

Does Austerity Pay Off?

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Bundesbank/DFG/IMF Workshop

Credit frictions and default in macroeconomics

June 4, 2014

Government expenditures during global recessions and recoveries: average vs current

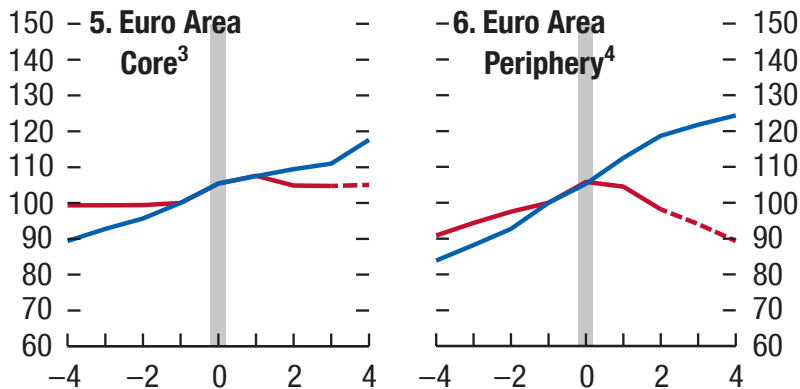


Figure: IMF, WEO (2013)

Austerity imposed by markets' assessment

Austerity: spending cuts or tax increases in order to reduce debt

Since 2010 sharp shift to austerity in most advanced economies, despite ongoing recession

- ▶ Pro-cyclical fiscal stance
- ▶ Arguably w/o alternative, because of markets' concern regarding sustainability of debt, reflected in rising yield spreads

The question

But does austerity actually pay off?

- ▶ Does it reassure markets about the sustainability of debt?
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Direct effect may be offset by adverse indirect effect on growth

- ▶ Blanchard (December 2011): “Financial investors are schizophrenic about fiscal consolidation and growth. They react positively to news of fiscal consolidation, but then react negatively later, when consolidation leads to lower growth—which it often does.”

Effect on output captured by multiplier

Estimates of spending multiplier between 0.5 and 2

- ▶ Recent survey by Ramey (2011)
- ▶ Broadly in line with theory
- ▶ Still: size of multiplier varies with state of the economy (slack, exchange rate regime, fiscal stress)

Our contribution

New panel data set for 26 emerging and advanced economies

- ▶ Data for sovereign yield spreads, as a direct measure for markets' perception of debt sustainability
- ▶ Data for exhaustive government spending building on Ilzetzki, Mendoza, and Végh (2013)

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Estimate dynamic effect of government consumption on spreads

- ▶ Local projection approach
- ▶ Condition on state of the economy (fiscal stress, recessions, exchange rate regime)

Literature

Recent work on spreads

- ▶ Longstaff et al (2011), Borri and Verdelhan (2011), Broner et al (2013), Bernoth et al (2012)

Classic studies of consolidation episodes and narrative approaches

- ▶ Giavazzi and Pagano (1990), Alesina and Perotti (1995), Ramey and Shapiro (1998), Devries et al (2011), Jorda and Taylor (2014)

Identification in VAR models

- ▶ Mountford/Uhlig (2009), Blanchard/Perotti (2002) Ramey (2011)

State dependence

- ▶ Perotti (1999), Christiano et al (2011), Auerbach and Gorodnichenko (2012), Corsetti et al (2012), Ilzetzki et al (2013)

Data

- ▶ Analysis based on new data set
- ▶ Quarterly data for 26 emerging and advanced economies on
 - government consumption
 - GDP
 - sovereign yield spreads
- ▶ Unbalanced panel from 1990Q1 to 2013Q2

Fiscal data

Focus on government consumption rather than taxes (due to identification issues)

- ▶ Identification requires non-interpolated fiscal data
- ▶ Ilzetzki, Mendoza, and Végh (2013) collect non-interpolated government consumption data for 44 countries ending in 2008
→ we update (to new base year) and extend their data set
- ▶ Government consumption excludes transfers
- ▶ Relates to general or central government depending on the country

▶ Table

Spread data

Measure how market's assessment of government solvency affects real financing costs of countries

- ▶ Compute difference in sovereign yields vis-à-vis a “riskless” reference country
 - ▶ Only consider yields on government securities issued in a common currency
- eliminate effects of inflation and depreciation expectations

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Alternative measures are credit default swap (CDS) spreads but these are only available for subset of countries/time periods

