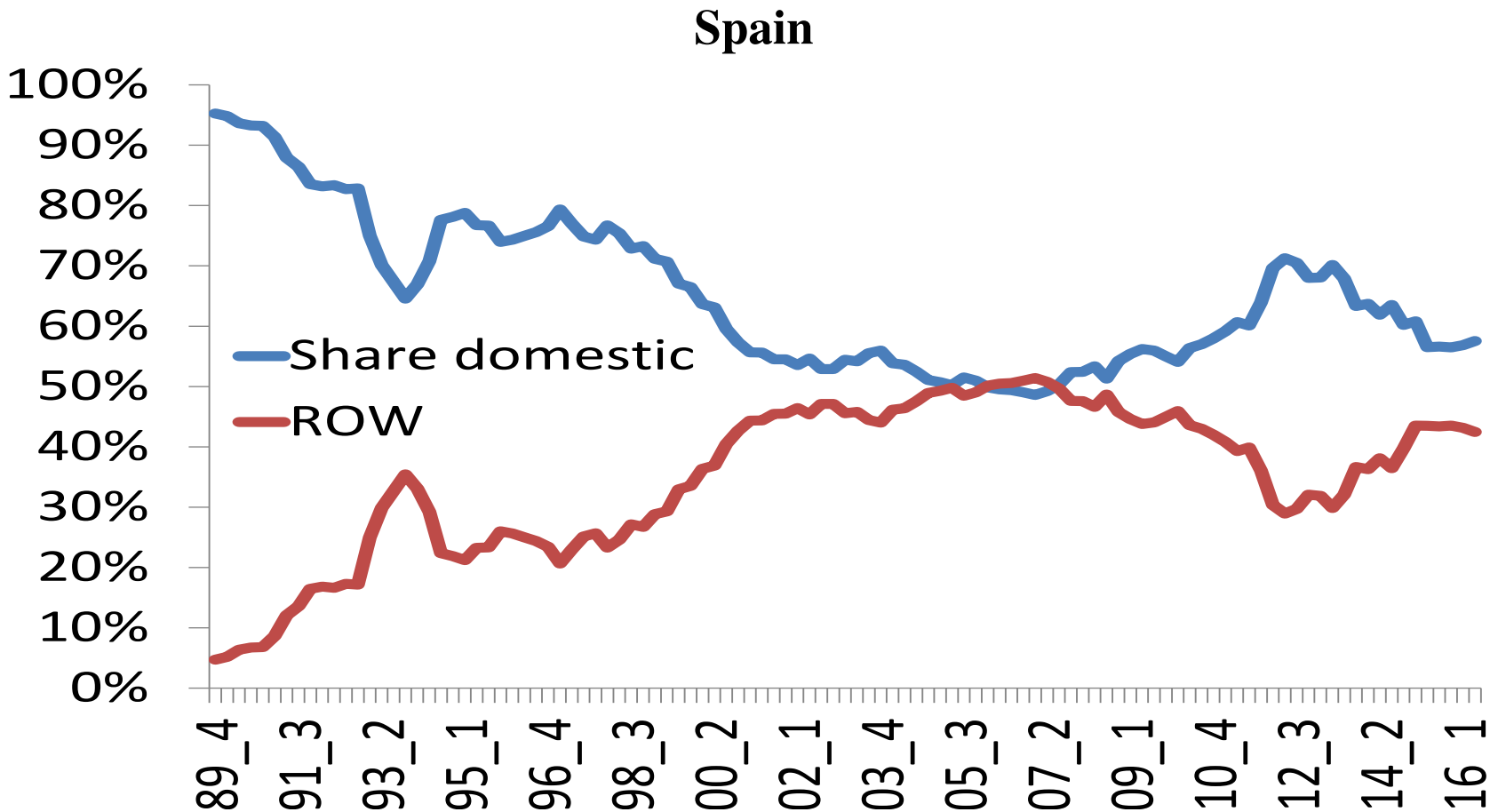
Discussion of D'Erasmo and Mendoza:

Optimal Domestic (and External) Sovereign Default

Keith Kuester, University of Bonn

December 21, 2016

Most sovereign debt held domestically



Source: http://bruegel.org/publications/datasets/sovereign-bond-holdings/

This paper's question

- Suppose gov't debt plays an important role for self-insurance of domestic households.
- How does *ex-post* heterogeneity at home shape the government's default decision?
- What are the distributional effects of sovereign default?
- How much debt can be sustained?

