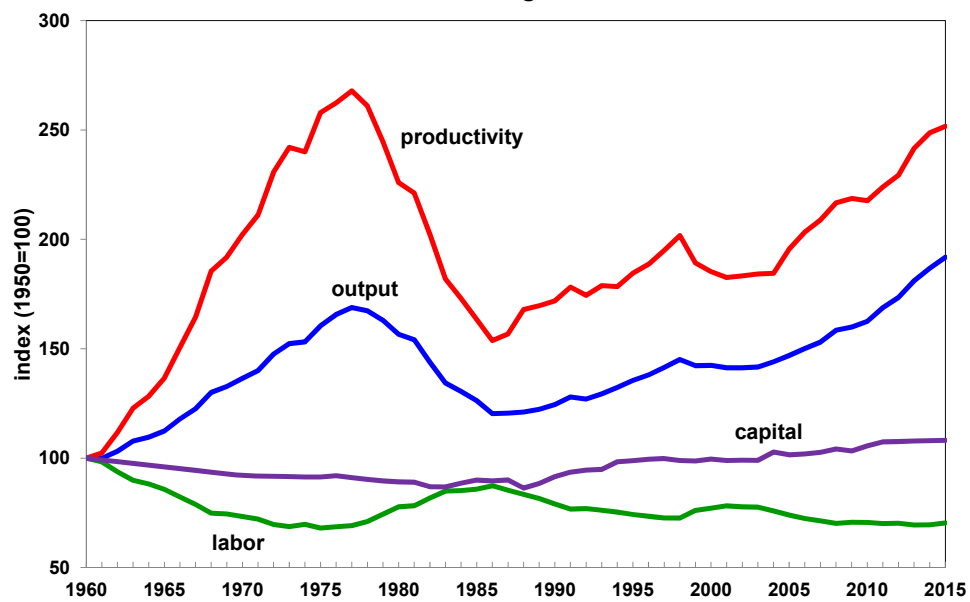
Source: World Development Indicators

**Figure 3**  
**Evolution of the External Debt**



Source: Banco Central de Bolivia

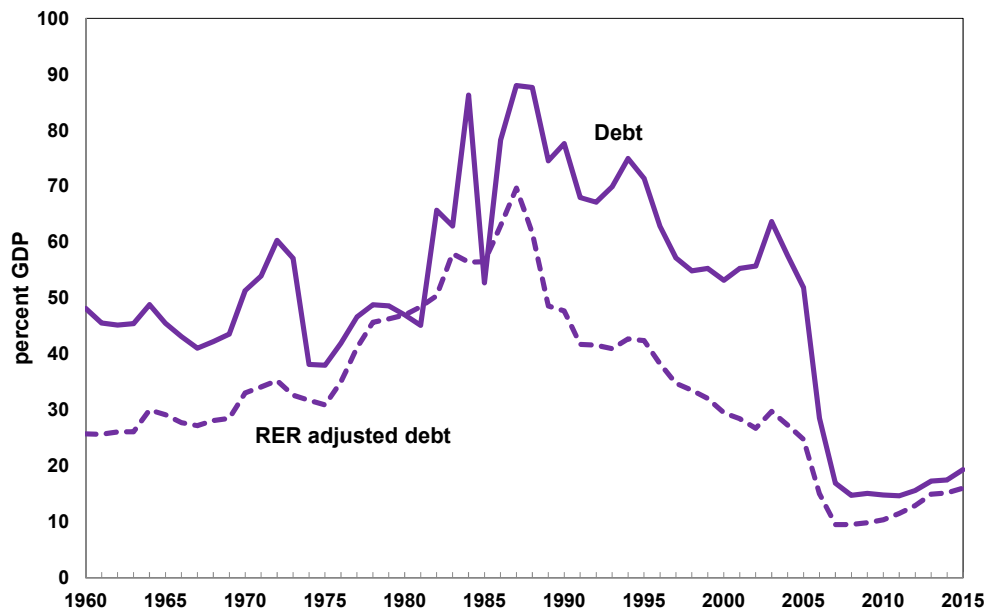
**Figure 4**  
**Growth Accounting for Bolivia**



Source: Author's calculations

**Figure 5**

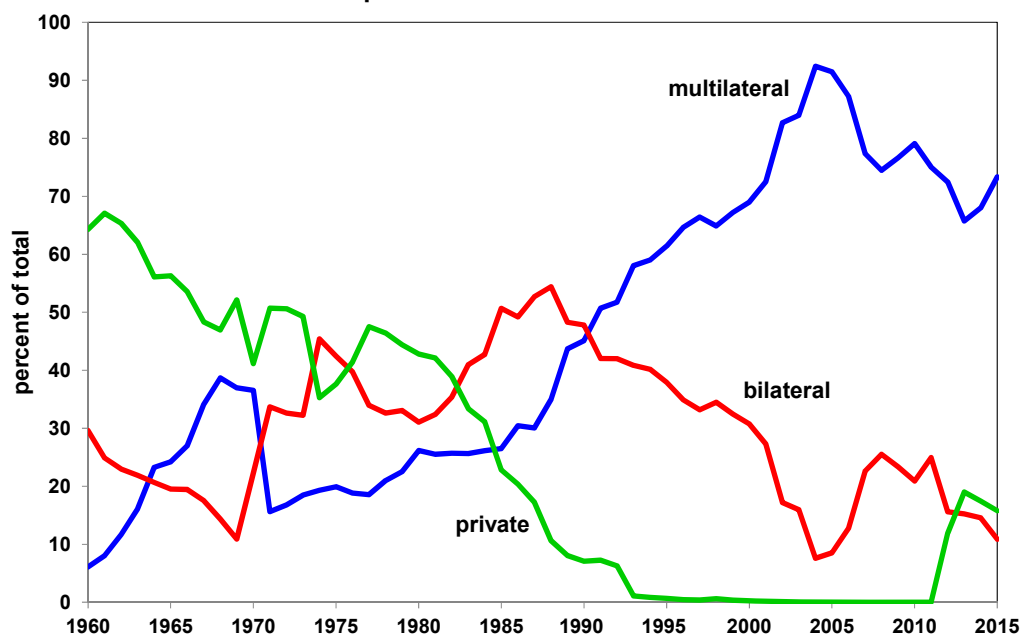
**Fixed Exchange Rate Simulated Debt (1980)**



