The Effects of Monetary Policy Shocks on Inequality

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International Monetary Fund

Monetary Policy, Macroprudential Regulation and Inequality

Zurich, 3-4 October 2016

Extensive literature on inequality drivers

Motivation

But mostly focusing on structural drivers:

- Technological progress (Bound and Johnson 1992; Acemoglu 2002);
- Demographics (Karahan and Ozkan 2013);
- Trade and Financial Openness (Feenstra and Hanson 2008)
- Labor market structure (Card 2001; Jaumotte and Osorio-Buitron 2015)

Recently, concerns about the impact of monetary policy:

- Accommodative monetary policy stance (Acemoglu and Johnson 2012; Stiglitz 2015)

Ambiguous effects

Motivation

In theory, expansionary monetary policy may:

- Increase inequality
  - Boosting asset prices—top-income households hold larger shares
  - Increasing inflation—low-income households hold more liquid asset
- Reduce inequality
  - Benefiting borrower and hurting savers
  - Economic activity affects more labor earnings at the bottom of distribution

Empirical evidence

- Coibion et al. (2012) for the US: expansionary monetary policy reduces inequality
- O'Farrell et al. (2016): effect varies across 8 OECD countries
- Saiki and Frost (2014) for Japan: expansionary monetary policy increases inequality

Contribution

Contribution

1. Effect of monetary policy on inequality constructing unexpected, and orthogonal to innovations in economic activity, changes in policy rates.

2. Examining the impact of monetary policy on inequality for a large sample of advanced and emerging market economies.

3. Assessing whether the effects of monetary policy shocks:
   - vary over time,
   - depend on the type of monetary shocks (tightening vs. expansionary),
   - the state of the business cycle,
   - the share of labor income to total income
   - the size of redistribution policies.

What we don't do: assess the effects of unconventional monetary policy.

Key findings

Summary

• Contractionary (expansionary) monetary actions increase (reduce) inequality.

• The effect is larger for positive monetary policy shocks—especially during expansions,...

•…and in countries with higher labor share of income and lower redistribution.

• Changes in policy rates driven by an increase in growth are associated with lower inequality.

Methodology

Orthogonal Monetary Policy Shocks (MP)

$$FE_{i,t}^{i} = \alpha + \beta FE_{i,t}^{inf} + \gamma FE_{i,t}^{g} + MP_{i,t}$$

- $\boldsymbol{FE^{i}}$ is the difference between the actual policy rates and the rate expected in October of the same year (*Consensus forecasts*);
- $\boldsymbol{FE^{inf}}$ is the forecast error of inflation;
- $\boldsymbol{FE^{g}}$ is the forecast error of growth.

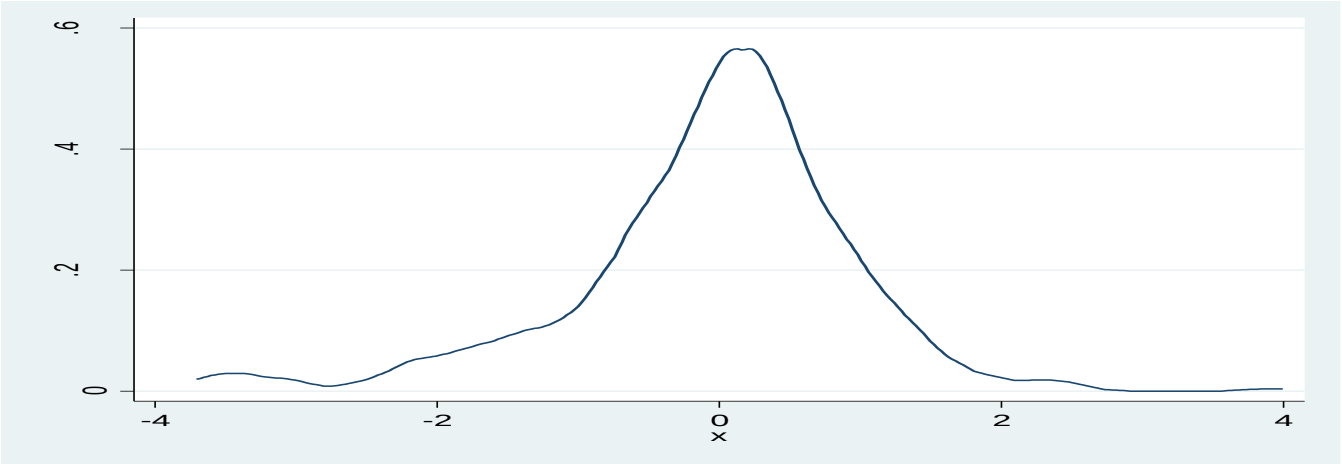
Advantage of this approach (Auerbach and Gorodnichenko 2013):

- eliminates the problem of "policy foresight" (Forni and Gambetti 2010; Leeper et al. 2012);
- reduces the likelihood of capturing the potentially endogenous response of monetary policy to the state of the economy.

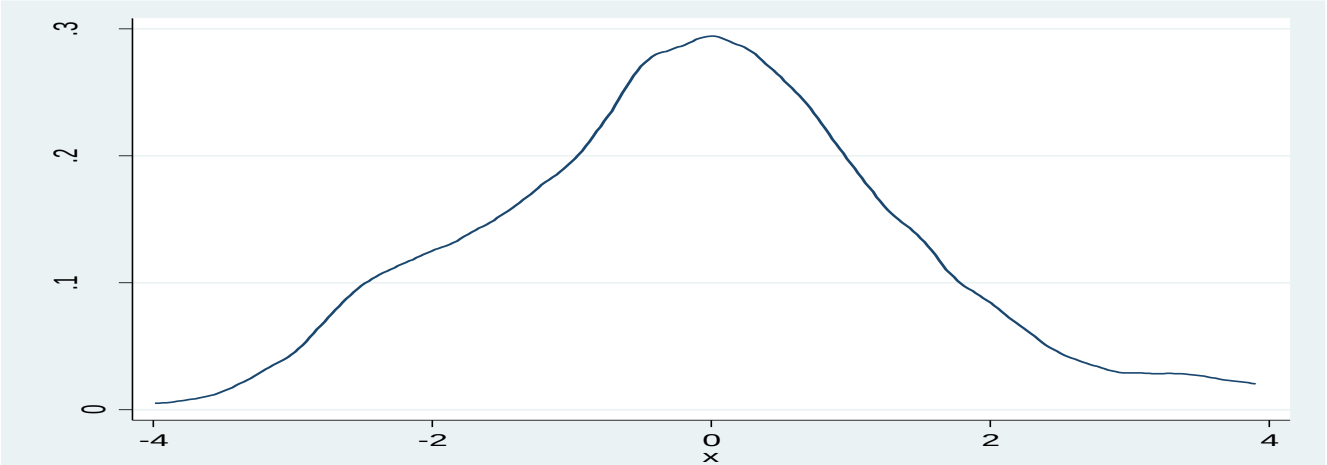
Monetary Policy Shocks (MP)