The model

- Bewley-model. Idiosyncratic income $y \in \{\underline{y}, ..., \bar{y}\}$, transition π.
- Aggregate shock (governm't expenditures $g \in \{g_L, ..., g_H\}$).
- Households can save into gov't bonds, but cannot borrow.
- If gov't does not default:

$$c_t + q_t b_{t+1} = y_t(1 - \tau^y) + b_t + \tau_t$$

- If it does:

$$c_t = y_t(1 - \tau^y) + \tau_t - \phi(g_t)$$

- Where transfers τ_t balance the gov't budget:

$$\tau_t = \tau^y Y - g_t + (q_t B_{t+1} - B_t) I(\textit{no default})$$

- Transfers not targeted.
- All households pay default costs (in MU terms: the poor pay more)

Trade-off I

- Financial markets incomplete domestically and internationally.
- Households cannot borrow.
- No direct insurance across households or credit.
- Domestic gov't debt is the only vehicle that HH can use for precautionary saving.

$\Rightarrow$ role for safe debt.

- Distribution of debt holdings.

$\Rightarrow$ role for default.

Trade-off II

- All international borrowing and lending has to go through gov't.
- Gov't can borrow for households by borrowing from risk-neutral international lender.
- One-period non-contingent international bond.
- Limited commitment $\Rightarrow$ default by domestic gov't.
- Default 100%. No exclusion from borrowing going forward.

The main mechanism

- Households save because they temporarily have high income.
- Repaying sovereign debt: collect taxes from all, give to savings-rich.
- Default results in progressive redistribution.
- Weigh aggregate costs of default against social gains from redistribution.

- Who likes the gov't least to default: high b, low y households.
- Who likes the gov't most to default: no b, low y households.

Table 4: Long-run and Pre-Crisis Moments: Data v. Model

	Data		Model	
Moment (%)	Avg.	Peak Crisis	Average	Prior Default
Gov. Debt B	5.43*	7.43	5.88	7.95
Domestic Debt B^d	4.04	4.85	4.29	4.84
Foreign Debt $\widehat{B}$	1.39	2.58	1.59	3.11
Ratio B^d/B	74.34*	65.28	74.31	60.94
Tax Revenues $\tau^y Y$	25.24	24.85	26.60	26.60
Gov. Expenditure g	18.12*	20.50	18.13	18.18
Transfers τ	7.04	7.06	8.35	8.73
Spread	0.94*	4.35	0.94	7.22

Note: * identifies moments used as calibration targets. See Appendix A-2 for details on sources, definitions and sample periods for data moments. Since GDP was normalized to 1, all variables in levels are also GDP ratios.

Table 5: Cyclical Moments: Data v. Model

	Standard Deviation		Correl$(x, hhdi)$		Correl$(x, g/GDP)$	
Variable x	Data	Model	Data	Model	Data	Model
Consumption	0.85	0.84	0.43	0.97	-0.32	-0.76
Trade Balance/GDP	0.63	0.55	-0.31	-0.82	0.15	0.08
Spreads	1.04	2.46	-0.44	-0.004	-0.22	-0.23
Gov. Debt / GDP	1.58	1.23	-0.18	-0.07	0.06	-0.07
Dom. Debt / GDP	1.68	0.32	-0.32	-0.34	-0.10	-0.22

Note: *hhdi* denotes household disposable income. In the model, $hhdi = (1-\tau^y)Y + \tau$ and $TB = Y - C - g$. *hhdi* and C are logged and HP filtered with the smoothing parameter set to 6.25 (annual data). GDP ratios are also HP filtered with the same smoothing parameter. Standard deviations are ratios to the standard deviations of *hhdi*, which are 1.37 and 1.16 in data and model respectively. Since the data sample for spreads is short (2002-2012) and for a period characterized by a sustained rise in spreads since 2008, we generate comparable model data by isolating events spanning 10 years before spikes in spreads, defining spikes as observations in the 95 percentile. The standard deviation of spreads is demeaned to provide a comparable variability ratio. See Appendix A-2 for details on data sources.