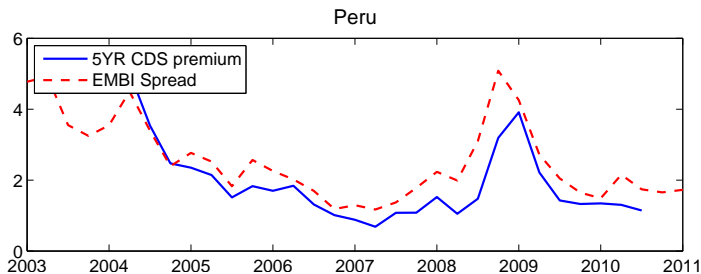
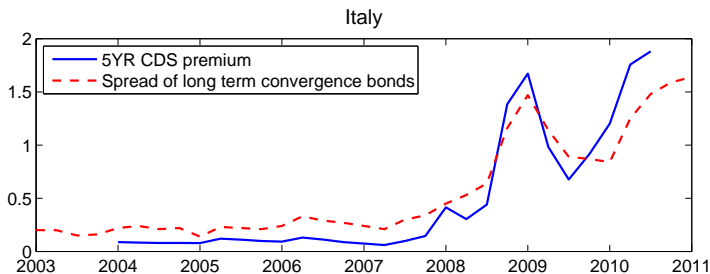
Spread data: three strategies

1. Emerging markets: J.P. Morgan EMBI spreads
 - difference in yields of dollar-denominated government (-guaranteed) bonds relative to U.S. government bonds
2. Euro area (ECB): “long-term interest rate for convergence purposes”
 - computed as “yields to maturity” from bonds with residual maturity close to 10 years
 - use German gov. bond yield as risk-free benchmark
3. Make use of issuance of foreign currency government bonds in many developed economies

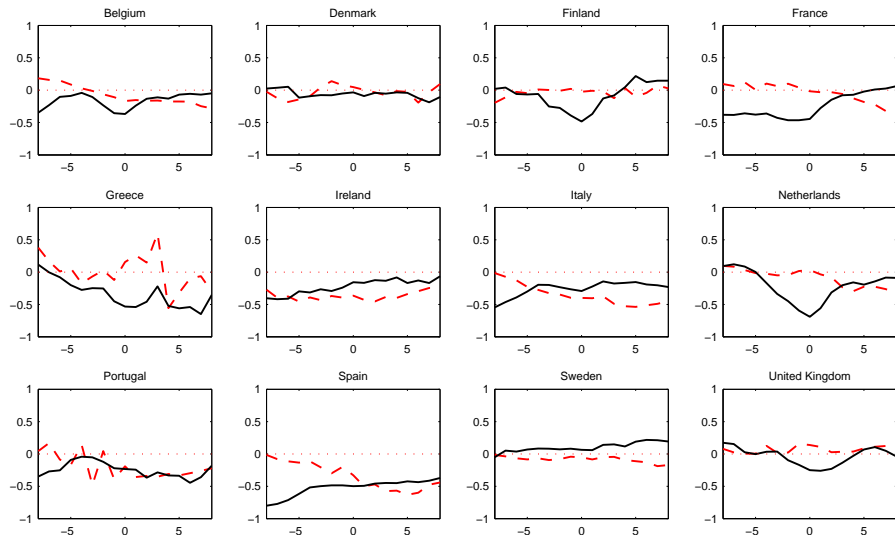
▶ Table

▶ Figure

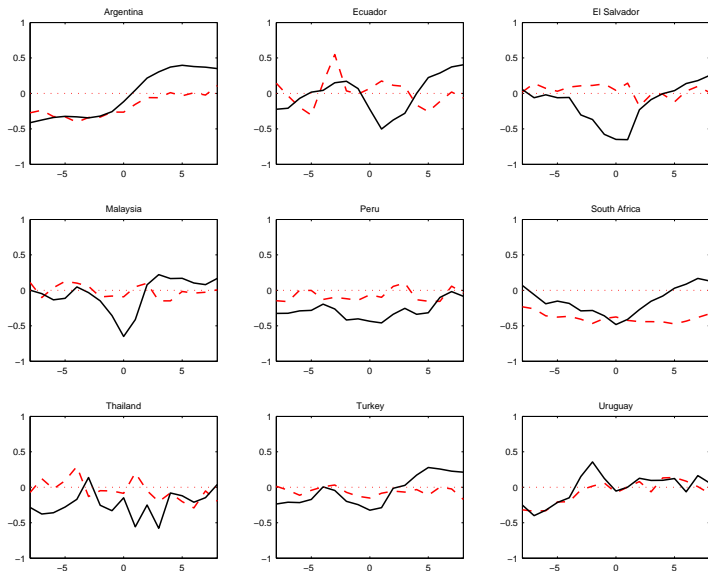
Yield spreads and credit default swap (CDS) spreads



