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# What drives the short-run costs of fiscal consolidation? Evidence from OECD countries

Ryan Banerjee and Fabrizio Zampolli

2<sup>nd</sup> Research Network Meeting on "Macroeconomics and global financial markets"  
Basel, 10–11 March 2015

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# Background and motivation

- The need for fiscal consolidation is largely uncontroversial. More controversial is when and how to consolidate
- Critics claim that recent consolidations have imposed higher output costs than necessary
  - Under-utilised resources
  - Zero lower bound
  - Higher share of credit constrained agents
- New and growing literature on state-contingency of fiscal multipliers
  - Multipliers larger than one suggesting (strong) Keynesian effects (eg Auerbach and Gorodnichenko, 2012,2013; Baum et al., 2012)
  - Financial crises (Corsetti et al, 2012)
  - Zero lower bound literature (eg Woodford, 2011; Christiano et al, 2011)

# Background and motivation

- Evidence on state-contingency of fiscal multipliers has been challenged
  - eg Ramey and Zubairy (2014)
  - Methodological issues
    - Non-linear IRFs
    - Centered MA of growth
    - Computation and definition of multiplier
- Recent theoretical literature on zero-lower bound find small multipliers
  - eg Fahri and Werning (2012), Kiley (2014), Braun et al (2013), etc
- Fiscal consolidation occurring in countries with:
  - Historically low real yields
  - High public debt
  - Lack of competitiveness
- In brief, it is unclear that FMs are necessarily, or everywhere, large in the aftermath of the global financial crisis

# This paper

- We estimate the short-run impact of fiscal consolidation on output and employment, following Jorda and Taylor (2013):
  - 17 advanced economies using annual data from 1978 to 2007
  - Narrative shocks (Devries et al, 2011; Guajardo, Leigh & Pescatori, 2014)
  - Local Projection (LP) methods
- Jorda and Taylor (2013) only look at positive vs. negative output gaps. We examine state dependency across multiple dimensions:
  1. other economic factors:
    - High vs. low public debt
    - Credit cycle
    - Financial crises
    - Monetary policy stance
    - Current account balance
  2. transmission mechanism of fiscal consolidation shocks
- Main focus of Guajardo et al (2014) and Jorda and Taylor (2013) is to test (the lack of) "expansionary austerity"

# Outline

1. Estimation method
2. State-dependent estimates of fiscal multipliers
3. Transmission mechanism: what factors are more important across states?



# Estimation method

- Estimate a FE local projection for different time horizons  $h$  ( $i$  is the unit or country):

$$y_{i,t+h} - y_{i,t-1} = \alpha_i^h + \theta^h D_{i,t} + \gamma^h X_{i,t-1} + \varepsilon_{i,t+h}$$

$D_{i,t+1}$  the treatment variable ( $\Delta CAPB$ ) instrumented by 'narrative' shocks

- *Problem:* Narrative shocks may not be fully exogenous
- *Solution:* Add controls which predict fiscal consolidation
- $D_{i,t}$  is scaled by lagged GDP  $\rightarrow \theta^h$  can be interpreted as multipliers
- Conditioning on the state of the economy

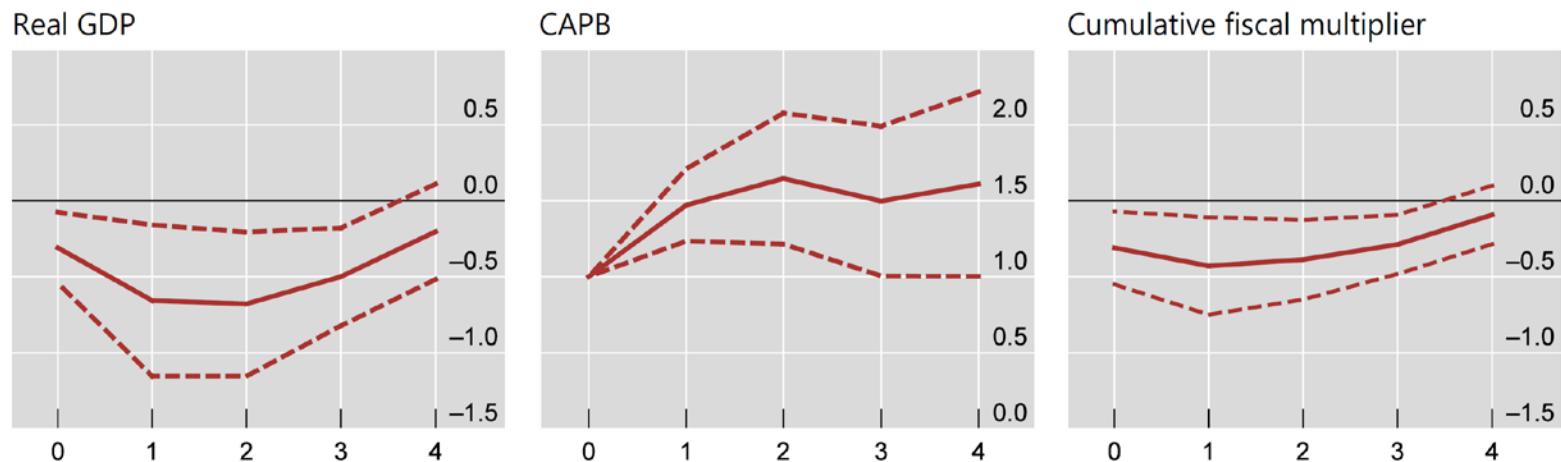
$$y_{i,t+h} - y_{i,t-1} = \alpha_{1i}^h + \theta_1^{h'} D_{i,t} + \gamma_1^{h'} X_{i,t-1} + \varepsilon_{1i,t+h}, \quad q_{it-s} \leq \delta$$

