

WORKING PAPER

The Case of Uruguay

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The Monetary and Fiscal History of Uruguay

1960-2017

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Abstract

This paper analyzes the monetary and fiscal history of Uruguay between 1960 and 2017. The aim is to explore the links between unfavorable fiscal and monetary policies, nominal instability and macroeconomic performance. The 1960s is characterized by high inflation and sustained large deficits, and a large banking crisis in 1965. Since the mid-1970s, the government liberalized the economy and attempted to stop the money financing of deficits that prevailed in the previous decade. During the transition to a more open economy, Uruguay encountered two major crises in 1982 and 2002: the former was very costly in fiscal terms and brought back the monetization of deficits, while the latter had significantly lower effects on deficit and inflation. The evidence collected suggests governments have slowly understood the importance of fiscal constraints to guarantee nominal stability.

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1 Introduction

During the last half of the twentieth century, Uruguay opened commercially and financially to the international economy, became progressively more stable, and abandoned the interventionist policies that had prevailed since the 1930s. However, during this period the country suffered three banking crises (two of which became public debt crises), recorded double-digit chronic inflation for more than three decades, and was unable to reverse its long economic decline².

The inflationary financing of deficits in the late 1950s explains the origin of the nominal instability (i.e., high inflation) that lasted until the end of the twentieth century. This chronic inflation affected the credibility of macroeconomic policy, which contributed to demonetizing the economy. As a result, macroeconomic instability consolidated, making agents more impatient for their expected returns and affecting investment and, thus, growth (Oddone 2008).

Between 1960 and 1973, the economy stagnated (Figure 1) with high and volatile inflation (Figure 2) and persistent fiscal deficits (Figure 3).

In 1974, GDP started to slowly converge to the 2% annual growth trend, while inflation and the fiscal deficit began to fall. This process went on until 1982, when the second major crisis hit³. It was a banking, balance of payments, and public debt crisis.

Between 1983 and 1990 the economy stagnated again, inflation increased to three-digit rates, while the fiscal deficit remained high because of large interest payments.

In 1991, after several measures and reforms, GDP growth started to converge to its trend and the inflation rate began to decline. In addition, since the beginning of the 1990s, the fiscal deficit remained significantly lower than in the previous decades⁴.

In 2002, a third banking crisis took place. Compared with the 1982 crisis, the drop in GDP was similar, but the recovery was faster. Likewise, the fiscal effect of the crisis was smaller and the impact on inflation was substantially lower and less persistent.

In summary, Uruguay made a significant macroeconomic change in 1974 by opening the economy through the liberalization of the current and capital accounts of the balance of payments. From there, successive governments reduced the monetary financing of fiscal deficits as had been the norm up to that point. Nonetheless, during the transition, the country had to endure two major crises: 1982 and 2002. The significantly lower fiscal and inflation effects of the second crisis suggest governments have slowly understood the importance of fiscal constraints to guarantee nominal stability. Institutional changes and economic reforms also helped to improve the overall macroeconomic discipline. As a result, Uruguay

² Uruguay's per capita GDP fell from a level like that of the United States at the end of the nineteenth century to almost one-third of it in the second decade of the twenty-first century.

³ The first banking crisis occurred in 1965 and had no significant consequences on public debt (see Section 2.1).

⁴ On average, the deficit of the public sector was 5.9% of GDP in 1960-1990 and 1.9% of GDP in 1991-2017.

has experienced fifteen years of uninterrupted growth and macroeconomic stability since 2003.

This paper is organized in two sections and a conclusion. The first section shows the results of the budget constraint analysis for Uruguay for the 1960-2017 period, based on the framework of Kehoe, Nicolini, and Sargent (2013). The second contrasts the stylized facts of the monetary and fiscal history of Uruguay during the same period with the main conclusions from the budget constraint analysis. In addition, some theoretical models were used to achieve a better understanding of critical episodes such as the crises of 1965, 1982, and 2002. Finally, the paper presents conclusions and final remarks.

2 The budget constraint: framework and overall results

This section describes the results of the budget constraint framework for the case of Uruguay⁵. Table 1 shows the main results for the 1960-2017 period⁶. Three subperiods were considered to analyze these results. The first one (1960-1973) comprises the stagflation years. The second (1974-1990) includes the phase of the first trade opening (i.e., regional integration), financial liberalization and the severe consequences of the banking and balance of payments crisis of 1982. The last subperiod (1991-2017) includes the second trade opening, the price-stabilization plan (1991-2002), the 2002 banking crisis, and the years of strong growth and macroeconomic stability (2003-2017).

Table 1

Consolidated Budget Constraint of the Public Sector: 1960-2017 (% GDP)

	1960-1973	1974-1990	1991-2017	1960-2017
Sources				
Local currency public debt (var.)	-1.1%	0.4%	0.2%	0.0%
Foreign currency public debt (var.)	0.9%	4.4%	-0.8%	1.1%
Inflation-indexed public debt (var.)	-	-	0.8%	0.4%
Wage-indexed public debt (var.)	0.1%	0.1%	-0.1%	0.0%
Monetary base (var.)	-0.2%	-0.4%	0.0%	-0.2%
Inflation tax	4.7%	3.6%	0.8%	2.6%
Total	4.4%	8.0%	1.0%	3.9%
Obligations				
Public sector primary deficit	5.9%	1.8%	-1.1%	1.4%
Local currency return	-	-	0.0%	0.0%
Foreign currency return	-0.1%	2.8%	0.9%	1.2%
Inflation-indexed return	-	-	-0.1%	0.0%
Transfers*	-1.4%	3.5%	1.3%	1.3%
Total	4.4%	8.0%	1.0%	3.9%

**Estimated as a residual*

The results in Table 1 show that the financing of Uruguay's public sector in 1960-2017 was mostly inflationary: two-thirds of the sources came from an inflation tax and one-third from the public debt. Nevertheless, the monetization and the inflationary financing of fiscal deficits (monetary issuance plus inflation tax) fell throughout the whole period.

⁵ See Chapter 2 of this book for a complete description of the conceptual framework.

⁶ The *consolidated budget constraint* includes the general government, state-owned enterprises and the financial public sector. See Appendix 2 for a complete description.

Between 1960 and 1973, the main source of financing fiscal deficits was the inflation tax as public debt issuing was limited due to financial repression (real interest rates in pesos were negative) and lack of access to external financing. The financial liberalization in Uruguay since 1974 and the greater access to external financing from emerging markets in the early 1970s increased the weight of public debt as a source, although the inflation tax remained significant. Since the 1990s, inflationary financing was discarded because of greater access to public debt, lower obligations, and macroeconomic reforms. Since 2004, further improvements in public debt management kept the need for inflationary financing relatively low.

On the obligations side, the primary fiscal deficit decreased continuously in every subperiod (Table 1). After the second half of the 1980s, the deficit remained relatively low, reflecting greater government commitment to macroeconomic stability. However, primary deficits in the late 1990s and since 2012 suggest this commitment is still weak (Figure 4).

In 1982 and 2002, the end of the price stabilization plans based on exchange rate anchors provoked strong currency devaluations. As shown later in Section 3, these devaluations severely weakened public finances (Figure 5) given the highly dollarized public debt and the Central Bank's contingent liabilities (dollarized bank deposits). This is the reason why the returns on that type of debt were large in the 1974-1990 subperiod (Table 1).

Transfers (t_t) are, by definition, the residual of the budget constraint. They capture data limitations (estimation errors) as well as missing sources or obligations (Kehoe, Nicolini, and Sargent 2013). The residual shows an erratic path throughout the entire period, although a negative sign prevails in the 1960s and the 1990s and a positive one in the 1970s, the 1980s, and the last decade (Figure 6). When there is a negative sign, there are missing *sources* in the budget constraint. Conversely, when the sign is positive, there are missing *obligations*.

An *adjusted residual* was estimated to interpret the budget constraint residual (transfers). Factors likely to be included in the budget constraint residual were identified and then extracted from the original residual. The result, the adjusted residual, allows analysis to the extent the residual can be explained by such factors.

Three main terms were identified that are omitted from the budget constraint identity and thus end up in the residual: (1) international reserves, (2) reserve requirements, and (3) transfers. Then, data were collected on these variables and subtracted from the original residual⁷. The results in Table 2 show that, on average, the absolute value of the adjusted residual is lower than the absolute value of the budget constraint residual. This suggests the residual can be partially explained by international reserves, reserve requirements, and extraordinary transfers. However, it remains relatively large in the 1960s, 1977, around the 1982 crisis, in 1999, and around the 2002 crisis (Figure 9).

⁷ See Appendix 4 for a detailed explanation of this estimation.

Table 2

	1960-1973	1974-1990	1991-2017
Original residual	-1.4%	3.5%	1.3%
Adjusted residual	-0.3%	2.7%	-0.2%

Following are some explanations for the remaining residual. First, the way the implicit interest rate is constructed for the period 1960-1993 (interest payments in $t+1$ over the stock of debt in t) may not be precise. That means estimation errors end up in the adjusted residual. Second, when estimating the implicit interest rate in 1960-2002, all public debt is assumed to be denominated in foreign currency. As a consequence, foreign currency returns may be inaccurate, and the ones denominated in other currencies are missing. The net effect of these errors is also contained in the adjusted residual. Third, some transfers associated with the 1982 and 2002 debt crises remain out of the budget constraint. For instance, transfers from the Central Bank to Banco Hipotecario during the 1982 crisis are not included in the deficit⁸. Fourth, residuals may also arise from appending different data sets. For example, the adjusted residual is significantly large in 1999, the year when estimates and official data on public debt are joined.

3 Stylized facts and the budget constraint

The economic history of Uruguay between 1960 and 2017 includes first a brief stage where interventionism and import-substitution policies predominated (1960-1973). After 1974, and especially since 1991, more market-oriented policies stimulated the opening of the economy.

To contrast the stylized facts with the budget constraint results for Uruguay, the 1960-2017 period has been divided into three subperiods: (1) stagflation (1960-1973); (2) opening, liberalization, and balance of payments crisis (1974-1990); and (3) boost, halt,⁹ and the golden years (1991-2017). Each of the following parts is devoted to analyzing these subperiods using the conceptual framework described above.

3.1. Stagflation (1960-1973)

The 1960s was the end of a growth period, as the economy stagnated and inflation remained high in historical comparison. The magnitude of the economic failure led to a social and political crisis in 1973 that ended the long democratic stability of the country. GDP per capita grew 2.2% on average in the 1950s and only 0.5% between 1960 and 1973. Annual inflation reached 51.7% on average in 1960-1973 (it was 6.4% in the 1940s and 13.0% in the 1950s) (Figure 2).

The economic decay of the late 1950s had political consequences. In 1958, the Colorado Party lost the presidential election for the first time in the twentieth century at the hands of its secular opponent, the National Party.

⁸ See next section for further explanation.

⁹ *Boost and halt* is a translation from Spanish of “*El Impulso y su freno*,” a book written by Carlos Real De Azúa that referred to the import-substitution period between the 1930s and 1950s.

In 1959, the new government approved the Monetary and Foreign Exchange Reform law, which was the first attempt to liberalize the economy since 1929. The aim was to restore internal and external balances of the economy. The reform simplified and reunified the various types of exchange rates, dismantled trade controls, and put an end to the tendency toward bilateral trade agreements. It also imposed drawdowns on exports and surcharges on imports. The reform restricted the expansion of payment methods by establishing an issuance regime based on gold and the rediscounting of private documents, thus eliminating other issuance props such as the assets of the state-owned commercial bank (Banco República)¹⁰. Under the reform, in 1960 Uruguay signed the first agreement with the International Monetary Fund (IMF). Even though most of the initiatives included in the reform were abandoned in the 1960s, some of them started to be implemented after 1974.

Between 1960 and 1973, under the low-growth situation, primary fiscal deficits were sustained (5.9% of GDP on average) as expenses grew more rapidly than revenues. This was because the public expenditure structure was very rigid, while revenues stopped growing due to stagnation (Figure 10)¹¹.