Correlation yield spread and $\Delta y(t \pm k)$ and $\Delta g(t \pm k)$



Correlation yield spread and $\Delta y(t \pm k)$ and $\Delta g(t \pm k)$



Unconditional behavior of spreads

- ▶ Sovereign yield spreads are countercyclical
- ▶ No systematic relationship between spreads and government consumption growth
- ▶ What about co-movement of spreads and output conditional on austerity?

Econometric framework: local projection

Local projection

$$x_{i,t+h} = \psi_{A,h} g_{i,t} + \Pi_h(L) X_{i,t-1} + u_{it}$$

where control vector $X_{i,t} = [g_{i,t}, y_{i,t}, s_{i,t}]'$

- ▶ Direct estimate of impulse response functions, robust to misspecification (Jordá, 2005)

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Identification: $g_{i,t}$ predetermined (Blanchard and Perotti, 2002)

- ▶ Government spending is gov. consumption, not transfers
- ▶ Discretionary spending subject to decision lags
- ▶ Such lags even observed as crisis imminent (US stimulus package, austerity measures in European periphery)

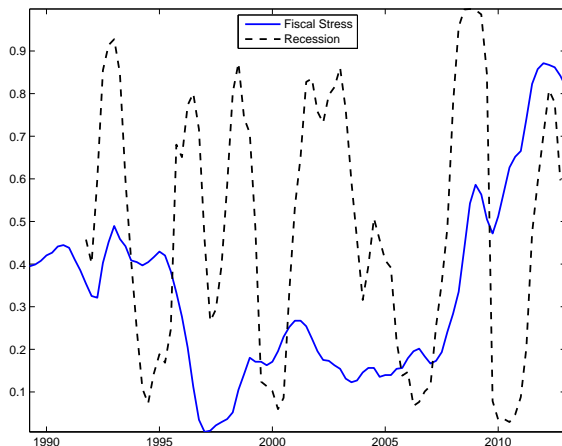
Allowing for state dependence

$$x_{i,t+h} = F(z_{it}) \psi_{A,h} g_{i,t} + [1 - F(z_{it})] \psi_{B,h} g_{i,t} \\ + F(z_{it}) \Pi_{A,h}(L) X_{i,t-1} + [1 - F(z_{it})] \Pi_{B,h}(L) X_{i,t-1} + u_{it}$$

- ▶ Response changes with state of economy: indicator z_{it}
- ▶ Smooth transition function based on logistic transformation:

$$F(z_{it}) = \frac{\exp(-\gamma z_{it})}{1 + \exp(-\gamma z_{it})}, \quad \gamma > 0$$

Example: transition functions for Italy



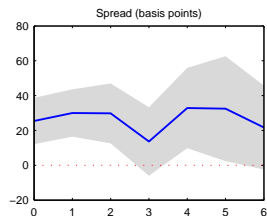
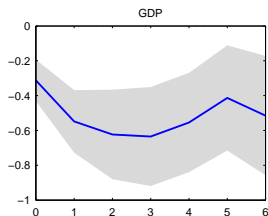
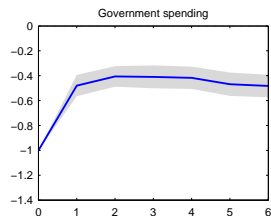
- ▶ Fiscal stress: three-quarter moving average of the spread
- ▶ Recession: filtered measure of output growth (Auerbach and Gorodnichenko, 2013)

Results

Estimate panel model for $h = 0, \dots, 6$

- ▶ Unbalanced panel for 26 countries (≈ 1500 observations)
- ▶ Include time fixed effects and country-specific constant/trend
- ▶ Baseline Experiment: Spending cut equal to one percent of GDP

