Inequality hysteresis

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This presentation reflects the views of its authors, not necessarily the views of the Bank for International Settlements

Inequality and recent extensive research

- Inequality has increased, especially since the mid-1980s
  - Most see the rise as a result of important slow moving factors (mostly technological progress and globalization)
  - Policies to address the problem have thus tended to be of long-term structural nature (e.g. education, training programs to upgrade skills, infrastructure,…)

Inequality and the business cycle

- The cyclical factors' contribution to the rise in inequality has been overlooked

  We provide new evidence

  1) <u>inequality hysteresis</u>: inequality rises in downturns, such increases are persistent

  2) inequality makes recessions deeper

  3) less redistributive fiscal policies have made it less counter-cyclical, raising the burden of stabilization for central banks

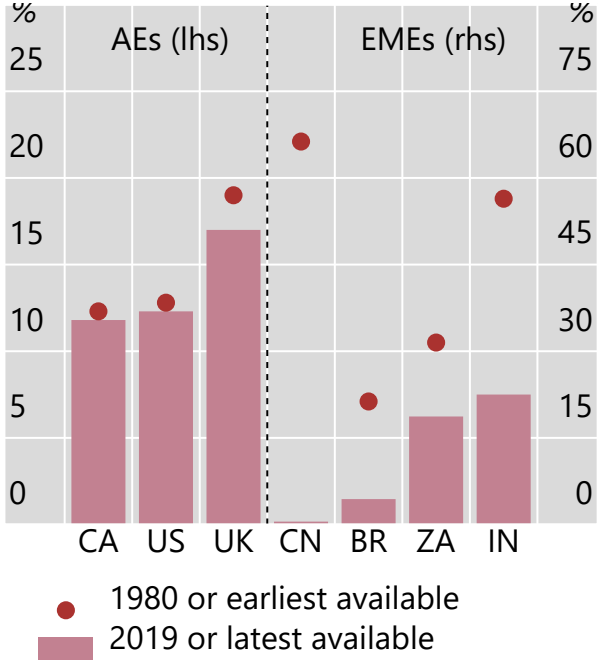
  4) inequality limits the stabilization effectiveness of monetary policy

Outline

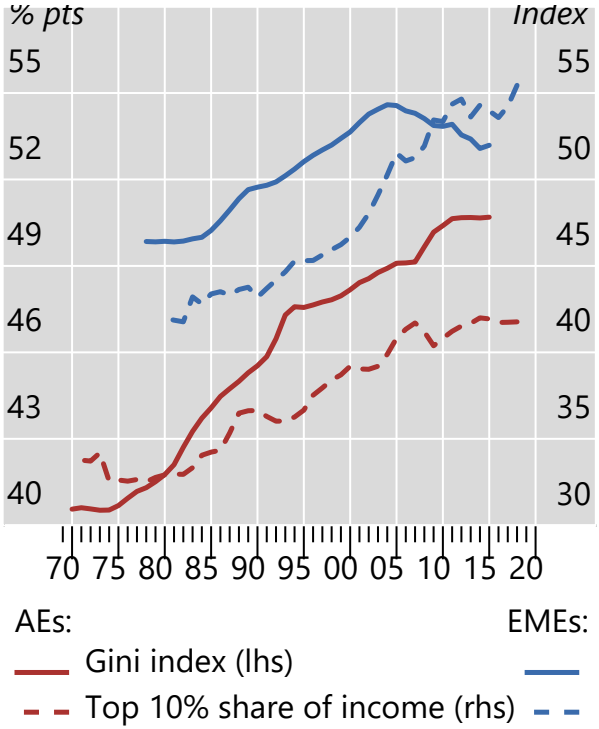
- Background stylized facts on inequality trends
- Inequality and recessions
- Inequality and fiscal policy
- Inequality and monetary policy