The debt-to-GDP ratio remained stable in this period since the increase in dollar-denominated debt was offset by a fall in peso-denominated debt (Table 1; Figure 5). The latter began in the 1950s when negative real interest rates made peso-denominated debt unattractive for the private sector¹². The government began to issue dollar-denominated treasury bonds, but it was not enough to finance the large fiscal deficits. A solution was to increase the debt held by the public sector, particularly by social security institutions. Nevertheless, this financing source wore out as social security institutions weakened in the 1960s because of the economic stagnation and the negative real return on public debt.

Therefore, the financing of obligations in this period was inflationary¹³. The results of the budget constraint showed that deficits were financed with the inflation tax (4.7% of GDP on average) and other sources captured in the residual as negative obligations (1.4% of GDP on average) (Figure 3). The following explanation is offered for this negative residual. Since there are no available data on peso interest rates for the 1960s, debt obligations in pesos end up in the residual. Real interest rates were negative in this period, so debt obligations in pesos were likely to be negative. Thus, our conjecture is that the residual is negative (that is, a missing source) because it contains transfers from debt holders to the public sector because of inflating away public debt in pesos. In other words, if data on interest rates in pesos were available, debt obligations in pesos would more likely be negative, increasing the sources and reducing the negative residual.

In 1965, a banking crisis occurred, which contributed to nominal instability (Vaz 1999). In that year, amid a large bank run¹⁴, the government created an explicit insurance scheme on peso-denominated bank deposits, converting them into contingent public debt. Also, there

¹⁰ Between 1896 and 1967, Banco República was both the state-owned commercial bank and the monetary authority.

¹¹ The financial balance of the central government was mostly negative since the beginning of the 1930s. Nonetheless, it was not necessary to monetize the deficits at least until the second half of the 1950s when the financial repression began.

¹² The Executive Branch set bank interest rates by law (Act No.9756 of 1938) until 1968. We assume bank interest rates in pesos were not significantly different from public debt interest rates in pesos.

¹³ Azar et al. (2009) arrive at the same conclusion.

¹⁴ In 1965, the private sector's peso-denominated time deposits fell by 36% in real terms compared with 1964 (Vaz 1999).

existed an implicit insurance on dollar-denominated deposits, so the total contingent liabilities for the monetary authority depended on the exchange rate as well¹⁵. So, once bank runs intensified in 1965, the monetary authority had to monetize the deposits. And although deposits were falling, the frequent devaluations of the peso implied an increase in the number of pesos to be monetized.

Moreover, the banks' weak position impeded the restriction of secondary money creation, which could have been done by increasing reserve requirements or eliminating the inflation tax subsidy in rediscounts¹⁶. Therefore, the monetization of bank deposits and the decision not to restrict money creation contributed to the growth of monetary issuing, and thus nominal instability, by the mid-1960s.

Monetary issuing promoted currency devaluations and pushed inflation even further, provoking a vicious circle. In addition, the reserves-to-GDP ratio fell constantly in the first half of the 1960s and remained low until the first part of the 1970s (Figure 11). This was due to large capital outflows, the defense of the exchange rate, and the scarce issuing of dollar-denominated public debt. Therefore, the monetary authority was forced to devalue the peso several times, creating further inflationary pressures through higher import prices (Figure 12).

Therefore, the first half of the 1960s was marked by chronic inflation, scarce international reserves, the aftermath of the 1965 banking crisis, and the inflation-devaluation spiral. This scenario encouraged a political consensus to create a specialized institution to oversee monetary policy and the banking system regulation and supervision. In 1967 the Central Bank of Uruguay was created¹⁷.

Nevertheless, erratic monetary policy and nominal instability remained in 1967 and 1968. For instance, the monetary base continued growing at three-digit figures at the beginning of 1968, and annual inflation reached 183% by midyear (Banda et al. 2017). In this situation, the social and political unrest became the main concern for the government, which led to implementing a price stabilization plan based on mandatory price fixing.

The plan chose wages as the nominal anchor, given that other instruments were unavailable under the prevailing macroeconomic policy conditions. First, interest rates were set by law, so they could not be used as a monetary target. Second, commitments on the exchange rate and monetary aggregates were not credible, given the large primary fiscal deficit (12.2% of GDP in 1967) and scarce international reserves (0.6% of GDP in 1967).

The plan also included a significant fiscal adjustment. The primary fiscal deficit shrank continuously to 2.4% of GDP between 1967 and 1970. Consequently, the need for inflationary financing was reduced (Figure 3), consistent with a fall in annual inflation (Figure 12). The stagnation period ended in 1968-1970 as GDP grew 4.1% on average, in contrast to just 0.1% in 1958-1967.

¹⁵ "In this situation, the inflationary impact of having a lender of last resort or a deposit insurance facility increases" (Vaz 1999).

¹⁶ Commercial banks charged investors a discount for amortizing debt in advance, collecting part of the inflation tax (Vaz, 1999).

¹⁷ Until 1967, the stated-owned commercial bank Banco de la República Oriental del Uruguay had the role of monetary authority. During the transition time (1967-1971), Banco República and the Central Bank of Uruguay shared the functions of a monetary authority.

In 1970, Argentina abandoned the price stabilization plan that started in 1966. As a result, Uruguay received an external shock, which caused a GDP contraction in 1971 and 1972. The central government primary deficit started growing as revenues decreased (Figure 10), creating incentives for inflationary financing (Figure 3). A larger deficit (9.9% in 1972) in a context of a fixed exchange rate with a negative external shock put an end to the stabilization plan that began in 1968. Annual inflation rose back to three-digit figures by the end of 1972.

3.2 Opening, liberalization, and balance of payments crisis (1974-1990)

In 1973, amid growing political and social tensions that had persisted for almost a decade, the constitutional government fell, and a de facto government was instituted, which remained until 1985.

The economic policy of this period had three stages. The first one in 1974-1978 focused on stabilizing the external sector and starting to dismantle the closed-economy model. Some of the initiatives were, as mentioned before, included in the Monetary and Foreign Exchange Reform law of 1959. Among these changes were greater integration with Argentina and Brazil, export promotion, and financial liberalization. During these years, sustained fiscal deficits remained, reaching on average 5% of GDP. Average annual inflation was 62.7%, and most of the deficit was financed with the inflation tax (3.9% of GDP on average).

During the second stage in 1979-1982, the government implemented an anti-inflationary plan based on a preannounced crawling peg. The plan managed to reduce annual inflation from 83% in December 1979 to 11% in November 1982 (Figure 2), amid real currency appreciation (Figure 13) and strong GDP growth.

Nonetheless, in a context of a crawling peg and positive shocks from Argentina and Brazil, two of Uruguay's main trading partners, the fiscal contraction was not enough to offset private demand. This caused a significant deterioration of the current account balance, which reached -10.7% of GDP in 1982.

The expansion of the aggregate demand was boosted by an increase in private spending, especially real estate investment and consumption of durable goods. This was stimulated by a significant growth in private debt because of the financial liberalization initiated in 1974. By the end of 1981, 53% of the foreign currency debt was held by the private sector, something unprecedented in the history of Uruguay (Antía 1986).

Between 1978 and 1982, the primary deficit followed a U-shaped path. In the first three years, the overall deficit-to-GDP ratio fell from 4.4% to 1.1% amid a strong economic expansion. The debt-to-GDP ratio shrank while a significant amount of inflation tax was still collected (annual inflation was 59% on average) and used to increase the stock of international reserves (Vaz 1999). However, in 1981 real GDP growth slowed, after Argentina abandoned its price stabilization plan and contracted 9.4% in 1982. As a result, government revenue was affected, and the overall fiscal deficit of the public sector increased by 2.1% of GDP between 1980 and 1981 (Figure 4).

The simple version of Krugman's balance of payments crisis model (1979) allows for a more precise interpretation of these events. Krugman's argument is that sustained fiscal deficits within a context of restrictions to external financing force the CB to increase

domestic credit. Under a fixed exchange rate, the increase of domestic credit leads to a loss of international reserves, which may cause a balance of payment crisis, currency devaluation, and an increase in inflation.

In 1982 Uruguay suffered a balance of payments crisis. The year before, external financing became more restrictive (Figure 14), so given a current account deficit of 5% of GDP, international reserves began to fall. In addition, net domestic credit started to increase to finance the fiscal deficit, which led to a further decline in international reserves (Figure 15). In November 1982, the stabilization plan was abandoned, and the peso was devalued by 149% against the US dollar. Annual inflation climbed from 20.5% in 1982 up to 51.5% in 1983 (Figure 12). The large stock of dollar-denominated debt of the private sector quickly caused serious solvency problems for debtors, which triggered a banking crisis.

The banking crisis became a public debt crisis since an implicit deposit insurance scheme existed. In other words, the banking system's liabilities were, at the end of the day, the Central Bank's liabilities. The adapted-for-Uruguay *Calvo Ratio*¹⁸, which relates these liabilities to the government's capacity to comply with them, grew slowly between 1978 and 1980 and more rapidly in 1981 and 1982 once international reserves began to fall (Figure 16). After the currency devaluation, the Central Bank had to bail out commercial banks, as a large portion of debtors defaulted on their commercial credits. Therefore, the liberalization of the financial sector in Uruguay since 1974 led to a significant increase in contingent public debt and, soon after, a public debt crisis.

The third stage of the period began with the end of the stabilization plan in November 1982 and lasted until 1985. During these years, the public debt-to-GDP ratio rose from 20% in 1981 to 122% in 1985 (Figure 5) for three reasons. The first is the private debt restructuring after the crisis. The Central Bank purchased nonperforming assets from four failed banks and exchanged dollar-denominated public debt for nonperforming assets with Citibank and Bank of America¹⁹.

The second reason was the need of the Central Bank to recompose its stock of international reserves (Figure 11). Therefore, the reserves-to-GDP ratio grew from 5.5% in 1982 to 12.3% in 1984. This may partly explain the size of the budget constraint residual in 1982 and 1983 (12.4% and 17.2% of GDP, respectively).

The third reason was the effect of the currency devaluation on public debt, as it was mostly denominated in US dollars (Figure 17)²⁰.

Therefore, after the 1982 crisis the public sector's budget constraint was dominated by public debt service and international reserve accumulation (Table 1). Public debt returns, especially in foreign currency, became the main obligation, reaching 11.6% of GDP in 1982-1985. The large residuals may reflect the recovery of international reserves (Figure

¹⁸ The ratio of foreign currency deposits over international reserves is an adapted version of the *Calvo Ratio* from Kehoe, Nicolini, and Sargent (2013). In a highly dollarized economy such as Uruguay's, the contingent liabilities of the Central Bank were mostly foreign currency deposits of the nonfinancial private sector in the banking system.

¹⁹ The Central Bank purchased non-performing assets for US\$1,141 million and issued US\$755 million in public debt to Citibank and Bank of America (Vaz 1999). These agreements caused an increase in the quasi-fiscal deficit that reached 3.7% of GDP in 1984, almost half of the overall deficit of the public sector (Roldós 1994).

²⁰ Appendix 2 describes the procedure followed to estimate RER-adjusted public debt.

6). At the same time, primary expenses were reduced. Regarding the sources in the budget constraint, even though public debt issuing was the main one, the rising inflation after the end of the stabilization plan allowed collecting an inflation tax of 3.3% of GDP in 1983-1985.

In 1986, after the end of the de facto government, the economy began to recover. Real GDP expanded 8.9% and 7.9% in 1986 and 1987, respectively, due to a sequence of positive external shocks: a fall in oil prices, lower dollar interest rates, and strong demand from Argentina and Brazil because of price stabilization plans. In addition, there was a positive net wealth effect on debtors, given the fall in the real value of dollar-denominated loans.²¹

During these years, the public sector achieved a primary surplus, consistent with a heavy public debt service. This, together with strong GDP growth, allowed reducing the public debt-to-GDP ratio and the need for inflationary financing. As a result, twelve-month inflation dropped from 84% in January 1986 to 54% in March 1988.

Nonetheless, as of 1988 Argentina's performance was no longer favorable and Uruguay's GDP stagnated. Argentina contracted 10% between 1987 and 1990, while Uruguay grew only 0.5% on average in 1988-1990. The overall deficit stood at 5.9% of GDP in 1989, which consisted mostly of debt service (real returns on public debt reached 9.7% of GDP between 1988 and 1990). As a result, inflation rose back to almost 90% by the end of 1989.

