



Independent Authority  
*for* Fiscal Responsibility

## Comments on “The Public Debt Crisis of the United States”

Carlos Cuerpo, AIReF

Debt Sustainability Analysis Seminar

5 September 2017

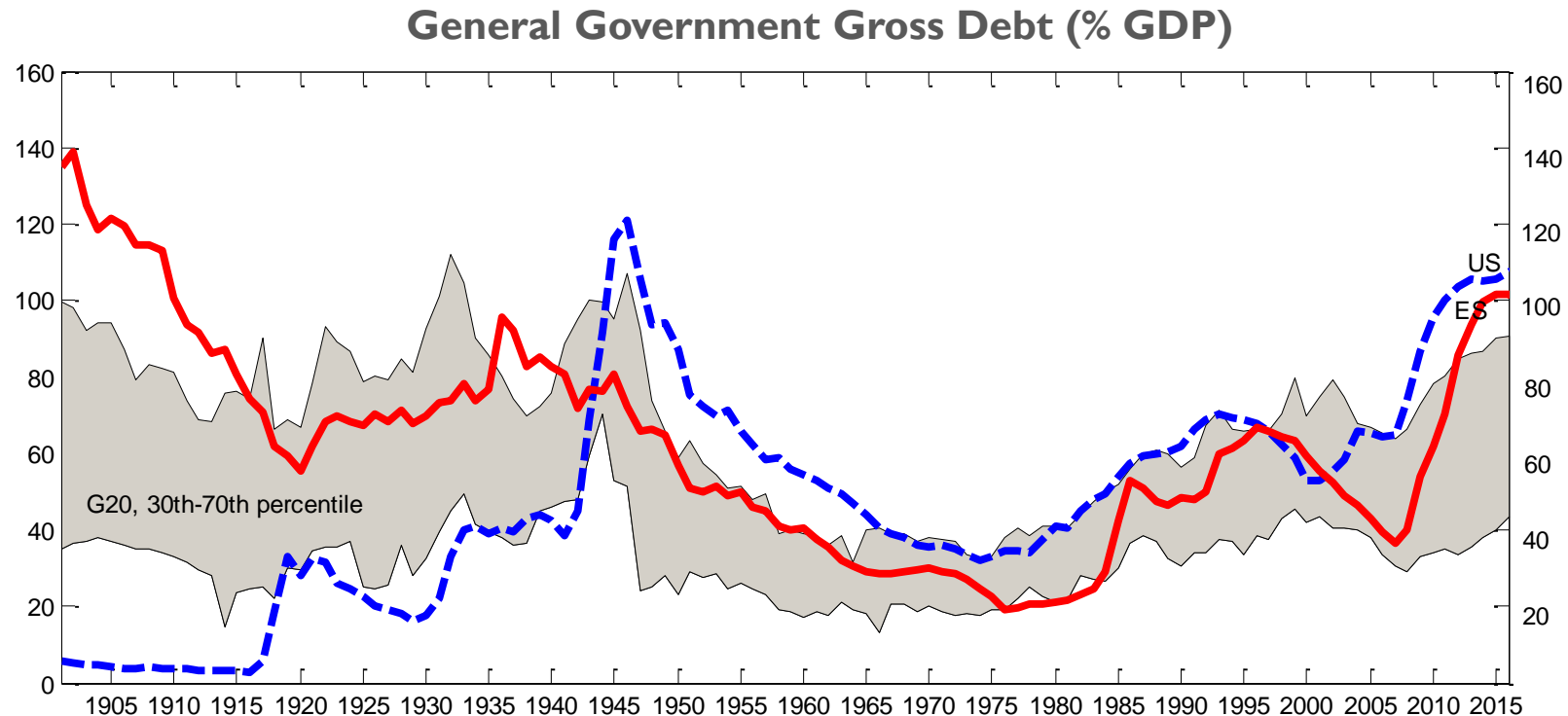
# SUMMARY

**1. Motivation**

**2. Selected issues I: TV empirical approach**

**3. Selected issues II: institutional features**

## Why the focus (and the concern) on debt sustainability?



Source: IFS, Comlet al (2017, forthcoming)

- ❖ Mendoza identifies 4 debt-crisis episodes for the US since 1900, with only one of them in the last 70 years: the current episode
- ❖ It appears to be a shared concern when looking at G-20 countries
- ❖ Additional features add to the concern (“canonical view”): scarce primary balance reaction