Source: Banco Central de Bolivia

**Figure 6**

**Composition of external creditors**

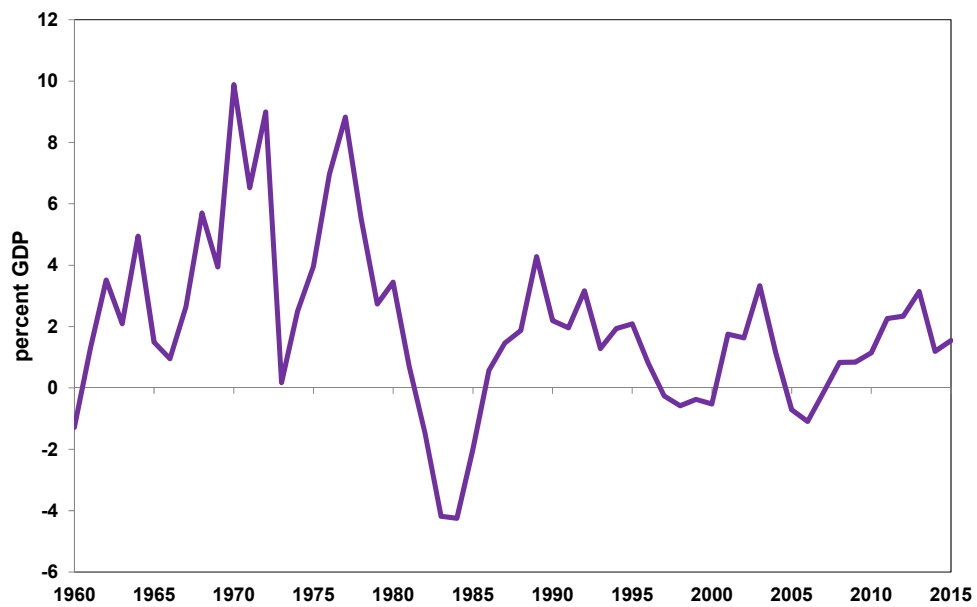


Source: Banco Central de Bolivia



**Figure 7**

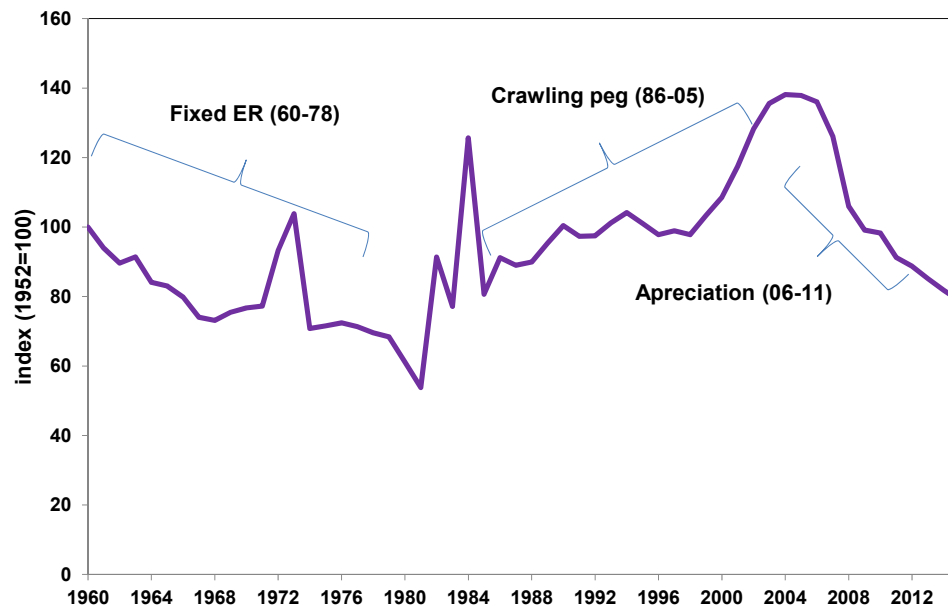
**Net transfers from external lenders**



Source: Banco Central de Bolivia

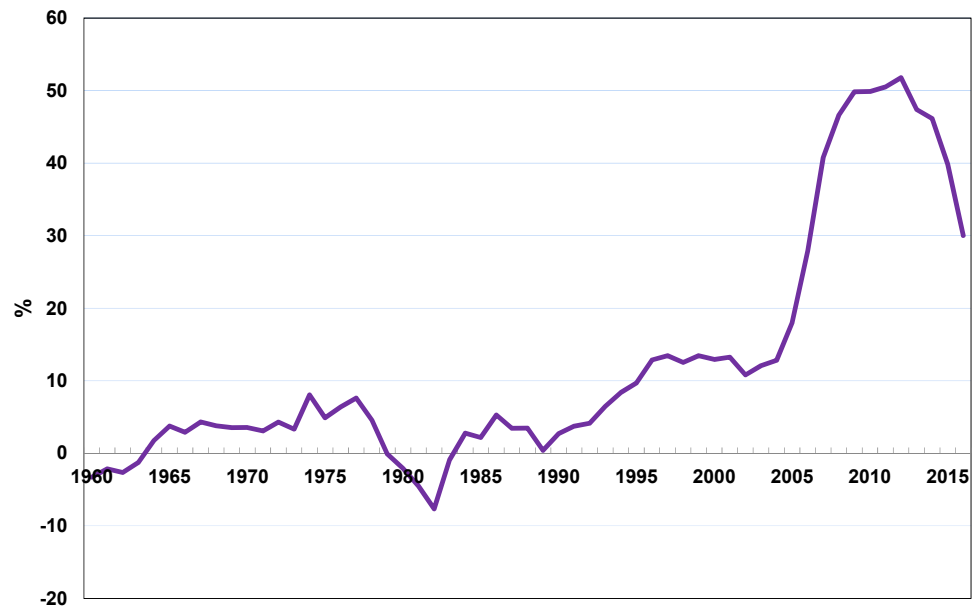
**Figure 8**

**Real exchange rate**



Source: IMF

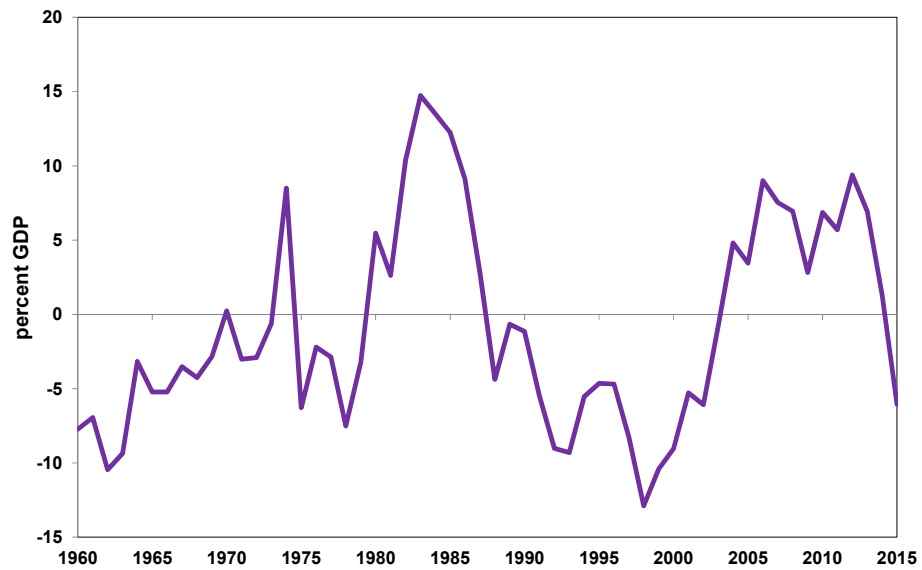
**Figure 9**  
**Net International Reserves (% of GDP)**