Methodology

Panel 1. Advanced Economies



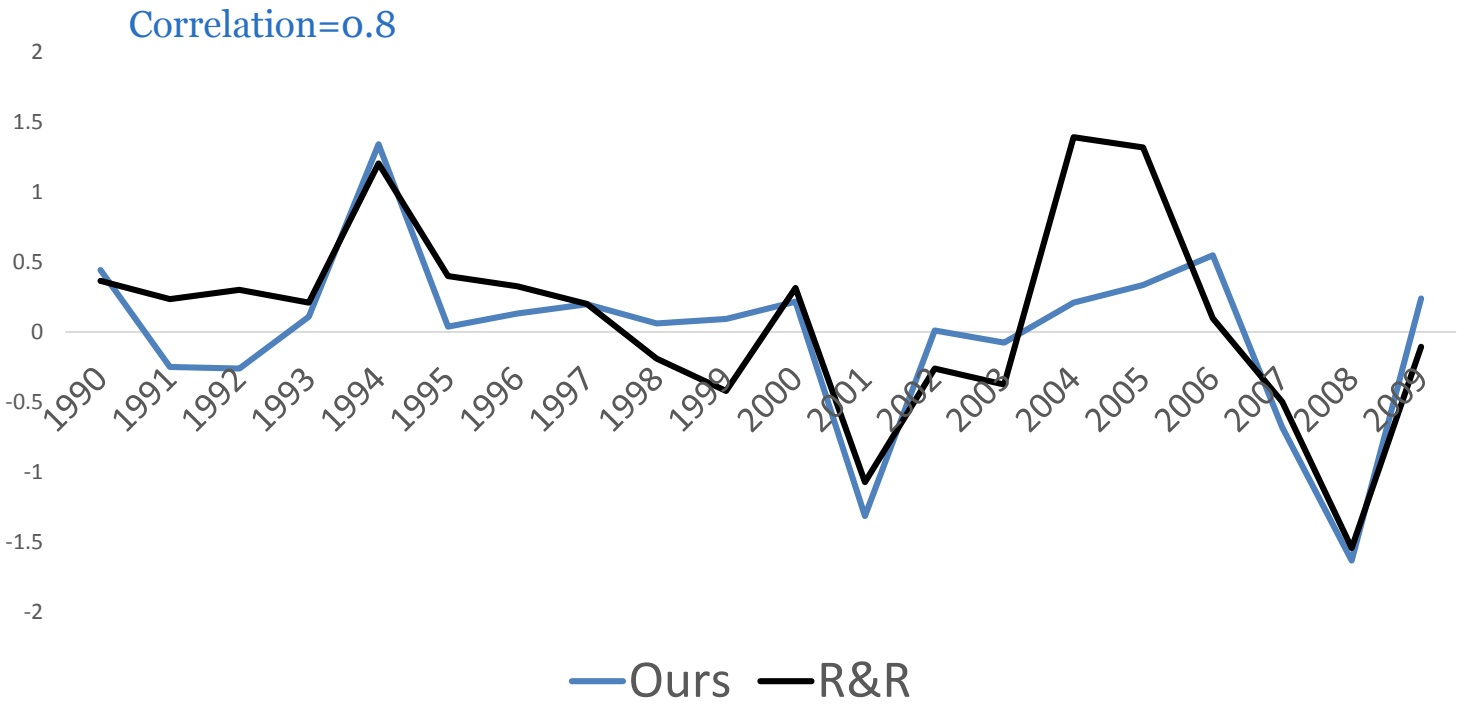
Panel 2. Emerging market economies



Methodology

Monetary Policy Shocks (MP)

Ours vs. R &R

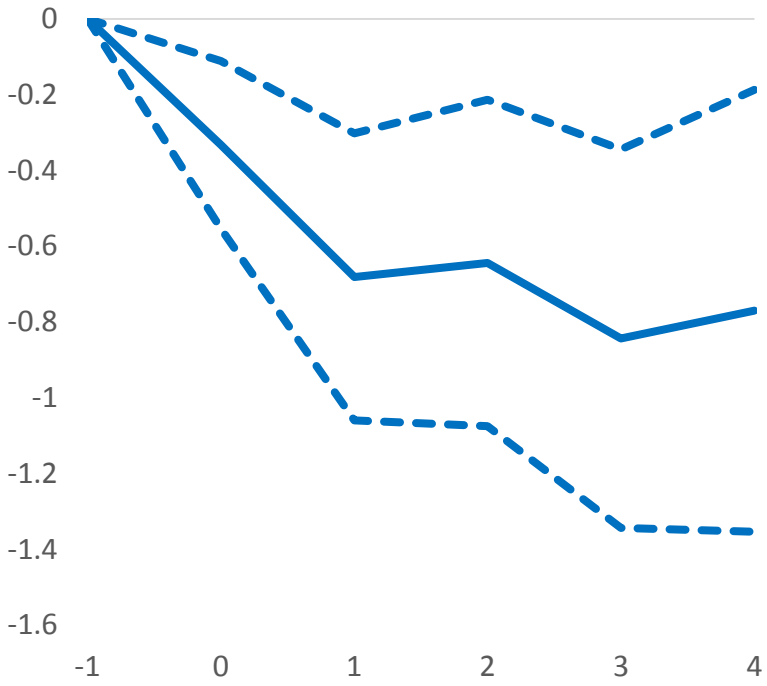


Methodology

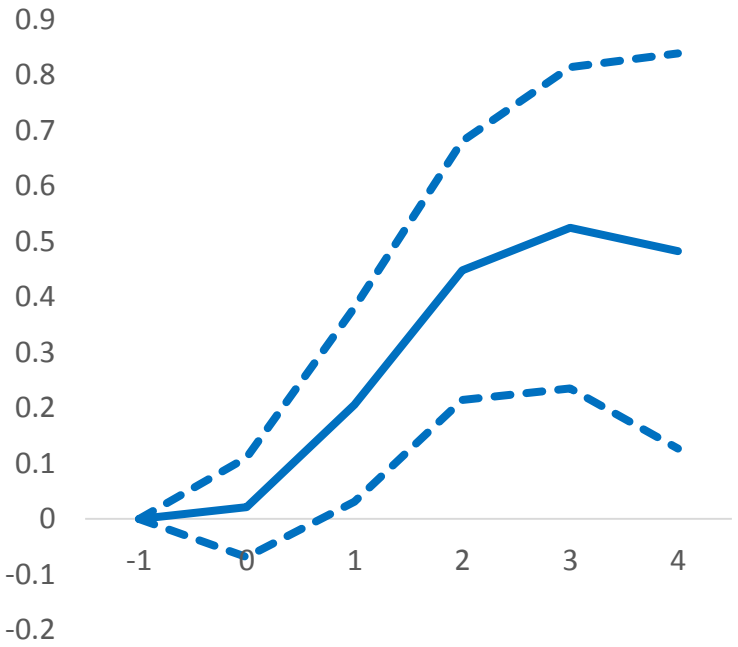
Effect on output and unemployment

Effect of a 100 bps exogenous increase in policy rates

Panel 1. Output (percent)



Panel 2. Unemployment (percentage points)



Note: t=0 is the year of the shock. Solid blue lines denote the response to an unexpected increase (or decrease) in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Estimates based on equation (1).