Inequality on the rise amid declining poverty rates

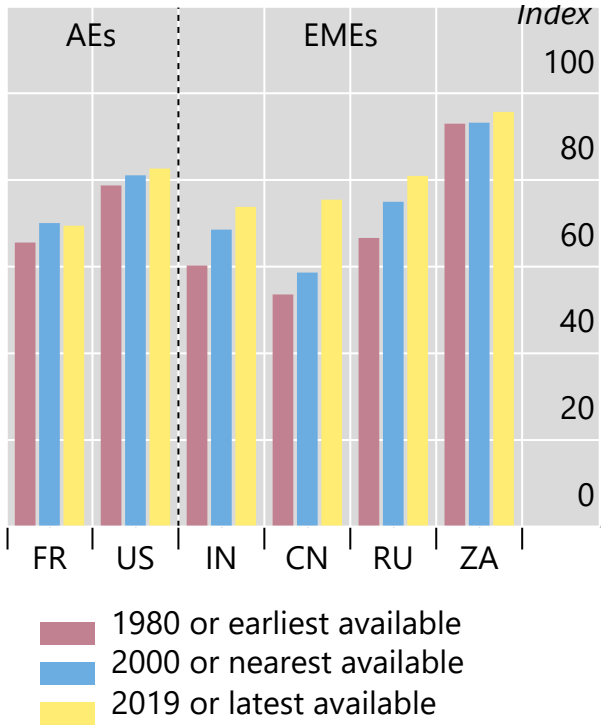
Poverty rates



Gini index and top 10%



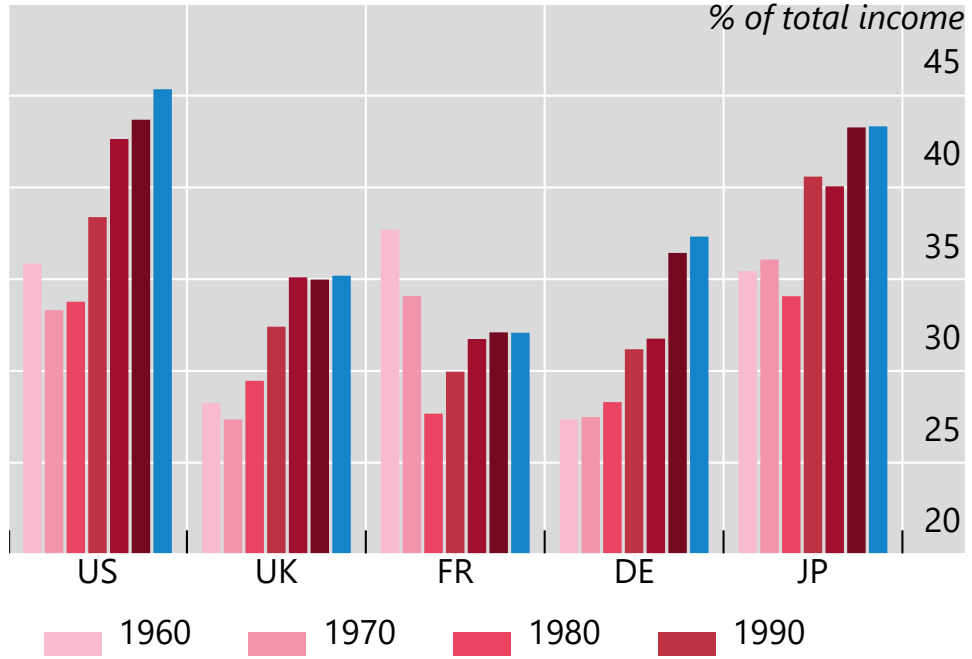
Wealth Gini index



- Undisputable reduction in poverty in EMEs, however, Covid annihilates some of this progress
- Within-country income inequality has risen strongly since mid-1980s (both Gini, top 10%)
- Wealth inequality remains high, house price increases has limited its increase

Inequality has risen in most advanced economies

Pre-tax income, share of top 10%



Wealth, share of top 10%

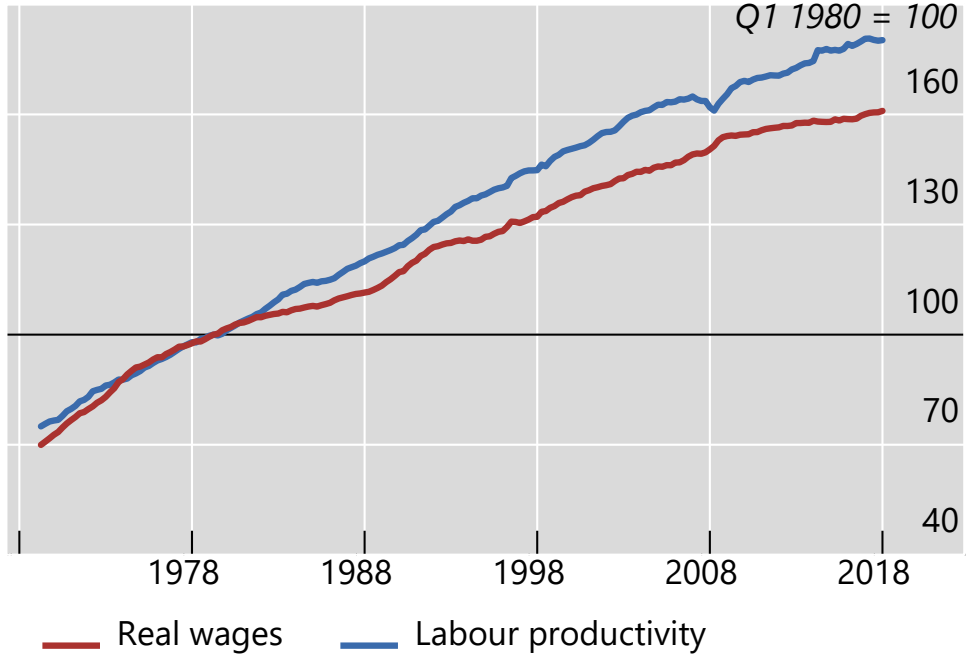
- Top 10%, i.e. high skill labour force, clear winners

→ Rapid technological change & globalization have increased demand in AEs for high skill tasks

