WAS THIS TIME DIFFERENT? FISCAL POLICY IN COMMODITY REPUBLICS

Luis Felipe Céspedes (UAI)
Andrés Velasco (Harvard University & NBER)

Fiscal policy "should" be countercyclical

□ According to standard economic theory, fiscal policy should be countercyclical when facing transitory shocks.

□ In the neoclassical smoothing model of Barro (1979), a government should optimally run surpluses in good times and deficits in bad times (if shocks are perceived as transitory, that is).

□ That is the same a government should do, though for different reasons, in the standard Keynesian or Neo-Keynesian framework.

…but in practice

- Governments often seem to follow a pro-cyclical fiscal policy.

- Cuddington (1989), Talvi and Vegh (1995) and Sinnott (2009), among others, document that governments save too little or even disave in booms.

- Procyclicality is most evident in Latin America (Gavin et al 1996, Gavin and Perotti 1997, Stein et al 1999) but is also present in OECD countries (Talvi and Vegh 1999, Arreaza et al 1999, Lane 1999 and 2003).

Commodity-rich countries

- The problem of procyclicality seems to be especially acute for commodity-rich nations – commodity republics in the nomenclature of this paper.

- In those countries commodity-linked revenues (taxes, royalties, profits) can be a large portion of government revenue (see Sinnott 2009). And by any measure, commodity price volatility is large.

- As a result, overall revenues are quite volatile – and so can be spending and the fiscal balance.

- So much so, that a revenue increase of x% can call forth a spending increase of more than x%, so

# Mexico in the 1970s and 1980s: an example of procyclicality
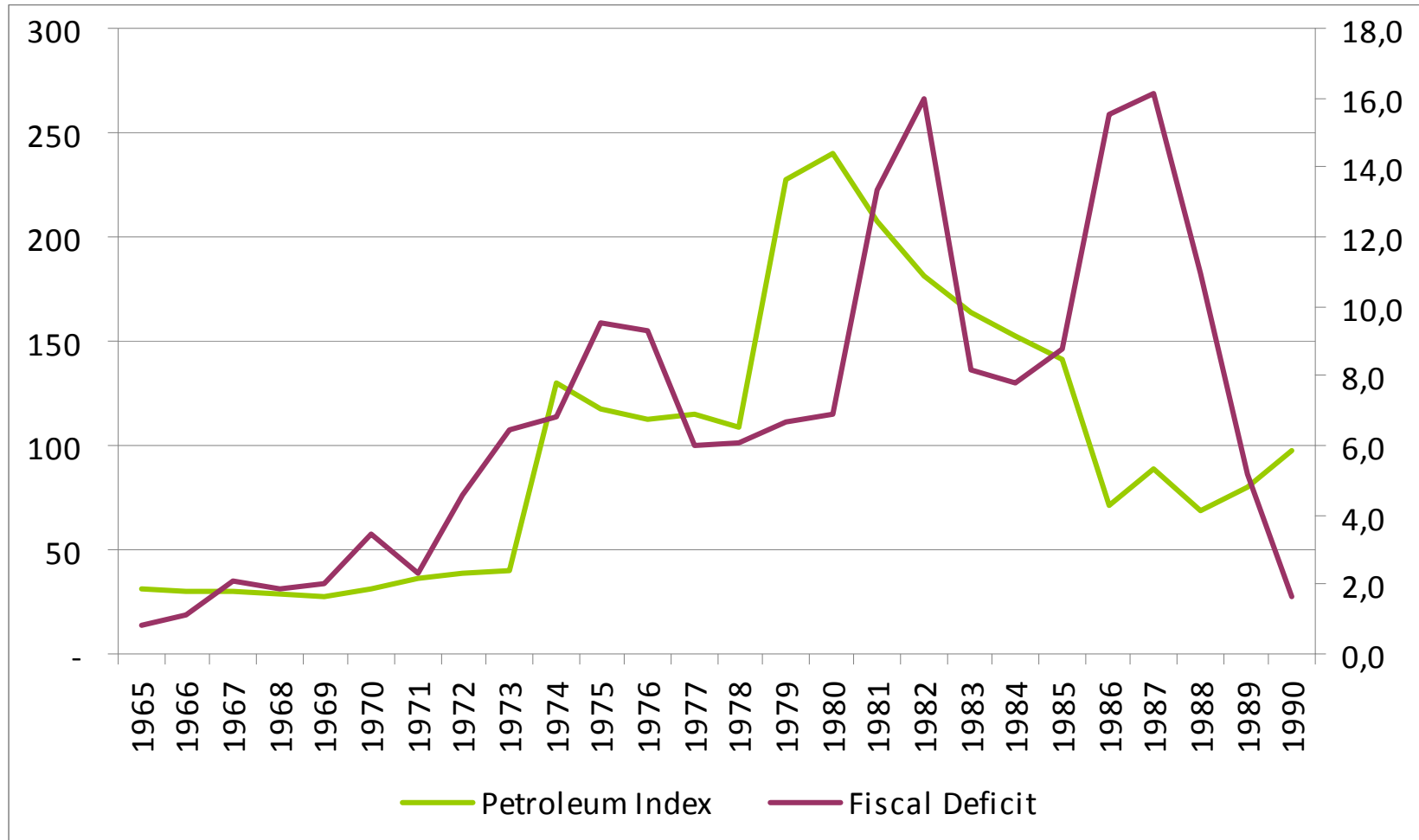
The paper

- We revisit the issue of fiscal procyclicality in commodity republics.