3.3 Boost, halt, and the golden years (1991 – 2017)

In the 1990s, governments carried out an array of measures and reforms geared to making public finances sustainable and guaranteeing nominal stability. These measures were: the Brady Plan in 1991, the price stabilization plan in 1990-2002, the first Central Bank Act in 1995 and social security reform in 1996.

The large overall deficit, mostly due to of a heavy public debt service, explains the persistence of nominal instability in the second half of the 1980s. Debt service exceeded primary surpluses, giving rise to inflationary financing. In addition, weak public finances limited access to external financing, forcing the government to issue money to purchase US dollars and, thus, comply with debt payments. After a long negotiation period, in January 1991 Uruguay reached an agreement on its external debt in the context of the Brady Plan. This agreement reduced the debt stock by 5% of GDP (Rial and Vicente 2003) and reprogrammed short-term debt.

In the last quarter of 1990, the government began another price stabilization plan. The plan consisted of a deep fiscal adjustment (around 6% of GDP in 1990-1991) and a preannounced crawling peg. The exchange rate anchor was maintained for the whole decade, and the primary fiscal deficit remained balanced until 1999 (Figure 4). The latter and access to external financing reduced the need for an inflation tax (Figure 3). As a result,

²¹ The government had proposed to keep a stable real exchange rate against the currencies of Uruguay's major trading partners. The sharp international weakening of the dollar strengthened the peso and ended up generating a positive net wealth effect for debtors in dollars. Borrowing from the private sector was mainly in dollars. Noya and Rama (1987) conclude that this effect was 14.7% and 10.9% for private companies and the public sector, respectively, between 1985 and 1986. In addition, given the high level of public debt in dollars, real currency appreciation also had a significant positive net wealth effect on the public sector. According to Noya and Rama (1987), it was 15% of GDP between 1984 and 1985.

in 1998 inflation reached a one-digit figure for the first time in thirty years: it went from 133.7% in January 1991 to 9.9% in October 1998 (Figure 2).

In 1995, the Parliament approved a new Central Bank Act that strengthened the commitment to avoid inflationary financing²². This new act set a limit on the assistance the Central Bank could offer to the rest of the public sector. First, it limited the stock of public debt the Central Bank could hold to 10% of the primary budget of the previous year. Also, it allowed the Central Bank to grant loans (“temporary transfers”) for an amount not greater than 10% of the primary budget of the previous year. The former remains in force and the latter was derogated by law in 1997.

The social security system weakened persistently before the 1990s for administrative, demographic, and structural reasons (Laens and Noya 2000). In addition, in 1989 a referendum determined that social security pensions be indexed to the Average Wage Index. In a context of disinflation, this indexation led to significant real growth of pensions and an increase in the deficit of the social security system from 2.2% of GDP in 1989 to 5.7% of GDP in 1997. In 1995, the government carried out a reform to assure the long-term sustainability of the pension system and public finances^{23,24}. As shown in the next section, the sufficiency of benefits and the sustainability of the pension system are still part of Uruguay’s political debate.

In terms of budget constraint, there is relative stability between 1990 and 1998. The public sector’s obligations decreased after both the fiscal adjustment and the Brady Plan. On average, the primary surplus stood at 1.5% of GDP and the real returns on foreign currency debt were 0.2% of GDP during these years. Regarding the sources, public debt decreased by 2.7 percentage points every year, while the inflation tax fell from 3.4% to 0.6% of GDP. These results suggest that lower obligations and greater access to public debt reduced the need for inflationary financing.

The real currency appreciation favored the consolidation of a public debt profile in foreign currency (91.3% of total public debt in 1998²⁵). By the end of the decade, the economy was featured by: (1) an exchange rate commitment, (2) a high share of public debt in foreign currency, and (3) an implicit deposit insurance scheme (Figure 18)^{26,27}. Thus, international

²² A 1964 law allowed the monetary authority to assist the Treasury with up to one sixth of the annual budget (Banda and Onandi 1992).

²³ Laens and Noya (2000) estimate that at the time of the reform the implicit public debt was around 2.5 times Uruguay’s GDP, one of the largest implicit debts in Latin America. They conclude that the reform reduced the system’s primary deficit by 2% of GDP in the long run.

²⁴ The system covers the risks of disability, old age and survival. It is a mixed system as it has two pillars: intergenerational solidarity and compulsory individual saving. The former is a defined benefit, and the benefits of the liabilities are financed by contributions from active workers, employers, taxes affected, and, if necessary, with the state’s financial assistance. The second pillar is a defined contribution: each worker accumulates their contributions and returns in a personal savings account. At the time of cessation of activities for cause (35 years of contribution), or when reaching 60 years of age, the worker has the right to receive a monthly income that is determined by the amount accumulated in his individual account, his sex and age, and a technical interest rate determined by the regulator. Likewise, the second pillar has a collective capitalization insurance, with a defined benefit, which covers the risks of disability and death in activity.

²⁵ According to data from the Central Bank of Uruguay.

²⁶ “There was the perception among economic agents that, should anything happen in the banking system, the government would bail them out. This implicit guarantee, in turn, became a potential liability of the state” (De Brun and Licandro 2005).

²⁷ As Figure 18 shows, the Central Bank’s contingent liabilities (estimated as the difference between M3 and international reserves as a percentage of GDP) became an additional source of risk by end-2001.

reserves were the key to guarantee: (1) the exchange rate commitment, (2) ultimately, public debt service, and (3) implicitly, bank deposits.

Between 1999 and 2001, the economy received an array of external shocks amid gradual restriction to external financing. At the beginning of 2002, the end of the convertibility in Argentina led to a run on bank deposits, especially from nonresidents, which caused a loss of international reserves (Figure 19). Lower international reserves threatened the credibility of the exchange rate commitment and, thus, public debt service.

This scenario led to abandoning the exchange rate commitment in July 2002. On the one hand, the devaluation slowly favored the growth of exports since the end of 2002. On the other, given the high share of dollar-denominated public debt, the currency devaluation severely increased the vulnerability of public finances (Figure 5) and placed public debt on an unsustainable path (Rial and Vicente 2003).

After the devaluation, the debt service due in 2003 was US\$471 million, equivalent to 4.4% of GDP in 2002 (De Brun and Licandro 2005) (Figure 20). Thus, the market, and the IMF, expected a default on public debt. In other words, the fiscal adjustment necessary to comply with debt service obligations and make public debt sustainable was too large to be reachable without provoking a strong recession (Calvo 1998). Given the debt service due in 2003 and the primary surplus in 2002 (0.2% of GDP), it was necessary to make a fiscal adjustment of at least 4% of GDP.

In May 2003, the government conducted a public debt restructuring, which reprogrammed the maturity of 50% of the total public debt²⁸. The swap obtained 93% of the proposed amount, while the 7% that did not adhere received the payments under the conditions originally agreed upon (De Brun and Della Mea 2003)²⁹.

As in the 1970s, the *boost* of the 1990s ended with a sudden *halt*. However, as opposed to 1982, the 2002 crisis was not originated in a balance of payments crisis but in a bank run (Figure 19). Notwithstanding the severity of the 2002 crisis that had significant economic, social, and political consequences, many changes made before 2002 laid the foundation for a stronger economy. This explains part of the recovery as of 2003.

In the second half of 2003, Uruguay left the crisis behind and began the longest growth period since the 1940s. In 2004-2014, GDP compound annual growth rate was 5.4%, three times the growth in the second half of the twentieth century. This growth originated in the super cycle of commodity prices, strong external demand, and extraordinary financial conditions for emerging markets, especially after the 2008 international crisis. In addition, structural policies and reforms helped create a favorable business climate.

The economic policy implemented since 2003 attempted, in the first place, to reduce those macroeconomic fragilities that amplified external shocks in 1982 and 2002. The pillars of the strategy were to consolidate exchange rate flexibility, to reduce the financial vulnerability of the public sector and to strengthen the prudential regulation of the financial

²⁸ All dollar-denominated bonds were eligible, except for short-term instruments issued since January 2003 (De Brun and Licandro 2005)

²⁹ The rating agencies considered it a default. S&P downgraded Uruguay's public debt to Selective Default and Fitch downgraded to DDD in 2003. Uruguay inserted a collective action clause in the new bonds as well, which many believed would trigger a credit default swaps event because it changed the underlying structure of the debt.

system. For this, the macroeconomic policy scheme adopted was based on inflation targets (since 2005), the consolidation of a primary fiscal surplus (Figure 4), and stronger management of the public sector's assets and liabilities, especially public debt (

Table 3).

Table 3

	% of total public debt*	
	2001	2017
Debt with maturity < 1 year	13%	19%
Foreign currency public debt	82%	42%
Fixed-rate public debt	43%	88%

Source: Central Bank of Uruguay

*It includes reserve requirements on bank deposits.

In parallel, the Central Bank was granted greater independence³⁰. As a result, it strengthened banking regulations to manage the risks of currency mismatch and liquidity, improving capital requirements and reducing exposure to nonresident operations. The combination of a favorable external environment with a risk-oriented macroeconomic management policy returned the investment grade to Uruguay's public debt in 2012.

Regarding budget constraint results, relatively low obligations and access to external credit markets guaranteed a relative nominal stability. Primary surpluses during the first few years allowed compliance with the 2002 crisis debt service and accumulating international reserves. Since 2004, foreign currency public debt was partly substituted by peso-denominated and CPI-indexed public debt (Table 1, Figure 5). This was stimulated by relatively low inflation, real currency appreciation, and debt de-dollarization policies. As a result, the financial vulnerability of the public sector decreased.

Nonetheless, since 2008, and especially after 2011, the primary surplus dropped (Figure 4) in a context of strong GDP growth (5.1% in 2008-2014). That is, fiscal policy was not tight during the expansive phase of the cycle, while the wage policy attempted higher nominal rigidity in a context of full employment³¹. All this contributed to the end of the golden years in 2014 with the consolidation of two imbalances: primary fiscal deficit and inflation above the Central Bank's target range. The primary deficit averaged 0.3% of GDP in 2015-2017, and inflation remained above the target range between September 2011 and February 2017. In addition, the RER-adjusted public debt shows the debt-to-GDP ratio is higher than the unadjusted one (Figure 17), which implies that the effort to comply with public debt obligations could be larger than the observed one.

Regarding the social security system in Uruguay, the current structure may be a threat to fiscal sustainability. Although there are only a few studies that quantify the potential effects of contingent liabilities (associated with the sufficiency of contributions and the

³⁰In 2008, the Parliament approved a new Central Bank Act that included the creation of the Macroeconomic Coordination Committee and the Monetary Policy Committee and set restrictions on the type of bailout operations for the Central Bank. Also, the Banking Supervision and Regulation Committee was granted greater technical autonomy from the Central Bank.

³¹Collective bargaining has been active in Uruguay since 2005. Wage agreements in force since 2012 and 2013 have established clauses of periodic adjustments based on past inflation. This, together with a 10% inflation clause that triggers automatic wage increases in several sectors of the economy, resulted in a rigid nominal environment that favored inflationary inertia.

sustainability of the pension system) on public finances, there are reasons to believe that the pension system should be reformed.

First, the increase in life expectancy and the decrease in the birth rate are putting pressure on the sustainability of the system. In a recent work, Camacho (2016) shows that the financial deficit of the pay-as-you-go system has two long-term trends: it will fall to 0.2% of GDP by 2030 but then will rise to 2.2% of GDP by 2050 because of the aging population. This suggests a reform is needed to reduce disbursements and/or increase future revenues.³²

Second, many reforms such as the reduction in the minimum number of years of contribution from 35 to 30, the doubling of the minimum amounts of retirements of the mixed regime, and changes in the distribution of contributions between systems of distribution and capitalization could affect the sustainability of the system.

Lastly, in 2017 the Parliament approved a change to the system that would allow a nonnegligible group of system assets to abandon the mixed regime. This would cost between 7% and 10% of GDP (at 2017 prices) over a forty-year horizon³³.

4 Conclusions and final remarks

The budget constraint analysis shows that, in 1960-2017, the financing of Uruguay's public sector was mostly inflationary. On average, two-thirds of the total sources came from inflation tax and one-third from public debt.