Empirical framework

Methodology

- Local projection method to assess the response of inequality (Gini) to monetary policy shocks:

$$y_{i,t+k} - y_{i,t} = \alpha_i^k + \vartheta_t^k + \beta^k MP_{i,t} + \pi^k X_{i,t} + \varepsilon_{i,t}^k \qquad (1)$$

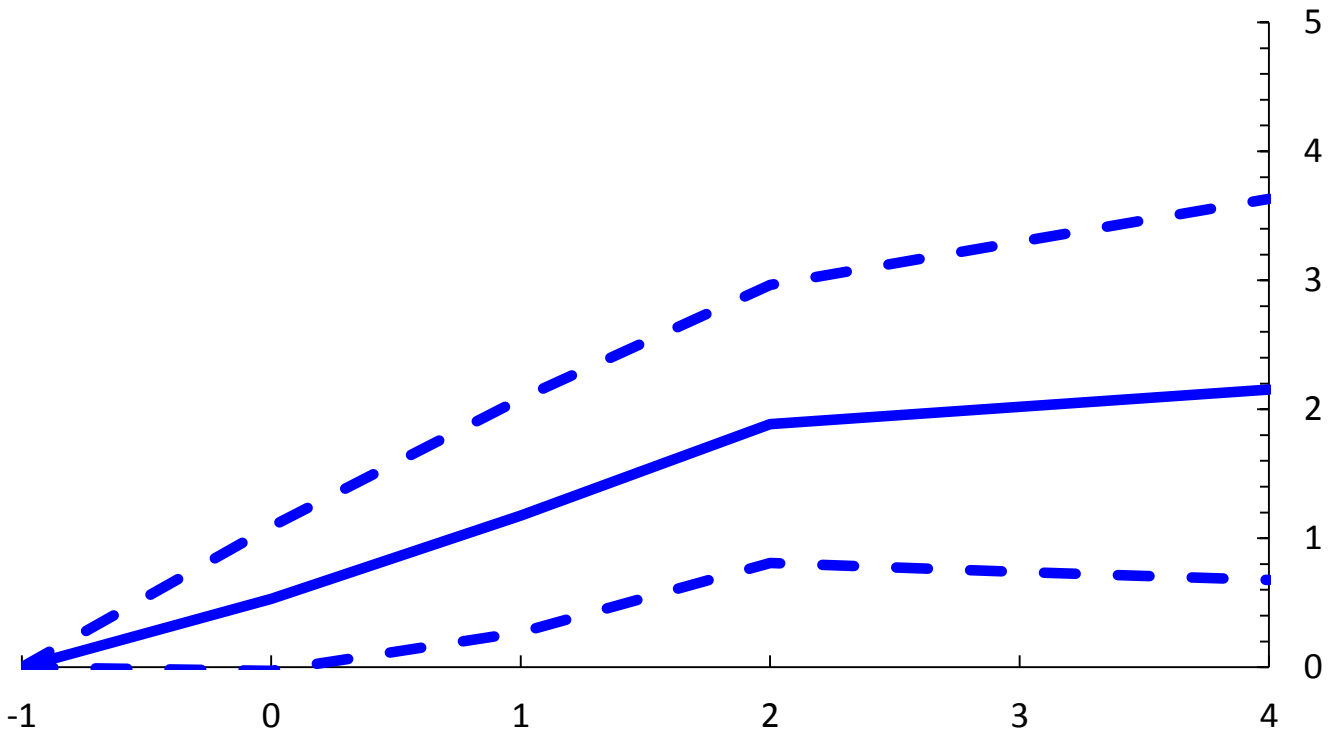
- $\boldsymbol{y}$ is the log of market (net) inequality; $\boldsymbol{X}$ a set of control including lagged change in inequality and monetary policy shocks.

- Sample: unbalanced panel of 32 advanced and emerging market economies from 1990 to 2013.

Results

Contractionary MP increases inequality

Effect of a 100 bps exogenous increase in policy rates



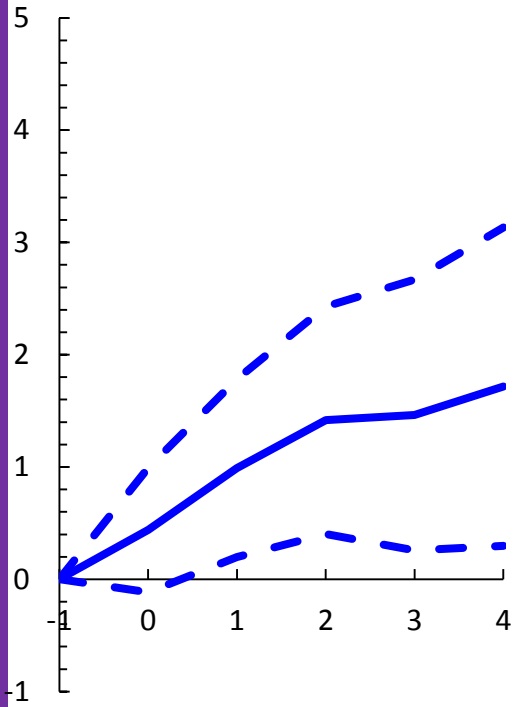
Note: t=0 is the year of the shock. Solid lines denote the response to an unanticipated increase in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Estimates based on equation (1).

Robustness checks

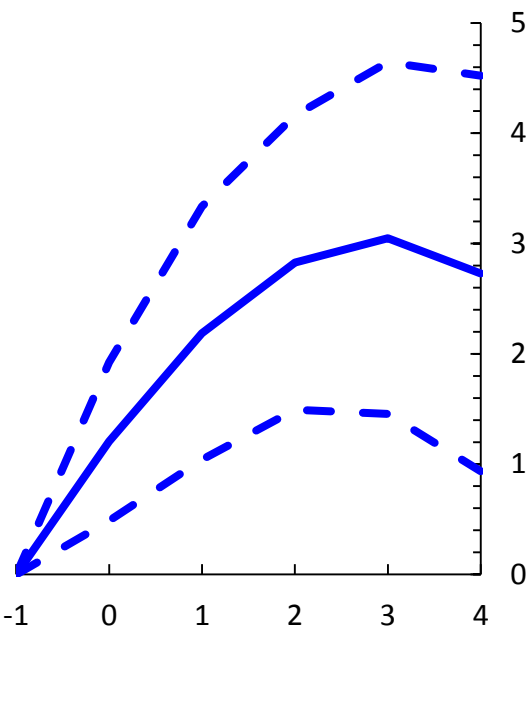
Effect of a 100 bps exogenous increase in policy rates

Results

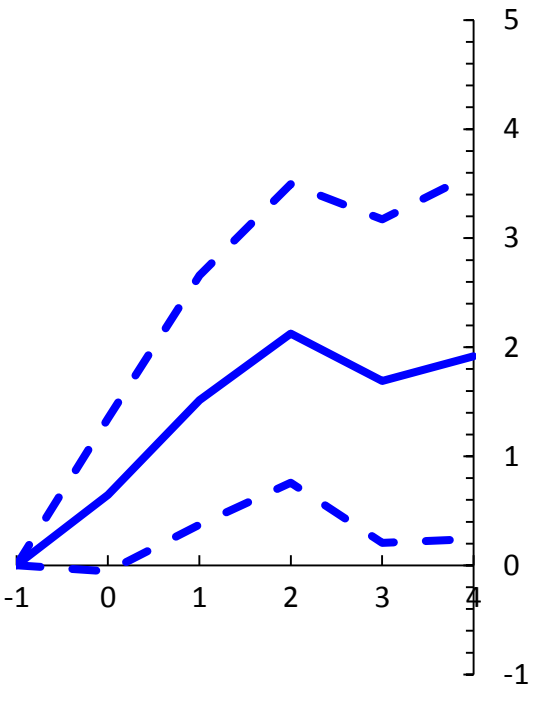
Panel 1. Gross inequality



Panel 2. Pre-2008



Panel 3. Additional controls (fiscal shocks and recessions)



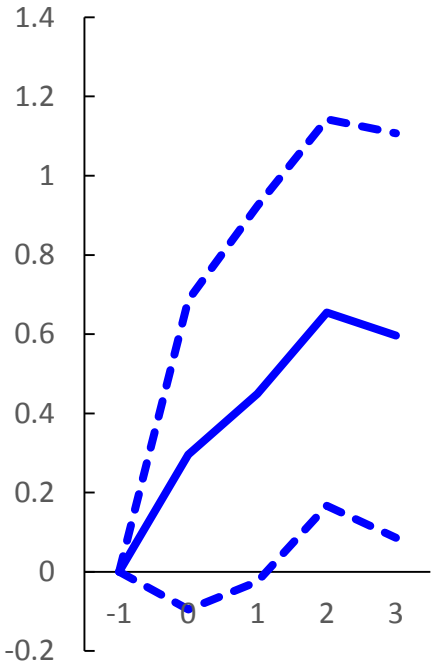
Note: t=0 is the year of the shock. Solid lines denote the response to an unanticipated increase in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Estimates based on equation (1).