$$y_{i,t+h} - y_{i,t-1} = \alpha_{2i}^h + \theta_2^{h'} D_{i,t} + \gamma_2^{h'} X_{i,t-1} + \varepsilon_{2i,t+h}, \quad q_{it-s} > \delta$$

# Linear (state-invariant) estimate

Unconditional fiscal multipliers: responses to a fiscal shock of one pp of GDP

Graph 1

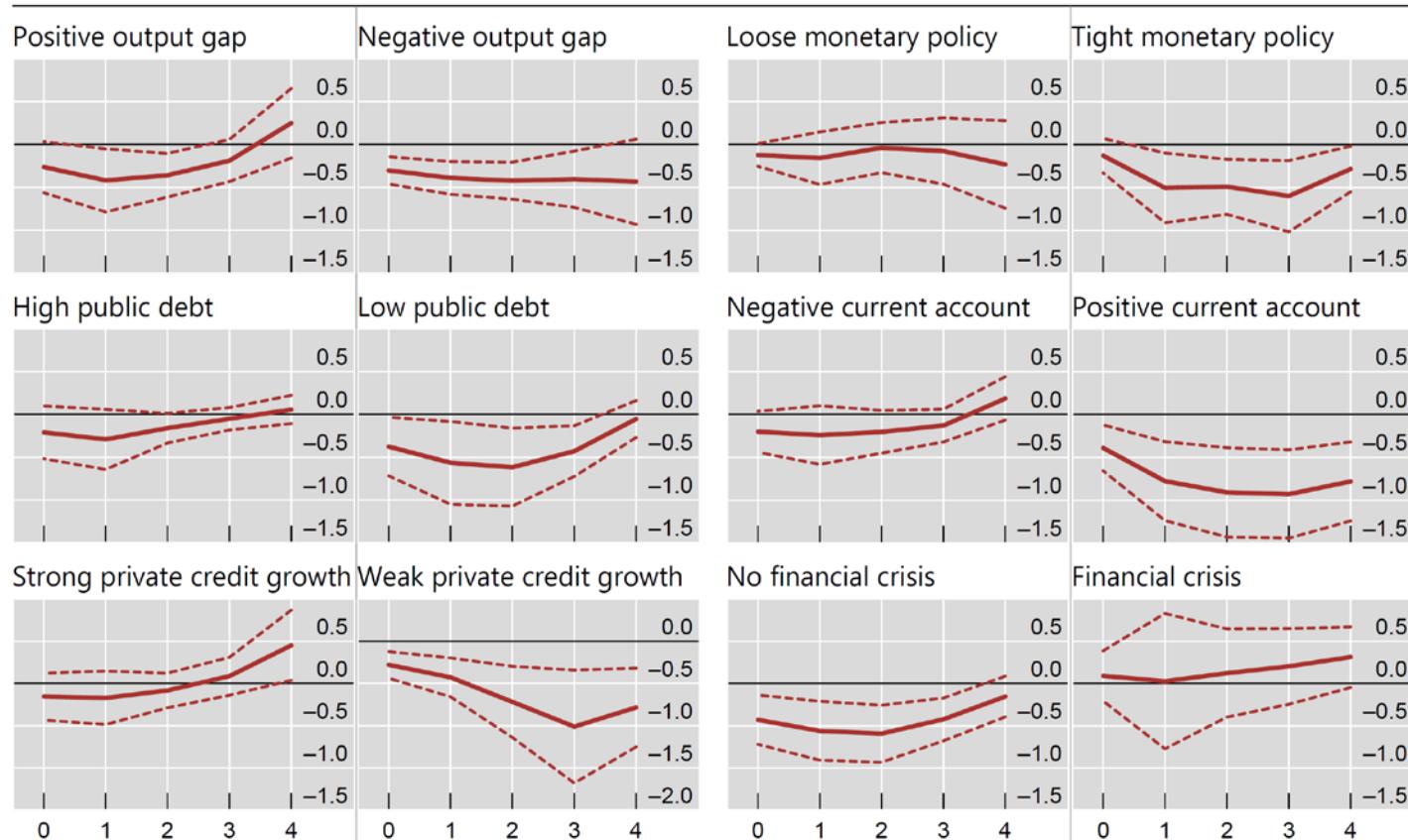


Note: The continuous lines in the left and middle panels indicate the cumulative percentage change at year  $h=0,1,2,3,4$  in the respective variable in response to a positive shock to the cyclically-adjusted primary balance (CAPB) of 1 percentage point of real GDP. The cumulative fiscal multiplier in the right panel is defined as the ratio of the cumulative change in real GDP (left panel) to the cumulative change in the CAPB (middle). Dotted lines are 90% confidence bands. Standard errors for the cumulative fiscal multiplier are calculated using the delta method.