- Persistence of spreads?

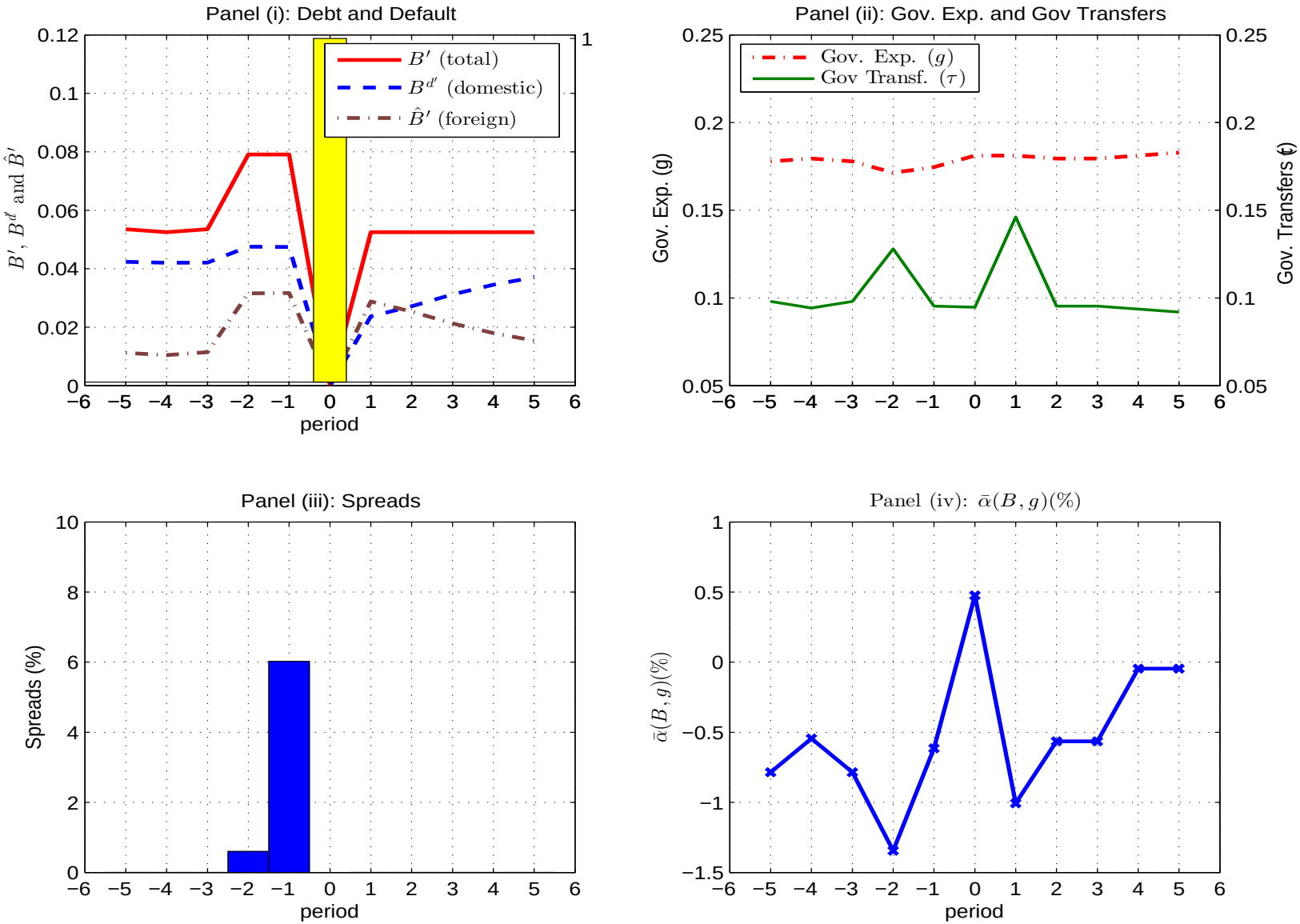
Distribution of gains from default

Table 1: Social Value of Public Debt

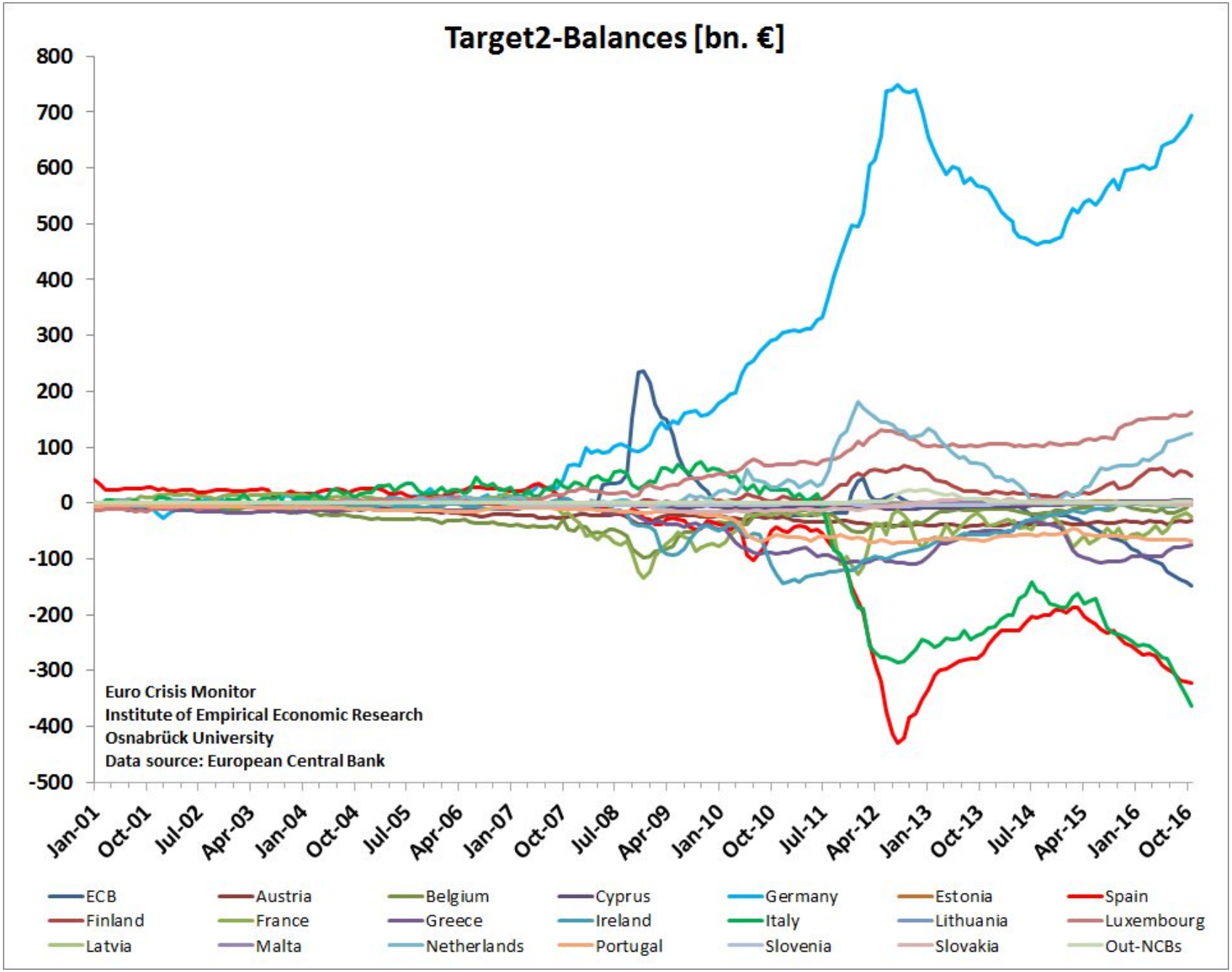
B/GDP	B^d/GDP	$\tau(B,\mu_g)/GDP$	$\bar{\alpha}(B,\mu_g)\%$	$\bar{\alpha}(B,\underline{g})$	$\bar{\alpha}(B,\overline{g})$	hh's $\alpha(b,y,B,\mu_g)>0$
5.0	4.5	32.4	-1.35	-2.49	-0.94	12.4
10.0	4.5	30.8	-0.66	-1.82	-0.23	49.3
15.0	4.5	29.0	0.05	-1.14	0.51	79.5
20.0	4.5	26.6	0.77	-0.44	1.26	94.2