Effect on top income shares

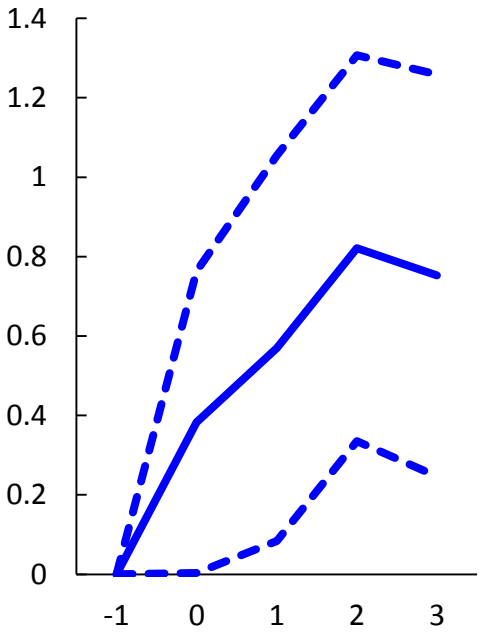
Effect of a 100 bps exogenous increase in policy rates

Results

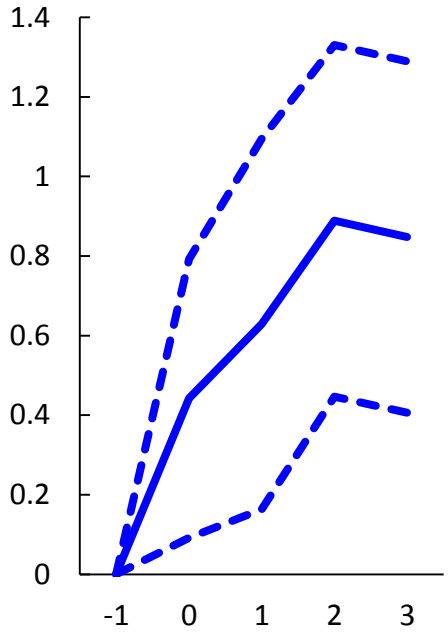
Panel 1. Top 10 percent



Panel 2. Top 5 percent



Panel 3. Top 1 percent

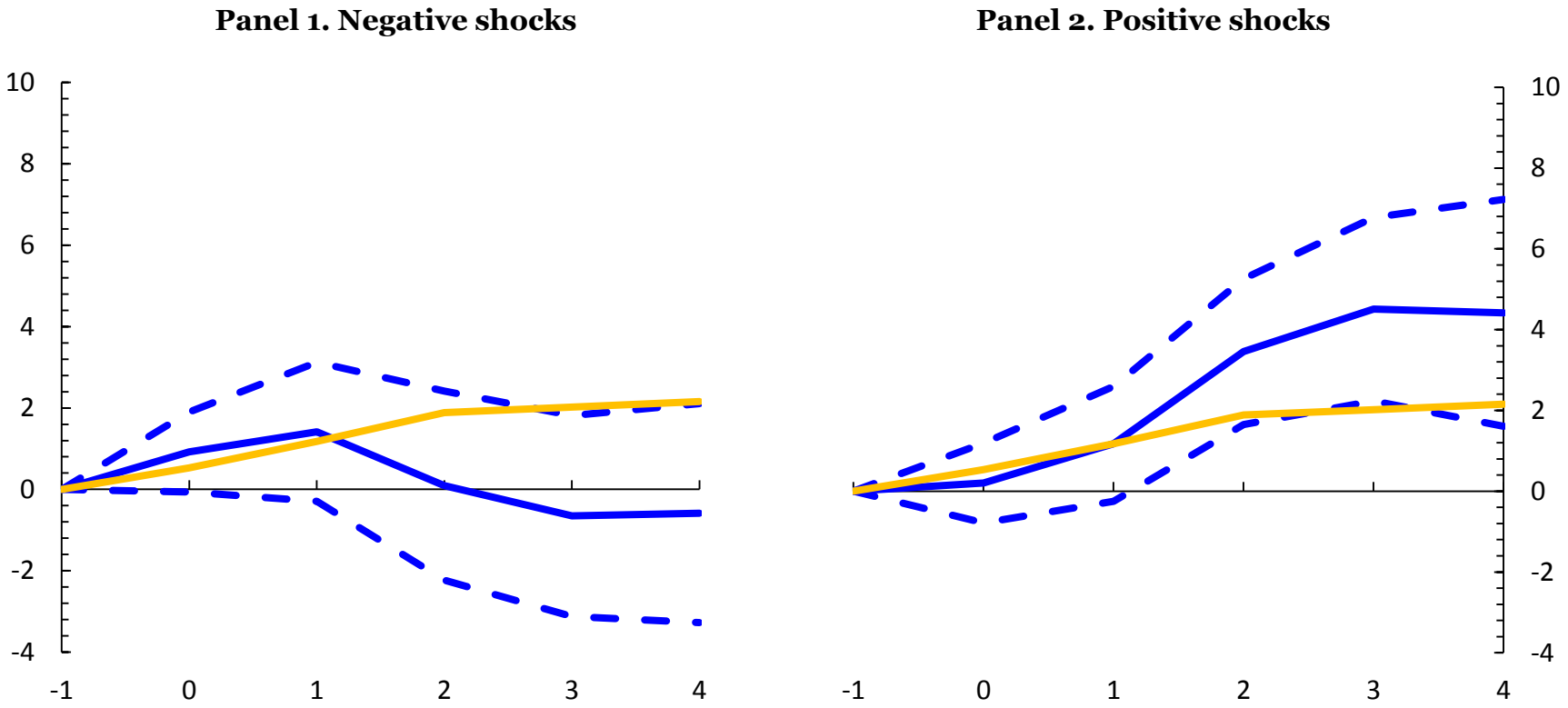


Note: t=0 is the year of the shock. Solid lines denote the response to an unanticipated increase in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Estimates based on equation (1).