- Given that the behavior of commodity prices is plausibly a main driver of fiscal policy outcomes in these countries, we focus on the behavior of fiscal variables across the commodity cycle.

- The paper has two goals:
  - to document the behavior of fiscal policy for a large number of commodity-producing over a long period of time.
  - to see whether the behavior of fiscal policy in such
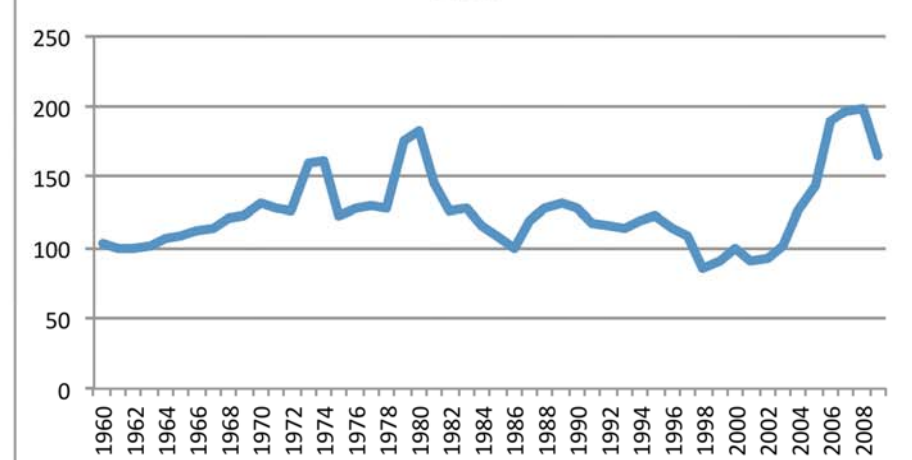
Commodity price index and episodes

- Using a commodity price index we identify commodity boom episodes.

- We define a commodity boom episode as a period in which our domestic production-weighted commodity price index surpasses its historical trend by a certain amount (25%)
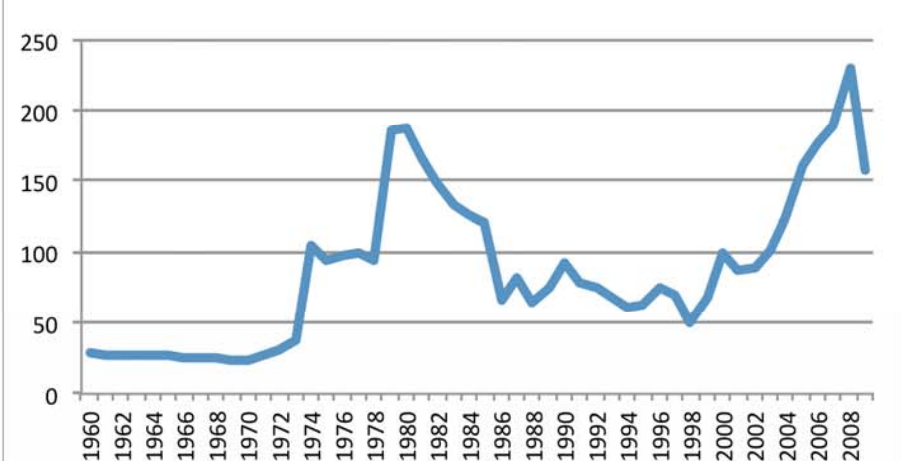
Commodity price index: 2 booms