Source: Banco Central de Bolivia

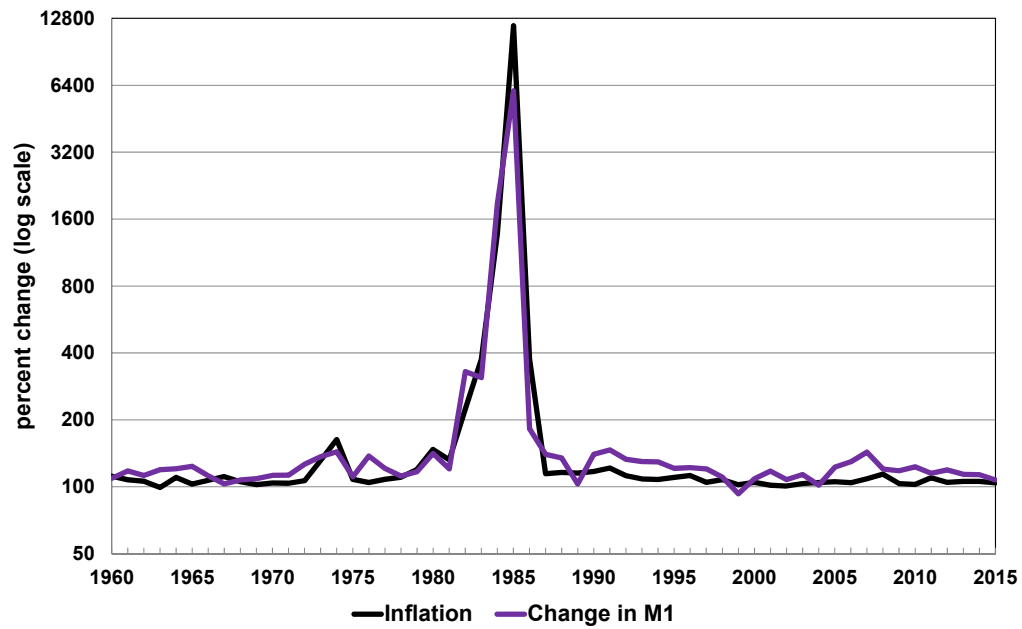
**Figure 10**

**Net exports**



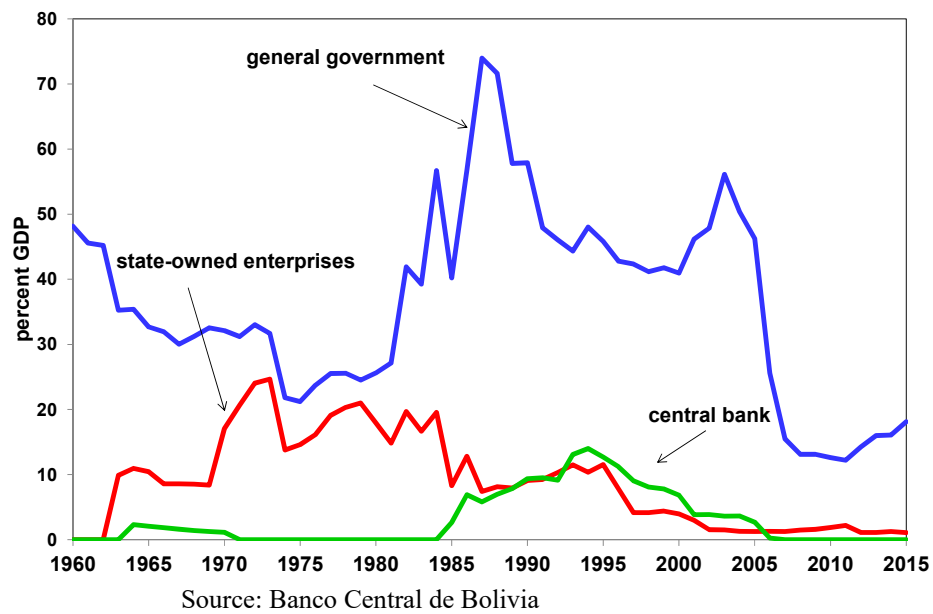
Source: ECLAC

**Figure 11**  
**Change in M1 vs Inflation**



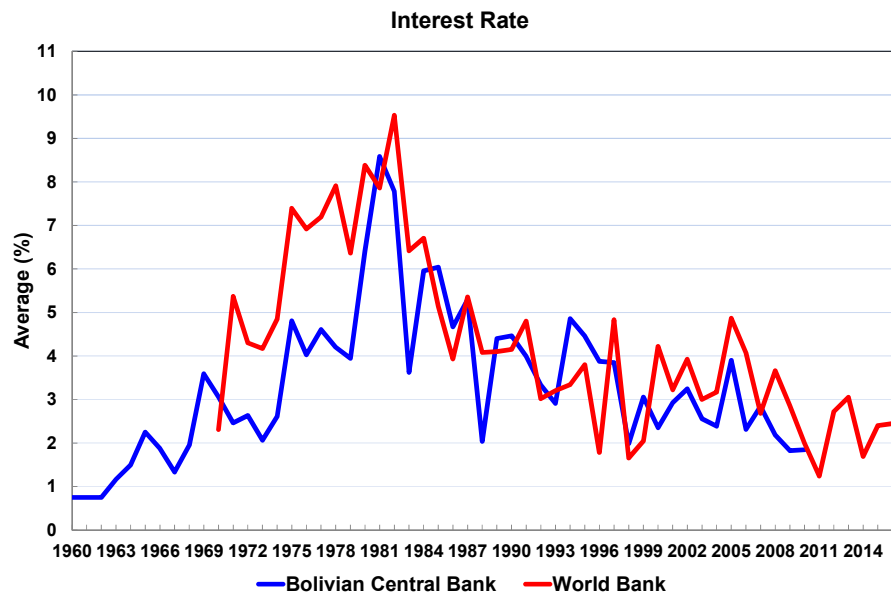