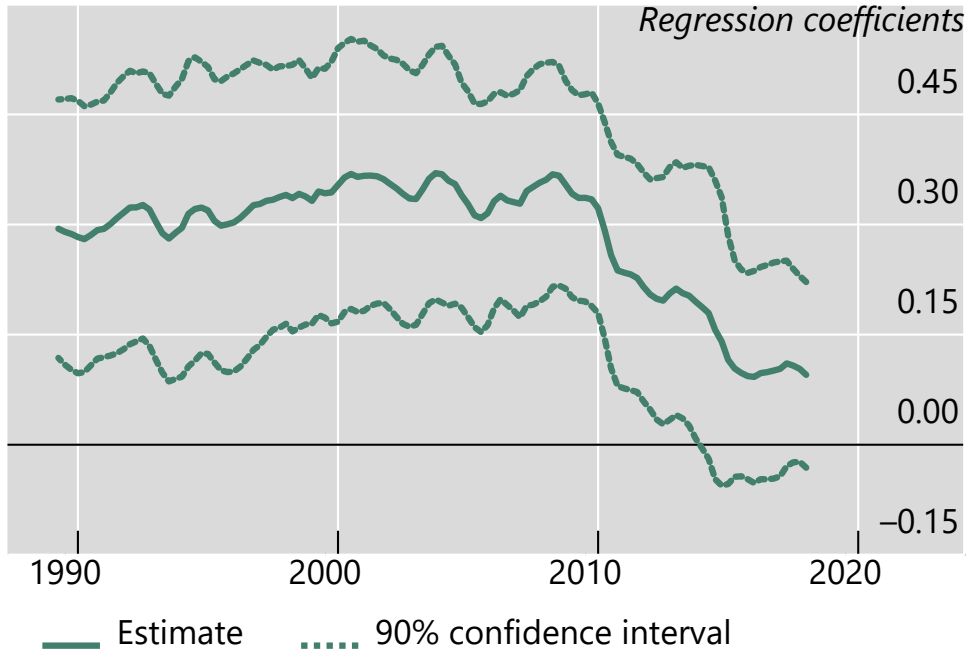
→ When supply of skilled labour fails to keep pace, skill premium rises (Tinbergen's race)

A structural dimension of inequality

Real wages lagged behind labour productivity



Productivity gains factor to a lesser extent into wages

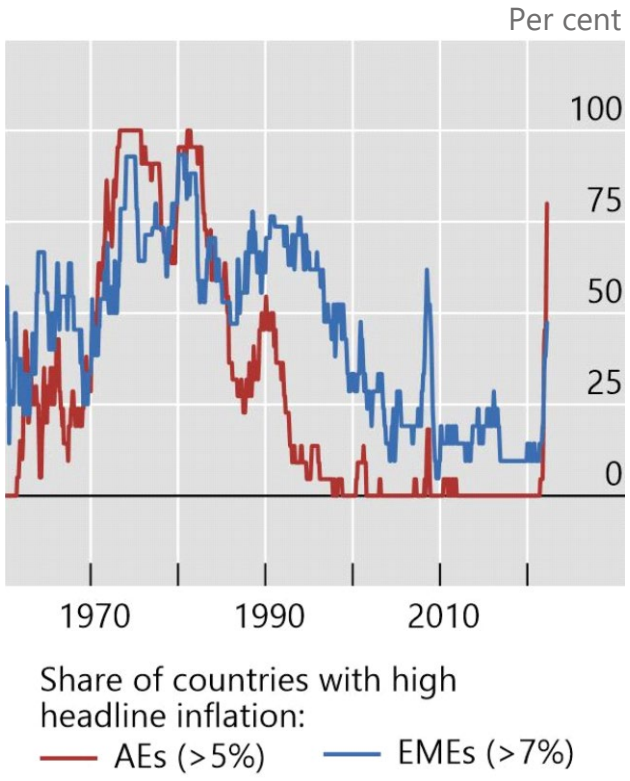


The division of productivity gains has been unfavorable to labor :

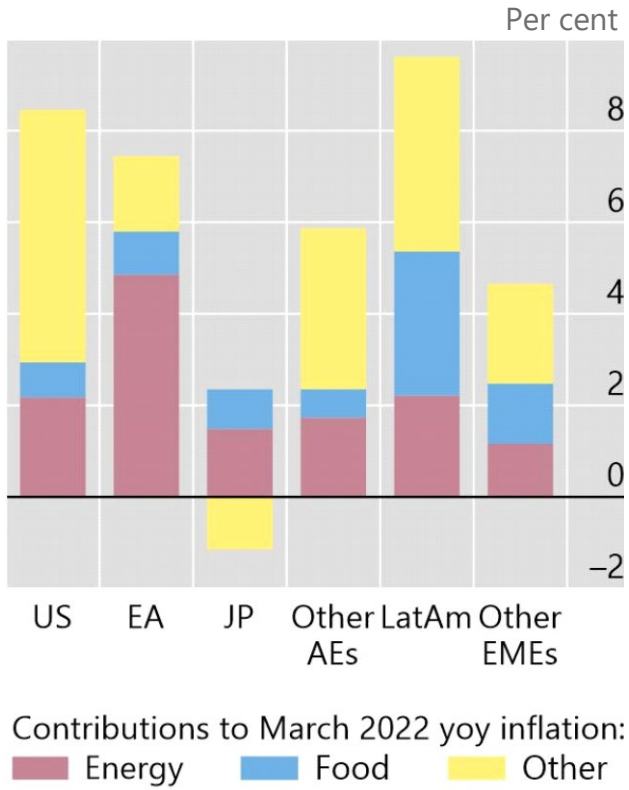
- widening gap between labor productivity and wages (average across AEs: AU, BE, CA, DE, DK, ES, FR, GB, IE, IT, JP, NL, SE and US.)
- and lower sensitivity of wages to labour productivity gains (Lombardi, Riggi and Viviano, 2020)