Cut of government consumption: unconditional response



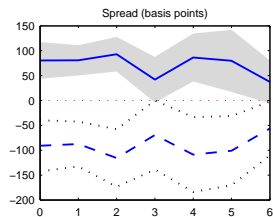
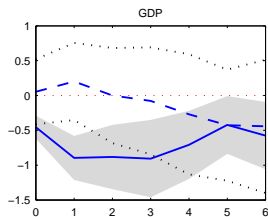
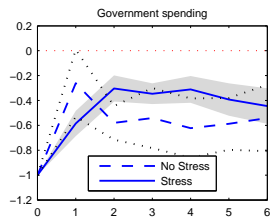
- ▶ Output falls by 0.3% on impact, declines further to -0.6%
- ▶ Spreads increase by 25-30bps during first couple quarters
 - spreads still countercyclical
 - austerity does not pay off

▶ Comparison to SVAR

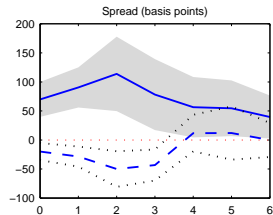
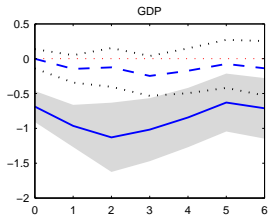
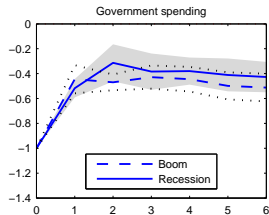
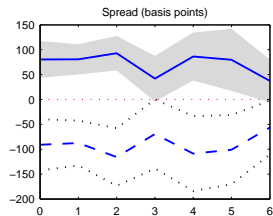
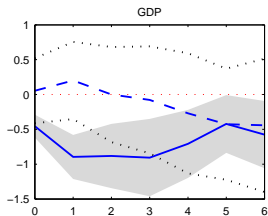
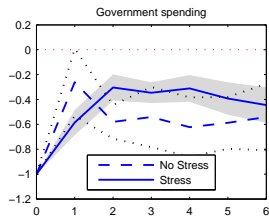
Accounting for heterogeneity

- ▶ So far: results for the entire sample
 - might mask important heterogeneity
- ▶ Two experiments
 - conditioning on fiscal stress vs. tranquil times
 - conditioning on recession vs. boom

Austerity does not pay off in times of fiscal stress (top) or recessions (bottom)



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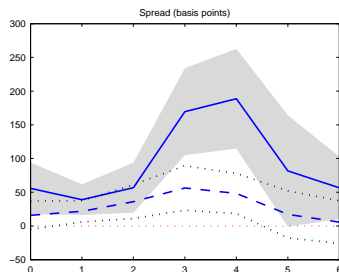
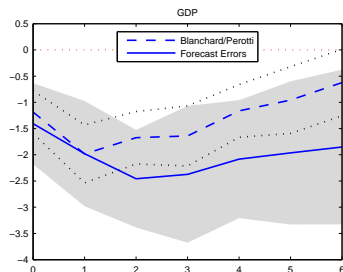


Fiscal foresight?

- ▶ Ramey (2011) and Leeper et al (2012): biased results, because fiscal policy innovations anticipated
- ▶ Replace government consumption with forecast error (OECD economic outlook)

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Results are robust with respect to. . .

- ▶ Exchange rate regime [▶ Figure](#)
- ▶ Excluding Great Recession [▶ Figure](#)
- ▶ Number of sample splits (e.g. advanced vs. emerging) [▶ Figure](#)
- ▶ Variation of fiscal stress indicator [▶ Figure](#)

Turning to theory: are results surprising?

