

Monetary and Fiscal History of Chile: 1960-2017¹

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¹The views expressed here are those of the authors and do not necessarily reflect the position of the Central Bank of Chile or its board members.

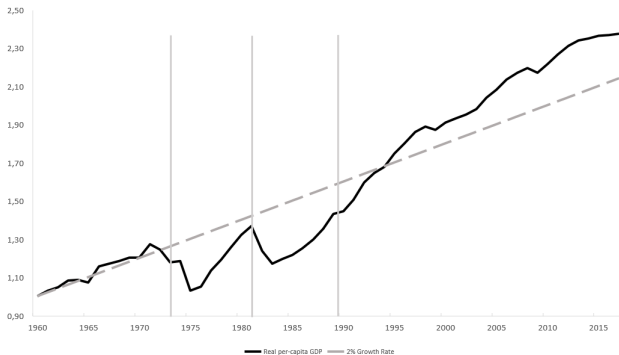
Background

- Chile experienced economic and political transformations in 1960-2017
- Nominal and real volatility in different periods.
 - In the 1960s persistent inflation and "mild" fiscal deficits
 - In the early 1970s hyperinflation episodes
 - In the early 1980s BOP crisis
 - Since 1990 sustained positive rates of growth and declining inflation
- Purpose of paper: understand the role of monetary, fiscal and debt management policies in determining the macroeconomic outcomes

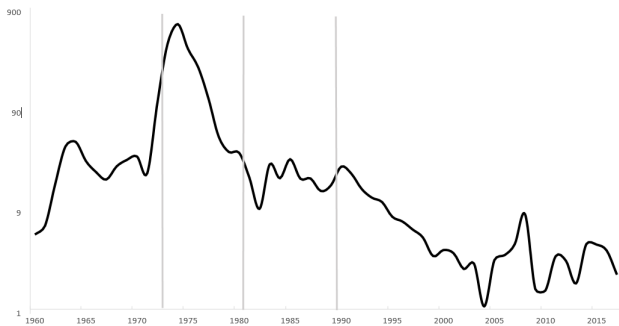
Background

- Before 1960 Chile had a long history of chronic inflation
- In the mid 1950s problem became more acute: 85% inflation in 1955
- Klein-Saks Mission (hired in July 1955) identify four elements:
 - Fiscal deficit
 - Monetary expansion
 - Exchange rate policy
 - Wage rate policy

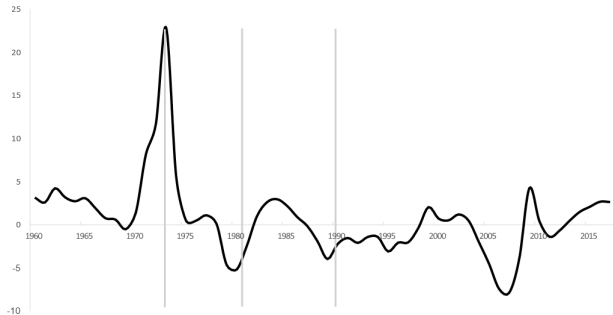
Log of per-capita GDP (1960-2017)



Inflation in log-scale (1960-2017)



Public Deficit to GDP (1960-2017)



A glance over the period: crucial events

Period	Fixed Exchange Rates	Devaluations	Banking Crisis and Bailouts	Hyperinflations	Inflation rates (average)	Fiscal Deficits (average)	Severe Crisis
1960-69	1958-62 Until June 82	1962 (30%)		1973	25.15%	2.15	1973 1975 1981-1982 1983
1970-73		1973 (300%)			109.76%	11.02	
1974-78					267.55%	1.33	
1979-82		1982 (60%)			24.67%	-2.17	
1983-89		1984 (23.7%) 1985 (10%)			21.32%	0.33	
1990-00					11.07%	-1.25	
2001-17			1981-1986		3.25%	-0.71	