Positive vs. negative shocks

Effect of a 100 bps exogenous increase in policy rates

Results

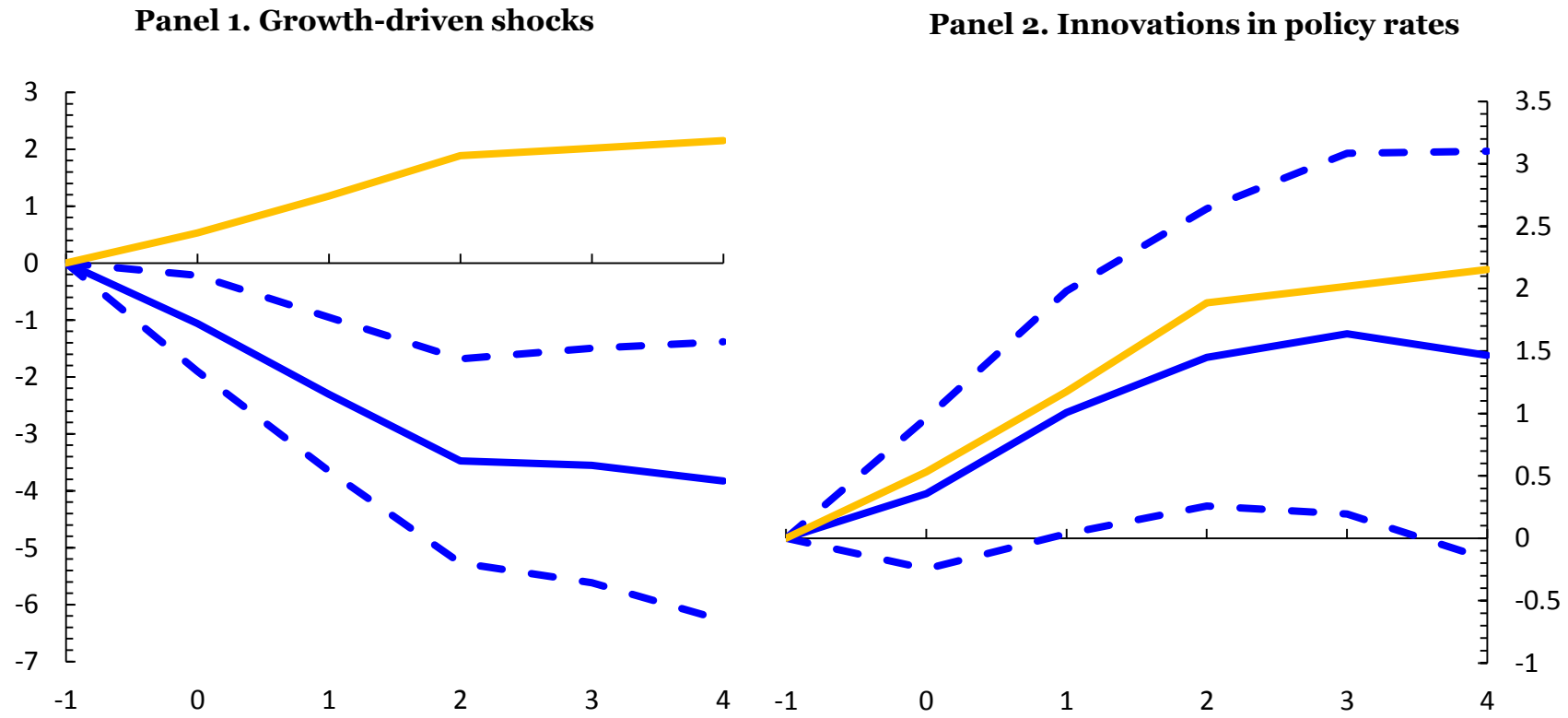


Note: t=0 is the year of the shock. Solid lines denote the response to an unanticipated increase in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Estimates based on the following equation: $y_{i,t+k} - y_{i,t} = \alpha_i^k + \vartheta_t^k + \beta_+^k D_{i,t} MP_{i,t} + \beta_-^k (1 - D_{i,t}) MP_{i,t} + \pi^k X_{i,t} + \varepsilon_{i,t}^k$, where D=1 if the monetary policy shock is positive.

Results

Growth driven vs. unanticipated shocks

Effect of a 100 bps exogenous increase in policy rates



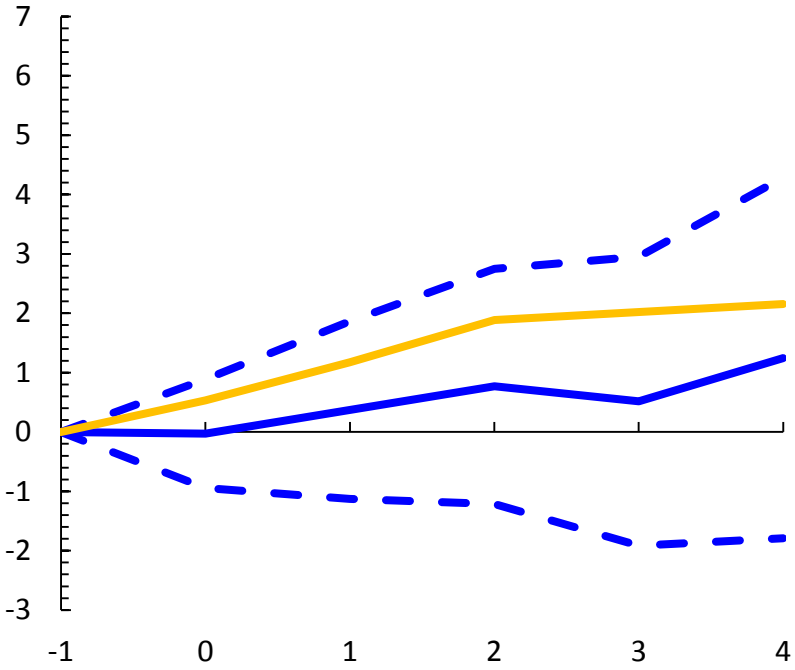
Note: t=0 is the year of the shock. Solid blue lines denote the response to a growth-driven increase (innovation) of monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Solid yellow lines denote the unconditional (baseline) response. Growth-driven monetary policy shocks are identified as the forecast error in policy rates explained by news in growth and inflation—that is, the fitted value of equation (1). Innovations in policy rates are the forecast error in policy rates.

Recession vs. expansions

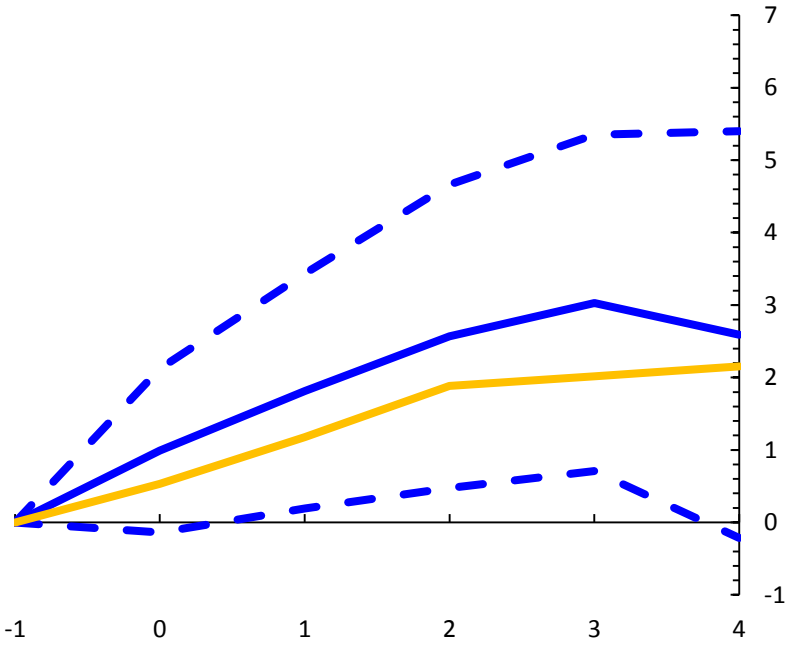
Effect of a 100 bps exogenous increase in policy rates