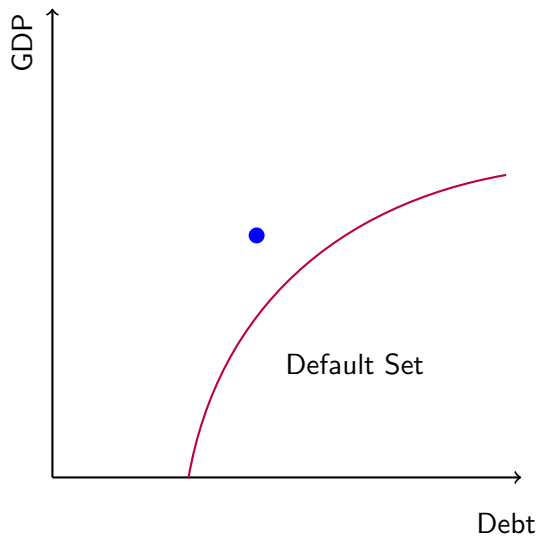
Spreads rise with default probability δ

$$1 + r = \frac{1 + \bar{r}}{1 - \delta(d', y)}$$

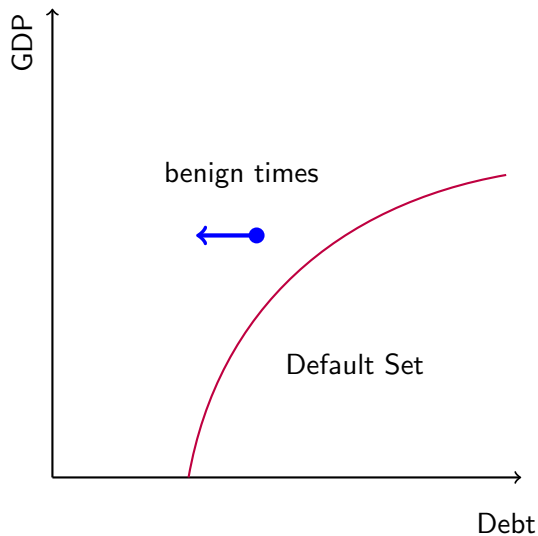
Default, in turn, more likely if borrowing high and/or output low

- ▶ At low levels of output, servicing high debt hurts more
- ▶ Holds in ability-to-pay models (e.g. Bi 2012) and willingness-to-pay models (e.g. Arellano 2008)

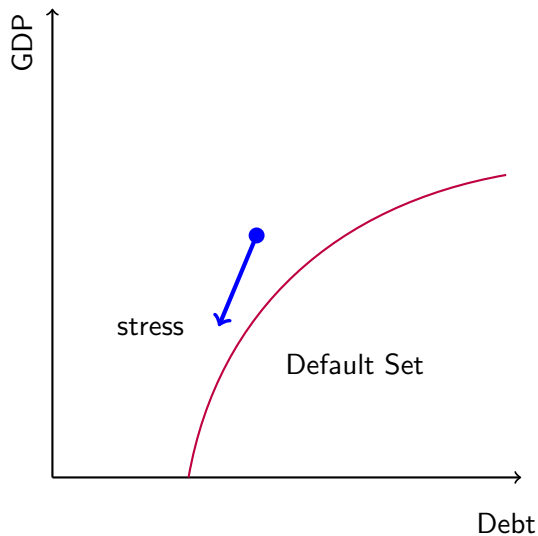
Default set and austerity



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Conclusion — Does austerity pay off?

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Austerity (cuts of government consumption)

- ▶ Depresses economic activity and raises spreads
- ▶ Unless economy enjoys benign times
- ▶ Spreads co-move negatively with output no matter what

Government consumption-to-output: advanced economies

	sample	min	max	mean	std
Belgium	1995 - 2013	0.24	0.25	0.25	0.00
Croatia	2000 - 2013	0.18	0.23	0.20	0.01
Denmark	1990 - 2013	0.25	0.29	0.27	0.01
Finland	1990 - 2013	0.18	0.26	0.21	0.02
France	1986 - 2013	0.23	0.27	0.25	0.01
Greece	2000 - 2011	0.17	0.23	0.18	0.01
Hungary	1995 - 2013	0.21	0.28	0.23	0.02
Ireland	1997 - 2013	0.16	0.18	0.17	0.01
Italy	1991 - 2013	0.19	0.22	0.20	0.01
Netherlands	1988 - 2013	0.23	0.28	0.25	0.01
Poland	1995 - 2013	0.17	0.21	0.18	0.01
Portugal	1995 - 2013	0.19	0.22	0.20	0.01
Slovenia	1995 - 2013	0.17	0.22	0.19	0.01
Spain	1995 - 2013	0.16	0.22	0.18	0.02
Sweden	1993 - 2013	0.07	0.12	0.09	0.02
United Kingdom	1986 - 2013	0.21	0.28	0.23	0.02

Government consumption-to-output: emerging markets

	sample	min	max	mean	std
Argentina	1993 - 2013	0.12	0.15	0.13	0.01
Chile	1989 - 2012	na	na	na	na
Ecuador	2000 - 2013	0.10	0.13	0.12	0.01
El Salvador	1994 - 2013	0.06	0.09	0.07	0.01
Malaysia	2000 - 2013	na	na	na	na
Peru	1995 - 2013	na	na	na	na
South Africa	1993 - 2013	0.13	0.18	0.15	0.02
Thailand	1993 - 2013	0.07	0.11	0.09	0.01
Turkey	1998 - 2013	0.09	0.12	0.11	0.01
Uruguay	1988 - 2013	na	na	na	na