Analytical framework

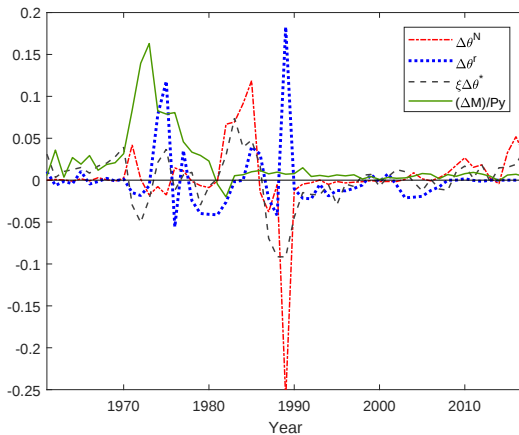
- Discuss fiscal deficit, debt and monetary trends using the Fiscal Sector's Budget Constraint:

$$B_t + b_t P_t + b_t^* E_t + M_t = B_{t-1} R_{t-1} + b_{t-1} r_{t-1} P_t + b_{t-1}^* r_{t-1}^* E_t + M_{t-1} + D_t P_t + T$$

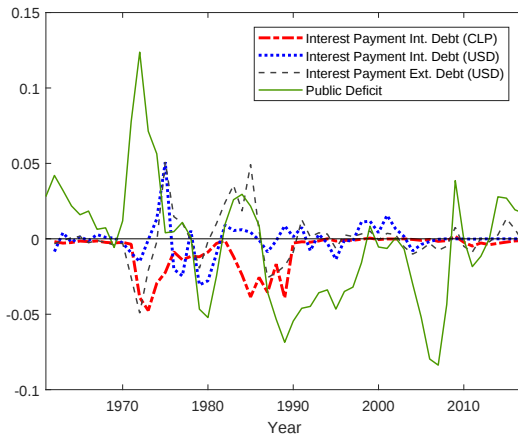
- That can be expressed after some manipulation as:

$$\underbrace{\Delta \theta_t^N + \Delta \theta_t^r + \Delta \theta_t^* \xi_t + \left(\frac{\Delta M_t}{P_t} \right) \frac{1}{y_t}}_{\text{Sources}} = \underbrace{\theta_{t-1}^N \left(\frac{R_{t-1}}{\pi_t g_t} - 1 \right) + \theta_{t-1}^r \left(\frac{r_{t-1}}{g_t} - 1 \right) + \xi_t \theta_{t-1}^* \left(\frac{r_{t-1}^*}{\pi_t^* g_t} - 1 \right) + d_t + \tau_t}_{\text{Obligations}}$$

Budget constraint: sources



Budget constraint: obligations



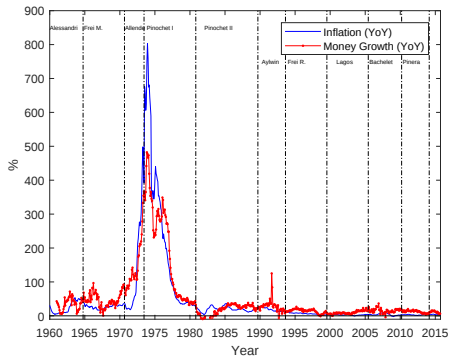
1960-1970: Persistent inflation and "mild" fiscal deficits

- Average GDP growth: 4.3%; average inflation: 25%
- Two different administrations: Alessandri (1958-1964) and Frei-Montalva (1965-1970)
- A common goal: to stabilize inflation (Ffrench-Davis, 1973)
- Alessandri initially succeeded, but could not contain fiscal deficits in later stages
- Frei succeeded in reducing fiscal deficits, although inflation increased from 1967

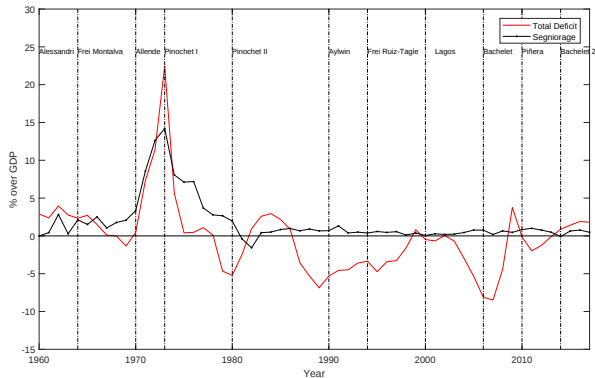
1970-1973: Allende

- Persistent increase in fiscal expenditures and deficits
- Expropriations and increase deficit in public enterprises
- In 1971 the expansionary fiscal policy fueled domestic demand and the economy grew at 9%.
- Hyperinflation in 1973
 - Fiscal deficits financed mainly with monetary expansion
 - In 1973 fiscal deficit was 23%, and inflation averaged 433%
 - In 1973 output declined by 5%