Source: Banco Central de Bolivia

**Figure 12**  
**Composition of borrowers**



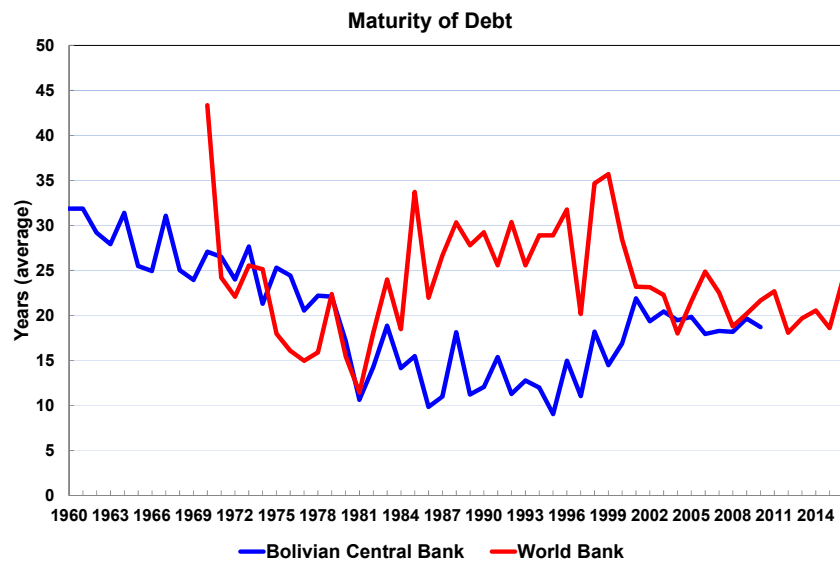
Source: Banco Central de Bolivia

**Figure 13**



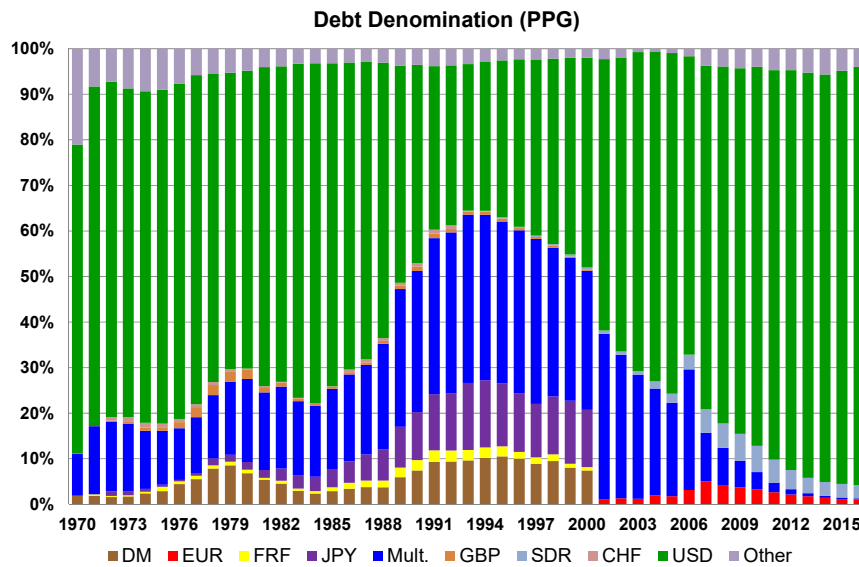
Source: Banco Central de Bolivia and World Bank