Results

Panel 1. Recessions



Panel 2. Expansions

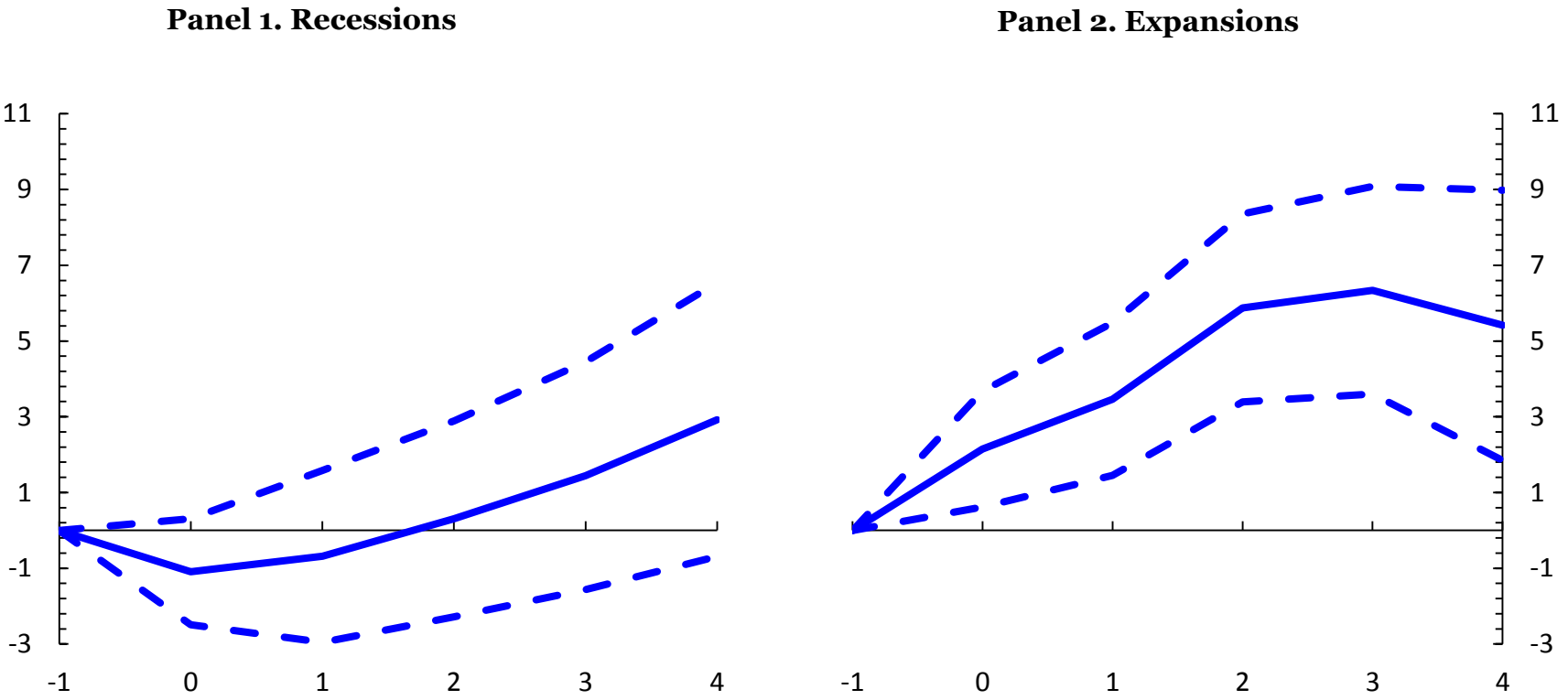


Note: t=0 is the year of the shock. Solid blue lines denote the response to an unexpected increase (or decrease) in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Solid yellow lines denote the unconditional (baseline) response. Estimates based on equation: $y_{i,t+k} - y_{i,t} = \alpha_i^k + \vartheta_t^k + \beta_1^k G(z_{it}) MP_{i,t} + \beta_2^k \big(1 - G(z_{it})\big) MP_{i,t} + \varepsilon_{i,t,}^k$ where G(z) is the smooth transition function. z is a (standardized) variable for the state of the economy.

Recession vs. expansions—positive shocks

Effect of a 100 bps exogenous increase in policy rates

Results



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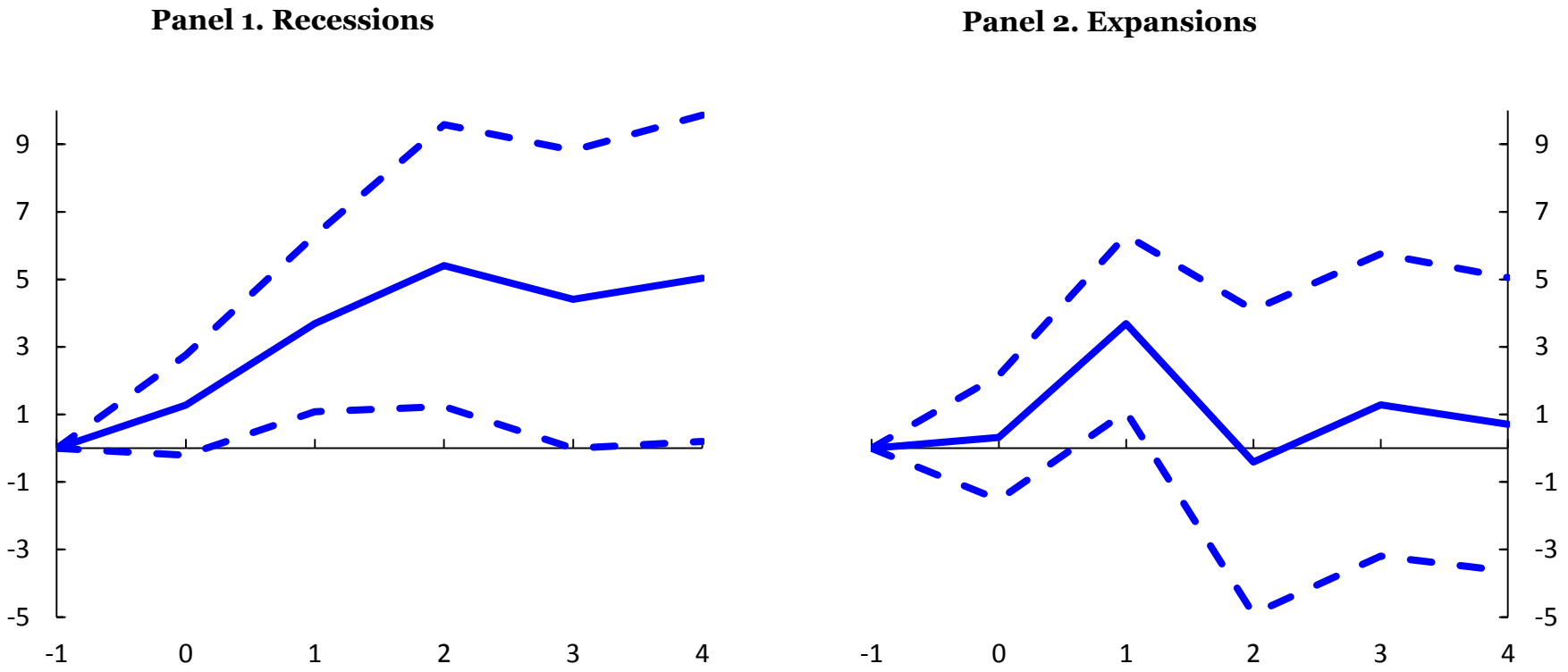
Recession vs. expansions—negative shocks