▶ back

Spreads - advanced economies

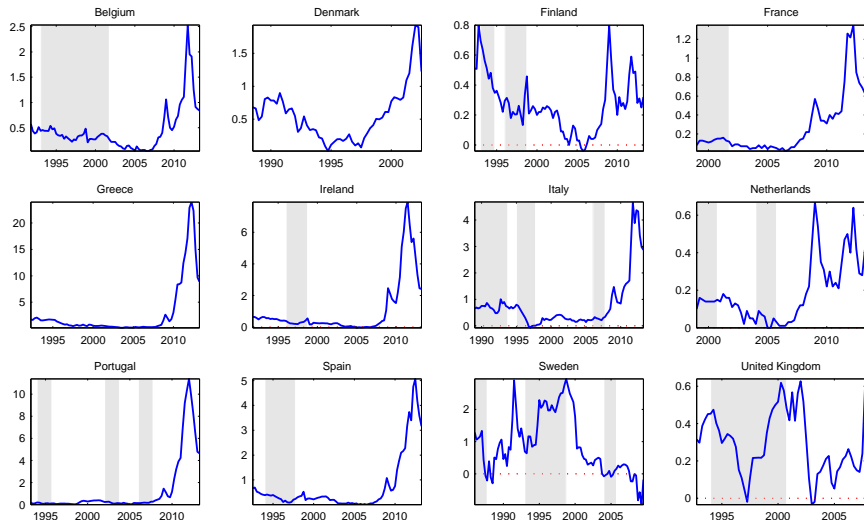
	sample	min	max	mean	std
Belgium	1991 - 2013	0.04	2.53	0.45	0.44
Croatia	1996 - 2013	1.11	9.24	3.26	1.92
Denmark	1988 - 2002	0.02	1.93	0.57	0.42
Finland	1992 - 2013	-0.04	0.80	0.27	0.18
France	1999 - 2013	0.02	1.35	0.27	0.32
Greece	1992 - 2013	0.15	23.98	2.80	5.24
Hungary	1999 - 2013	0.10	6.05	1.79	1.66
Ireland	1991 - 2013	-0.04	7.92	1.04	1.79
Italy	1989 - 2013	-0.07	4.68	0.77	0.98
Netherlands	1999 - 2013	0.00	0.67	0.19	0.17
Poland	1994 - 2013	0.42	8.71	1.97	1.43
Portugal	1993 - 2013	0.00	11.39	1.27	2.62
Slovenia	2006 - 2013	-0.17	5.13	1.59	1.59
Spain	1992 - 2013	0.01	5.07	0.71	1.15
Sweden	1986 - 2009	-0.95	2.95	0.90	0.94
United Kingdom	1992 - 2007	-0.03	0.64	0.29	0.17

Spreads - emerging markets

	sample	min	max	mean	std
Argentina	1993 - 2013	2.04	70.78	15.80	18.74
Chile	1999 - 2013	0.55	3.43	1.45	0.58
Ecuador	1995 - 2013	5.02	47.64	12.58	9.08
El Salvador	2002 - 2013	1.27	8.54	3.33	1.36
Malaysia	1996 - 2013	0.46	10.55	1.84	1.45
Peru	1997 - 2013	1.14	9.11	3.60	2.01
South Africa	1994 - 2013	0.70	6.52	2.28	1.24
Thailand	1997 - 2006	0.48	5.55	1.51	1.11
Turkey	1996 - 2013	1.39	10.66	4.19	2.44
Uruguay	2001 - 2013	1.27	16.43	4.07	3.18

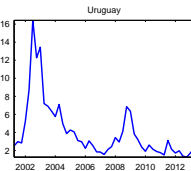
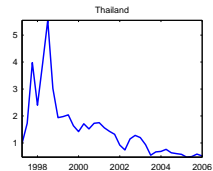
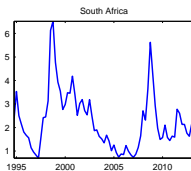
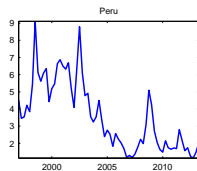
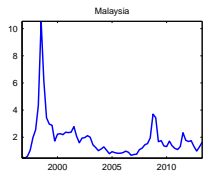
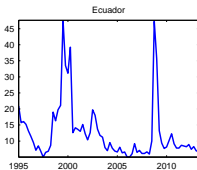
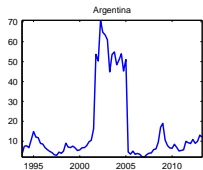
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Spreads: advanced economies