## Is this time really different? If so, is it for the better?

### Fiscal Mult.

Output Gaps still  $< 0$

Large debt stocks reduce multiplier effects

Fiscal fatigue & structural breaks

### Laffer curves

Gen. Equil. context

Already large effective rates

Potential spillovers

### Safe-Assets

Strong global demand for safe assets

Might be a temporary phenomenon

Linked to financ. dev't and fiscal stance gaps

### Rational defaults

Implicit assumption about repayment commitment

History is full with examples of serial defaulters

Importance of distributional incentives to default (for the non-bondholders)

# Highlight two qualifying factors to the canonical view

---

## Empirical approach

Non-linearities and time-varying parameters shed some more light into Public Debt Management assessment

Primary balance reaction follows its own cyclical pattern and is not independent of interest load

---

## Default factors

Historical record is assumed to be THE determinant factor (serial defaulters)

However, institutional features can also have a large impact

---

# SUMMARY

1. Motivation

2. Selected issues I: TV empirical approach

3. Selected issues II: institutional features

# Sustainability remains an elusive concept

Liquidity  
condition

Keeping short-term access to the markets

Solvency  
condition

Being able to meet present and future  
obligations (IBC)

$$\Delta b_t = \frac{i_t - g_t}{1 + g_t} - p b_t + d d a_t$$

(1) Debt accumulation

$$b_0 = \left( \frac{1 + i}{1 + g} \right)^{-T} b_T + \sum_{t=1}^T \left( \frac{1 + i}{1 + g} \right)^{-t} p b_t$$

(2) Sol. Diff equation

No-Ponzi schemes

Intert. Budget Constraint

### Empirical approach

---

Transversality  
condition

Stationarity tests on public deficit and debt stock

Hamilton and Flavin (1985), Trehan and Walsh (1991) or Uctum and Wickens (2000) with an analysis of the SGP implications

---

Intertemporal  
Budget  
Constraint

Tests on expenditure and revenue cointegration relations

Elliot and Kearney (1988), Lui and Tanner (1994) and Afonso (2005) for evidence on Australia, the US and Europe, respectively, and Payne (1997) for an international comparison.

---

### Model-based approach $\square$ la Bohn (augmented)

$$pb_t = c + \beta d_{t-1} + \gamma pb_{t-1} + \delta x_t + u_t \quad (3) \text{ FRF}$$

Doi et al, (2011), Cuerpo and Ramos (2015), Yoshino (2015), Mendoza (2017)



### Model-based approach [?] la Bohn (augmented)

$$pb_t = c + \beta d_{t-1} + \gamma pb_{t-1} + \delta x_t + u_t \quad (3) \text{ FRF}$$

$\beta > 0$  as a necessary but not sufficient condition

$$b_t = (1 + i - g)b_{t-1} - pb_t \quad (1') \text{ simplified}$$

$$\Delta b_t = [(i - g)(1 - \gamma) - \beta]b_{t-1} + \gamma(1 + i - g)\Delta b_{t-1} - c - \delta x_t - u_t$$