And inflation tends to hit the wallet of the poor and their consumption more…

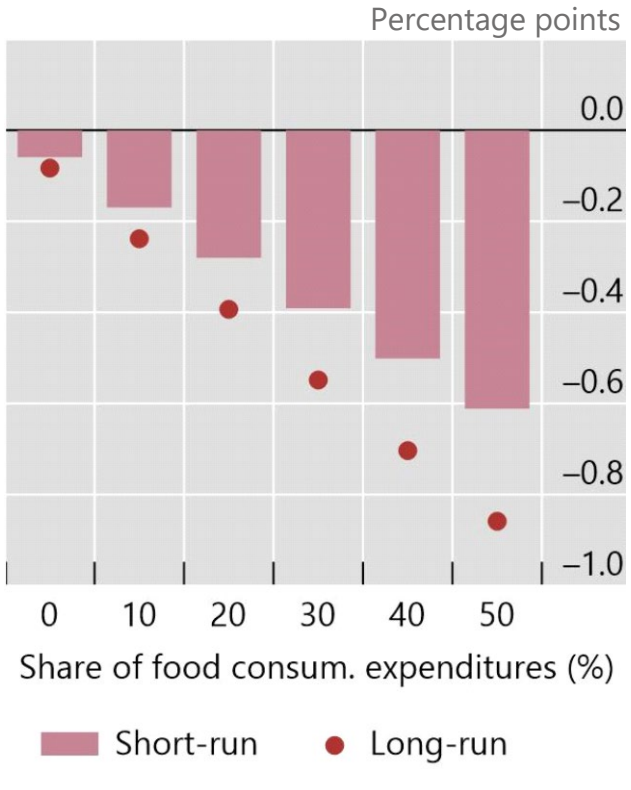
In many countries, inflation is rising…



…on the heels of rising energy and food prices[1]

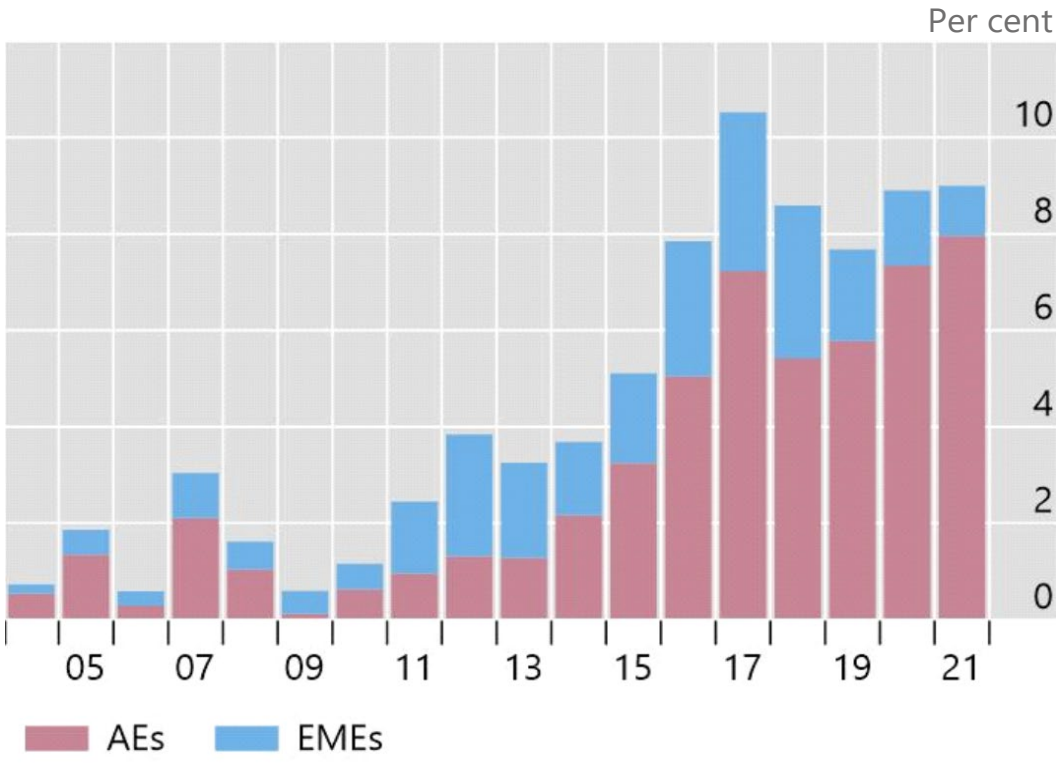


Private consumption falls in response to higher food prices[2]