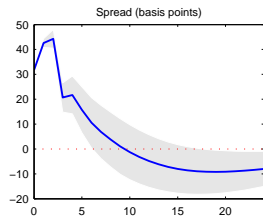
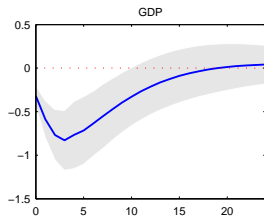
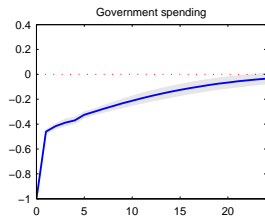
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Spreads: emerging markets



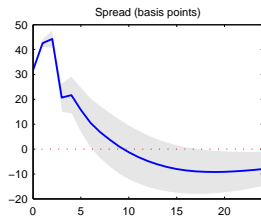
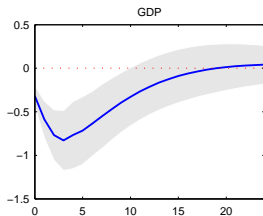
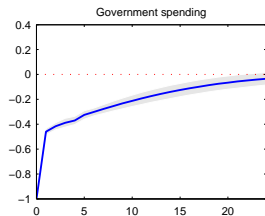
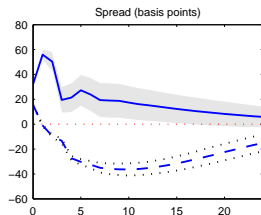
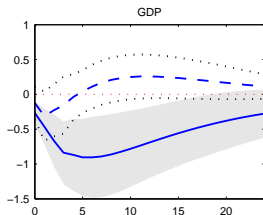
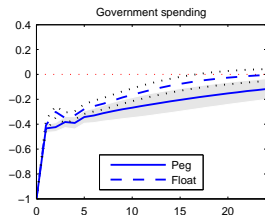
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Cut of government consumption: unconditional response (SVAR)



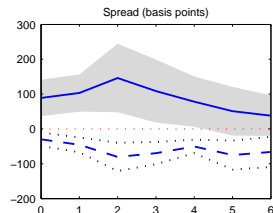
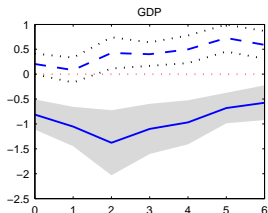
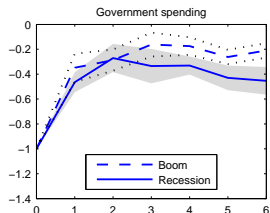
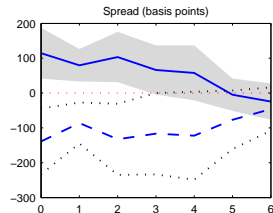
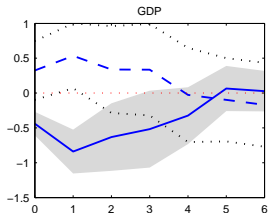
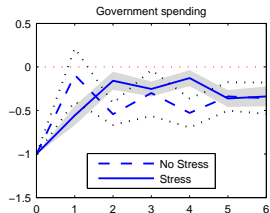
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Float vs. peg (top) and unconditional (bottom)



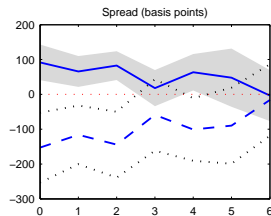
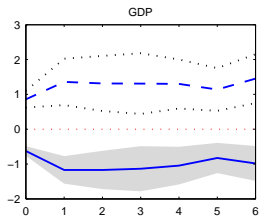
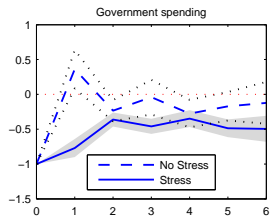
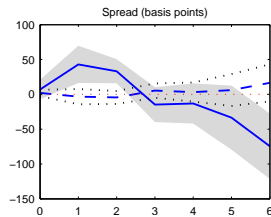
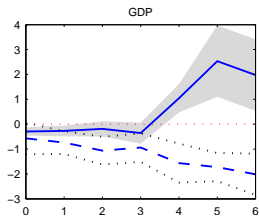
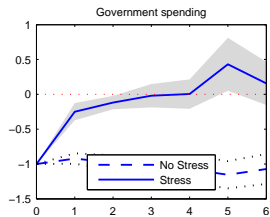
▶ back