Commodity prices around episodes
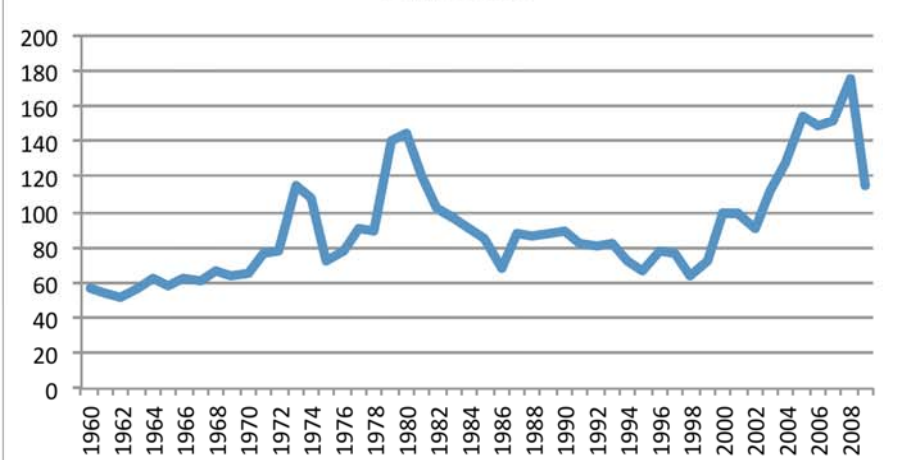
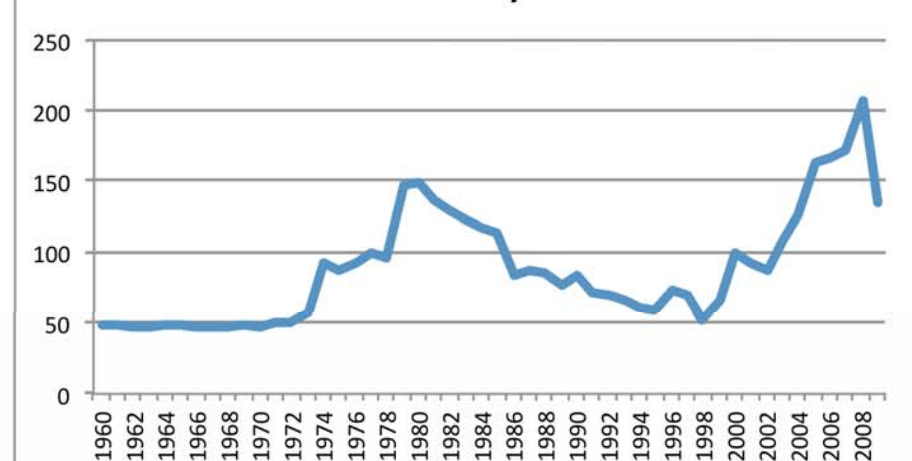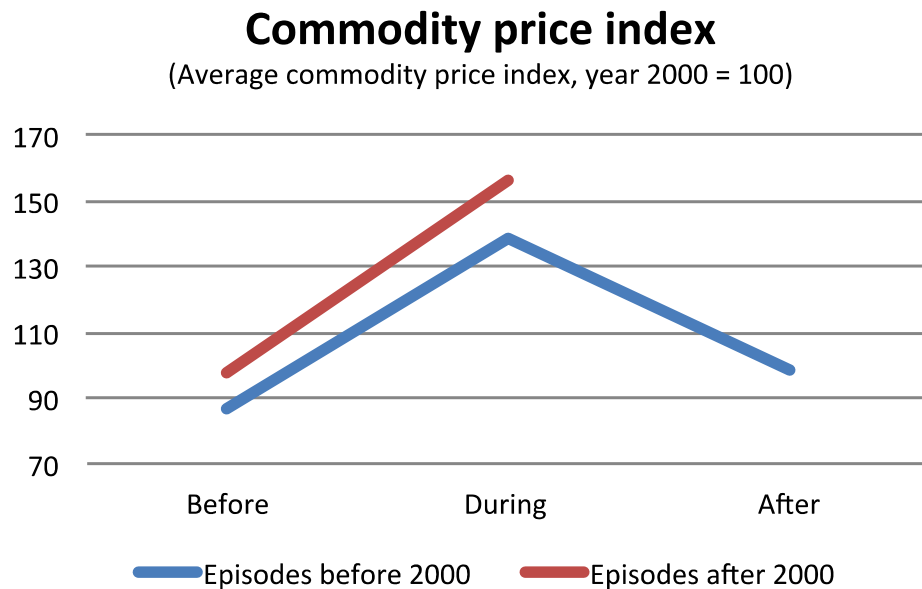**Commodity price index**
(Average commodity price index, year 2000 = 100)

- In the episodes before 2000 average commodity price increased 59,9%.

- In the recent episode, they increased 59,6%.

- By this measure, the two "aggregate episodes" are

Episodes

Commodity boom episodes (1960-2008)

	Number	Total duration	Duration to max
Episodes before 2000	35	11,7	6,5
Episodes after 2000	26	5,4	5,4
Total episodes	61	9,0	6,0

- Episodes before 2000 were on average longer than recent episodes.

- However, the current boom episode is still ongoing.

- We redefine the boom episode as lasting from its beginning to its

Commodity prices around episodes

Commodity price index
(Average commodity price index, year 2000 = 100)