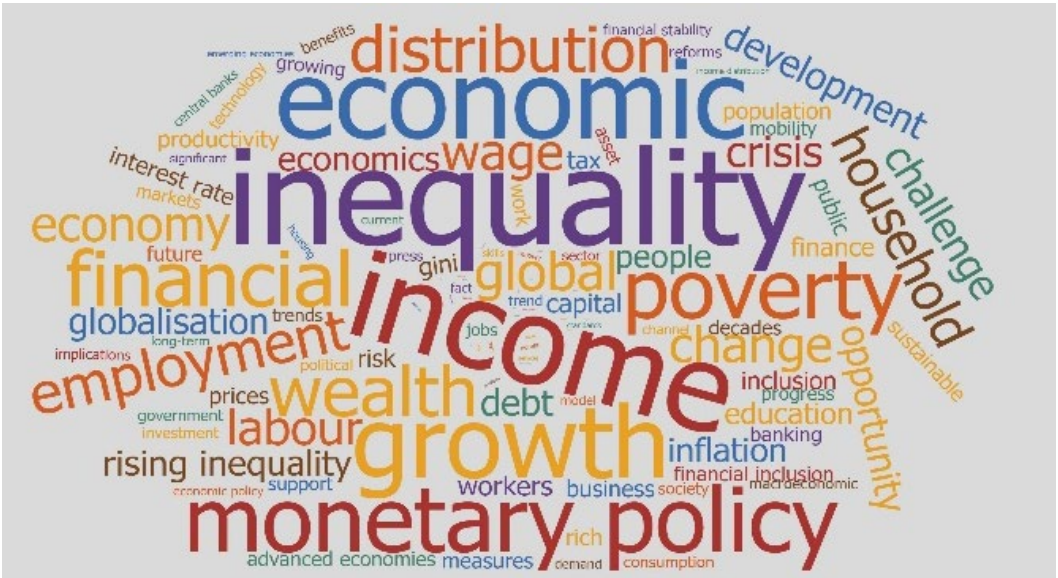


Central banks' growing awareness on inequality

Share of speeches mentioning inequality[1]



Frequency of occurrence of words in short excerpts of speeches around mentions of inequality[2]



From inequality trends to inequality and the business cycle

- «WID» research agenda mostly on slow motion trends associated to
  - Measurement (Atkitson, Piketty, Saez and co-authors,…
  - Globalisation and technical change (Milanovic, Acemoglu et al.; Gabaix et al.)
- Shift the focus of inequality and its changes in the business cycle and «recessions»
  - Brandolini, Gambacorta and Rosalia (2019)
  - Some recent work tied to the Hank agenda (eg Bayer, Born and Luetticke, 2020; Challe and Ragot; Legrand and Ragot)
  - The Micro-Macro nexus (Blundel et al. 2008, Auclert et al, Chetty et al.)
  - GRID research network (Guneven, Pistaferry and Violante, 2022)
  - Real time inequality (Blanchet, Saez and Zucman, 2022)

Vast majority of (Hank) contributions on the US

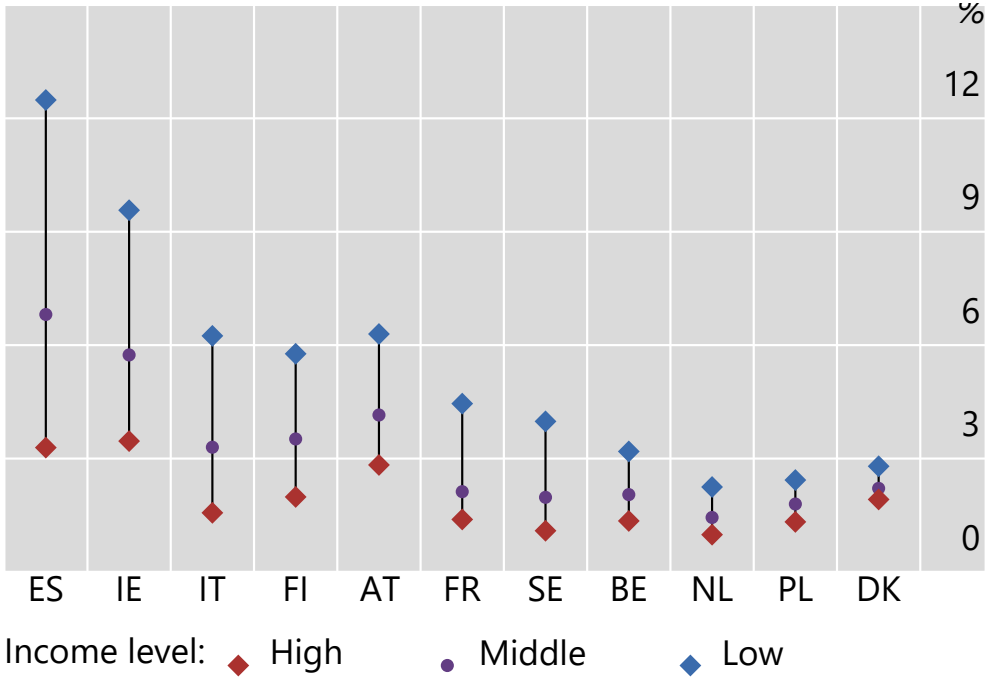
>> we gather stylised facts on income inequality, the business cycle and both fiscal policy and monetary policy