# Fiscal consolidation multipliers: output

Cumulative fiscal multiplier conditional on various states of the economy

Graph 2

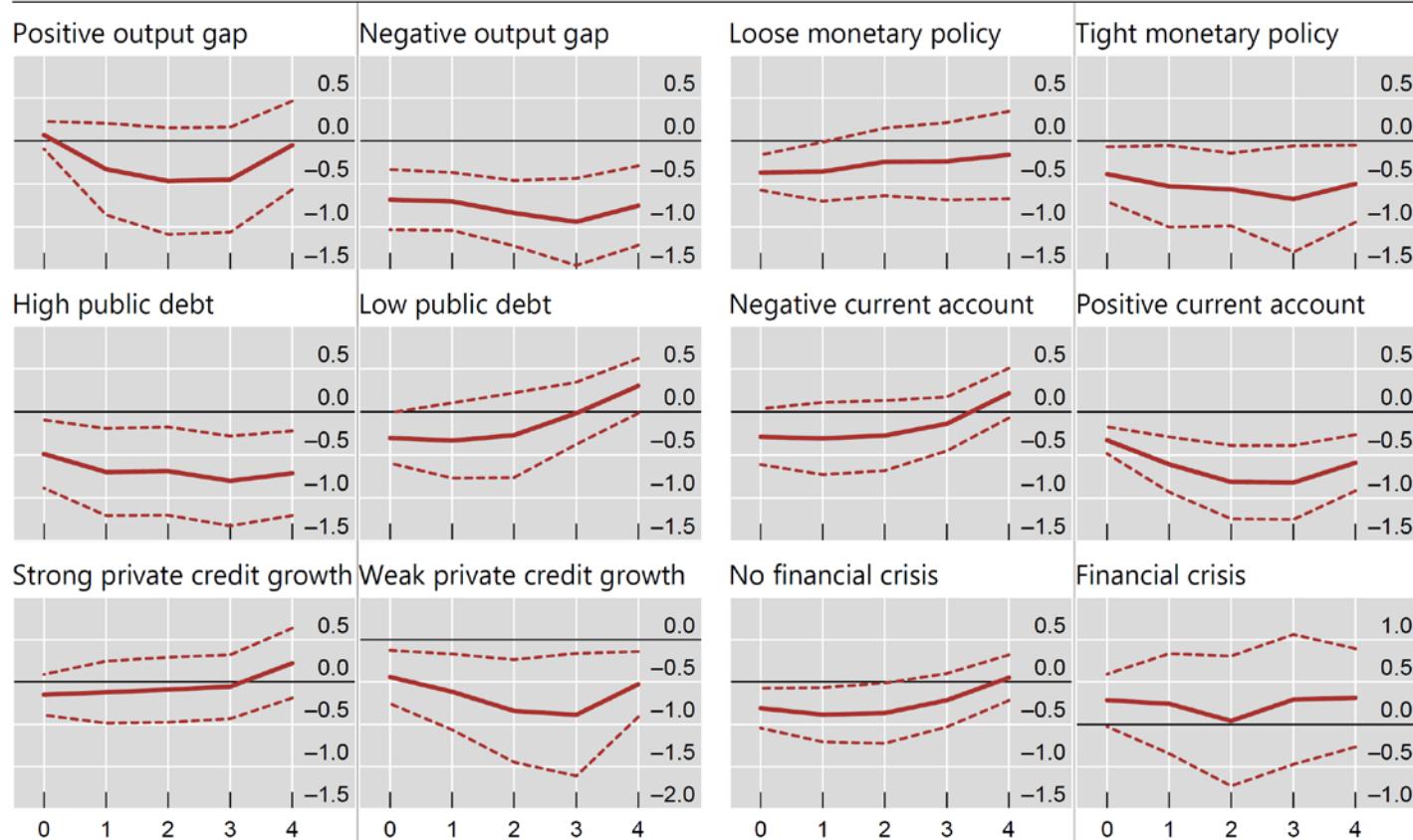


Note: The cumulative fiscal multiplier is the cumulative change in real GDP in response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years divided by the cumulative change in the CAPB over the same period.  $h=0$  indicates the period in which the fiscal consolidation shock occurs. The dotted lines indicate 90% confidence bands, computed with the delta method.

# Fiscal consolidation multipliers: employment

Cumulative multiplier for employment conditional on various states of the economy

Graph 3



Note: The cumulative fiscal multiplier for employment is the cumulative change in employment in response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years divided by the cumulative change in the CAPB over the same period.  $h=0$  indicates the period in which the fiscal consolidation shock occurs. The dotted lines indicate 90% confidence bands, computed with the delta method.

