The Fiscal and Monetary History of Uruguay (1960-2014)

Joaquín Marandino & Gabriel Oddone

Universidad de la República; Centro de Investigaciones Económicas & CPA Ferrere

January 8th, 2016

Becker-Friedman Institute
University of Chicago
Two questions to answer

1. What role did the monetary and fiscal policies play on the macroeconomic instability of Uruguay between 1960 and 2014?

2. Is there a relationship between low growth, poor economic performance and macroeconomic instability in Uruguay during this period?
Contents

1. Stylized facts
2. Budget-constraint exercise
3. Conclusions and agenda
4. Annex
Low growth, high volatility and long *decline*

- Growth was **comparatively low** during the *closed-economy period*.
- During the *open-economy* periods, although growth was greater, higher GDP volatility prevented boom phases from consolidating.
- Uruguay’s GDP per capita fell from a level similar to the average of Denmark and Finland to half of that.
- Throughout the 20th century, Uruguay went through a long economic *decline*.
Chronic inflation was associated with sustained fiscal deficits.

The origins of high inflation rates were **strongly connected to sustained fiscal deficits**.
Inflation rate 1914-2014

Source: National Institute of Statistics
The economy demonetized due to a persistently high inflation for two reasons:

1. **Chronic inflation** itself provoked a contraction in the demand for money;
Public-finance vulnerability increased due to public-debt dollarization

- Between the 1970s and 2002, **public debt denominated in local currency** almost disappeared.
- Significant increases in the debt-to-GDP ratio happened during the **two debt crises** (1982 and 2002).
Contents

1. Stylized facts

2. Budget-constraint exercise

3. Conclusions and agenda

4. Annex
Following the model of Kehoe, Nicolini & Sargent (2013), the analytical framework used to describe fiscal constraints in Uruguay between 1960 and 2014 is:

\[
B_t + M_t + b_t P_t + b^*_t E_t = (D_t + T_T) P_t + B_{t-1} R_{t-1} + M_{t-1} + b_{t-1} r_{t-1} P_t + b^*_{t-1} r^*_{t-1} E_t
\]  
(1)

Equation (1) can be expressed in terms of real GDP as follows:

\[
(\theta_t^N - \theta_{t-1}^N) + (\theta_t^r - \theta_{t-1}^r) + \xi_t (\theta^*_t - \theta^*_{t-1}) + (m_t - m_{t-1}) + m_{t-1} \left( 1 - \frac{1}{g_t \pi_t} \right) \\
= \theta_{t-1}^N \left( \frac{R_{t-1}}{\pi_t g_t} - 1 \right) + \theta_{t-1}^r \left( \frac{r_{t-1}}{g_t} - 1 \right) + \theta_{t-1}^* \left[ \xi_t \left( \frac{r^*_{t-1}}{g_t \pi_t^W} - 1 \right) \right] + d_t + t_t
\]
1960-2014: four subperiods

Stagflation

Opening and liberalization

Boost and Halt

The golden years

1973 Oil shock

1973

1972

1982

1972

1978

1984

1978

1990

1990

1996

2002

1996

2002

2002

2008

2008

2014

1996

2014

1973 Oil shock

1982

BOP crisis

Debt crisis

2002

Banking crisis

Debt crisis

1973

1982

2002
## Consolidated budget constraint for Uruguay 1960-2014

### Sources

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Local-currency public debt (Δ)</td>
<td>-1.1%</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Foreign-currency public debt (Δ)</td>
<td>0.7%</td>
<td>4.7%</td>
<td>0.1%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>Inflation-indexed public debt (Δ)</td>
<td>-</td>
<td>-</td>
<td>0.2%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Monetary base (Δ)</td>
<td>-0.2%</td>
<td>-0.1%</td>
<td>-0.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Inflation tax</td>
<td>4.7%</td>
<td>3.4%</td>
<td>1.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.0%</strong></td>
<td><strong>7.9%</strong></td>
<td><strong>2.1%</strong></td>
<td><strong>0.3%</strong></td>
</tr>
</tbody>
</table>