Inflation and high-powered money



Seigniorage: important source of funding (1971-1973)



September 1973-79: Market-oriented reforms, fiscal adjustment but slow reduction in inflation

■ September 1973-75

- Devaluation of 300% in 1973. Price liberalization, economic openness, fiscal adjustment.
- In 1974, reduction of the governments deficit, elimination of subsidies, reduction of public employment and (re) privatization of public enterprises.
- 1974: "Gradualism" in monetary policy to avoid contraction of credit and the removal of price controls reflected in very high inflation (more than 700% in April).

September 1973-79: Market-oriented reforms, fiscal adjustment but slow reduction in inflation

■ 1976-79

- By 1976, no deficit but inflation continued to be high (200%).
- High level of indexation: wages incorporated 100% of past inflation by law (since 1974)
- Because of the above, it probably existed a lack of credibility of the capacity of the government to reduce inflation quickly

September 1973-79: Market-oriented reforms, fiscal adjustment but slow reduction in inflation

- To manage expectations, in 1978 the exchange rate followed a predetermined rate of devaluation according to inflation targets ("La tablita").
- In June 1979, fixed exchange rate.
- Inflation declined to single-digit levels: 9,5% only in 1981

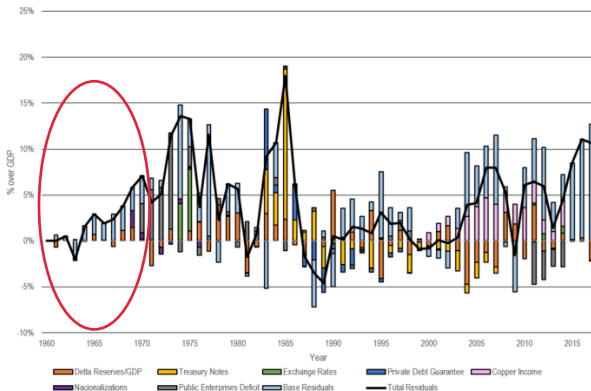
Financing needs and sources 1960-1978

- Alessandri and Frei: lower levels of seigniorage
- Allende: no access to foreign debt. Seigniorage main source of funds
- Pinochet: Seigniorage still important, despite declining fiscal deficits

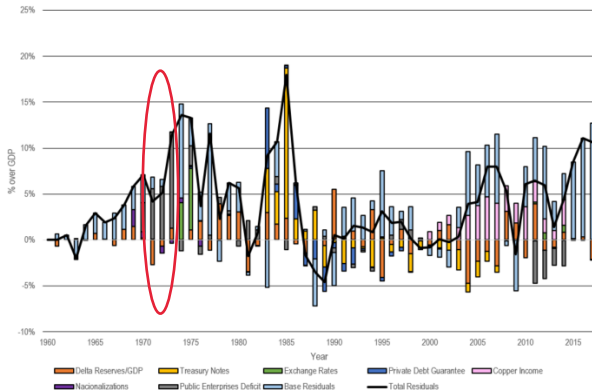
Table: Budget Constraint Decomposition

Periods	1960-1970	1971-1973	1974-1978	1979-1982	1983-1989	1990-2000	2001-2017
Sources:							
Ext. Debt	1.71%	-3.41%	1.23%	-0.14%	-1.06%	-1.23%	0.71%
Dom. Debt (CLP + Ind)	0.06%	0.85%	-0.02%	1.26%	-0.56%	-0.33%	1.23%
Dom. Debt (USD)	-0.06%	-1.32%	3.03%	-3.70%	2.68%	-1.04%	-0.47%
Seigniorage	2.20%	12.87%	6.43%	0.69%	0.82%	0.56%	0.51%
Total Sources	3.91%	8.98%	10.66%	-1.90%	1.88%	-2.04%	1.98%
Obligations:							
ED int. Pay	-0.17%	-3.20%	1.46%	0.32%	0.60%	0.16%	-0.12%
DD. int. pay (CLP)	-0.22%	-3.00%	-1.72%	-0.62%	-2.74%	-0.11%	-0.15%
DD. int. pay (USD)	-0.06%	-0.84%	0.49%	-1.48%	0.19%	0.11%	0.06%
Primary Deficit	1.67%	9.10%	1.54%	-2.85%	-1.02%	-3.10%	-1.19%
Impl. Transfers (Res.)	2.68%	6.92%	8.88%	2.73%	4.84%	0.90%	3.37%
Total Obligations	3.91%	8.98%	10.66%	-1.90%	1.88%	-2.04%	1.98%