Effect of a 100 bps exogenous increase in policy rates

Results

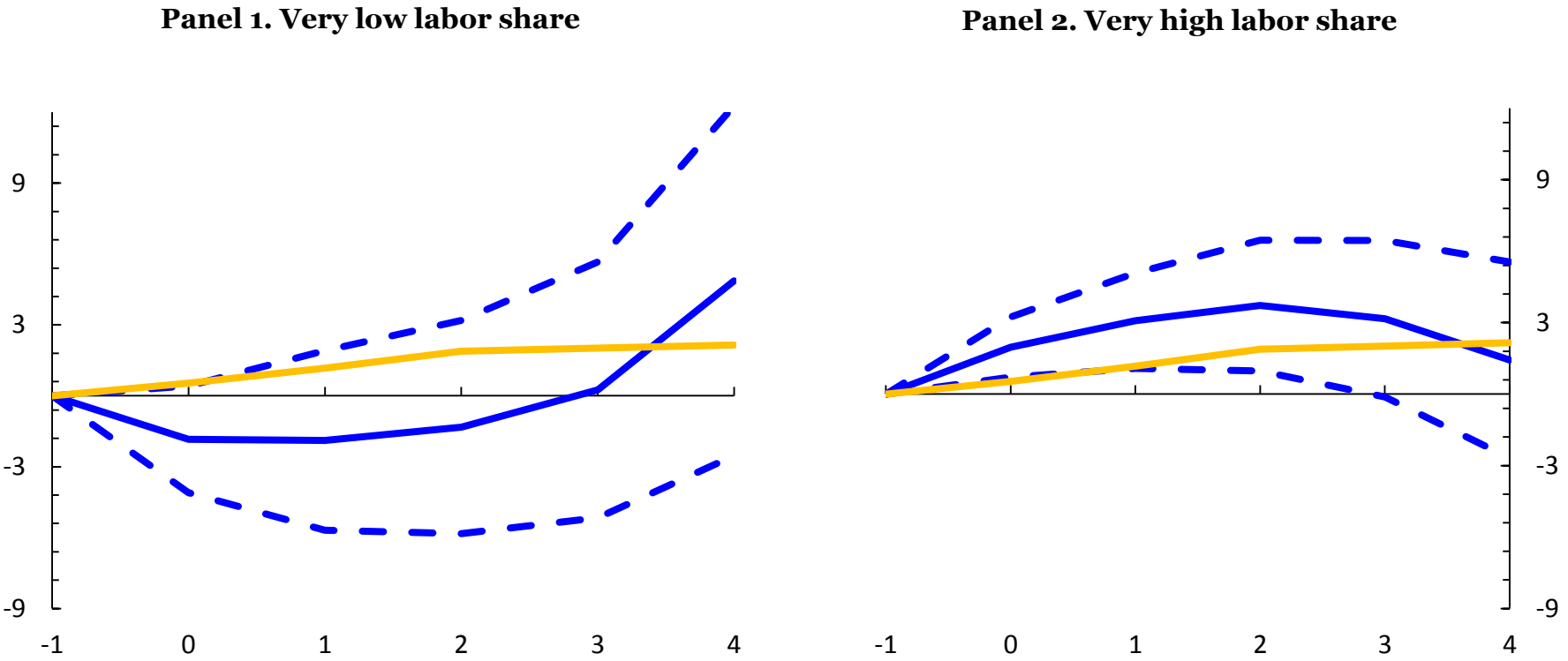


Note: t=0 is the year of the shock. Solid blue lines denote the response to an unexpected increase (or decrease) in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Solid yellow lines denote the unconditional (baseline) response. Estimates based on equation: $y_{i,t+k} - y_{i,t} = \alpha_i^k + \vartheta_t^k + \beta_1^k G(z_{it}) MP_{i,t} + \beta_2^k (1 - G(z_{it})) MP_{i,t} + \varepsilon_{i,t,}^k$ where G(z) is the smooth transition function. z is a (standardized) variable for the state of the economy.

Role of labor share

Effect of a 100 bps exogenous increase in policy rates

Results



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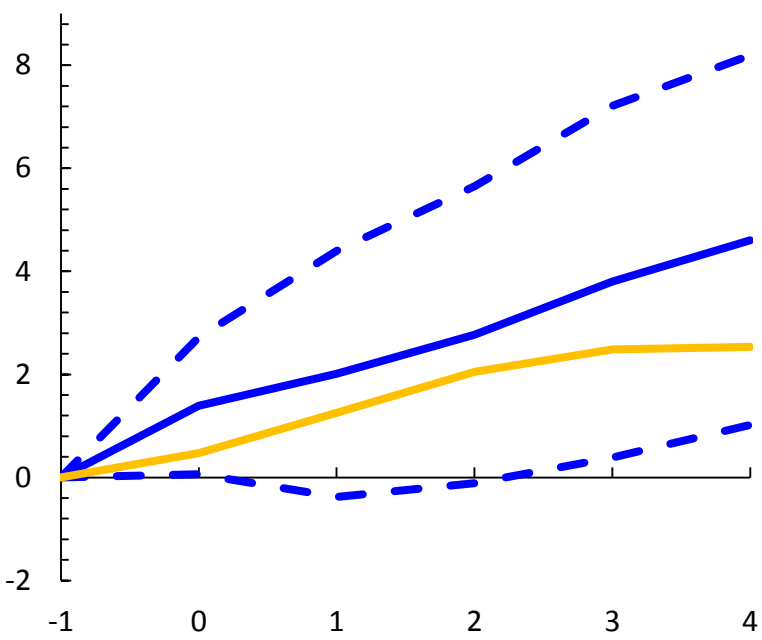
Role of redistribution

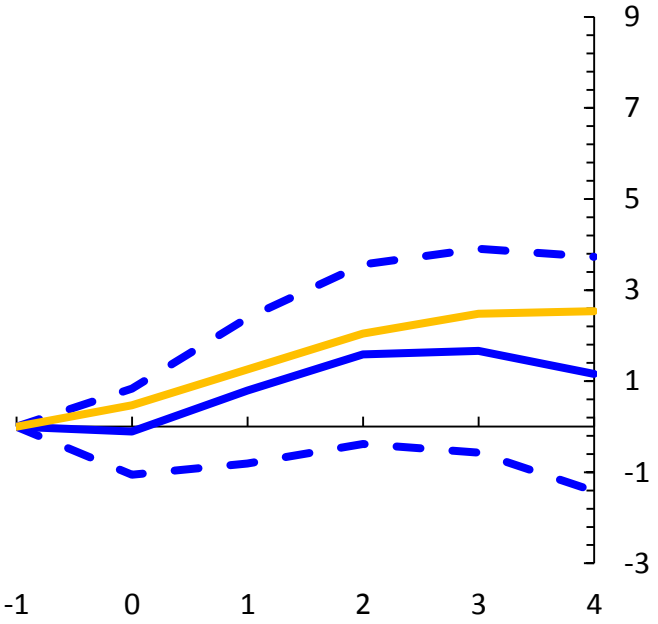
Effect of a 100 bps exogenous increase in policy rates

Results

Panel 1. Very low redistribution



Panel 2. Very high redistribution



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Conclusions

Conclusions

- Monetary policy easing reduces inequality, but the effects vary over time, across the business cycles, and depend on the types of monetary shocks.

- Effects also depend on the share of labor income and redistribution policies.

- Recent accommodative monetary policy stance in many advanced economies may not only have helped boost demand but also contributed mitigating the increase in inequality driven by structural trends.

Thank you!