(4) AR(2): Dickey-Fuller

$$(i - g)(1 - \gamma) - \beta < 0$$

(5) Suff.  
condition

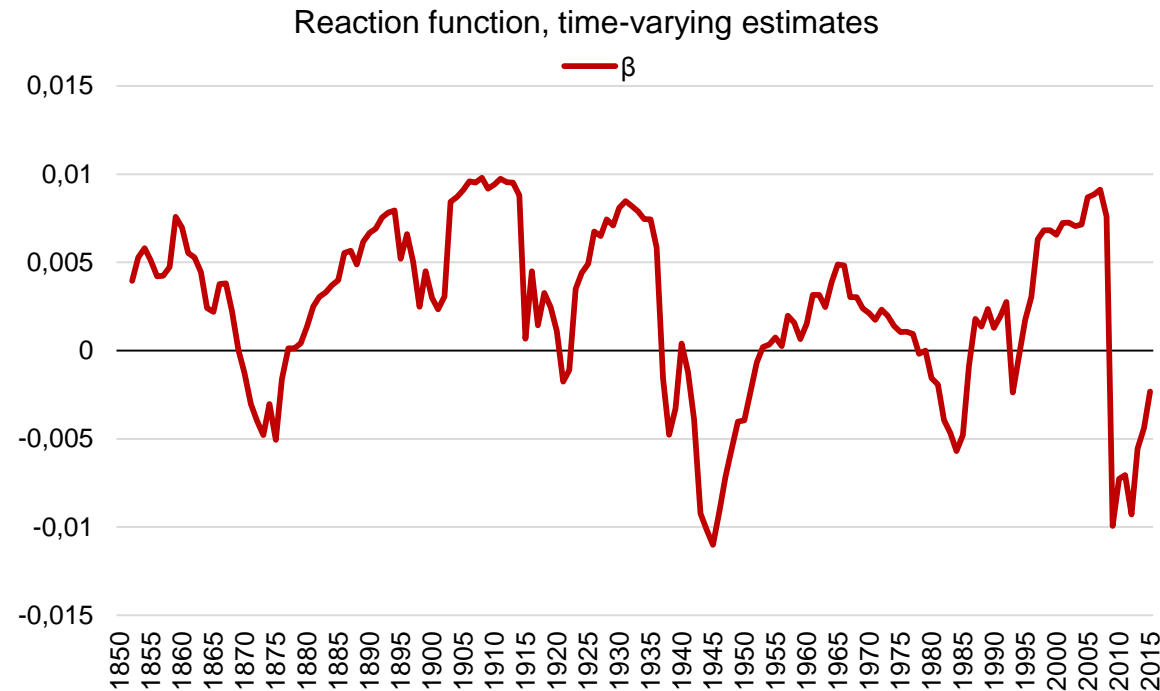
❖ There is more to sustainability than  $\beta$ : take into account the interest rate-growth differential

### Model-based approach [?] la Bohn: parameters are time-varying

$$pb_t = c + \beta d_{t-1} + \gamma pb_{t-1} + \delta x_t + u_t \quad (3) \text{ FRF}$$

**Expected results:  $\beta_t > 0$  and  $\delta_t > 0$**

Ciapanna and Taboga (2011)

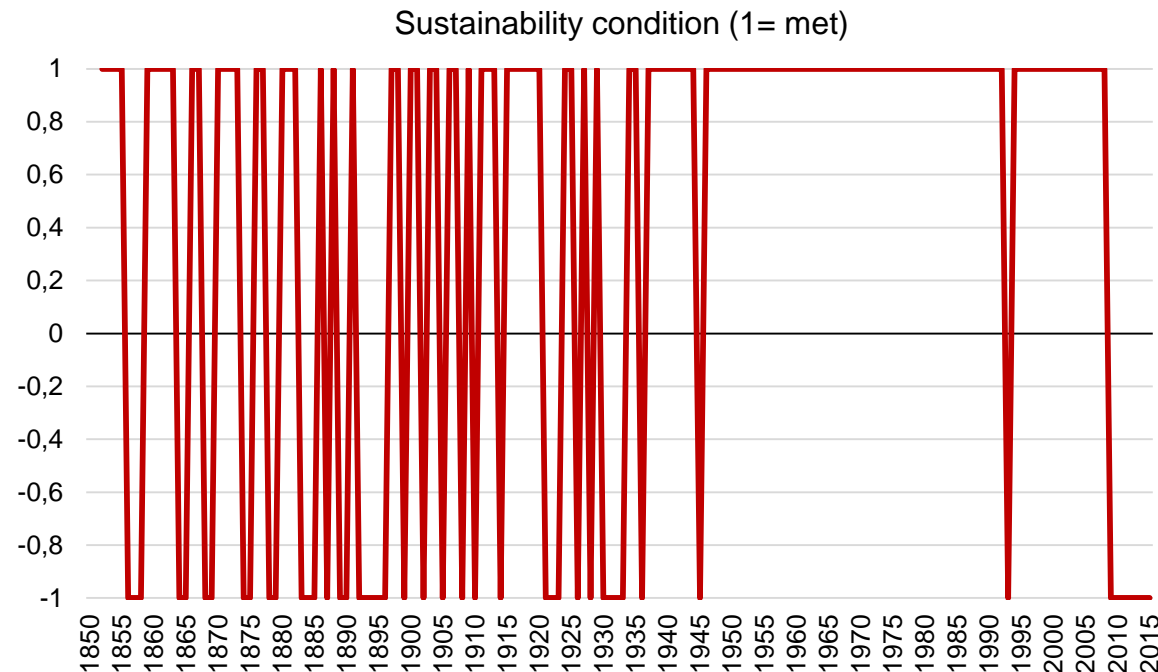


- ❖ Time-varying estimations shed some light on structural changes and prim. bal. patterns
- ❖ Public Debt Management responsible for most of ES history??? Most likely not