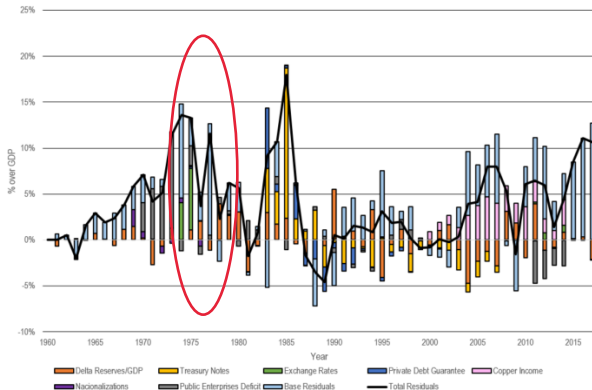
Transfers and its components: Alessandri and Frei



Transfers and its components: Allende



Transfers and its components: Pinochet 1974-1979



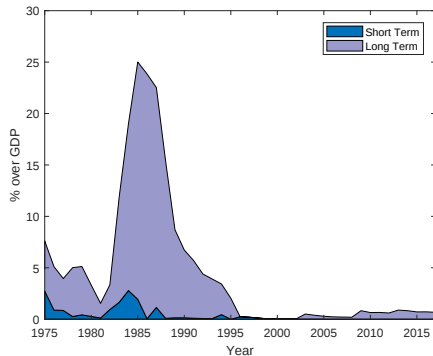
1979-1982: Fixed exchange rate period ending in a crisis.

- Euphoria: expansion in the level of indebtedness, consumption, investment, expectations and asset prices. All these reflected in a CA deficit (14% GDP in 1981).
- Real appreciation (wages and other financial contracts still indexed).
- In 1981: world entered recession, TOT dropped and interest rates increased (increased debt burden, floating rates).
- In June of 1982, devaluation of 60%. Debt burden of foreign debt increased. Debt and Banking crisis and severe recession.
- After September 1982, crawling peg with mini-devaluations following a PPP rule.
- Inflation around 20% during the years 82-90.

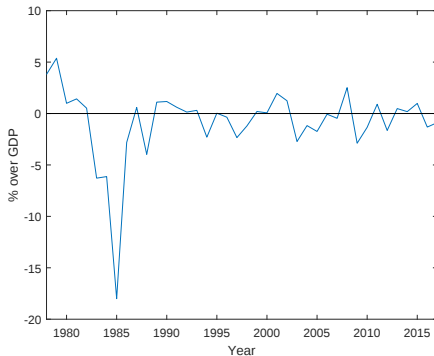
The fiscal burden of the crisis

- In 1982 sharp depreciation of peso and lack of international funds
- Banks (most of them) became insolvent
- Banks were not able to service its debt
- Rescue programs (by the Central Bank and Treasury) implemented
 - Bank liquidations
 - CB bought portfolios of private banks
 - Foreign currency at subsidized prices

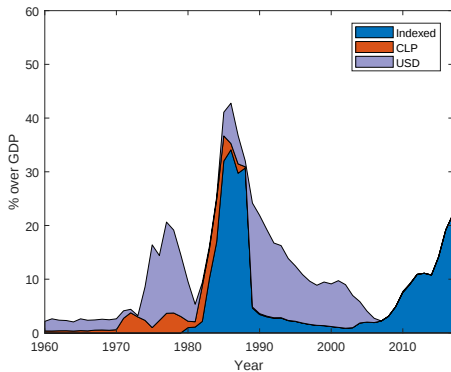
Foreign debt of CB increased substantially