## To sum up

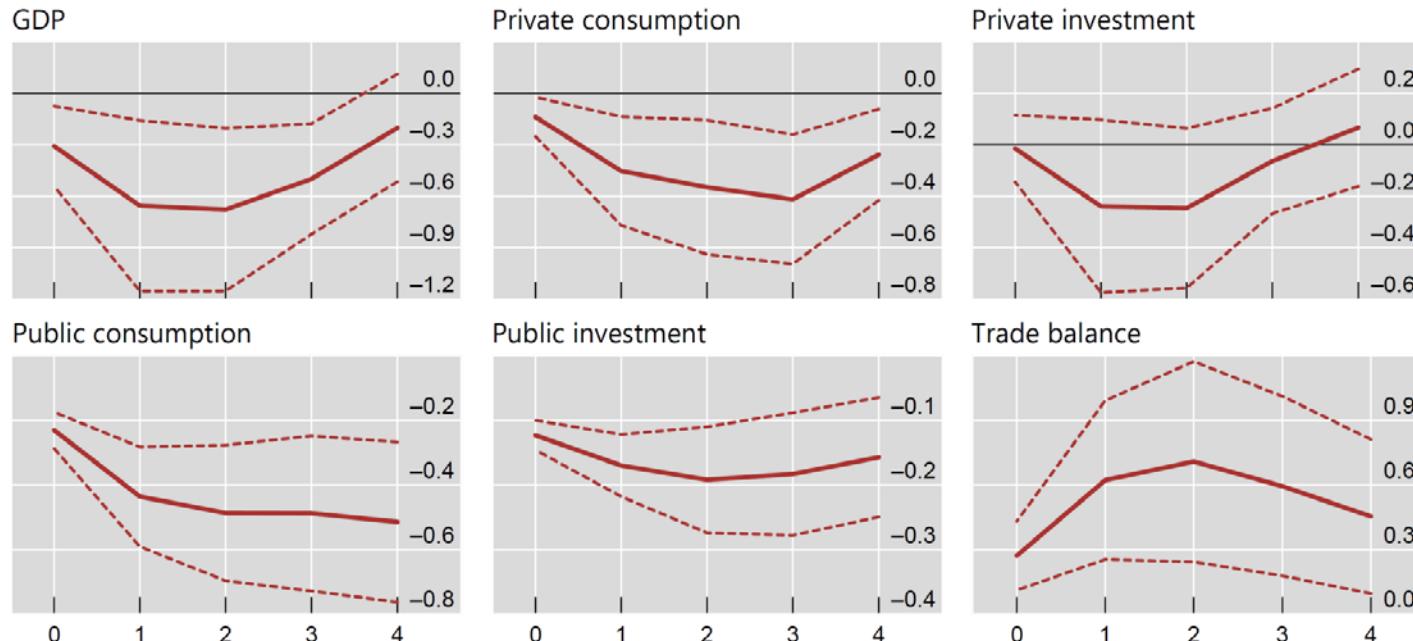
- Some evidence of state dependency, but not for all factors
- No evidence of (strong) state-dependency for the output gap (but employment effects appear stronger)
- No evidence of large multipliers, even after allowing for “bad” states



# Transmission of fiscal consolidation shocks

GDP and its components

Graph 4



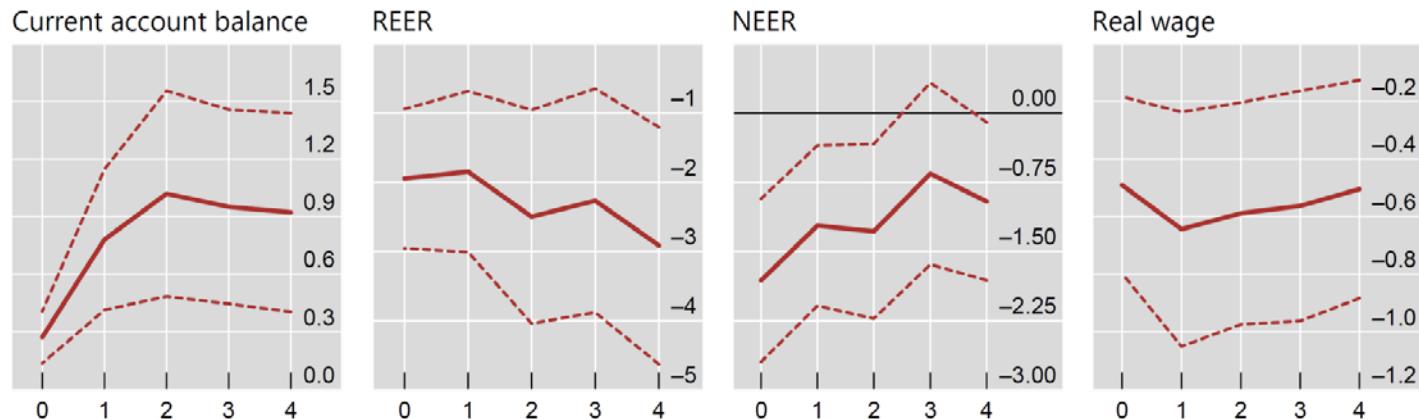
Note: All variables except GDP are expressed as contributions (in percentage points) to the cumulative change in real GDP in response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands.