Outline

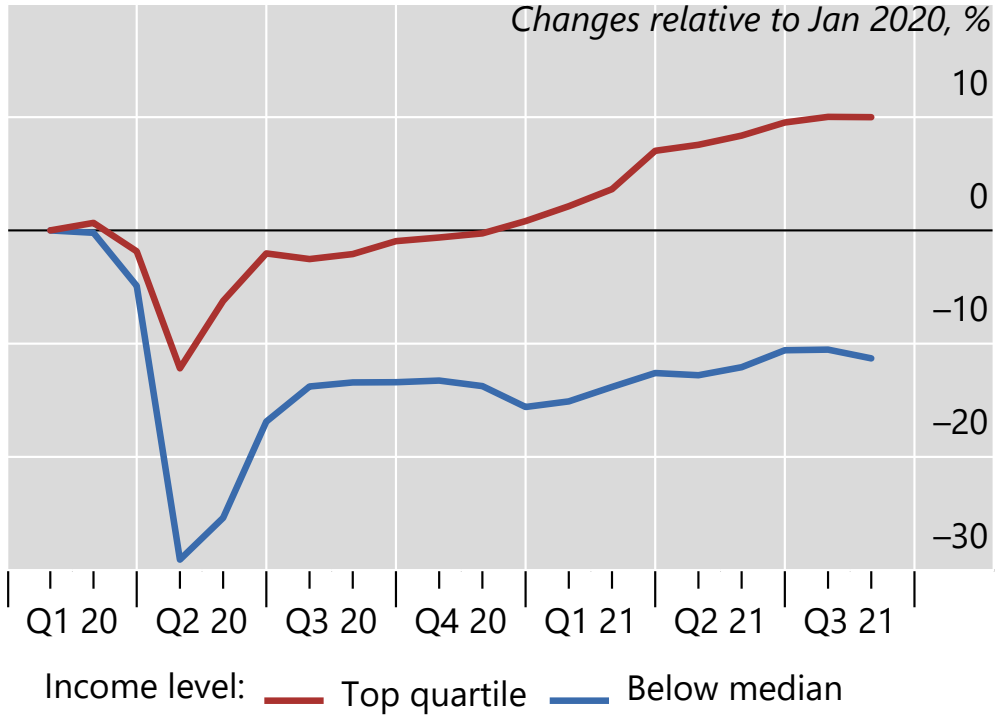
- Background stylized facts on inequality trends
- Inequality and recessions
- Inequality and fiscal policy
- Inequality and monetary policy

1. Cyclical factors matter for income inequality !
As shown (again) by the Covid-19 recession

EU: risk of job loss by income during the pandemic



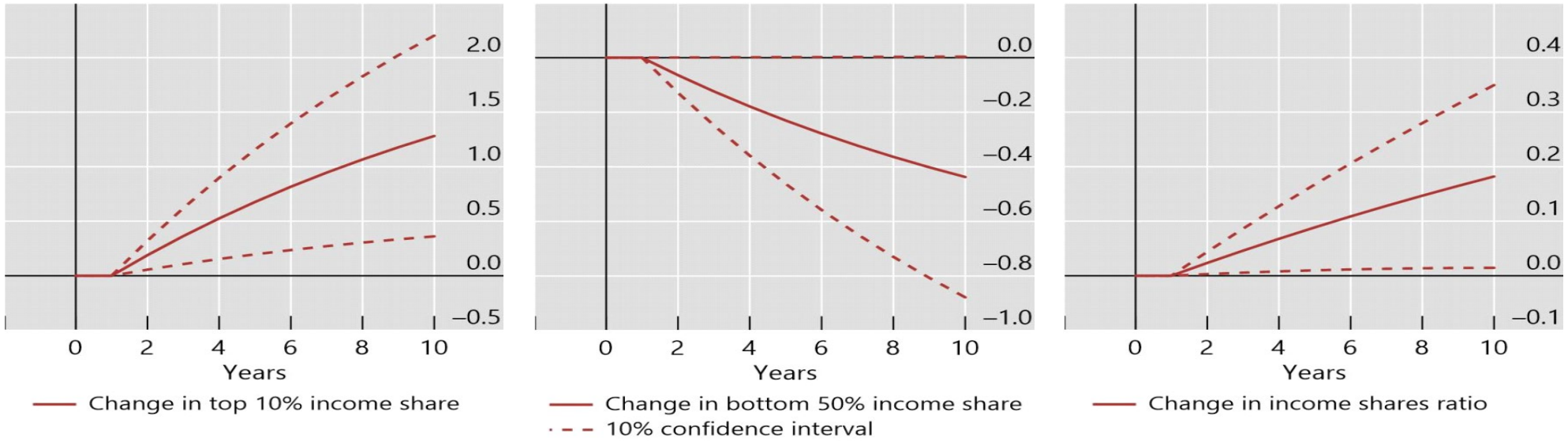
US: employment by income



- Likelihood of job loss significantly higher for low income workers, up to 3 times higher in many countries
- Known for the GFC in the US (not Italy where 1992 was more critical)

This pattern is frequent after recessions=> **inequality hysteresis**

Shares of income of richest 10%, poorest 50% and their ratio



- Evidence on 182 recessions across 70 countries since 1980 shows that
  - Income inequality rises following recession years (*t*), and it persists
  - while share of top 10% rises, that of the bottom 50% declines, both persistently

Inequality hysteresis

- Recessions leave persistent scares on inequality measures
- Avoiding recessions thus key

=> During recessions, stabilization policies have the side benefit of limiting the increase in income inequality