Between the 1960s and the late 1980s, chronic inflation was associated with large fiscal deficits. This caused nominal instability, which ended up triggering nominal rigidities (prices/wage indexation) and dollarization of financial assets. Both increased the financial vulnerability of the public sector and limited the ability of macroeconomic policies to stabilize the economy. Nonetheless, since the 1970s, but especially after 1991, the opening of the economy, financial liberalization, greater access to external financing, stabilization plans, and the more restrictive institutional framework of the Central Bank decreased the inflationary financing of fiscal deficits. Moreover, after the 2002 crisis, the lower share of foreign currency public debt reduced the vulnerability of the public sector.

During this transition, Uruguay had to endure two major crises: 1982 and 2002. The former was very costly in fiscal terms and brought back the monetization of deficits, while the latter had significantly lower effects on deficit and inflation. This suggests governments have slowly understood the importance of fiscal constraints to guarantee nominal stability.

Uruguay's trade and financial integration with Argentina influenced the development and outcome of these two crises. First, the devaluation of the Argentine peso in September 1981 worsened the balance of payments problems that ended with the devaluation of the Uruguayan peso in November 1982. Second, the bank run in 2002 began with a massive exit of Argentine depositors after the risk of contagion increased. Once again, the situation in Argentina precipitated the currency devaluation of 2002.

³² In September 2017, the annual deficit of the general regime of the pension system was 1.8% of GDP. The general regime excludes the retirement funds of the military, police, and bank officials, which have a deficit of 1.7% of GDP and are assisted by the government.

³³ Between 40,000 and 70,000 people, according to estimates by República AFAP, one of the main pension fund managers.

This paper offers some lessons that can be learned from the case of Uruguay and may be helpful in explaining the performance of other Latin American economies. Stabilization plans based on exchange rate anchors with insufficient fiscal adjustments could induce, under certain circumstances, balance of payments crises, currency devaluations, banking crises, and increases in the Central Bank's liabilities, which, eventually, can lead to public debt crises and cyclical volatility. In addition, implicit insurance on bank deposits, public and private debt dollarization, and commitments on the exchange rate require a strong and consistent fiscal policy. This seems to be common to Argentina (1981, 2001), Chile (1983), and Uruguay (1982, 2002).

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Appendix 1 Figures

Figure 1

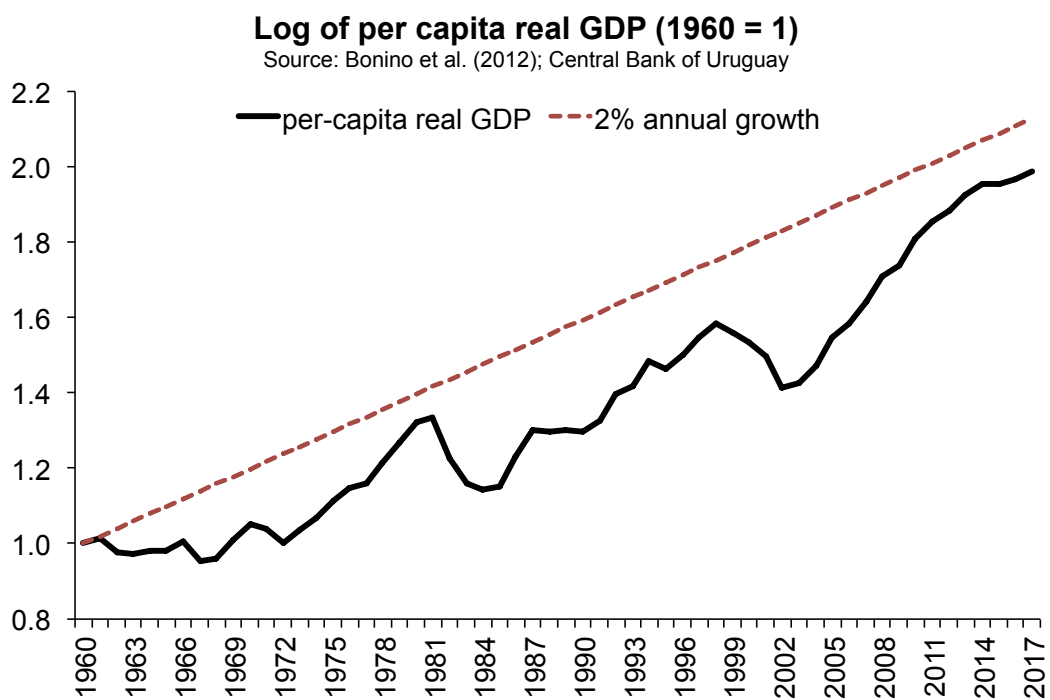


Figure 2

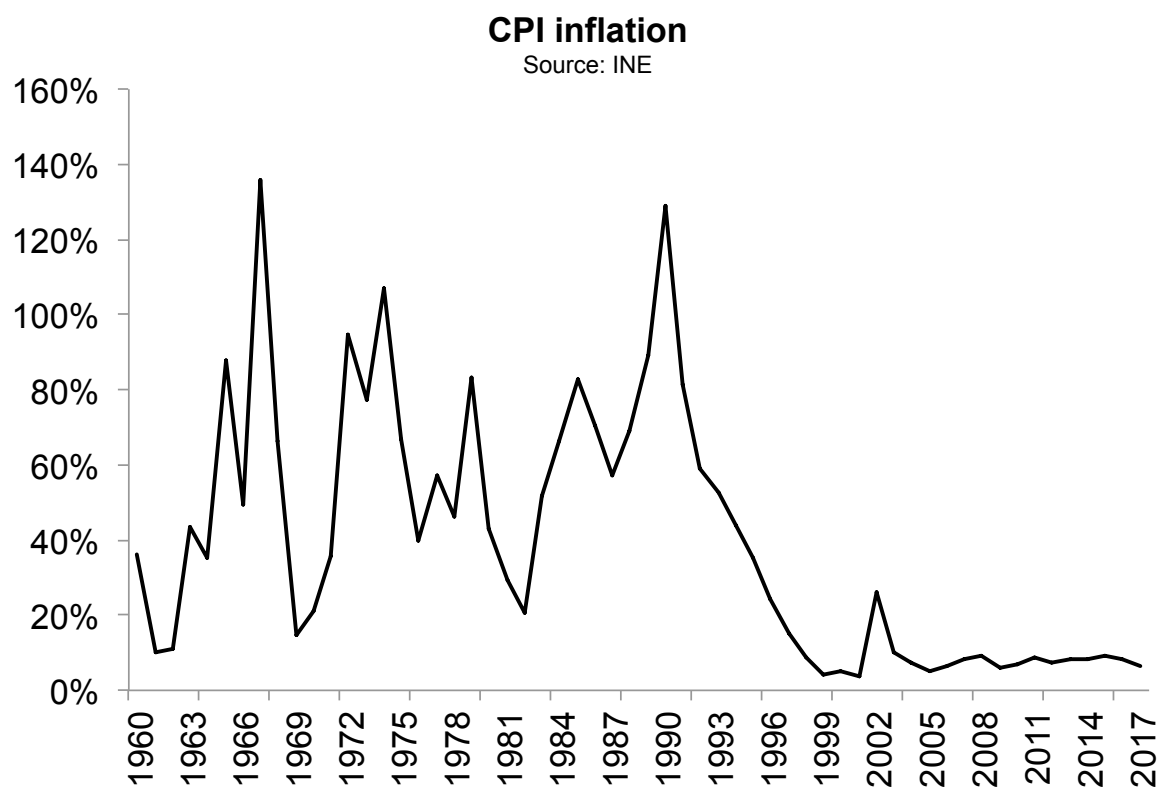


Figure 3

Overall Deficit of the Public Sector as % of GDP

Source: Banda & Onandi (1992); Borchardt et al. (2000); Licandro & Vicente (2008); MEF

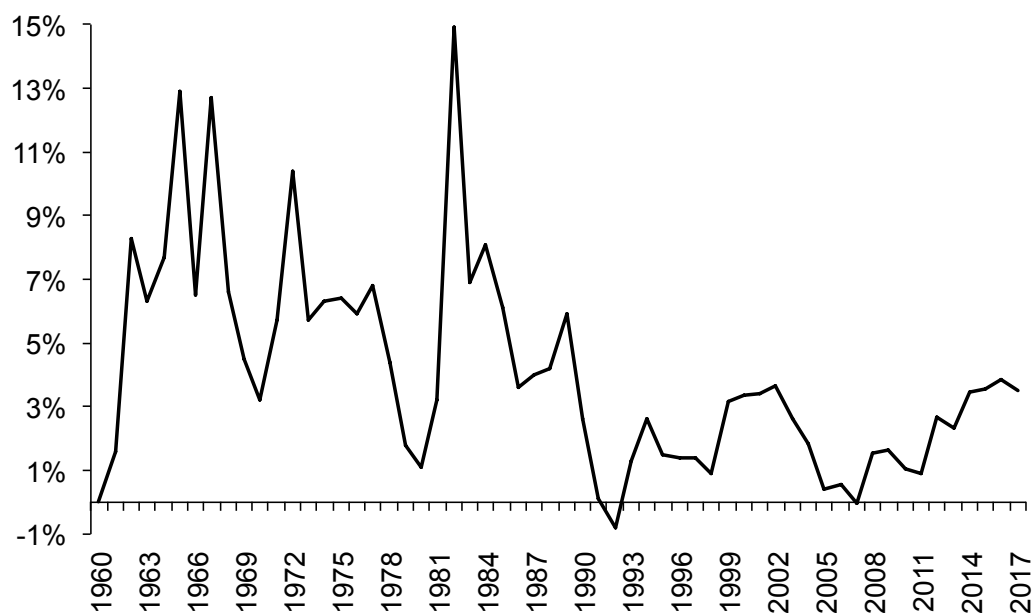


Figure 4

Overall and Primary Deficit of the Public Sector as % of GDP

Source: Banda & Onandi (1992); Borchardt et al. (2000); Licandro & Vicente (2008); MEF

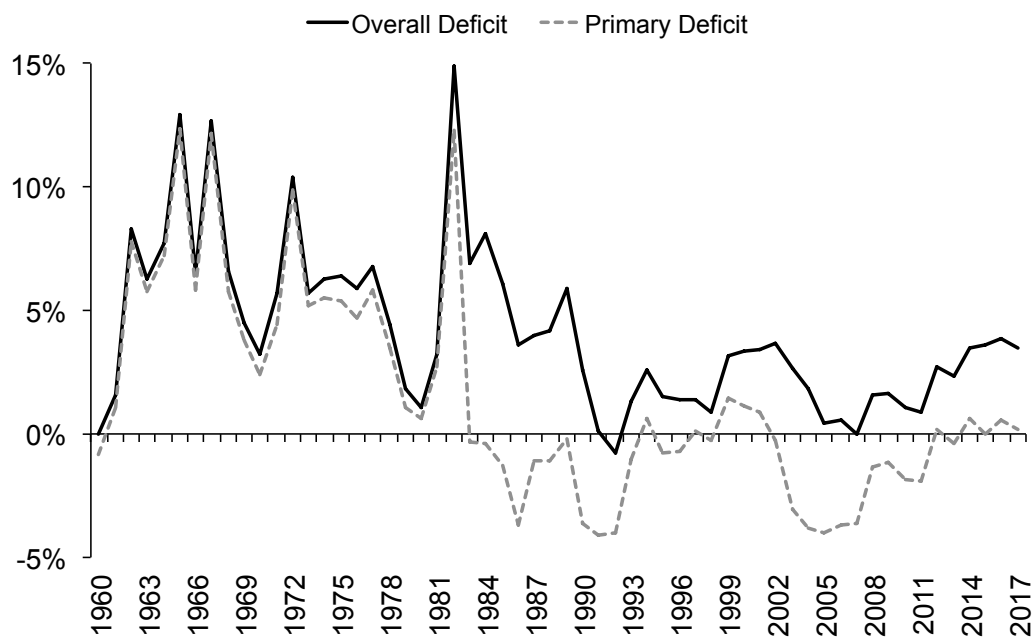


Figure 5

Gross Public Debt by Currency (% GDP)