Note: Values are reported in percentage. Transfers ($\tau(B,g)$) and hh's welfare values $\alpha(b,y,B,g)$ are evaluated at $g=\mu_g$. B^d/GDP corresponds to the average of 10,000-period simulations with the first 2,000 periods truncated. Positive values of $\bar{\alpha}(B,g)$ denote that social welfare is higher in the once-and-for-all default scenario than under full repayment commitment.

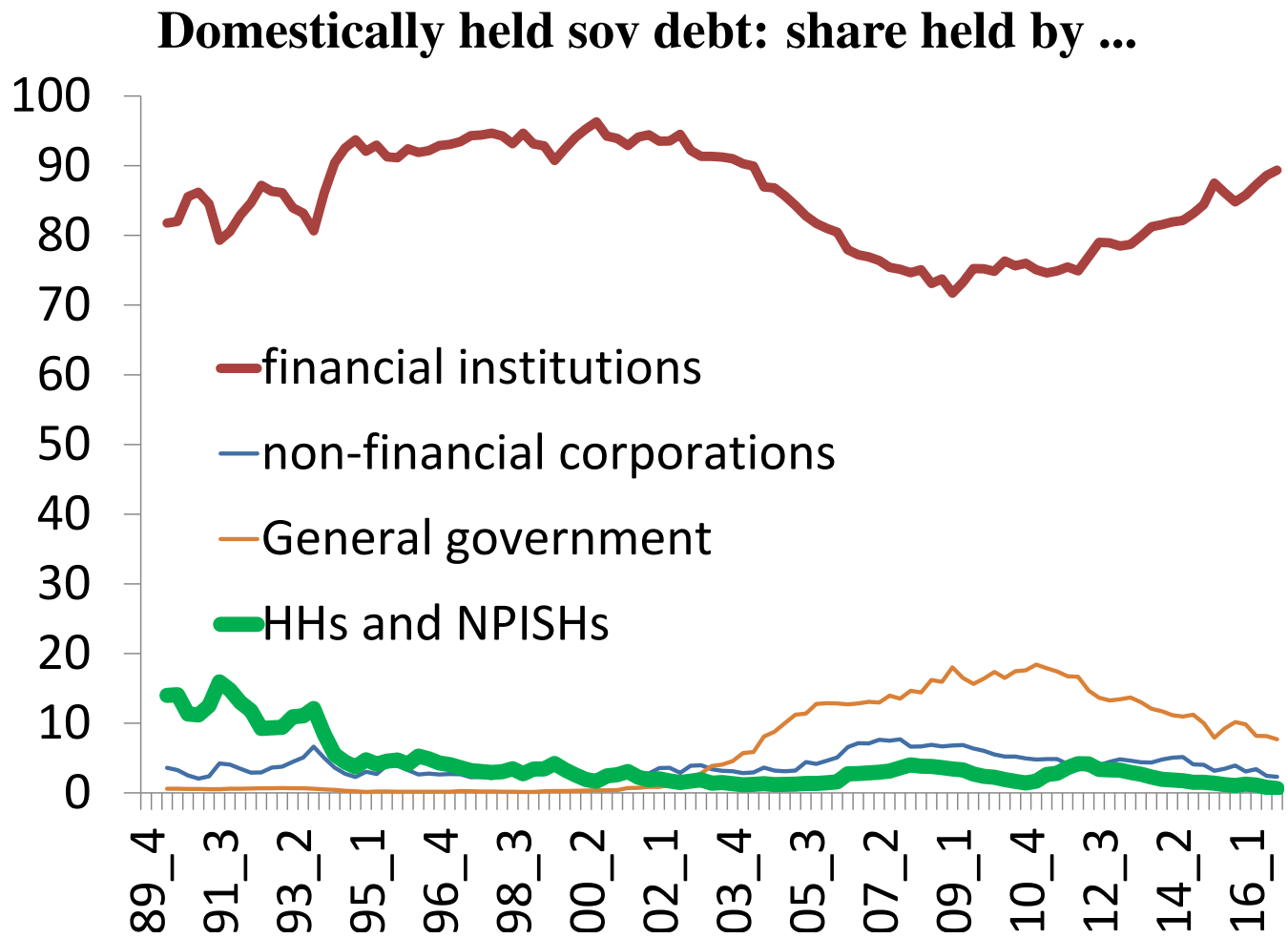
Figure 3: Default Event Analysis



Private sector cannot directly engage in foreign savings?