Austerity does not pay off in times of fiscal stress (top) or recessions (bottom), pre financial crisis sample



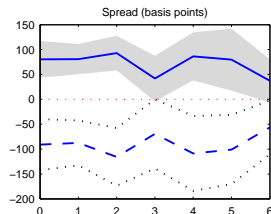
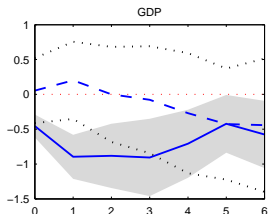
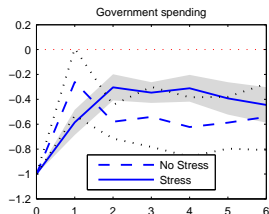
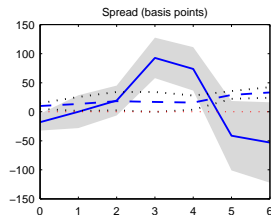
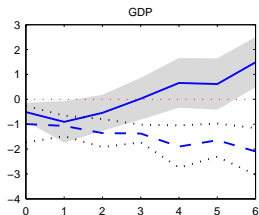
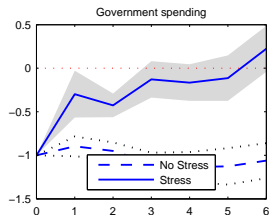
▶ back

Advanced (top) vs. emerging (bottom)



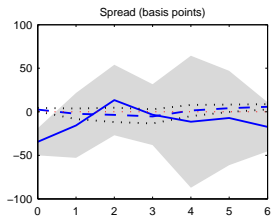
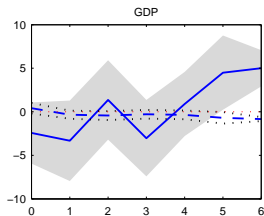
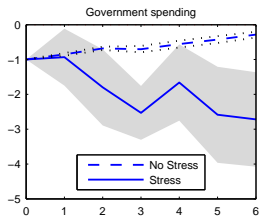
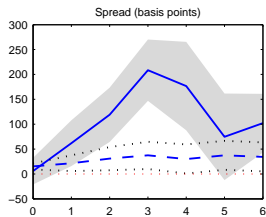
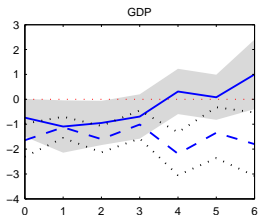
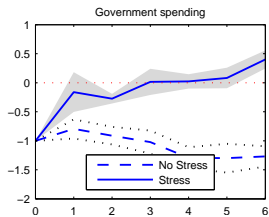
▶ back

Euro area (top) vs. full sample (bottom)



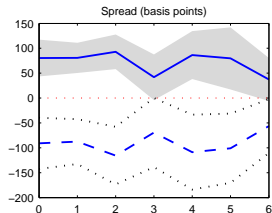
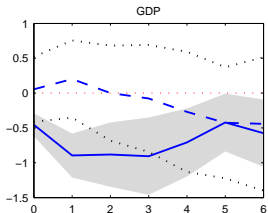
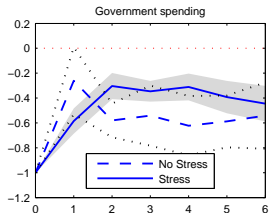
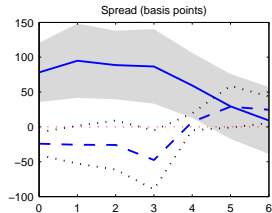
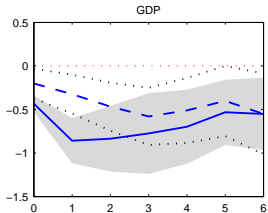
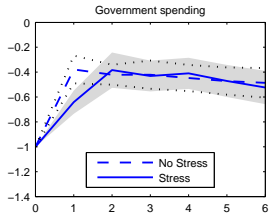
▶ back

Euro area: crisis (top) vs. non-crisis countries(bottom)



▶ back

Demeaned fiscal stress indicator (top) vs. baseline (bottom)



▶ back