- Persistent reduction in public spending
- External adjustment is an important offset

# Transmission of fiscal consolidation shocks

Current account and competitiveness

Graph 5



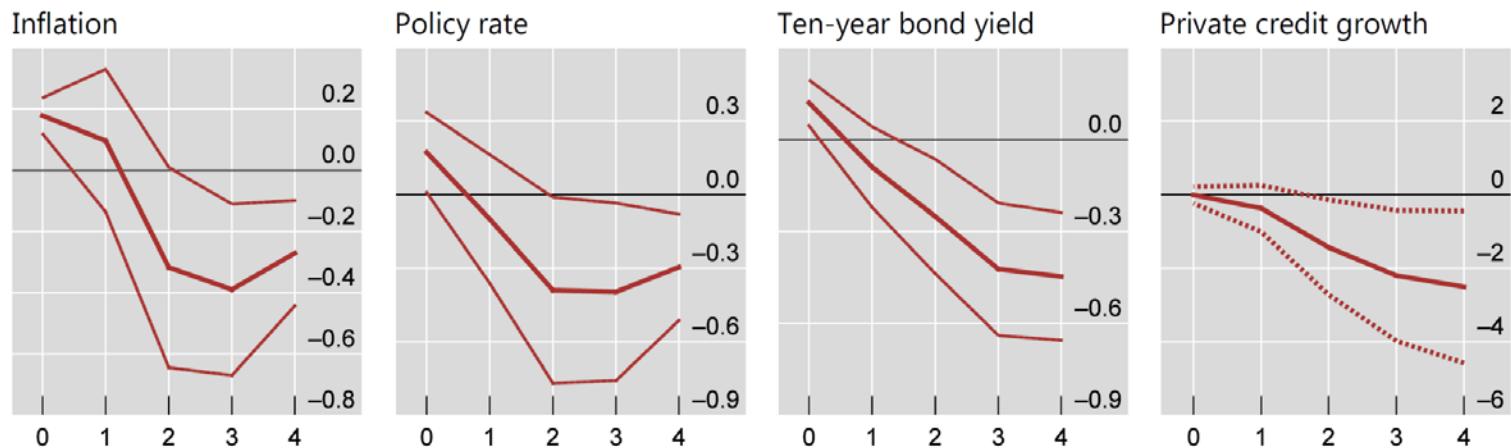
Note: Cumulative changes (in per cent) in response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. REER and NEER stand for Real and Nominal Effective Exchange Rate respectively. The dotted lines indicate 90% confidence bands.

- Large and persistent effect on the current account
- Temporary nominal depreciation, but persistent real depreciation
- Persistent compression of the real wage

# Transmission of fiscal consolidation shocks

Inflation, monetary policy and credit

Graph 7



Note: Cumulative changes (in per cent) in response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years.