Source: Azar et al. (2009); Central Bank of Uruguay

■ Nominal pesos ■ Wage-indexed units ■ Inflation-indexed units ■ Foreign currency

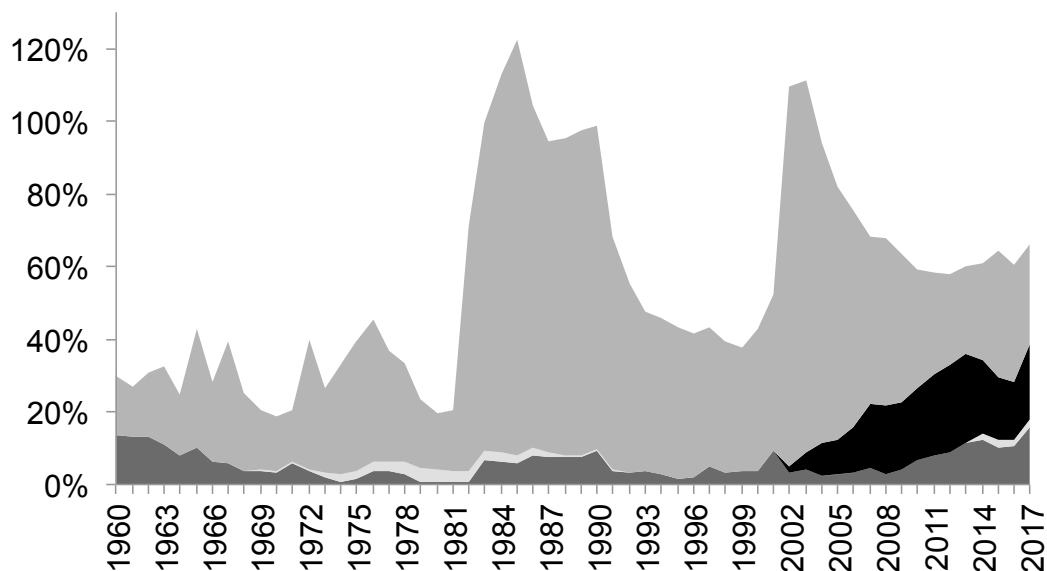


Figure 6

Residual (% GDP)

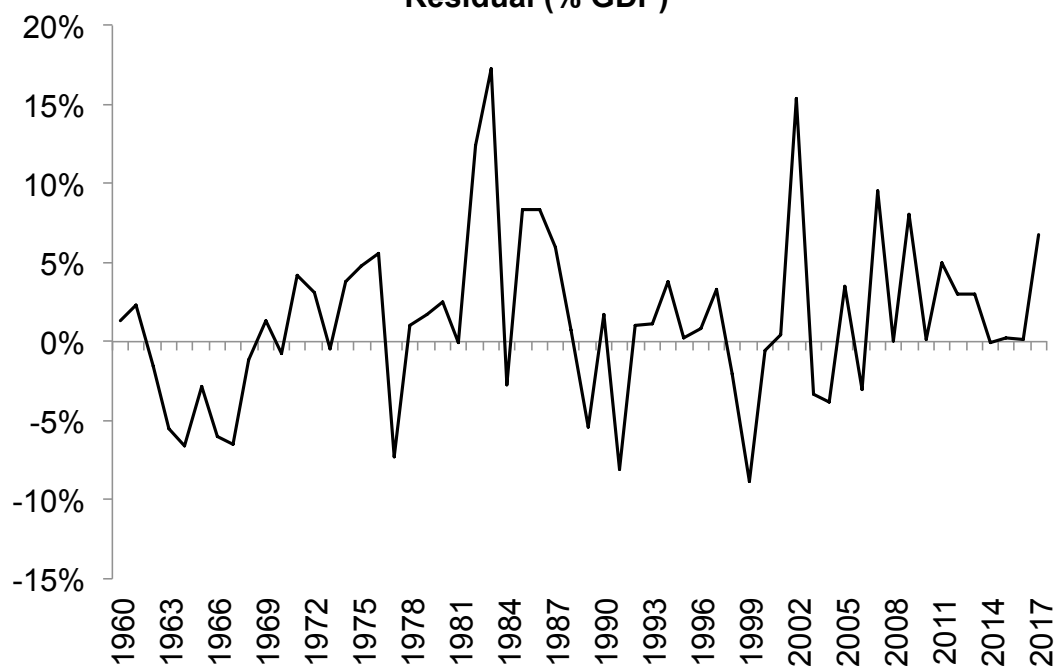


Figure 7

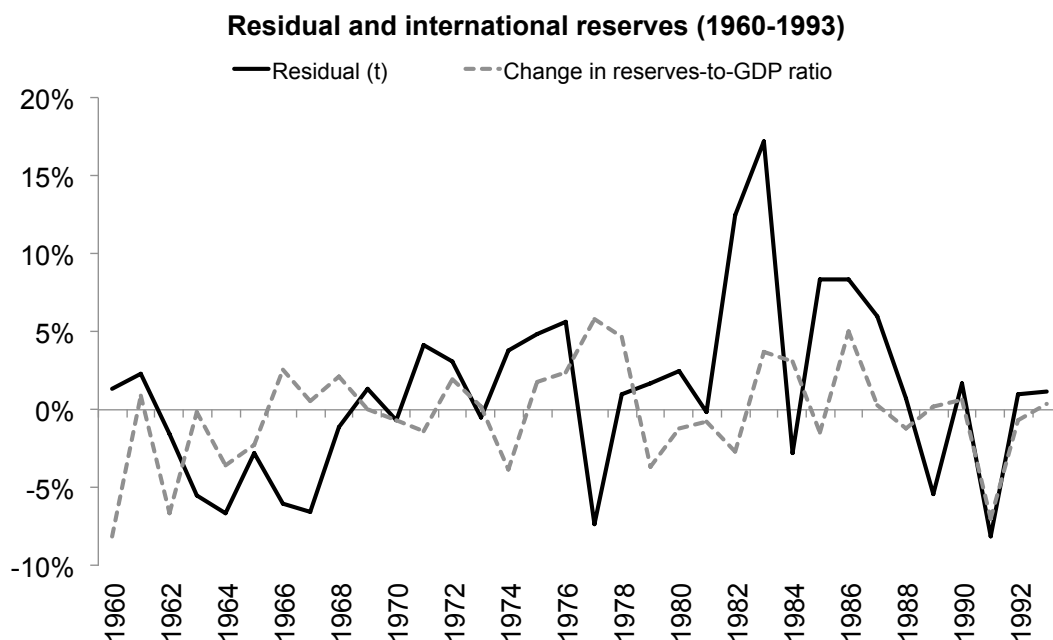
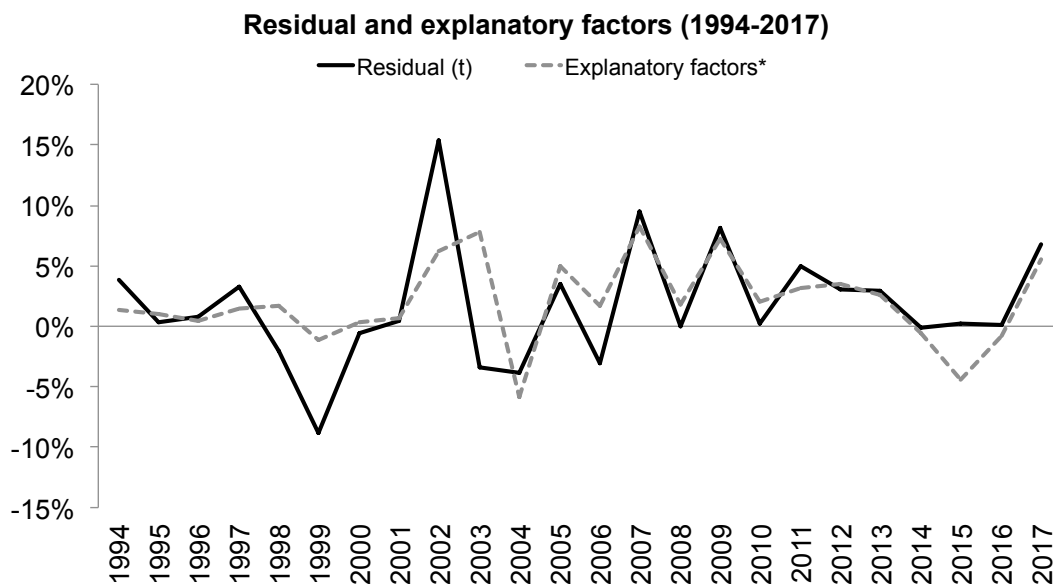
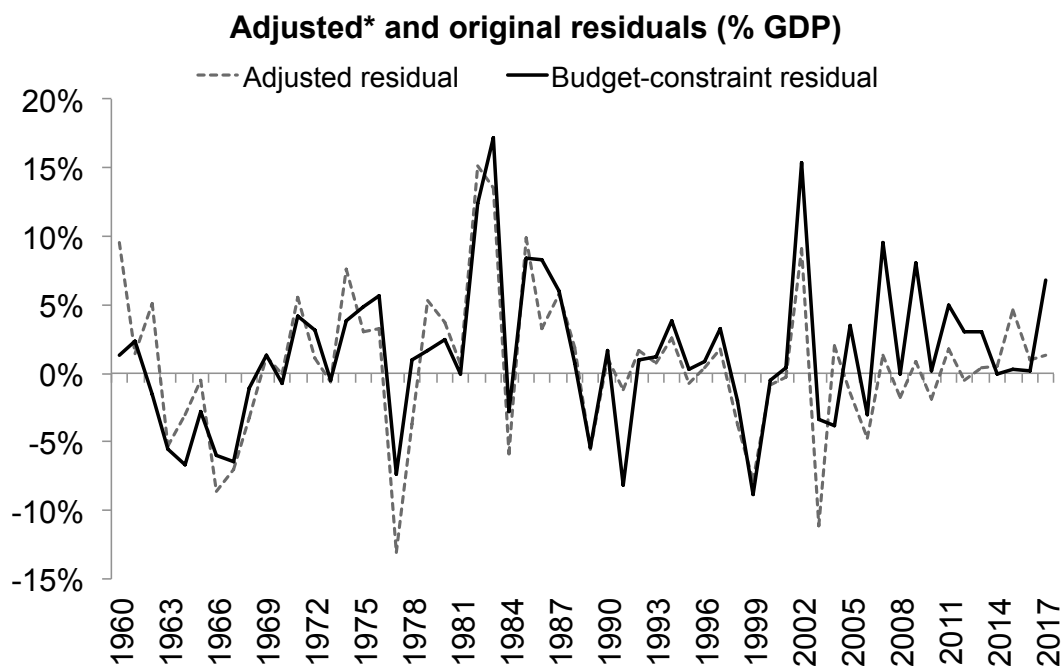


Figure 8



* Between 1994 and 2017, the explanatory factors include net-of-credit deposits, financial assets, and other extraordinary transfers (source: Central Bank of Uruguay)

Figure 9



* *Adjusted residual* is defined as the budget-constraint residual minus the explanatory factors.