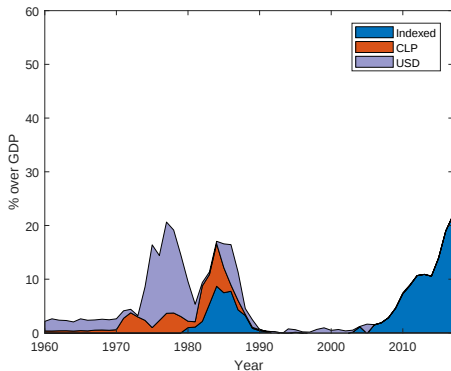
Rescue plan generated severe CB operational losses



Public internal debt



Public internal debt (without treasury notes)



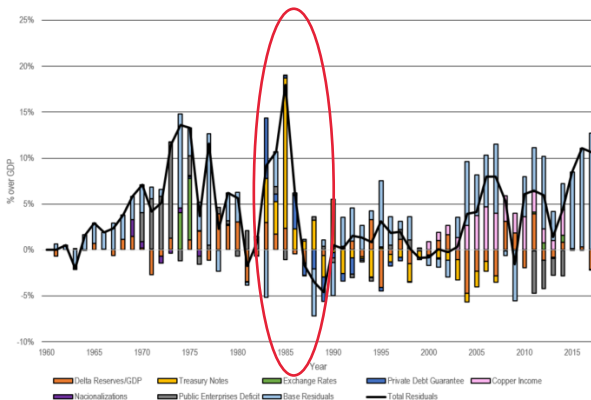
Financing needs and sources 1983-1989

- Main source of financing related to domestic credit

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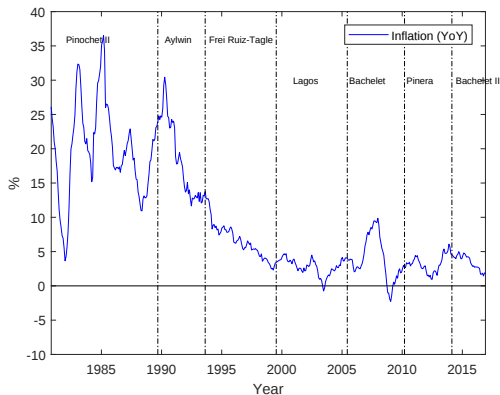
Transfers and its components: Pinochet 1983 to 1989



Declining Inflation and Fiscal Discipline: 1990-2017

- Chile avoided default (explicit policy since early 80s)
- Cost of the crisis assumed by Treasury and CB
- Debt position of government increased. To avoid monetization:
 - Public debt was indexed and/or in foreign currency
 - Also, long maturity of debt (30 years in case of internal debt)

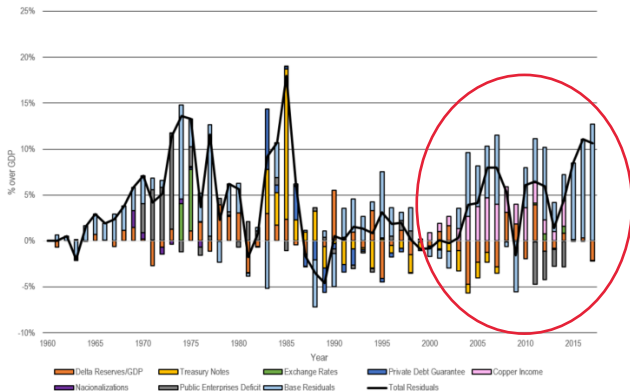
Steady decline in inflation since 1990



Steady decline in inflation since 1990 and fiscal discipline

- Evidence that the fiscal authority is following a countercyclical fiscal rule
- Fiscal copper income, above a reference level, are saved in a sovereign fund
- Part of transfers in latter period related to asset accumulation

Transfers and its components: asset accumulation since 2000s



Conclusions

- Chile experienced economic and political transformations in 1960-2017
- In the 1960s and 1970s inflation associated to fiscal deficits
- Stabilization in the early 1980s through a fixed exchange rate policy
- Severe BOP crisis implied the abandonment of exchange rate regime
- Cost of crisis assumed by CB and Treasury
- Systematic policy of fiscal surplus since 1987 until today