**Figure 14**

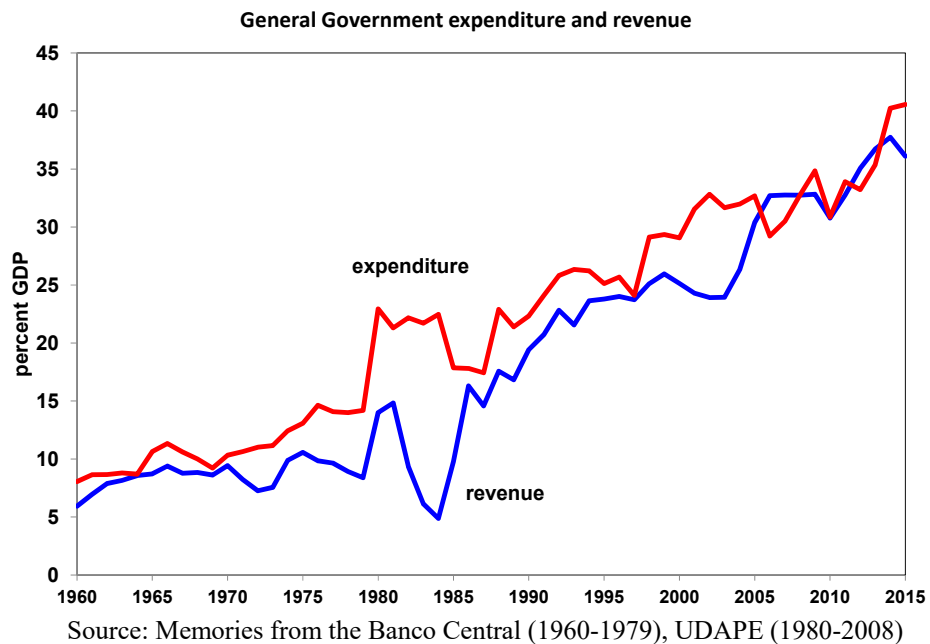


Source: Banco Central de Bolivia and World Bank

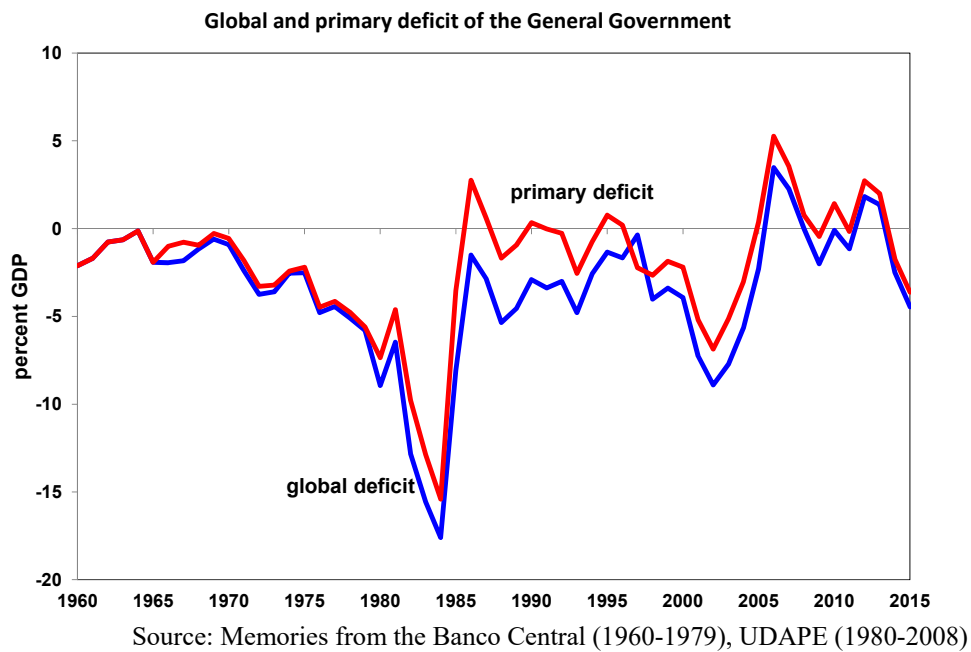
**Figure 15**



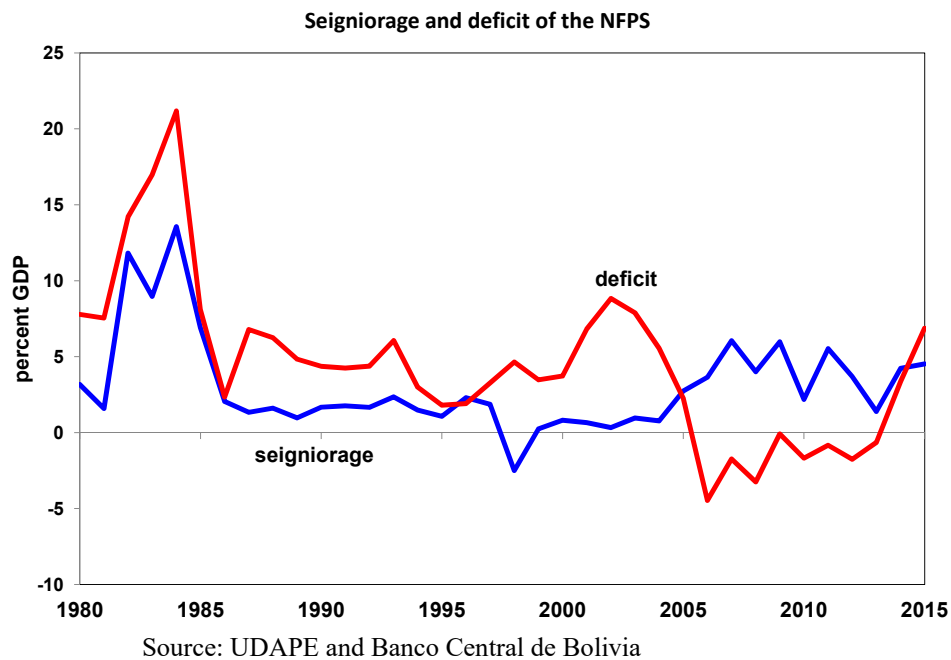
**Figure 16**



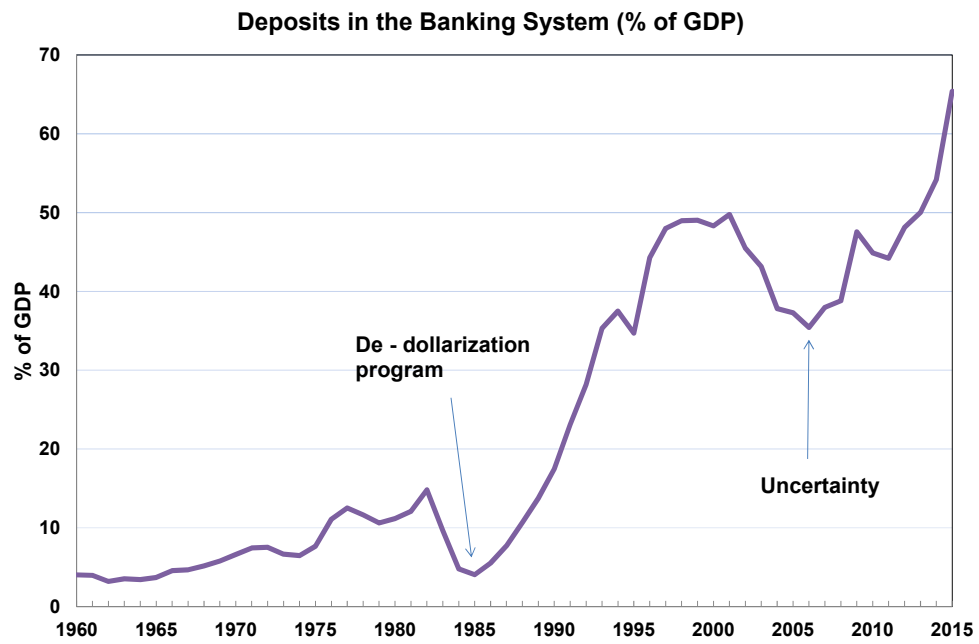