Figure 10

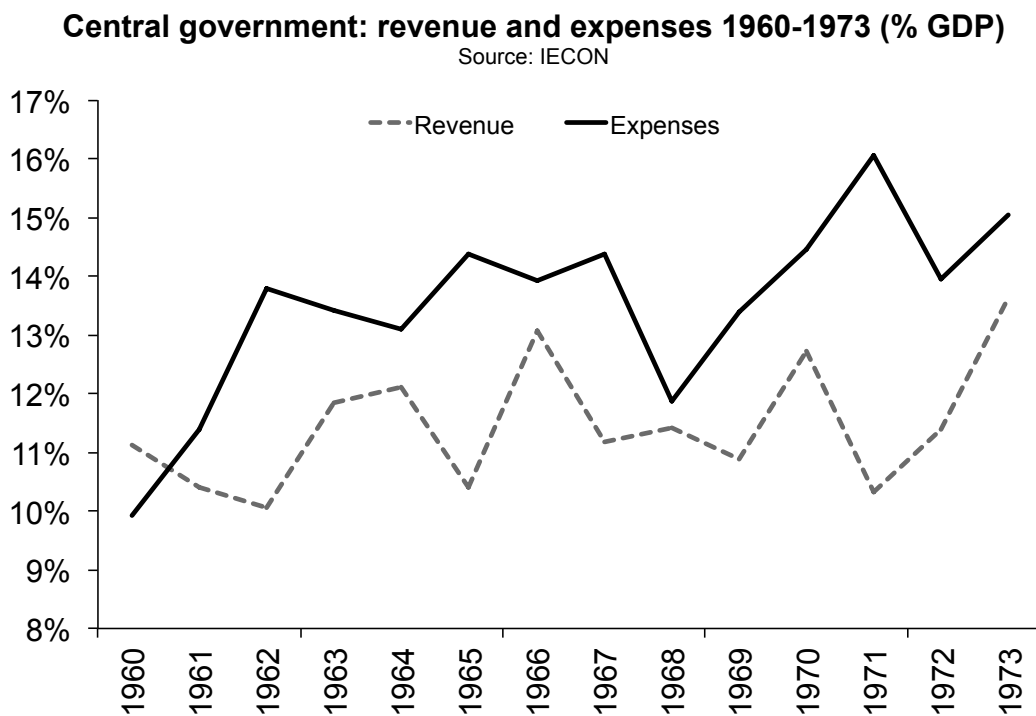


Figure 11

International reserves (% GDP)

Source: Central Bank of Uruguay; IECON

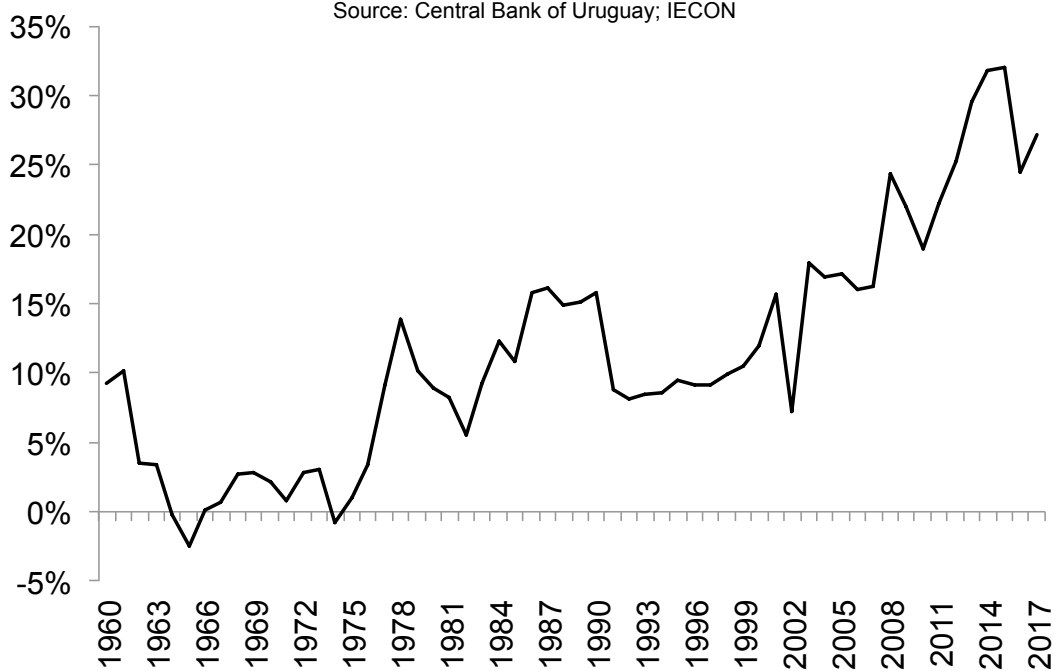


Figure 12

Currency Depreciation and CPI Inflation

Source: IECON; INE

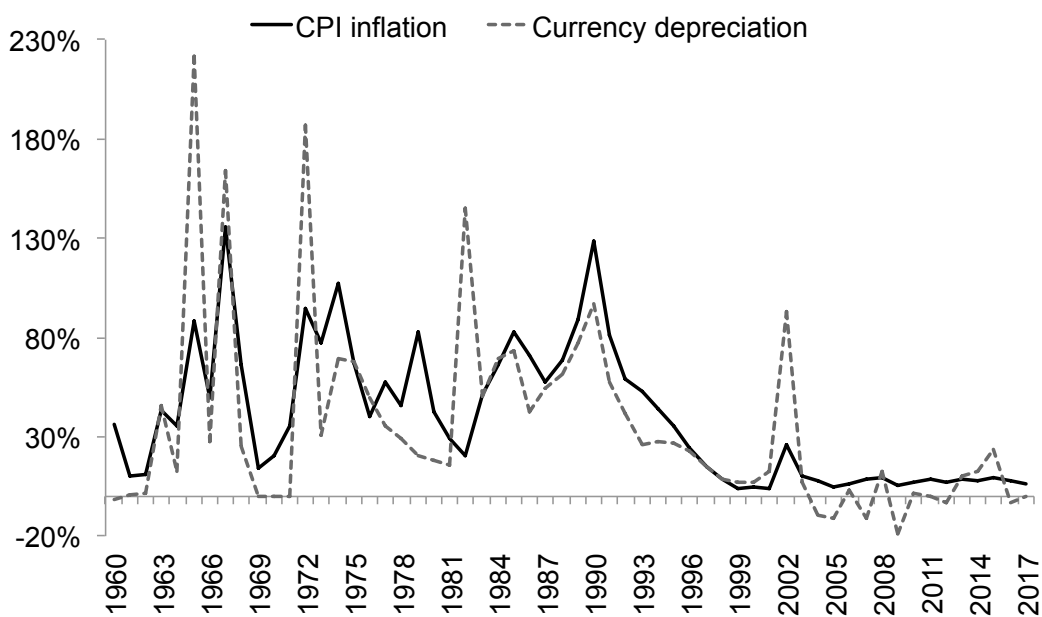


Figure 13

Real Exchange Rate Uruguay - U.S.

Source: own elaboration based on FRED & INE

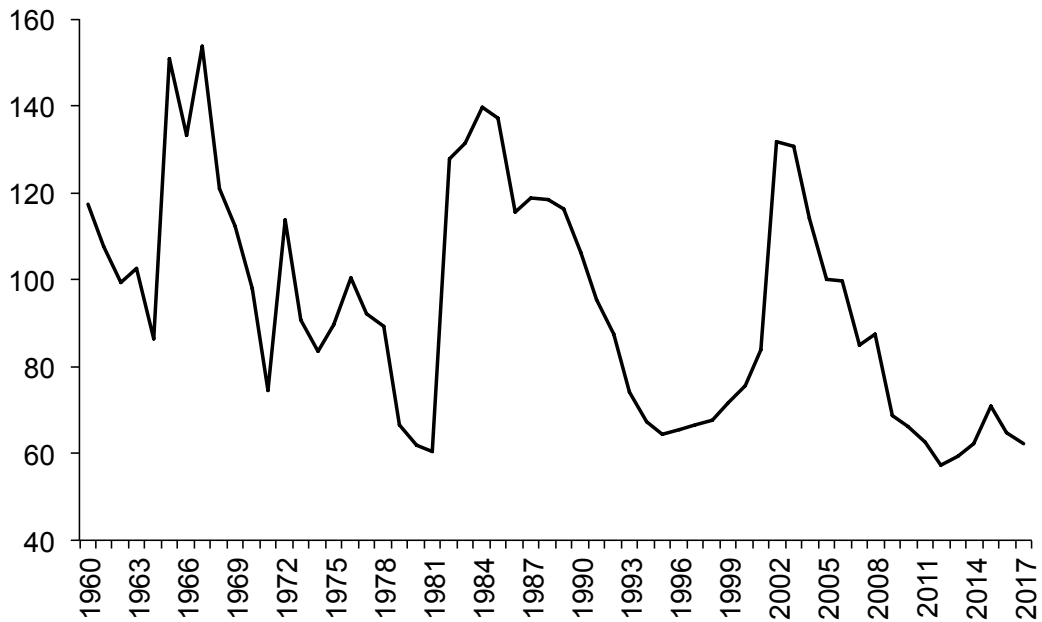
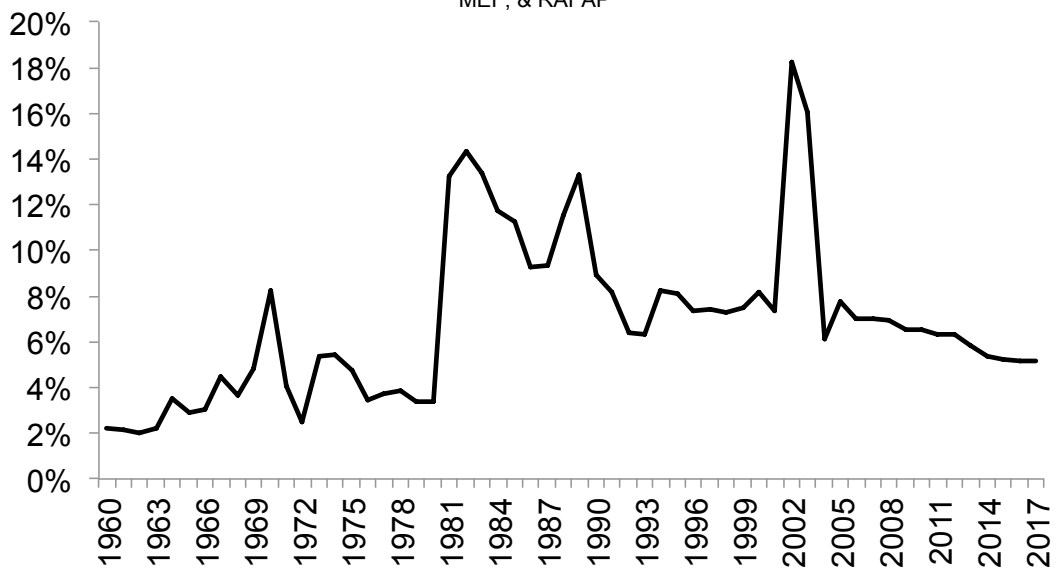


Figure 14

Interest rate* of public debt in foreign currency (%)

Source: own elaboration based on data from IECON, Borchardt et al. (2000), Central Bank of Uruguay, MEF, & RAFAP



* 1960-93: implicit interest rate = interest payments in t+1 / stock of debt in t. 1994-2003: estimated using the Uruguay Bond Index (RAFAP). 2004-14: dollar interest rate from the Debt Management Unit - MEF