— Episodes before 2000	— Episodes after 2000
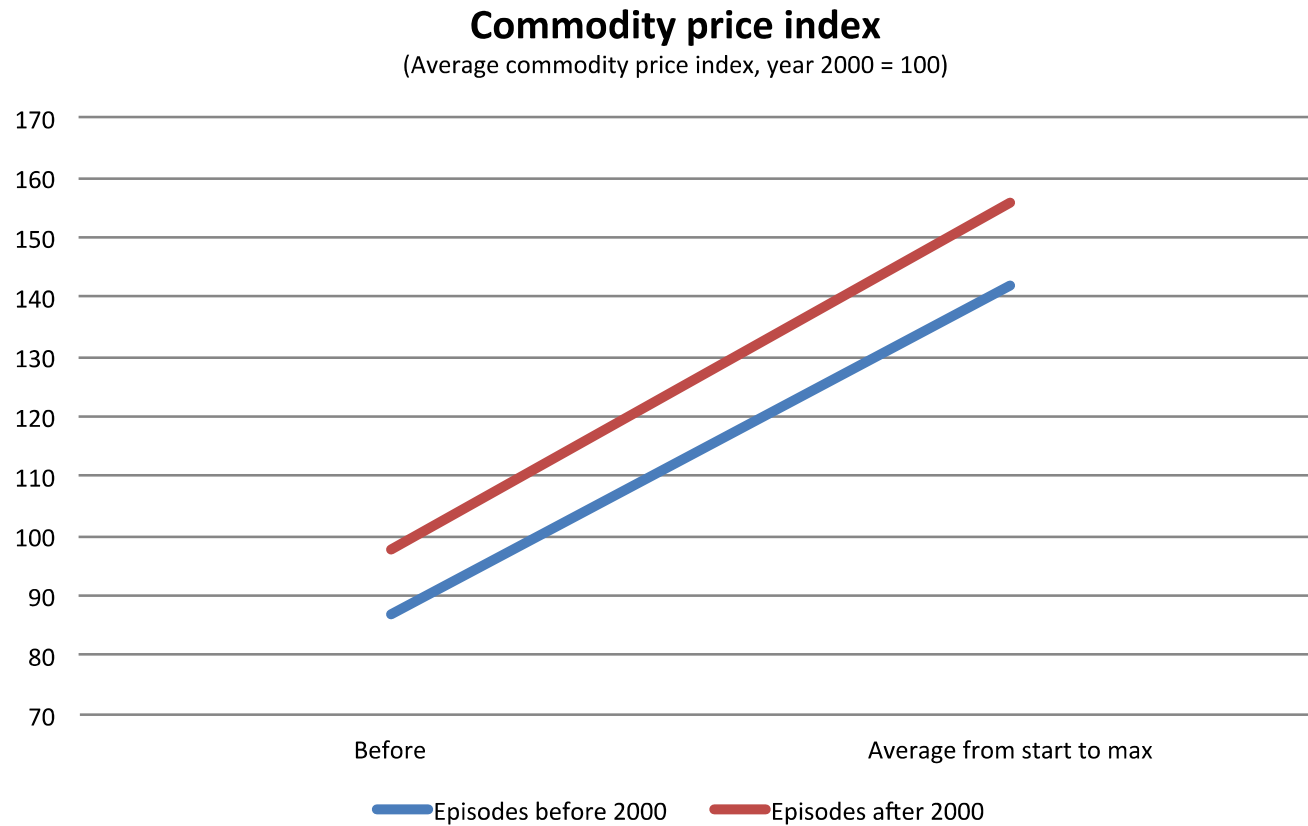
Fiscal variables around commodity price booms: fiscal balance

Fiscal balance

(% GDP)

Legend: Episodes before 2000, Episodes after 2000

Categories: Before (-1,8%, -1,6%), Average from start to max (-0,6%, 3,0%)
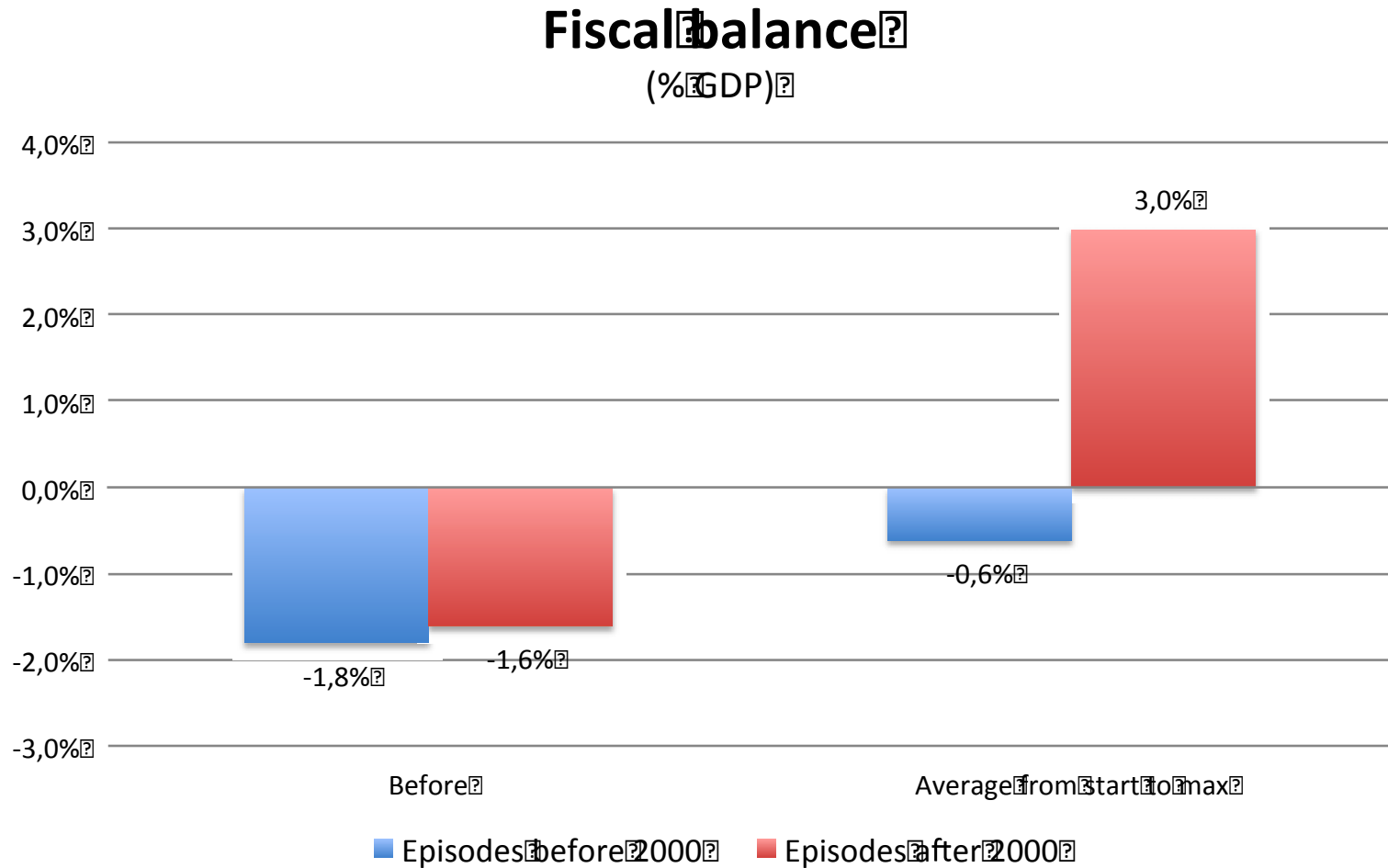
Fiscal variables around commodity price booms: government revenues