- Significant drop in the long-term interest rate

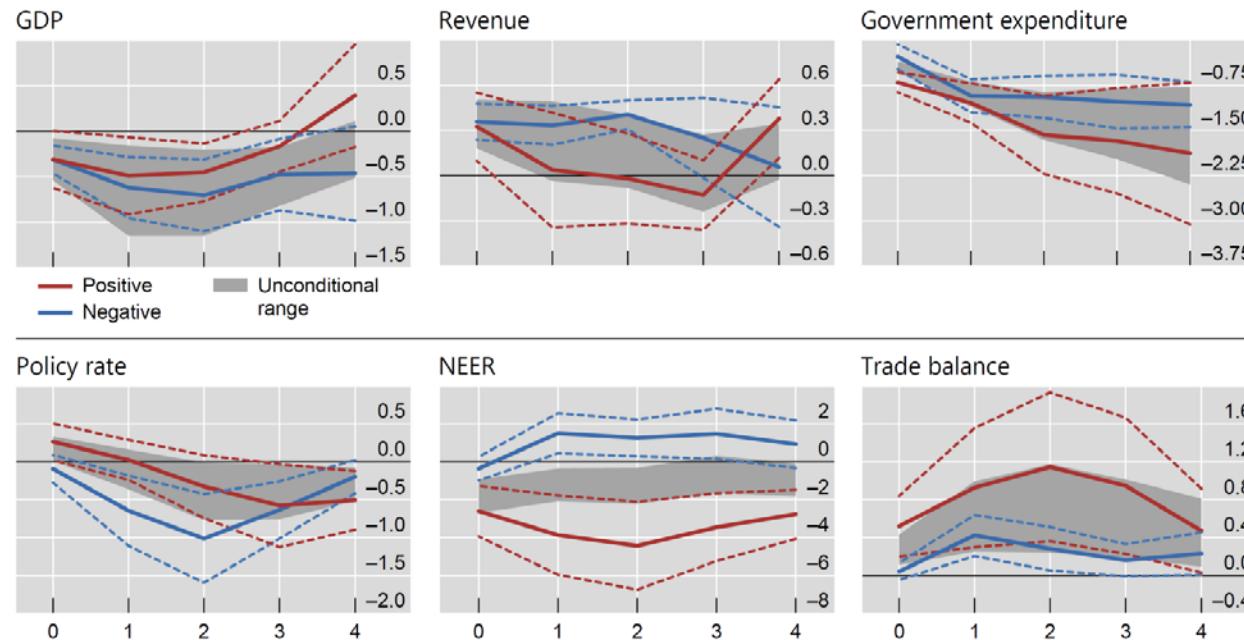
## To sum up

- “Average” transmission mechanism:
  - Consolidation is persistent
    - CAPB rise further in the two years after the initial shock
    - Reduction in public spending is significant and persistent
    - Rise in revenues is temporary
  - Important offset from trade balance
  - Relatively small contribution from private consumption and investment
  - Relatively small drop in the policy rate, but significant drop in the long-term interest rate
  - Small impact on employment
- To what extent is the “average” transmission mechanism still valid when conditioning on various economic factors?

# Positive vs negative output gap

Impulse response conditional on output gap

Graph 6



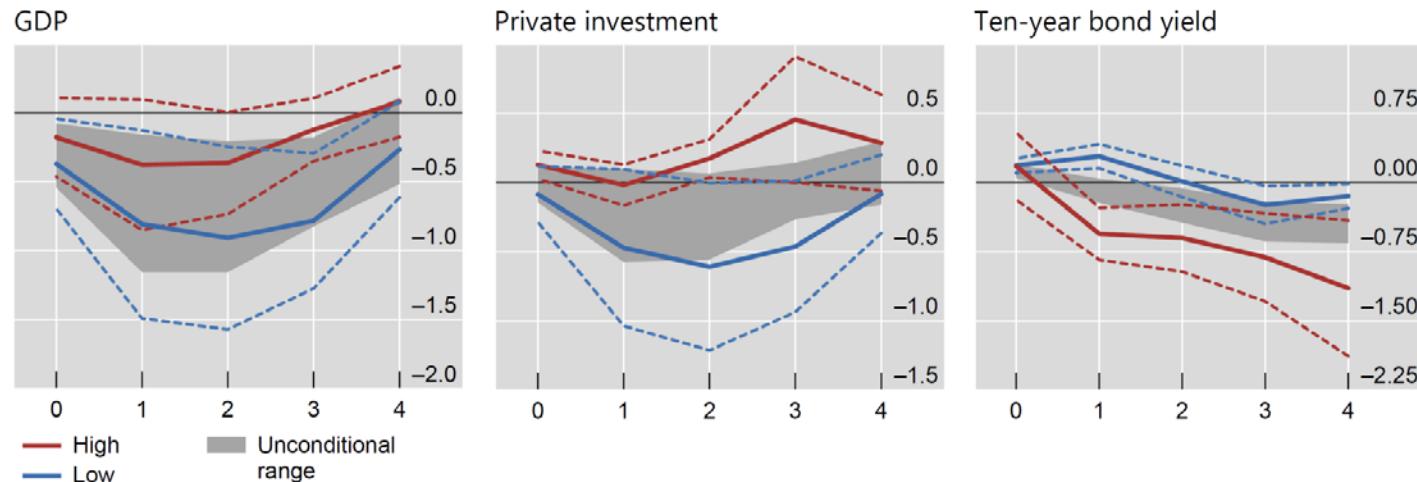
Note: Response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands. The grey area corresponds to the 90% confidence band in the linear (state-invariant) model.

- Effects on output similar but offsetting factors may be different
  - Positive output gap → external adjustment
  - Negative output gap → monetary policy response