### Model-based approach [?] la Bohn: TV parameters

$$pb_t = c + \beta d_{t-1} + \gamma pb_{t-1} + \delta x_t + u_t \quad (3) \text{ FRF}$$

$(i - g)(1 - \gamma) - \beta < 0$  as a sufficient condition



- ❖ Reassess Public Debt Management: erratic despite the positive response of primary balances and finally responsible: Regime changes [low interest rates]

# SUMMARY

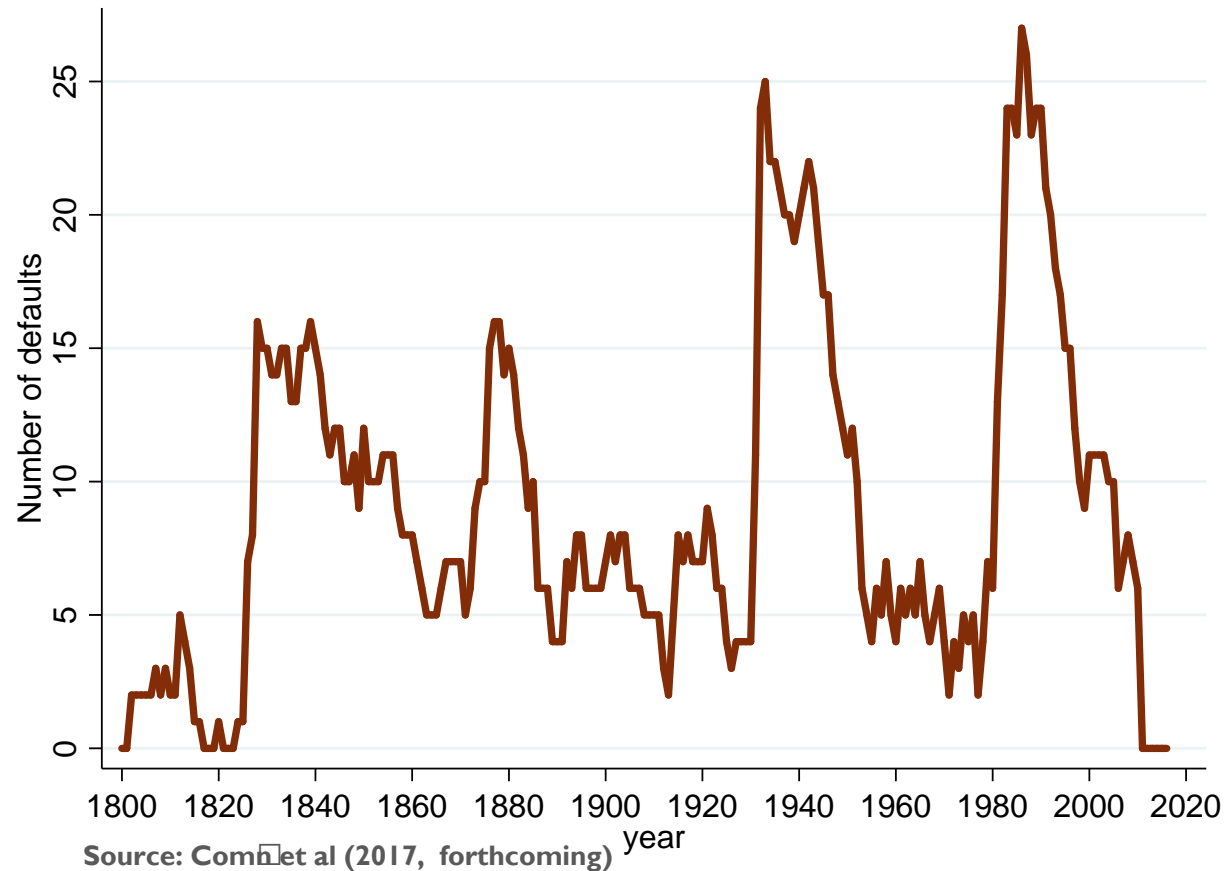
1. Motivation

2. Selected issues I: TV empirical approach

3. Selected issues II: institutional features

### 3. Selected issues II: Institutional features

A bad historical fiscal record can matter a lot when assessing default risk ...