2. Inequality make recessions steeper

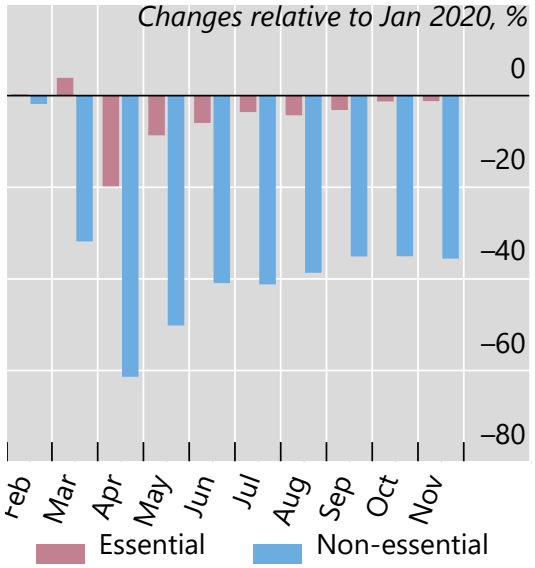
- Recessions are deeper when the income share of the top 10% is larger

- Two possible interpretations
  - Higher income share of bottom 90% is associated with better ability to smooth consumption, hence milder recession in the aggregate
  - Higher top 10% income share means additional precautionary savings in recessions

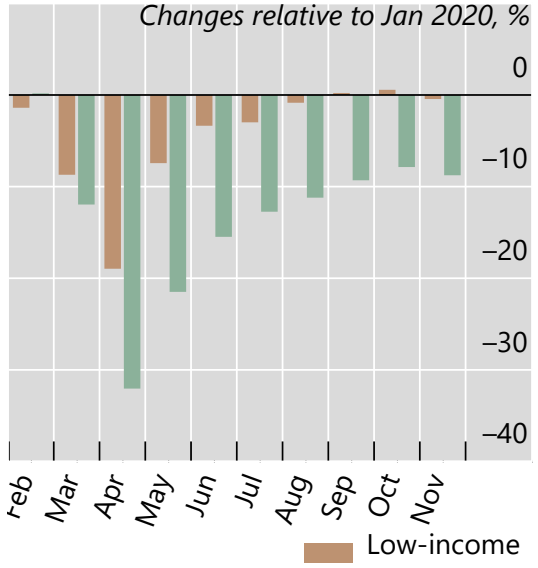
- We investigate empirically the impact of top 10% income concentration on
  - consumption growth around recessions in sample of 91 countries, 1980-2019
  - output growth across 50 U.S. states after the GFC

High-income US households have cut consumption more in 2020

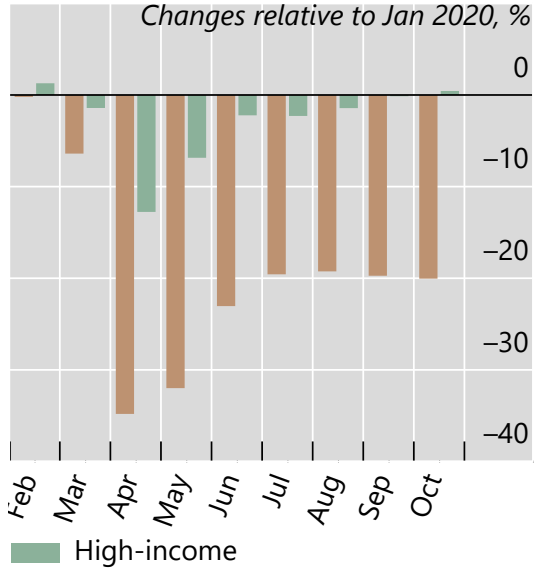
Spending by type of consumption



Spending by type of household



Employment by type of household

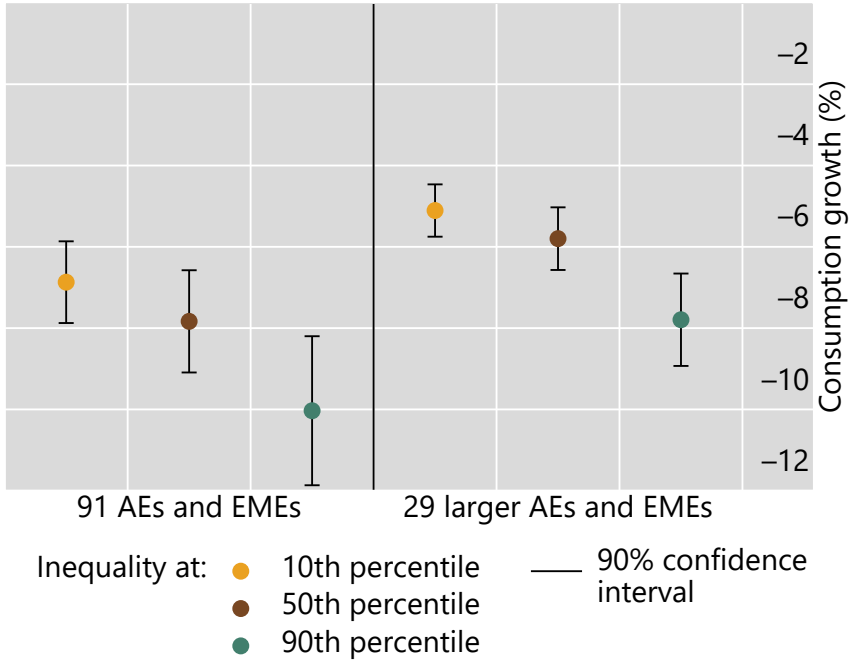


- Poor cannot cut back consumption (mostly essentials)