List of countries in the sample

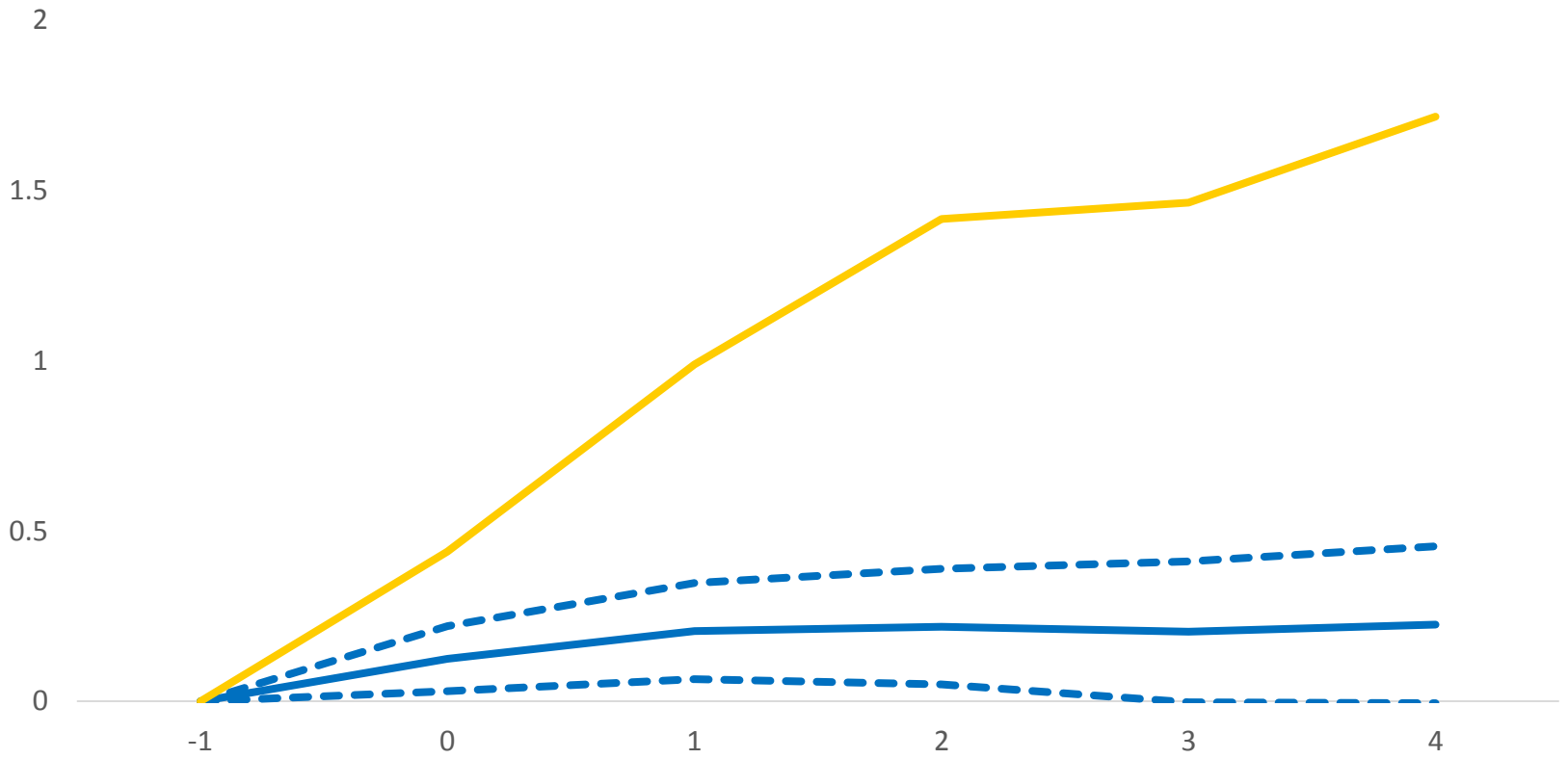
Methodology

Advanced Economies	Emerging Market Countries
Australia	Argentina
Canada	Brazil
Czech Republic	Chile
France	Hungary
Germany	India
Hong Kong SAR	Indonesia
Italy	Malaysia
Japan	Mexico
Korea	Philippines
Netherlands	Poland
New Zealand	Thailand
Norway	Turkey
Singapore	
Slovak Republic	
Spain	
Sweden	
Switzerland	
Taiwan Province of China	
United Kingdom	
United States	

Contractionary MP increases inequality

Effect of a 100 bps increase in policy rates

Results



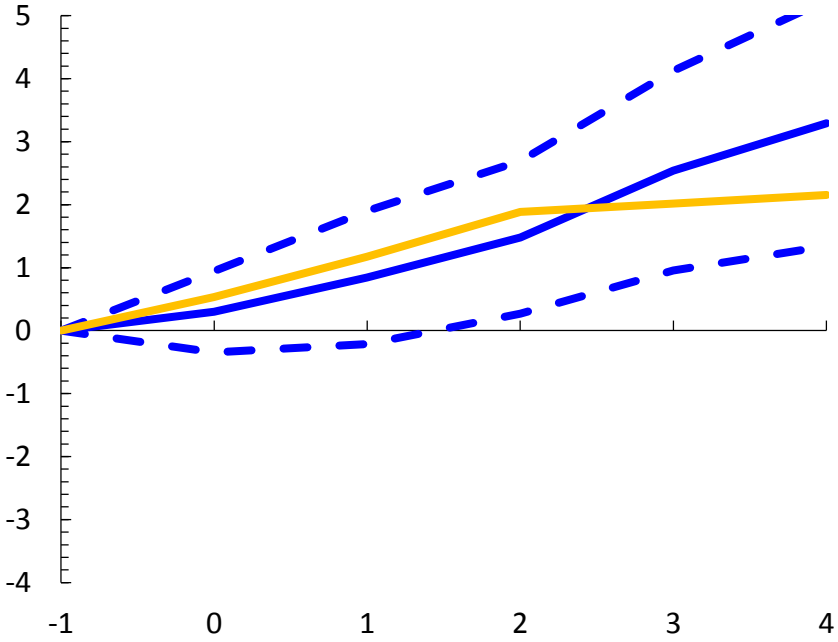
Note: t=0 is the year of the shock. Solid lines denote the response to increase in monetary policy rates of 100 basis points, and dashed lines denote 90 percent confidence bands. Solid yellow line denotes the unconditional (baseline) response. Estimates based on equation (1).

Role of initial inequality conditions

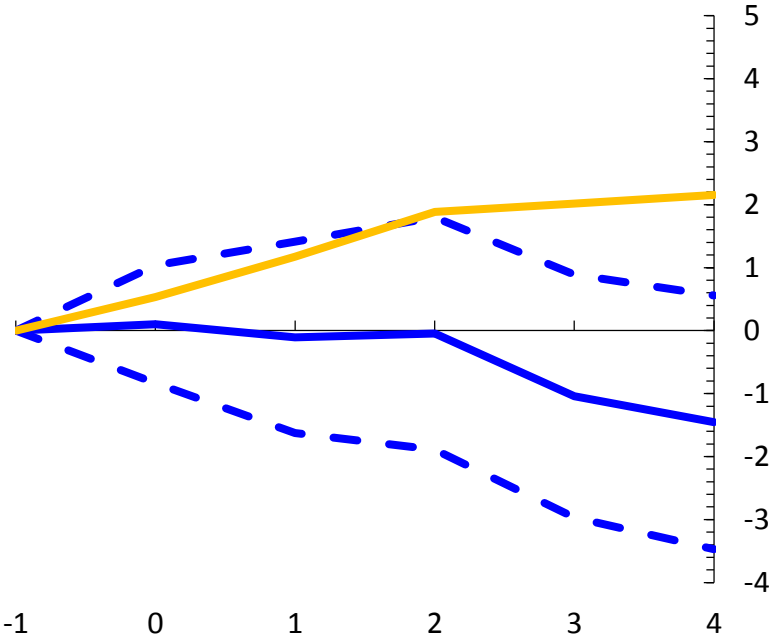
Effect of 100 bps exogenous increase in policy rates

Results

Panel 1. Very high initial inequality



Panel 2. Very low initial inequality



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