Government revenue
(% GDP)

Legend: Episodes before 2000 (blue), Episodes after 2000 (red)

Before: 20,3% (before 2000), 28,3% (after 2000)
Average from start to max: 23,5% (before 2000), 31,4% (after 2000)
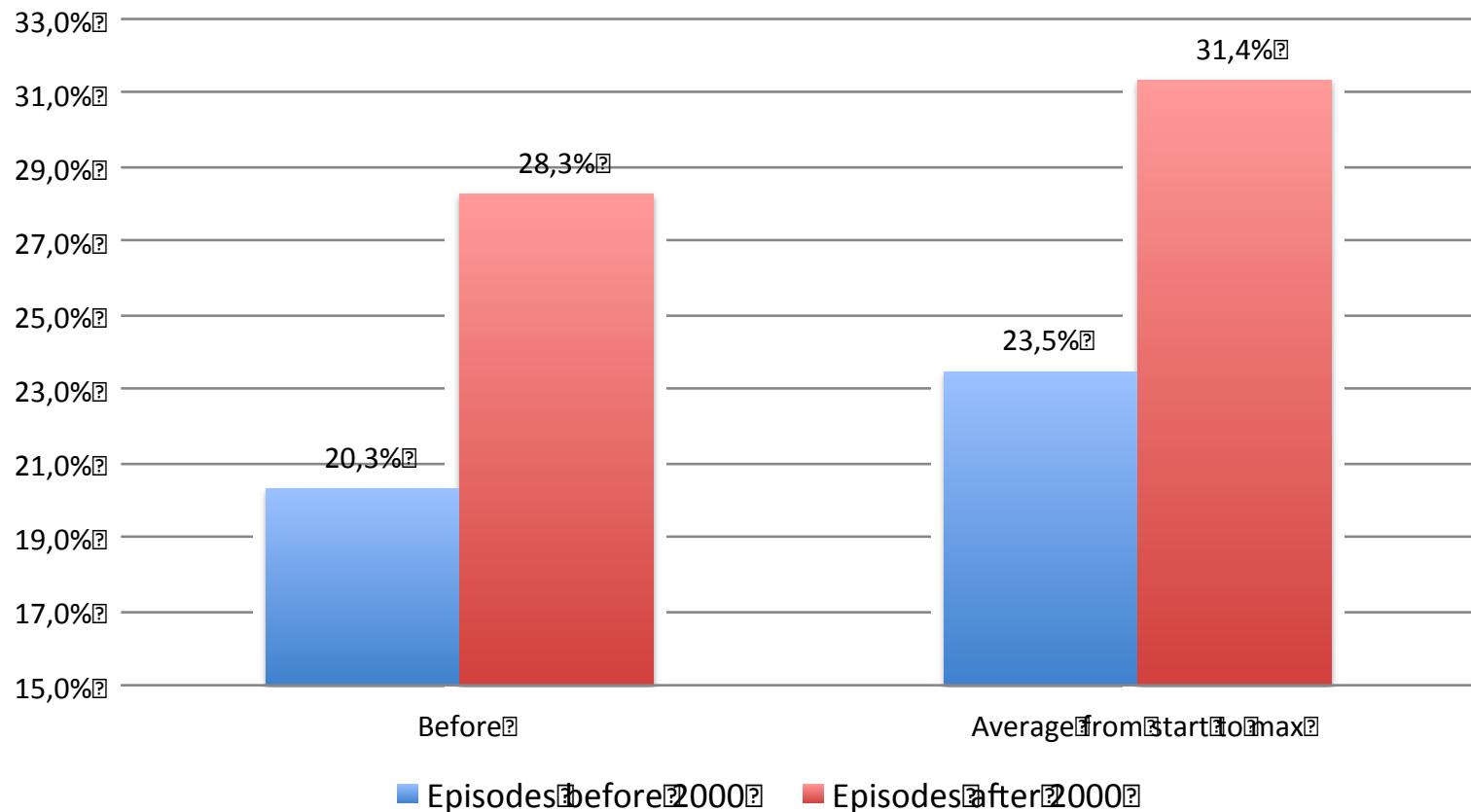
Fiscal variables around commodity price booms: government expenditures