# High vs low public debt

Impulse response conditional on public debt to GDP ratio

Graph 7



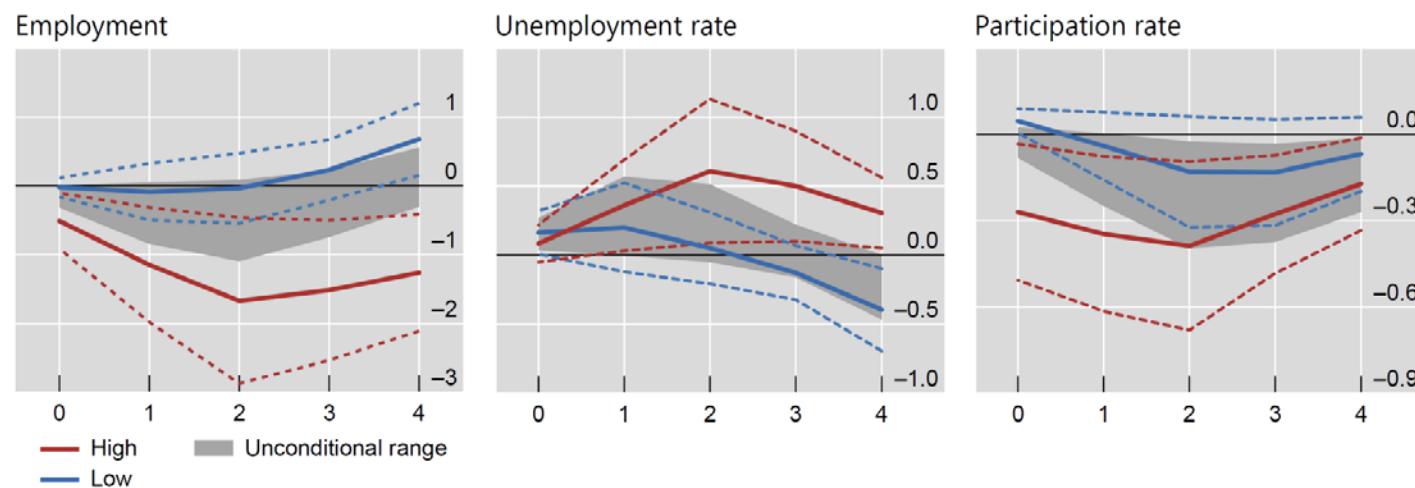
Note: Response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands. The grey area corresponds to the 90% confidence band in the linear (state-invariant) model.

- When debt is high, larger drop in the long-term interest rate
- Crowding-in of private investment

# High vs low public debt

High vs low public debt: labour market

Graph 8



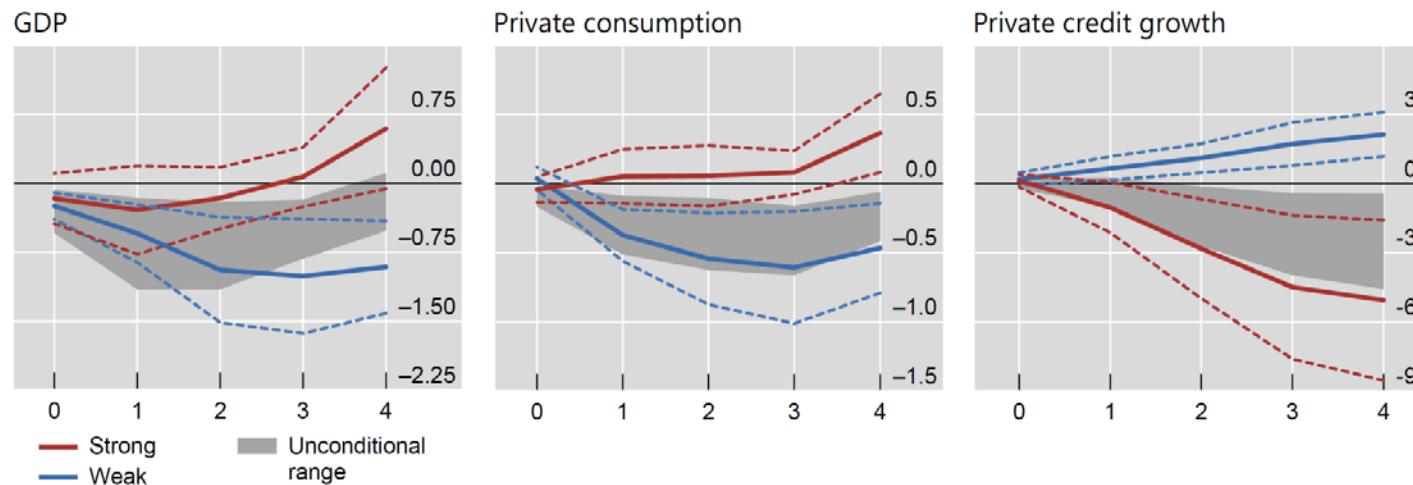
Note: Response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands. The grey area corresponds to the 90% confidence band in the linear (state-invariant) model.

- When debt is high, larger drop in employment
- Fall in participation rate partly offsets the impact on the unemployment rate

# Weak vs strong private credit growth

Impulse response conditional on credit growth

Graph 9



Note: Response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands. The grey area corresponds to the 90% confidence band in the linear (state-invariant) model.