Figure 15

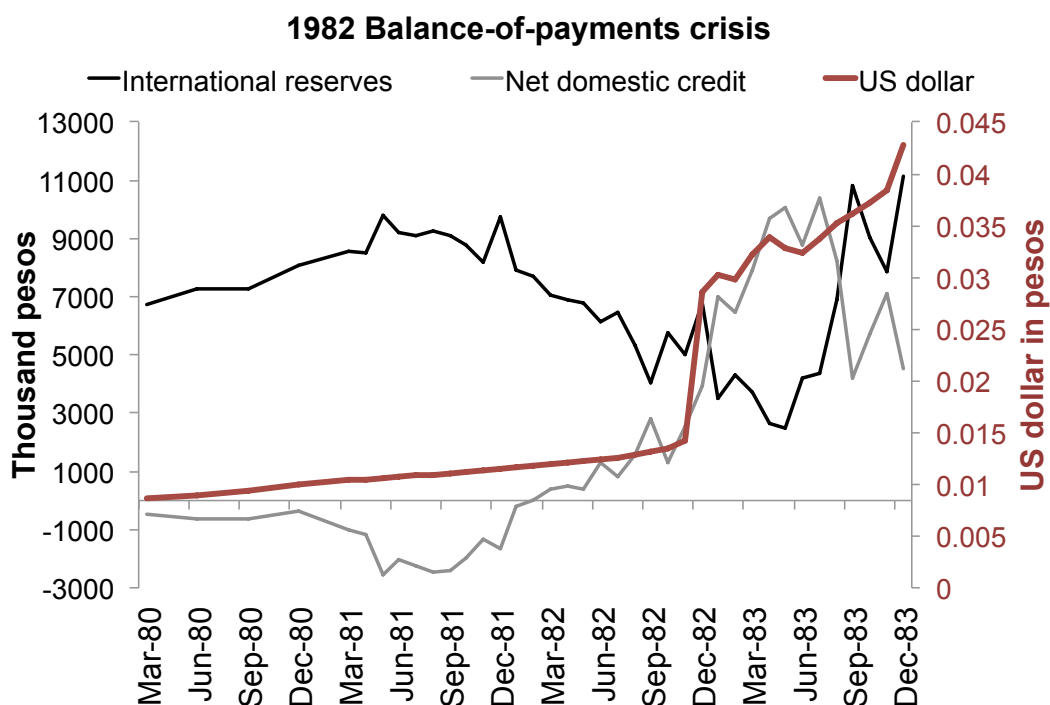


Figure 16

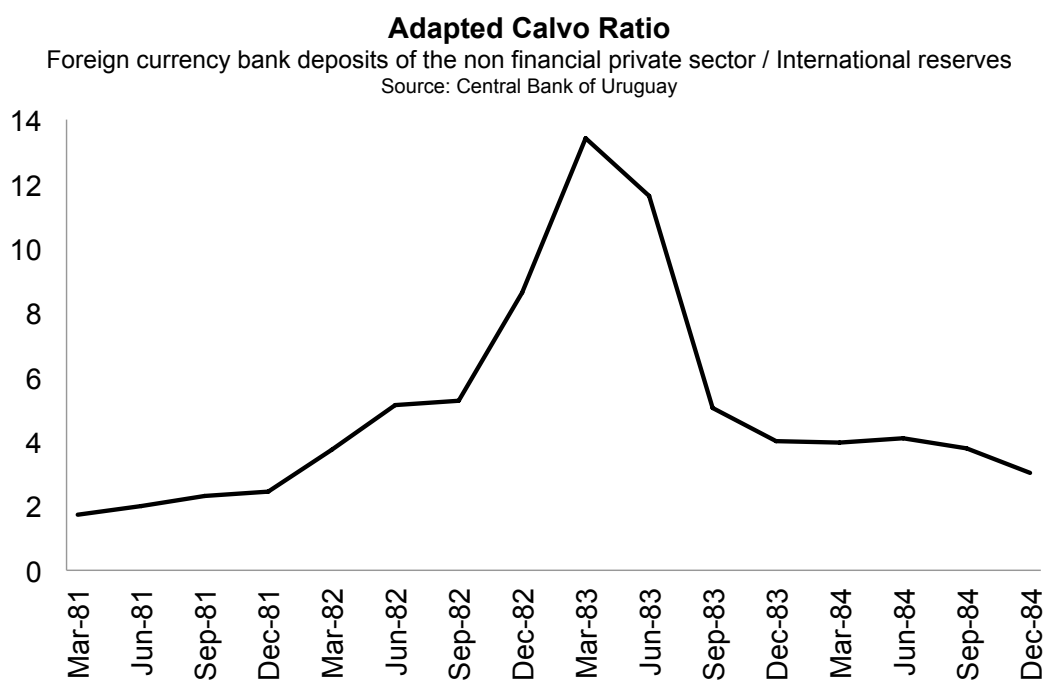


Figure 17

RER-adjusted gross public debt (% GDP) (base year = 2008)

Source: own elaboration using data from Central Bank of Uruguay, FRED, IECON, & INE

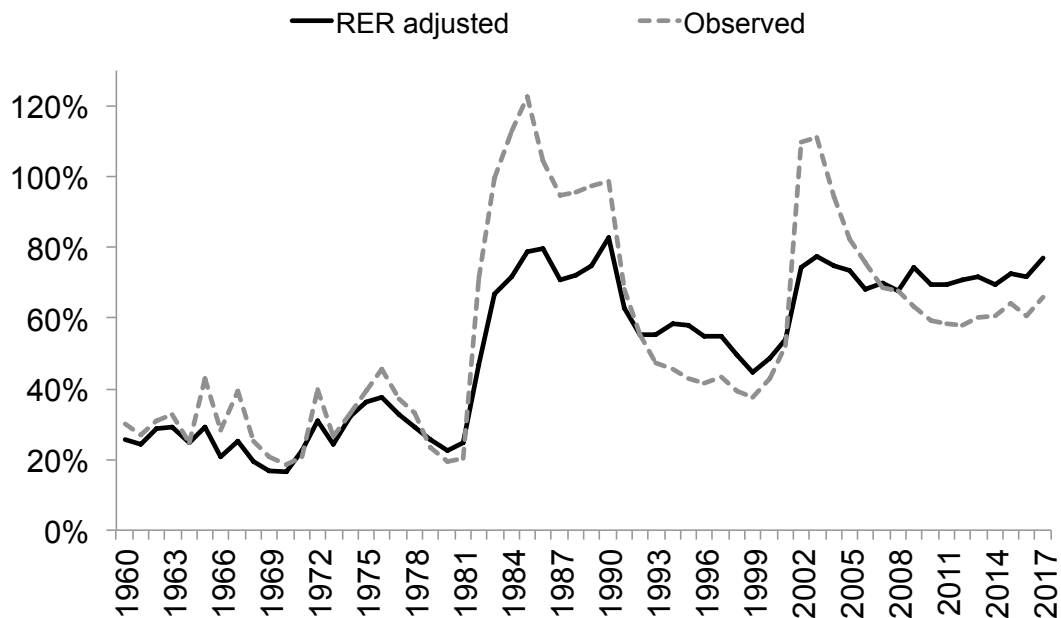


Figure 18

(M3 - International Reserves) / GDP

Source: data from Central Bank of Uruguay

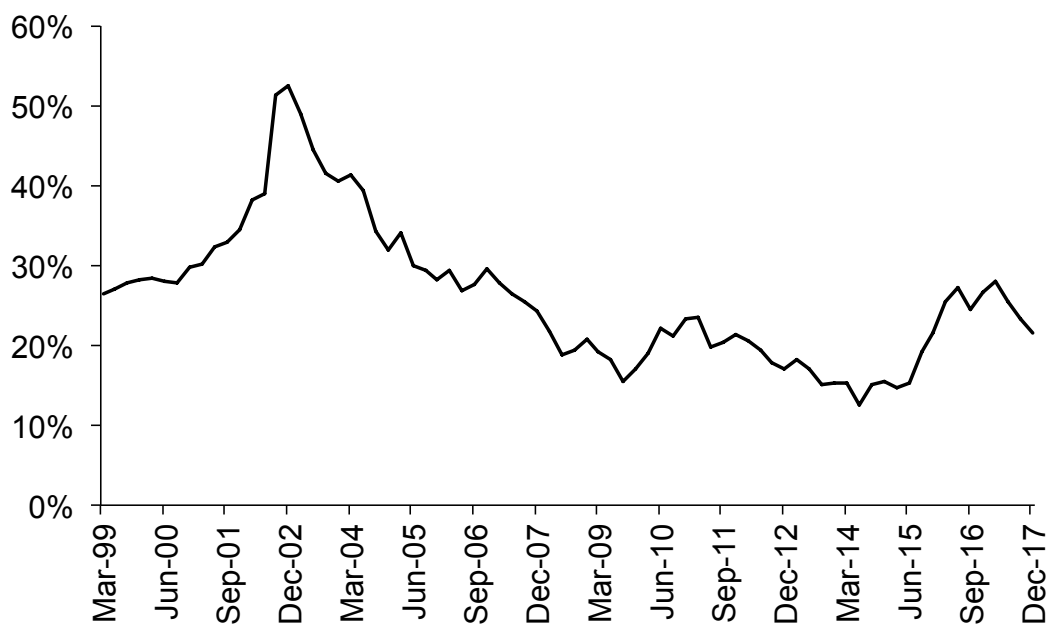


Figure 19

International reserves and nonresident nonfinancial private sector deposits in foreign currency (millions U.S. dollars)

Source: IECON, Central Bank of Uruguay

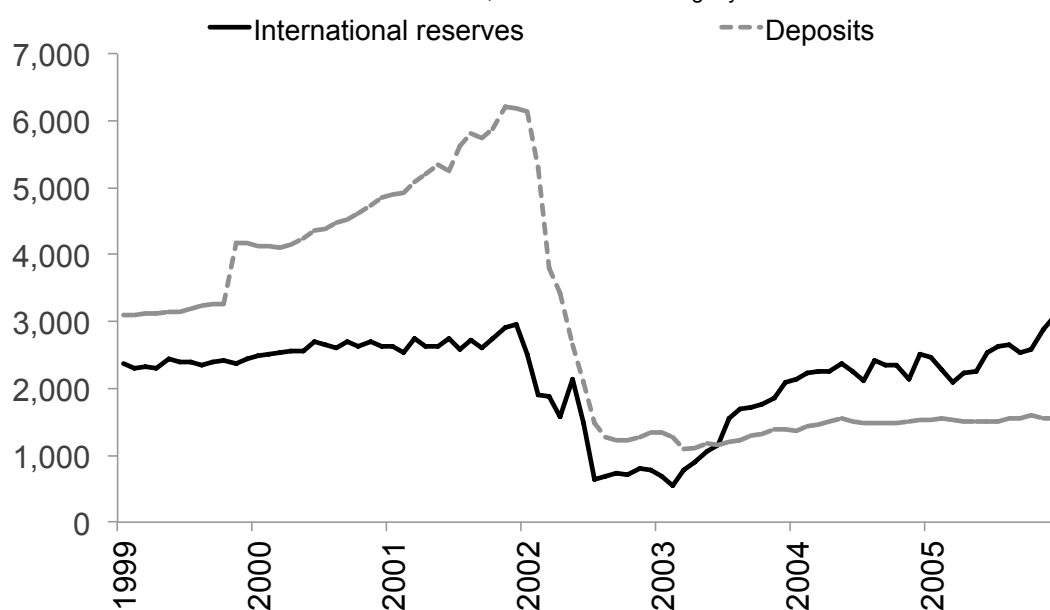
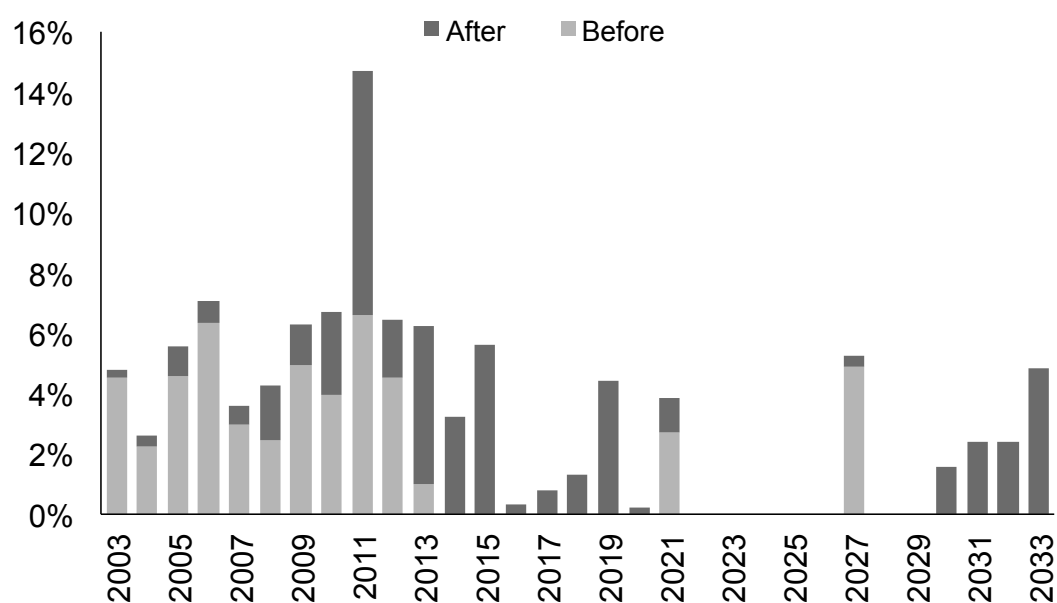


Figure 20

Public debt service restructured in 2003 (% GDP)*

Source: Central Bank of Uruguay



* Estimated using GDP of 2002 and peso-dollar exchange rate of May 2003.