### Obligations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public-sector primary deficit</td>
<td>6.1%</td>
<td>2.9%</td>
<td>-0.8%</td>
<td>-1.9%</td>
</tr>
<tr>
<td>Local-currency return</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Foreign-currency return</td>
<td>-0.4%</td>
<td>2.4%</td>
<td>1.6%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>Inflation-indexed return</td>
<td>-</td>
<td>-</td>
<td>-0.1%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Transfers*</td>
<td>-1.7%</td>
<td>2.6%</td>
<td>1.4%</td>
<td>3.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.0%</strong></td>
<td><strong>7.9%</strong></td>
<td><strong>2.1%</strong></td>
<td><strong>0.3%</strong></td>
</tr>
</tbody>
</table>

*Estimated as a residual

Source: based on Kehoe, Nicolini & Sargent (2013)

- The primary fiscal deficit shrinks throughout the whole period.
- Although the inflation tax drops throughout the entire period, **only between 1974 and 1985 public debt was more relevant** as a financing source.
- Chronic inflation determined that public debt was mostly **denominated in foreign currency**.
- The high interest payments in 1974-2003 were associated with the two debt crises (1982 and 2002).
- Since **2004 the budget constraint decreases significantly** due to the consolidation of a primary surplus and a declining debt-to-GDP ratio.
• **Fiscal deficit grew** because government expenses increased more rapidly than the revenues.

• Since the economy was closed, the main source to finance fiscal deficits was the inflation tax.
Between 1978 and 1982, the government implemented an anti-inflationary plan based on an exchange-rate anchor.

An insufficient fiscal contraction to moderate the effects of both disinflation and real appreciation on the aggregate demand, caused a significant deterioration of the current-account balance. This led to a loss of Central-Bank reserves once the external financing disappeared.

• The budget constraint reached its highest level in this period.

• Obligations:
  ▪ The fiscal deficit and transfers grew because of the increase in the quasi-fiscal deficit.

• Sources:
  ▪ The inflation tax grew as consequence of the currency devaluation.
  ▪ Foreign debt increased due to i) public-debt restructuring; ii) recomposing of Central-Bank reserves; and iii) effects of the devaluation on the dollar-denominated debt.

This is why a BOP crisis became a public-debt crisis.

Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>∆</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local-currency public debt (Δ)</td>
<td>0,2%</td>
</tr>
<tr>
<td>Foreign-currency public debt (Δ)</td>
<td>0,1%</td>
</tr>
<tr>
<td>Inflation-indexed public debt (Δ)</td>
<td>0,2%</td>
</tr>
<tr>
<td>Monetary base (Δ)</td>
<td>-0,4%</td>
</tr>
<tr>
<td>Inflation tax</td>
<td>1,9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,1%</strong></td>
</tr>
</tbody>
</table>

Obligations

<table>
<thead>
<tr>
<th>Obligation</th>
<th>∆</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public-sector primary deficit</td>
<td>-0,8%</td>
</tr>
<tr>
<td>Local-currency return</td>
<td></td>
</tr>
<tr>
<td>Foreign-currency return</td>
<td>1,6%</td>
</tr>
<tr>
<td>Inflation-indexed return</td>
<td>-0,1%</td>
</tr>
<tr>
<td>Transfers*</td>
<td>1,4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,1%</strong></td>
</tr>
</tbody>
</table>

- A stabilization plan based on an exchange-rate anchor started in December 1990. As a result, inflation reached a one-digit figure in 1998 for the first time in thirty years.
- The end of the Convertibility in Argentina in December 2001 led to: i) a run on bank deposits (especially from non residents) and ii) an increase in the fiscal deficit as the recession deepened. As consequence the Central Bank lost reserves.
- The rupture of exchange-rate commitments contributed to causing a banking crisis. Like in 1982, the public sector partially absorbed the private-sector losses.
- Given the high share of dollar-denominated public debt, currency devaluation severely weakened (again) public finances and placed public debt on an unsustainable path.
Strong foreign demand was accompanied by public policies and reforms:

- Primary fiscal surpluses;
- **Exchange-rate flexibility** (inflation targets);
- Proactive management of **assets and liabilities of the public sector**.
Transfers (1960-2014): an special and partial explanation

- Transfers capture all the limitations in the data.
- **Erratic path**, although the sign that prevails since the 1980s is positive.
- **Negative sign in the 1960s** could be explained by quasi-fiscal operations (*Banco República* granted loans with 0 interest rate to the Treasury up to 1/6 of the national budget).
- Positive sign in the 1970s, 1980s and the last decade may reflect increases in Central-Bank reserves or in reserve requirements of the banking system.
- In **2002**, the magnitude may show a underestimation of the quasi-fiscal deficit.
Residual and public-sector financing through other sources

Source: Central Bank of Uruguay and own estimations

- Residual (% GDP)
- Public-sector financing through financial assets, net deposits and others (% GDP)
Contents

1. Stylized facts
2. Budget-constraint exercise
3. Conclusions and agenda
4. Annex
Conclusions

• **High inflation in the 1960s was associated with sustained fiscal deficits.** The opening of the economy started limiting the discretionary management of the economic policy, which resulted in less inflationary financing of fiscal deficits.

• The **economy demonetized** due to a persistently high inflation.

• Although the inflation level significantly declined during the whole period, **the inflation tax was still important** to finance fiscal deficits.

• **During the 20th century, financial vulnerability of the public sector grew because of public-debt dollarization.** In contrast, in the **last decade** primary fiscal surpluses and the reduction of public debt denominated in foreign currency **reduced such vulnerability.**

• Between **1960 and 2014** Uruguay **reduced its budget constraint** and improved its fiscal balance.

• Evidence suggests that **in the last three decades governments have slowly understood the importance of fiscal constraints.**

• Overall, macroeconomic instability consolidated during the second half of the 20th century, promoting **impatient agents that demanded expected returns on their investments,** which eventually affected growth.
• Improving the **quality of the data**. This requires:
  – Collecting new information on the **stock of debt denominated in foreign currency for the 1960s**.
  – **Extending the price index of tradable goods** of Cancelo et al. (1994) which is included in Aboal (2003) and was used to estimate the RER series in this paper.
  – **Improving the estimations for fiscal deficits**, especially for those periods where these estimations were joined with official data.

• Calibrating Uruguay’s data to the **other models** proposed in the conceptual framework of Kehoe, Nicolini & Sargent (2013).
The Fiscal and Monetary History of Uruguay (1960-2014)

Joaquín Marandino & Gabriel Oddone

Universidad de la República; Centro de Investigaciones Económicas & CPA Ferrere

January 8th, 2016

Becker-Friedman Institute
University of Chicago
Contents

1. Stylized facts
2. Budget-constraint exercise
3. Conclusions and agenda
4. Annex
From a closed to an open economy

Exports and imports of goods and services (% GDP)

Source: World Bank

Average 1960-1973: 26.8%

Average 1974-2010: 43.3%
Results of the budget-constraint exercise: sources

- $\theta_t^N - \theta_{t-1}^N$
- $\theta_t^r - \theta_{t-1}^r$
- $\frac{\theta_t^r}{\theta_{t-1}^r}$
- $\varepsilon(\theta_t^r - \theta_{t-1}^r)$
- $m_t - m_{t-1}$
- $m_{t-1} \left(1 - \frac{1}{y_t \pi_t}\right)$
Results of the budget-constraint exercise: obligations
Public-debt interest payments (% GDP)

Source: Instituto de Economía - Universidad de la República, Borchardt et al. (2000), Central Bank of Uruguay.
Interest rate of public debt in foreign currency (%)  
Source: Instituto de Economía - Universidad de la República, Borchardt et al. (2000), Central Bank of Uruguay, Debt Management Unit.