Government expenditure
(% GDP)

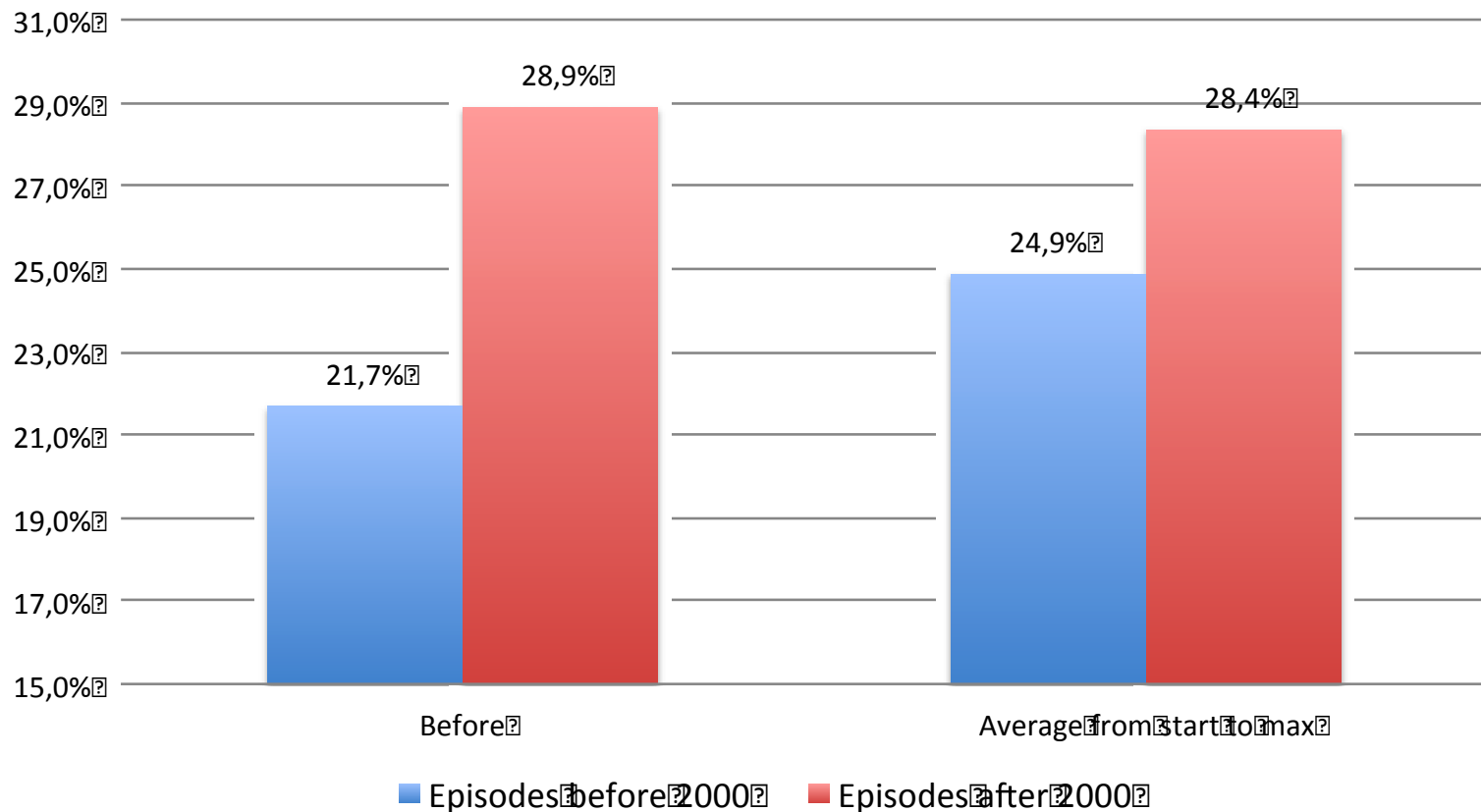# Fiscal variables around commodity price booms

- Figures do suggest that something seems to have been different this time around in terms of the conduct of fiscal policy in times of commodity booms.

- But while suggestive, these averages do hide substantial heterogeneity in experiences.