**Figure 17**



**Figure 18**

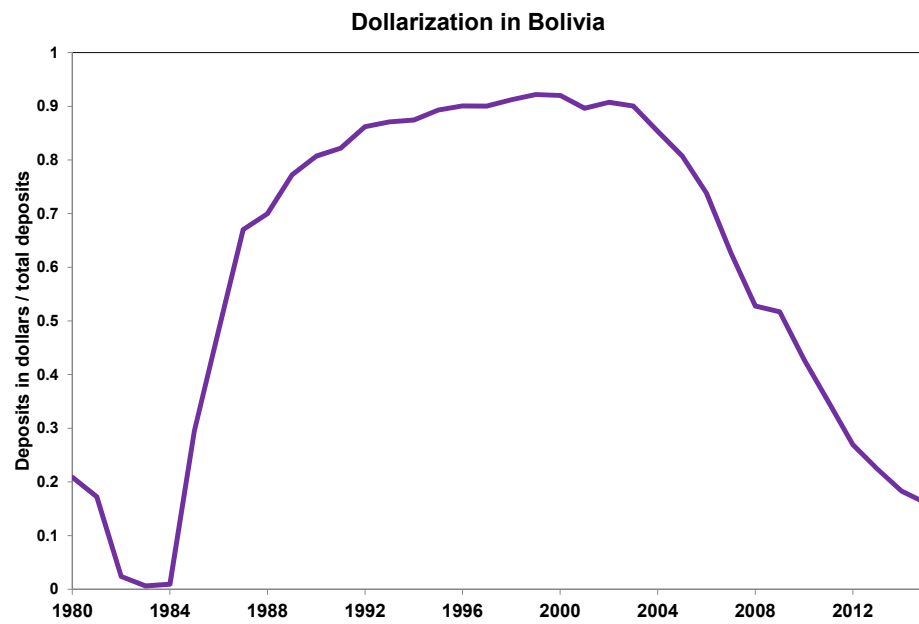


**Figure 19**



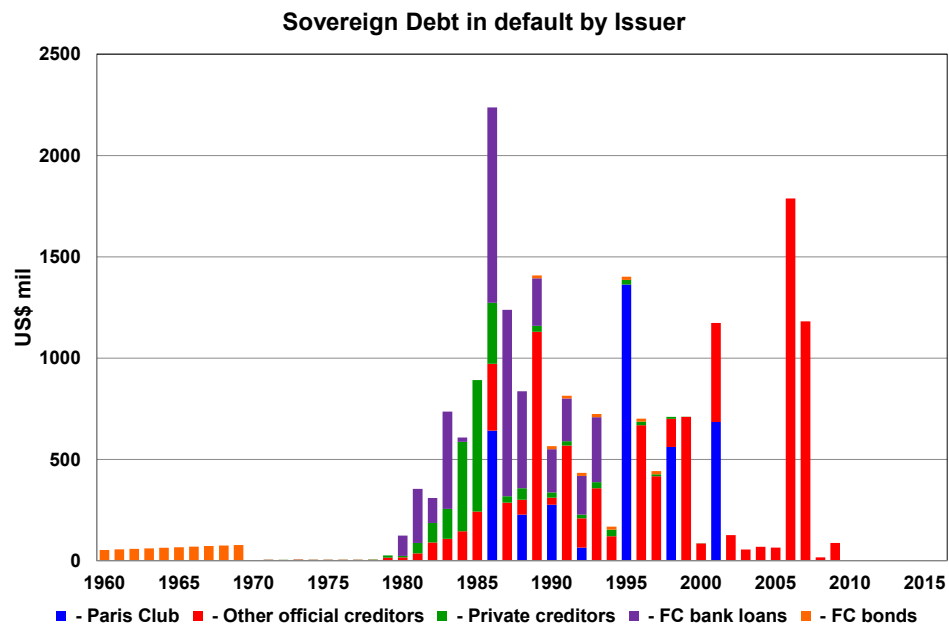
Source: Banco Central de Bolivia

**Figure 20**



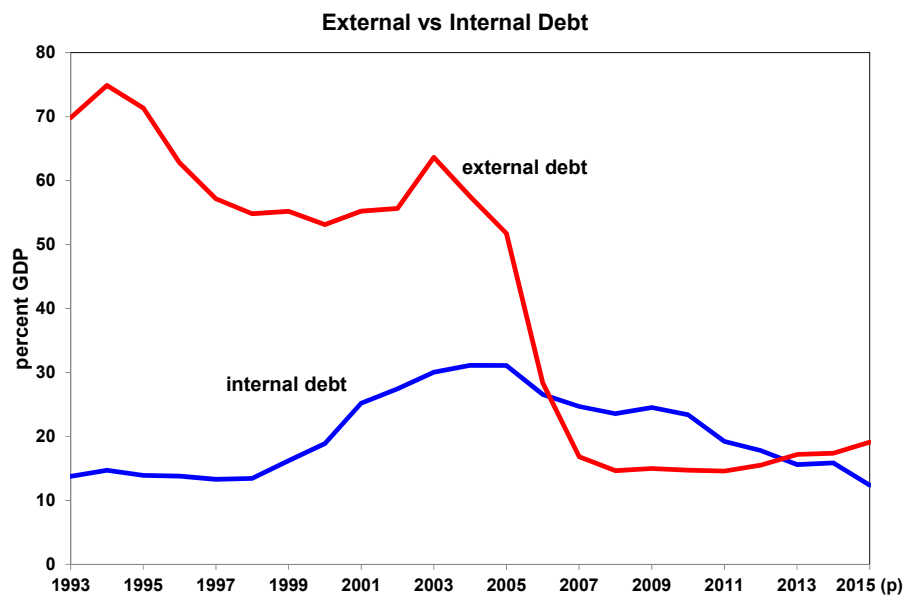
Source: Banco Central de Bolivia

**Figure 21**



Source: Bank of Canada