Appendix 2 Description of data and variables

Public Sector

The definition of Public Sector we use in this paper comprises: (1) general government (central government and local governments); (2) state-owned enterprises (fuel, electricity, telecommunications, water, insurance, railway, ports); (3) financial public sector (Central Bank; the state-owned commercial bank, or Banco de la República Oriental del Uruguay, and the mortgage bank, or Banco Hipotecario del Uruguay).

Consumer price index for Uruguay

The consumer price index (CPI) comes from the National Statistics Institute (INE) and corresponds to the December figure.

Gross domestic product

Two sources are considered for the gross domestic product (GDP) in nominal terms: Bonino et al. (2012) for the period 1959 to 2008 based on data from the Central Bank of Uruguay, and the series of National Accounts of the Central Bank of Uruguay (BCU) for the period 2009-2017.

The CPI from INE is used as a deflator to calculate real GDP. Although the Central Bank published a deflator index for GDP since 1999, and an implied deflator can be extracted from Bonino et al. (2012) for the remaining years, we use the CPI in the budget constraint exercise so as to be consistent with the conceptual framework.

Nominal exchange rate

The nominal exchange rate is the value of the US dollar measured in Uruguayan pesos in December of each year. The exchange rate comes from INE for the period 1968-2017 and from Instituto de Economía (IECON) of Universidad de la República based on S. Maubrigades, (2003) for the period 1959-1967.

US consumer price index

The US consumer price index comes from the Bureau of Labor Statistics of the United States and corresponds to the December figure. It was used as an approximation of the price index of tradable goods in dollars (P_t^W).

Gross public debt

This series corresponds to the stock of public debt denominated in pesos, foreign currency and CPI-indexed units (*unidades indexadas*) issued by the central government, state-owned enterprises, local governments, and the Central Bank. For the period 1959-1998, we use the historical series from Azar et al. (2009), to which we add series of treasury notes and wage-indexed mortgage obligations since they are not included. Since 1999, data come from the Central Bank under different denominations (pesos, dollars, euros, yen, special drawing rights, CPI-indexed units and “others”). For the years 1959 and 1960 and the period 1963-1966 there are no data on public debt denominated in foreign currency so we assume a linear evolution.

Public debt adjusted by real exchange rate

The public debt-GDP ratio is adjusted by the real exchange rate as follows. Public debt is comprised by a local currency stock and a foreign currency stock. Both the local currency stock and GDP are expressed in constant pesos using Uruguay’s CPI. Foreign currency debt is first expressed in constant US dollars using the US CPI and then expressed in pesos using the 2008 nominal exchange rate. We chose this year because it is when the bilateral RERs

of Uruguay with Brazil, Argentina, and the US were close to the historical averages (1913-2017).

Monetary base

The data correspond to the December figure and come from Instituto de Economía for the period 1959-2001 and from the Central Bank for the period 2002-2017.

Overall fiscal deficit of the public sector

Since there is no unique estimation that covers the entire period (1960-2017), we use different sources to construct a series of the overall fiscal deficit. We use Banda and Onandi (1992) for 1959-1969, Licandro and Vicente (2006) for 1970-1998, and official data from the Ministry of Economy and Finance since 1999. The series in Banda and Onandi (1992) was constructed before the IMF Manual 2001-2010, and is not clear enough whether the fiscal result includes stated-owned enterprises and local governments. However, it is the only available data for the 1960s.

Interest payments

Between 1959 and 1973, data come from Instituto de Economía and correspond only to the central government. The estimations in Borchardt et al. (2000) were considered for the period 1974-1996 and correspond to the entire public sector. Because official data begin in 1999, interest payments from Instituto de Economía are used for 1997 and 1998.

Primary fiscal deficit of the public sector

The primary deficit of the consolidated public sector was constructed using the overall deficit and interest payments. However, for 1959-1973, 1997, and 1998 data on interest payments are available only for the central government.

Interest rates on foreign-currency public debt

For 1959-2003, official data on interest rates by currency are not available so we proceed as follows: first, we assume all public debt was denominated in foreign currency in this period (which is not a strong assumption since the share of foreign currency debt averaged 84.7% in this period). Then, we estimate an implicit foreign currency interest rate in t as the ratio of total interest payments in $t-1$ over the whole stock of public debt in t , which is consistent with the budget constraint conceptual framework. For 1994-2003, we add the Uruguay Bond Index (a measure of country risk) by RAFAP to the US 10-year Treasury rate. For 2004-2014, average interest rates by currency come from the Debt Management Unit of the Ministry of Economy and Finance.

Interest rates on local currency public debt

The interest rate on nominal public debt corresponds to the annual average of the one-year interest rate from ITLUP (yield curve of peso-denominated public debt) by BEVSA (Electronic Securities Exchange of Uruguay). Data are available since 2007.

Interest rates on inflation-indexed public debt

The interest rate on inflation-indexed public debt comes from the Debt Management Unit of the Ministry of Economy and Finance. Data are available since 2004.

Financing of the public sector

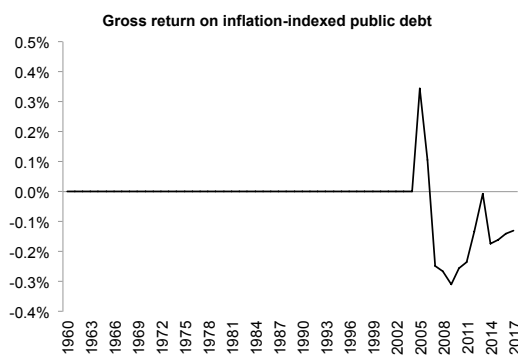
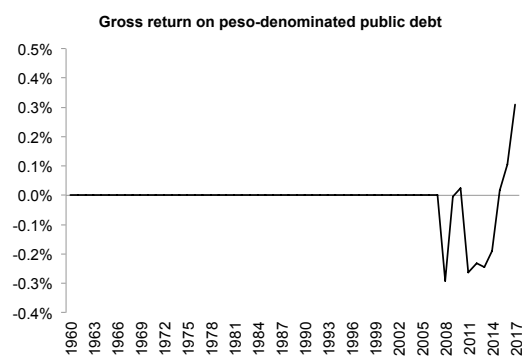
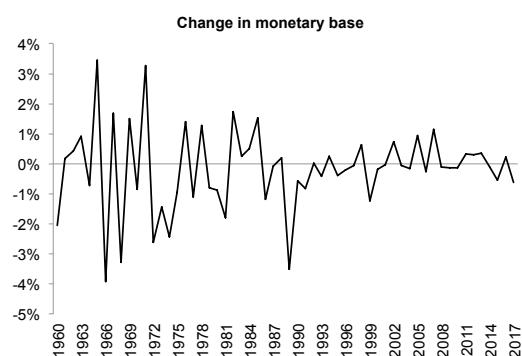
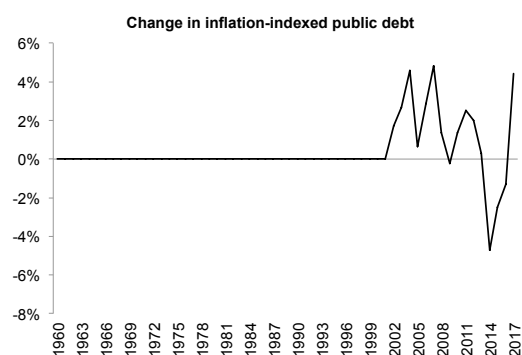
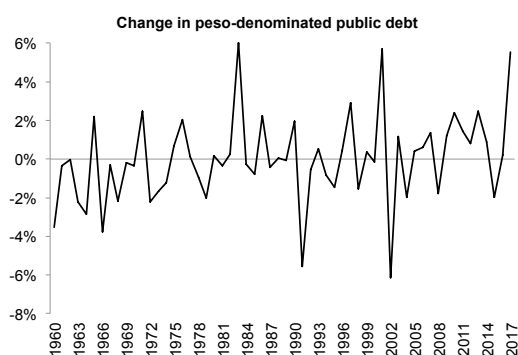
According to data from the Central Bank of Uruguay, the public sector is financed, besides public debt and loans, by net deposits, financial assets, and other extraordinary transfers.

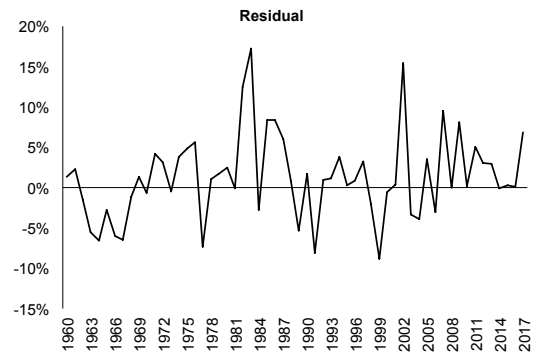
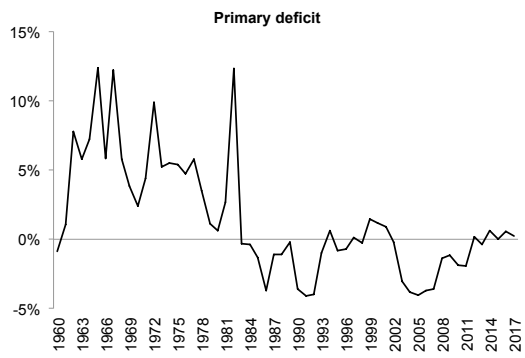
Net deposits include: net deposits of the non-financial public sector at commercial banks, net deposits of commercial banks at the Central Bank and the assistance of the Central Bank to commercial banks in 2002.

Financial assets correspond to the financing through financial assets since January 2007 and before this date such financing is net of reserve liabilities and assistance of the Central Government to commercial banks through its account at the Central Bank.

Other extraordinary transfers comprise: deposits at the Central Bank and export currencies to be claimed by the Non-Financial Public Sector, internal suppliers of the Non-Financial Public Sector, cash, foreign deposits and tenure of private securities held by the Non-Financial Public Sector, counterpart of transfers of stand-by loans from the Central Bank to the Central Government in 2002, counterpart of 2,800,000,000 million pesos of an agreement between *Banco Hipotecario*, *Banco República* and the Central Government in July 2004 and Government's deposits at the Central-Bank special accounts since May 2005 due to international issuance of public debt.

Appendix 3 Results of the budget-constraint equation for the public sector





Appendix 4 Adjusted residual

We divided the period in two parts. Since 1994, the Central Bank has published detailed data on the public sector's financing sources other than the ones included in the budget constraint (monetary base and public debt). Nevertheless, for 1960-1993 such data are not available. As a solution, we try to explain, at least partially, the residual in 1960-1993 by using the stock of international reserves. This is because changes in the stock of public debt could reflect variations in international reserves, which are not captured by any of the budget constraint obligations.

This is also the case for reserve requirements since they are a liability to the Central Bank. However, we exclude them when explaining the residual because of the following: first, an increase in public debt, as a result of higher peso-denominated reserve requirements, is offset by its corresponding decrease in the monetary base (already in the equation). Second, foreign currency reserve requirements are already included in the stock of international reserves.

The path of the residual and the change in international reserves are similar to some extent (Figure 7). This allows concluding that between 1960 and 1993, except in 1977 and around the 1982 crisis, the residual is mostly explained by changes in international reserves.

For 1994-2014, we use detailed official data on the financing of the public sector. Such data are divided into monetary liabilities, public debt (loans and bonds), net deposits, financial assets, and other extraordinary transfers³⁴. Strictly speaking, only the first two sources (monetary base and public debt) are included in the left-hand side of the budget constraint equation, so we conclude the residual is very likely to contain the other three sources. We use such sources to explain the residual in 1994-2014 under the following criteria. First, net deposits include reserve requirements of commercial banks deposited at the Central Bank. Second, financial assets comprise the financing for the purchase of reserve assets of the Central Bank and the Treasury. Third, other extraordinary transfers consist of transfers that occur during periods of severe fiscal constraints. Comparing both series shows that since 1994 the residual, to a large extent, is explained by net deposits, financial assets, and other extraordinary transfers (Figure 8).

³⁴ See Appendix 2 for a detailed description of these terms.