- And to be more revealing, individual performances have to be conditioned on the actual change in commodity prices affecting each country.

Cyclicality of fiscal policy I

- In the first place, in order to obtain measures of the cyclicality of fiscal policy variables we estimate country-by-country regressions of the form:

$$d(log(F_{it})) = \alpha_i + \beta_i \ d(log(I_t)) + \varepsilon_{it}$$

- For periods 1965-1985 and 1995-2009. Where *F* corresponds to the fiscal variable under analysis.

- This is the same approach to measuring cyclicality adopted by Arreaza et al (1999), Sorensen et al (2001) and Lane (2003).

Cyclicality of fiscal policy I

Cyclicality of fiscal policy to commodity price index

	Elasticity of fiscal variable to commodity price index		
	Government expenditures	Government revenues	Fiscal Balance
Episodes before 2000 (average)	0,08	0,20	0,03
Episodes after 2000 (average)	0,11	0,46	0,10

Cyclicality of fiscal policy II

- In a second set of estimations to measure the cyclicality of fiscal policy variables, we estimate country-by-country regressions of the form:

$$\Delta(\text{Fiscal variable as \% GDP})=\alpha+\beta*(\text{Cyclical component commodity price})$$

- Estimate for periods 1965-1985 and 1995-2009.
- This approach has been utilized by Gavin and Perotti (1997) and Alesina et al (2008).
- Takes into account that part of the commodity price shock may be more persistent (permanent).

Cyclicality of fiscal policy II

Cyclicality of fiscal policy to commodity price index

	Elasticity of fiscal variable to commodity price index	
	Government expenditures	Fiscal Balance
Episodes before 2000 (average)	0,01	0,01
Episodes after 2000 (average)	-0,04	0,12

Cyclicality of fiscal policy: summary

- The evidence suggests the presence of procyclical fiscal balances in the 1970s and 1980s. The evidence regarding government expenditure is mixed.

- The recent episode shows a different pattern. In particular, the evidence we present tends to support the view of a more counter-cyclical stance during the recent commodity boom episode.

What caused the change in fiscal behavior?

- Several candidates behind this change:
    - Political fragmentation (voracity effect)
    - Fiscal rules
    - Monetary policy independence
    - Flexible exchange rates
    - Learning and lessons from the past

What caused the change in fiscal behavior?

	Central Bank Independence	Exchange Rate Flexibility	Fiscal Rule	Openness	Political constraint
Episodes before 2000	0,31	1,41	0,03	43,77	0,28
Episodes after 2000	0,28	2,82	0,54	64,20	0,42

- Central bank independence: average number of changes in the central bank governor per year in each decade.

- Exchange rate flexibility: Ilzetzki, Reinhart and Rogoff (2008).

- Fiscal rule: IMF index

- Openness: exports plus imports as % GDP

- Political constraint: number of veto points in the political system (Henisz (2000)).

What caused the change in fiscal behavior?

Determinants of changes in fiscal cyclicality

| Explanatory variable	Dependent variable					
	ΔFBC1	ΔFBC1	ΔFBC1	ΔFBC1	ΔFBC1	ΔFBC1
ΔOPEN	-0,0008 (-0,67)					-0,0008 (-0,86)
ΔFLEX		-0,047 (-1,48)				
ΔFR			-0,028 (-0,48)			0,08 (1,21)
ΔPOLCON				-0,08 (-0,42)		
ΔCBI					-0,096 (-0,48)	
Previous Boom						0,15 (3,63)***
R2	0,02	0,09	0,01	0,01	0,03	0,41
Number of observations	24	23	25	25	12	24
F test	0,45	2,19*	0,16	0,18	0,02	4,67***

Al regressions are estimated using a constant.