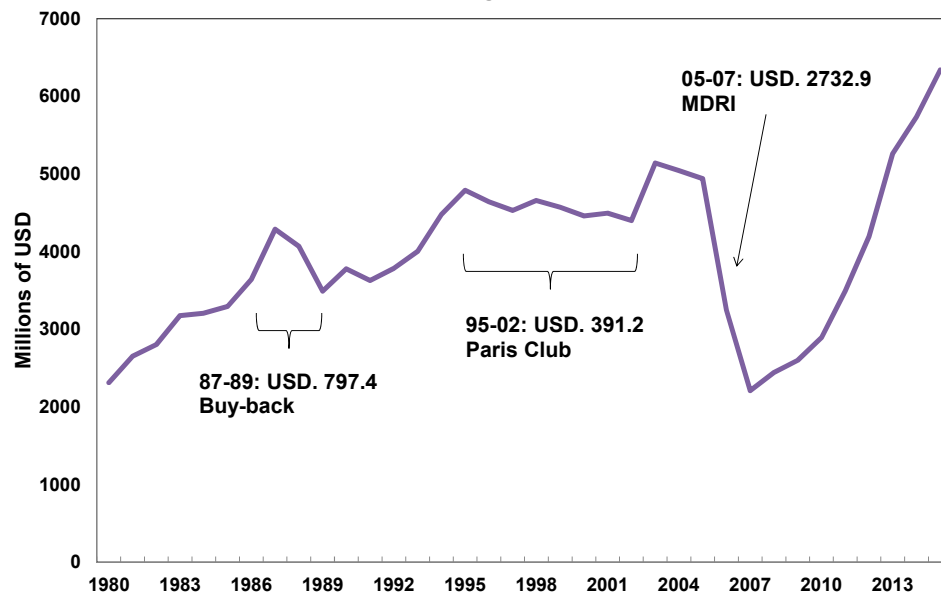
**Figure 22**



Source: Banco Central de Bolivia



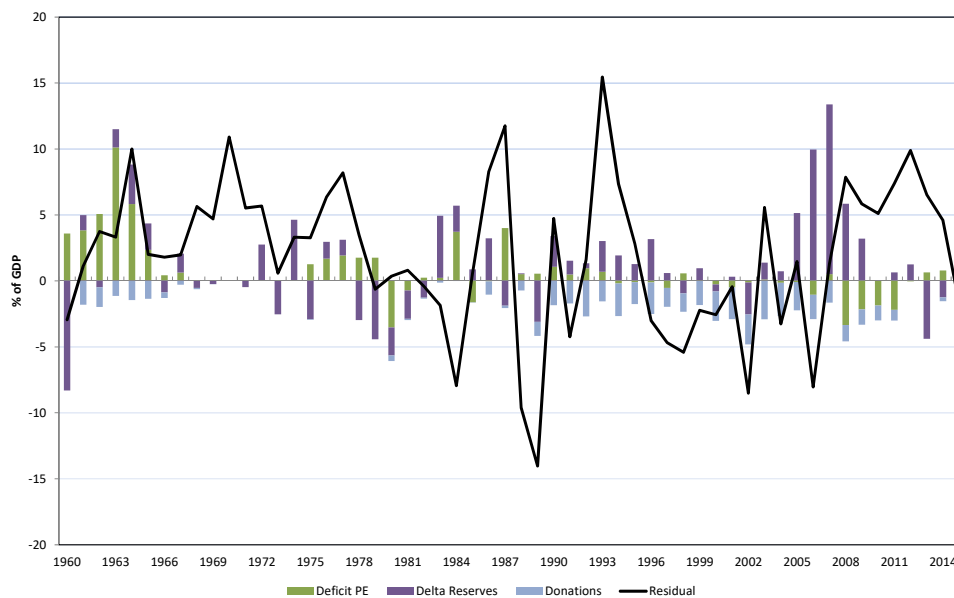
**Figure 23**  
**Debt renegotiations**



Source: Banco Central de Bolivia

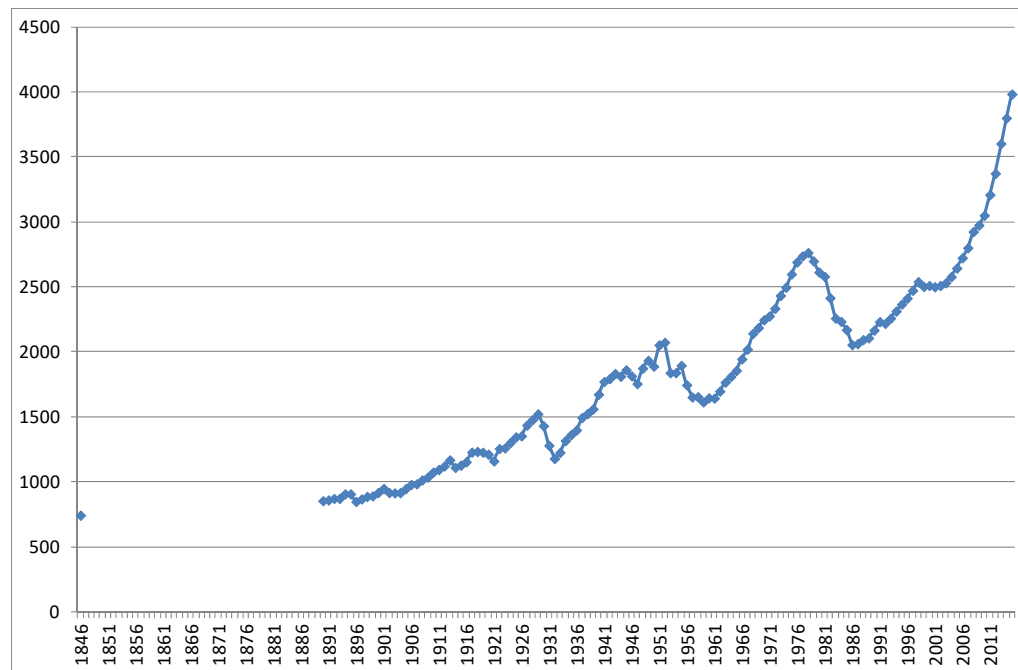
**Figure 24**

**Potential factors behind the residuals**



Source: Authors' calculations

**Figure 25**  
**Bolivian GDP per capita, 1846-2015 (GK Int. Dollars)**



Sources: Herranz-Loncán & Peres-Cajías, 2016; Madisson Project Database 2013.

Notes: GDP pc from 2011 to 2015 were obtained using GDP pc growth rates in World Bank Database