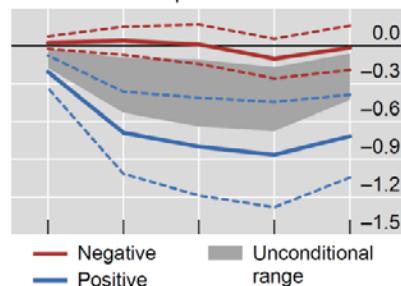
- When credit is weak response of private consumption is negative and more persistent:
  - households may be less able to smooth consumption

# Negative vs positive current account

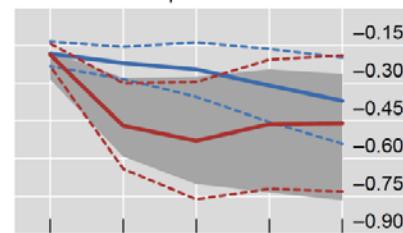
Current account

Graph 10

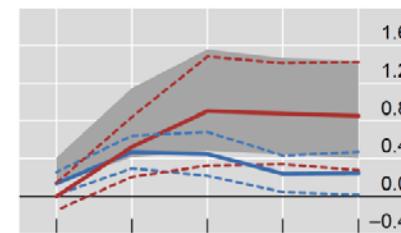
Private consumption



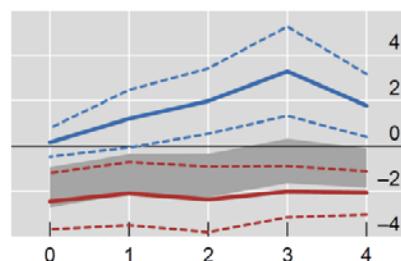
Public consumption



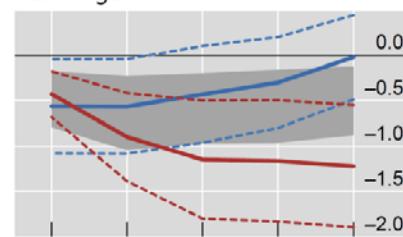
Current account balance



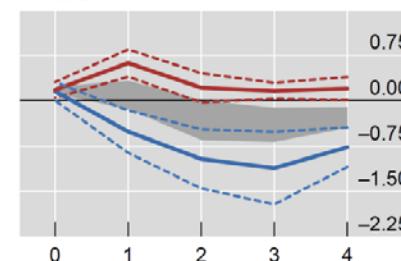
NEER



Real wage



Inflation



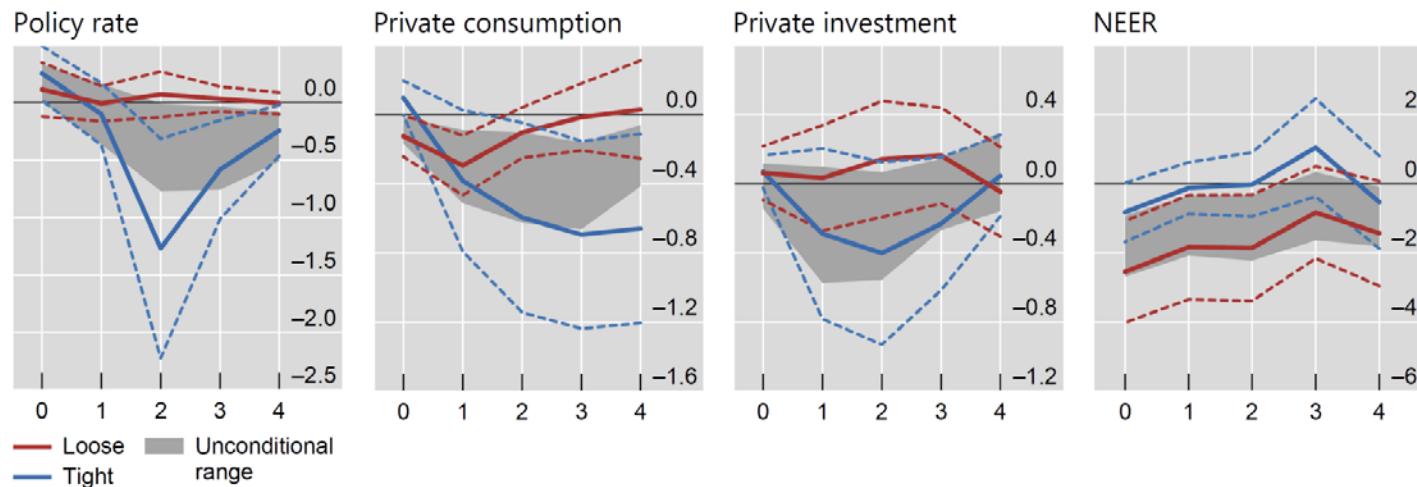
Note: Response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands. The grey area corresponds to the 90% confidence band in the linear (state-invariant) model.

- When current account is negative, consolidation seems to have a larger negative effect on the real wage and smaller impact on private demand

# Tight vs loose monetary policy

Tight vs loose monetary policy

Graph 11



Note: Response to a shock of one percentage point of GDP to the cyclically-adjusted primary balance (CAPB) over  $h$  years. The dotted lines indicate 90% confidence bands. The grey area corresponds to the 90% confidence band in the linear (state-invariant) model.

# Conclusion

- We do not find evidence of large multipliers (or Keynesian effects), even when we condition on factors likely to raise their size
- Evidence suggest that some factors (high public debt and current account) are likely to lower the size of multipliers below average
- Weak credit growth is likely to raise multipliers above average. Still, their size is below one.
- Our findings should, at a minimum, raise doubts about studies claiming that post-crisis multipliers are necessarily, or everywhere, larger than average.