Designing fiscal policy in emerging commodity republics

- What can be learnt from the experience of emerging market economies endowed with natural resources?
- Under what kind of rule and/or institutional arrangements are diffferent fiscal policy tools effective?
- Paper: learning from previous failures and fiscal rules may make a difference
- My experience: exactly the same
- Chile
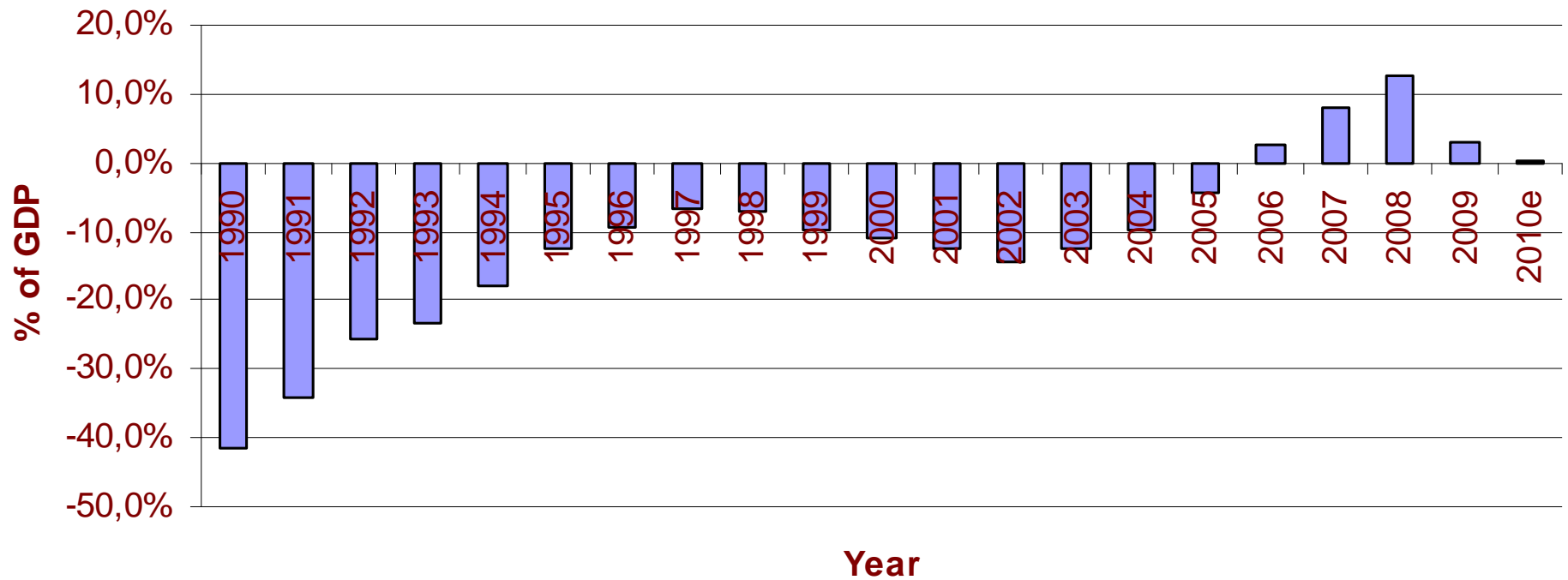 - Will not to repeat mistakes of the 1970s
  - Fiscal rule in place since 2001

Chile: fiscal surpluses and the price of copper

Copper and fiscal surpluses
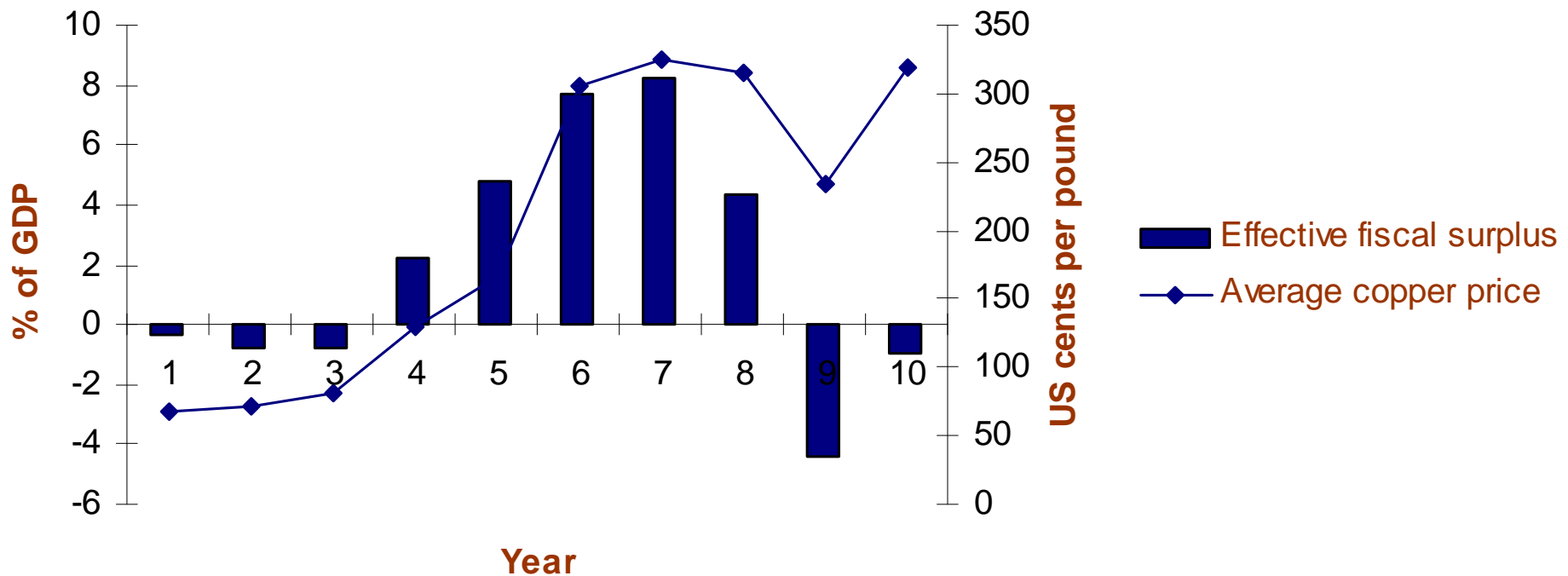
Chilean public debt: a long way from Europe

Net public debt

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