Appendix

Appendix: Macroeconomic indicators

<i>Period</i>	<i>Growth of GDP^a</i>	<i>Public Sector Deficit^a</i>	<i>Price of Copper^d</i>	<i>Inflation^e</i>	<i>Unemployment Rate^{f,g}</i>	<i>Real Exchange Rate^h</i>	<i>Growth of High Powered Moneyⁱ</i>	<i>International Reserves^b</i>
1960 - 1964 (Alessandri)	4,5	2,9	32,5	25,3	7,5	46,5	39,1	2,0
1964 - 1970 (Frei Montalva)	4,2	0,6	56,7	26,1	5,6	53,4	45,1	3,4
1970 - 1973 (Allende)	1,0	13,7	58,9	231,2	4,1	46,9	226,4	2,3
1973 - 1980 (Pinochet I)	4,0	-0,3	73,9	150,7	12,6	72,9	159,4	7,6
1980 - 1990 (Pinochet II)	3,1	-1,0	79,7	19,5	11,8	85,7	16,1	14,7
1990 - 1994 (Aylwin)	7,3	-4,5	103,0	17,7	6,8	103,4	26,5	21,4
1994 - 2000 (Frei Ruiz-Tagle)	5,2	-2,6	99,7	6,1	6,9	84,4	14,0	21,0
2000 - 2006 (Lagos)	4,7	-1,7	101,1	2,9	8,6	96,2	10,1	18,7
2006 - 2010 (Bachelet)	3,8	-3,4	304,5	3,8	7,3	93,8	14,1	12,6

Sources: Central Bank of Chile (2002), "Indicadores Económicos y Sociales"; Chilean Copper Commission; Central Bank of Chile website www.bcentral.cl;

Lden and Wagner (2010) "The Republic in Numbers (La República en Cifras)", EH Clío-Lab Iniciativa Científica Milenio; and Schmidt-Hebbel and Marshall (1981)

a) Chained GDP

b) As percentage of current GDP

c) Change in Balance of Payments methodology as 1973

d) US D per Pound

e) Change in dec-to-dec CPI

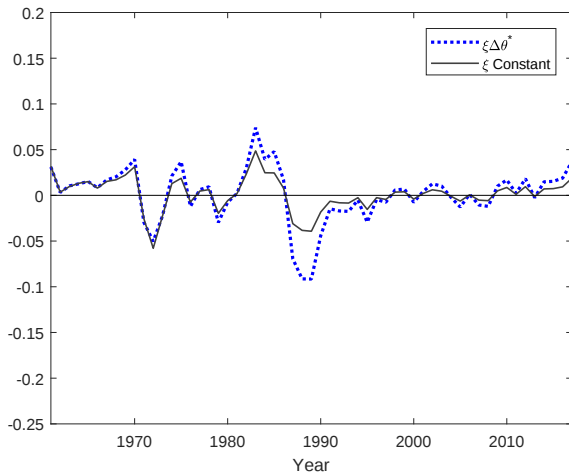
f) as percentage of Labor Force

g) Change in Labor Survey Methodology as 1985

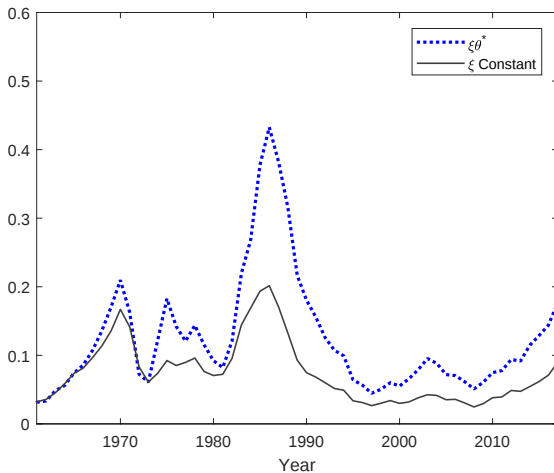
h) Increases indicate real depreciation of the domestic currency

i) Annual Growth of Nominal Monetary Base

$\Delta\theta^*$ with constant and current RER



Levels of θ^* with constant and current RER



Counterfactual Path for Public Debt