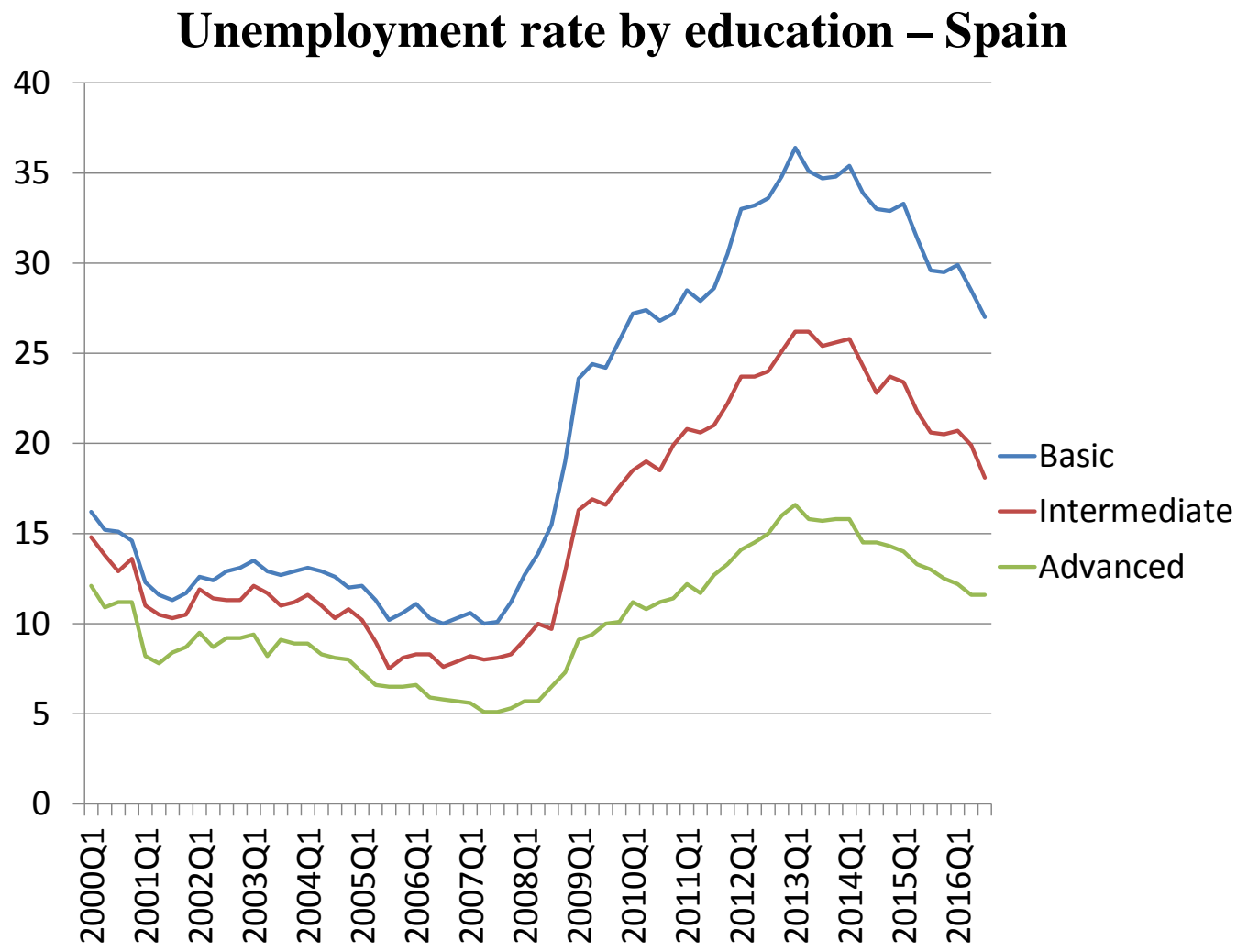


Fallacy of aggregation ?



Source: http://bruegel.org/publications/datasets/sovereign-bond-holdings/

Costs of default borne by all in equal measure?



- source: ILO

Optimal fiscal and default mix?

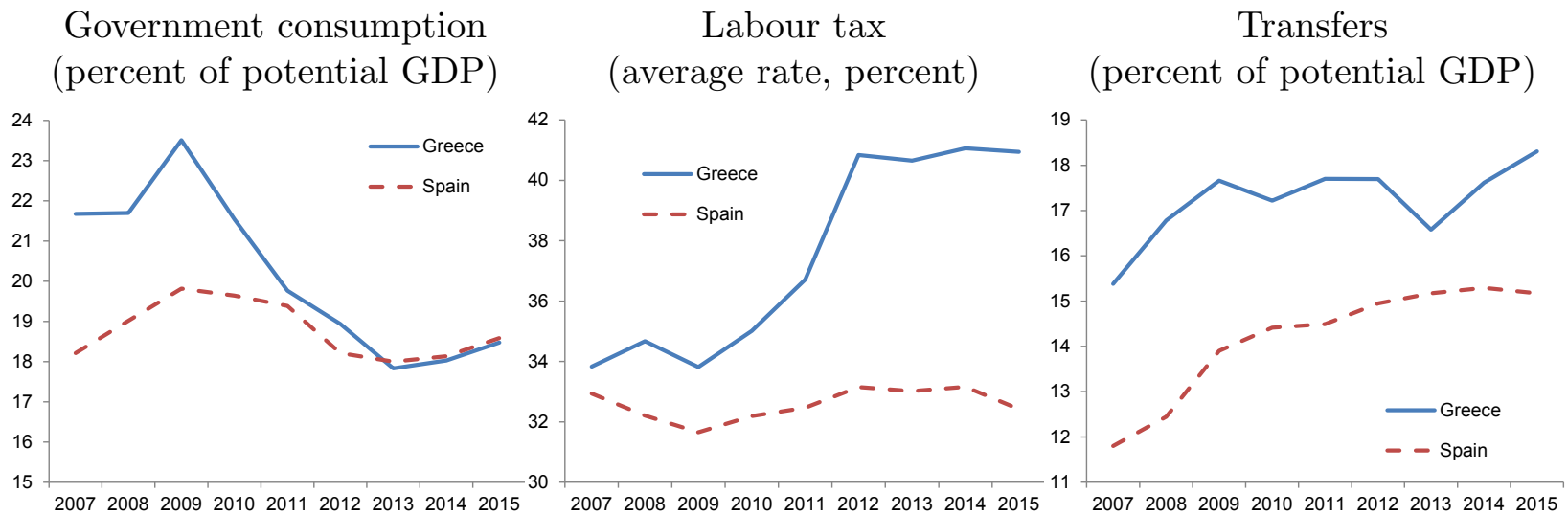


Figure 4: **Development of fiscal instruments in Greece (solid line) and Spain (dashed line).** Based on EC AMECO database, Spring 2016.

Callegari, Drudi, Kuester, "The fiscal mix in the euro-area crisis" (no optimal, no default)

In sum

- Important topic: distribution and sovereign default.
- Clean mechanism.
- Domestic role for sovereign debt can support debt even without default costs (quantitatively on the order of 5 percent of GDP).

- Who suffer the most from aftermath of default?