.... but (institutional) country-specific features can also have a large impact (Norambuena, 2015)

Can fiscal rules help reduce the likelihood of large debt spikes?  
If so, by how much?

**Dataset:** Unbalanced panel including 96 countries with macro-fiscal variables from 1850 until 2015, based on an updated version of IMF's fiscal rules database (2015), Mauro et al (2013) and IMF IFS.

**Fiscal Rules Index:** Indicator between 0 and 1 which summarizes the number of fiscal rules, their coverage and degree of legal enforcement in a country based on IMF's fiscal rules database (national and supranational)

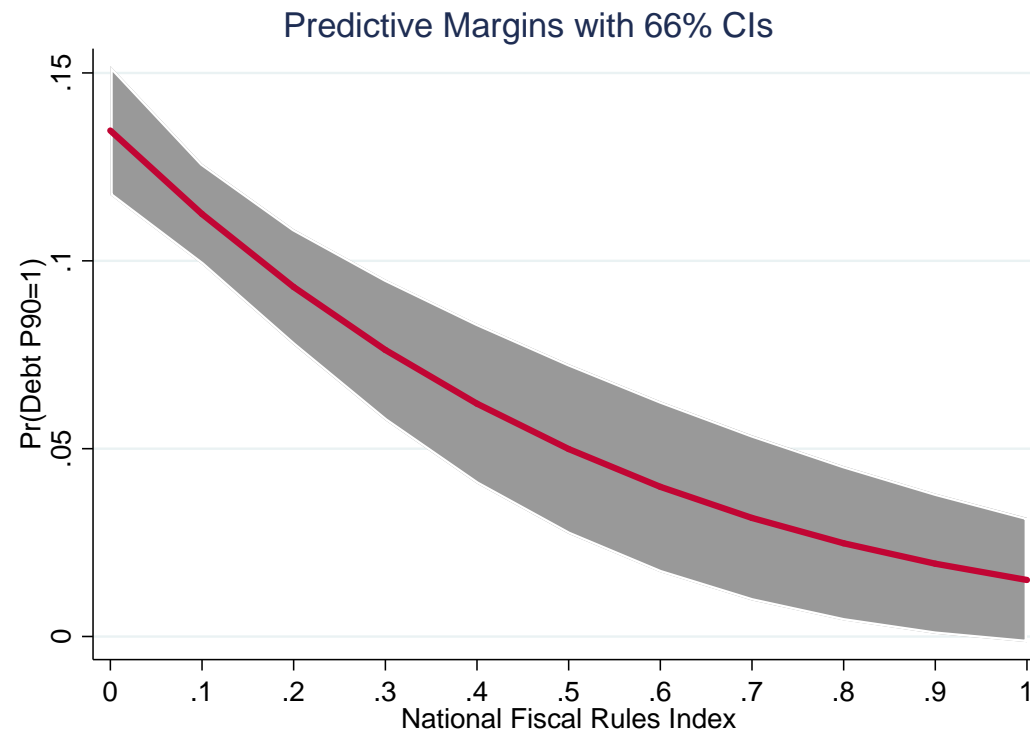
**Debt spike event:** An increase of debt above the 90<sup>th</sup> percentile is used for the identification of unsustainable debt dynamics.

Can fiscal rules help reduce the likelihood of large debt spikes?  
If so, by how much? **YES, and quite a lot!**

#### Panel Probit (re)

	Coefficient
pb	-0.11
g	-0.07
d_90	-3.55
d(long term i)	0.06
<b>National rules</b>	<b>-1.33</b>
Constant	-0.63

Note: All coefficients are significant at 5%



- ❖ Improving the fiscal framework can be an effective antidote to compensate for a history of past default
- ❖ The probability of a debt event above 90th decreases more than 10% when a full set of rules is put in place



Independent Authority  
*for* Fiscal Responsibility

[www.airef.es](http://www.airef.es)



[@AIReF\\_es](https://twitter.com/AIReF_es)