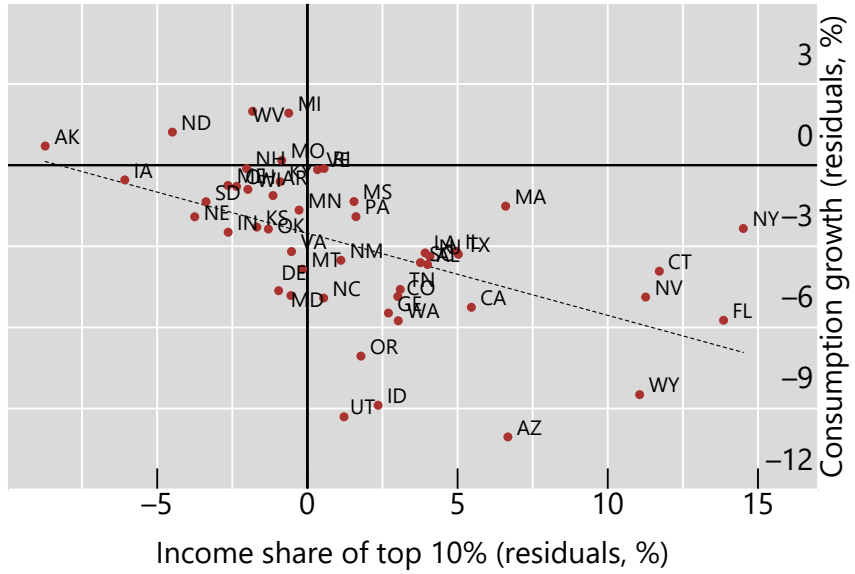
→ consumption of low-income households was back to pre-pandemic a few months after the shock (despite job losses!). Not so for the high-income households.

The cost of income inequality: steeper declines in private consumption

Recessions in more unequal countries lead to steeper declines in consumption



More unequal US states had steeper declines in consumption during the GFC



- Recessions are significantly deeper in more unequal countries. Effect is economically significant (10th to 90th percentile, 3 p.p. negative effect on consumption growth)
- More unequal US states had deeper recessions post-GFC (inequality explains 25% of variation)

Outline

- Background stylized facts on inequality trends
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- Inequality and fiscal policy
- Inequality and monetary policy

Fiscal policy, redistribution, and stabilisation

- Fiscal policy has a large impact on inequality
- Part of this impact relates to differences in redistributive policies and automatic stabilizers, i.e. tax progressivity and unemployment insurance (UI)
- One step beyond: do tax progressivity and UI also affect fiscal policy ability to stabilize the business cycle?

Inequality and redistribution through fiscal policy

- Focus on two pillars of redistribution through fiscal policy:
  - **Unemployment Insurance (UI) replacement ratios**: measure the extent to which people's income is maintained during unemployment spells
    - typically depends on family situation and unemployment durations
  - **Progressivity of income tax**: measures how average tax rates change with the level of pre-tax income
    - Estimated as the semi-elasticity of average tax rate to income, using data on marginal tax rates, income brackets and income distribution
- Basic intuition: Stronger redistribution –higher UI replacement ratio and/or tax progressivity– should be associated with lower post T&T inequality

Inequality and redistribution through fiscal policy

Higher redistribution comes hand-in-hand with lower inequality

Correlation coefficients — Graph III.2

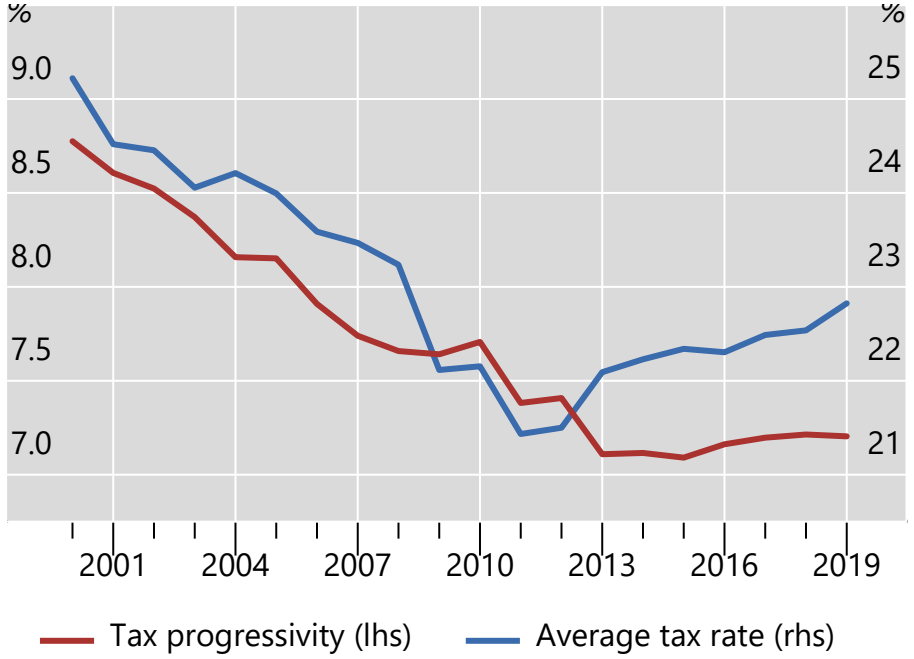
There is a strongly negative correlation between inequality and tax progressivity[1]

Inequality also correlates negatively with UI replacement ratios[2]

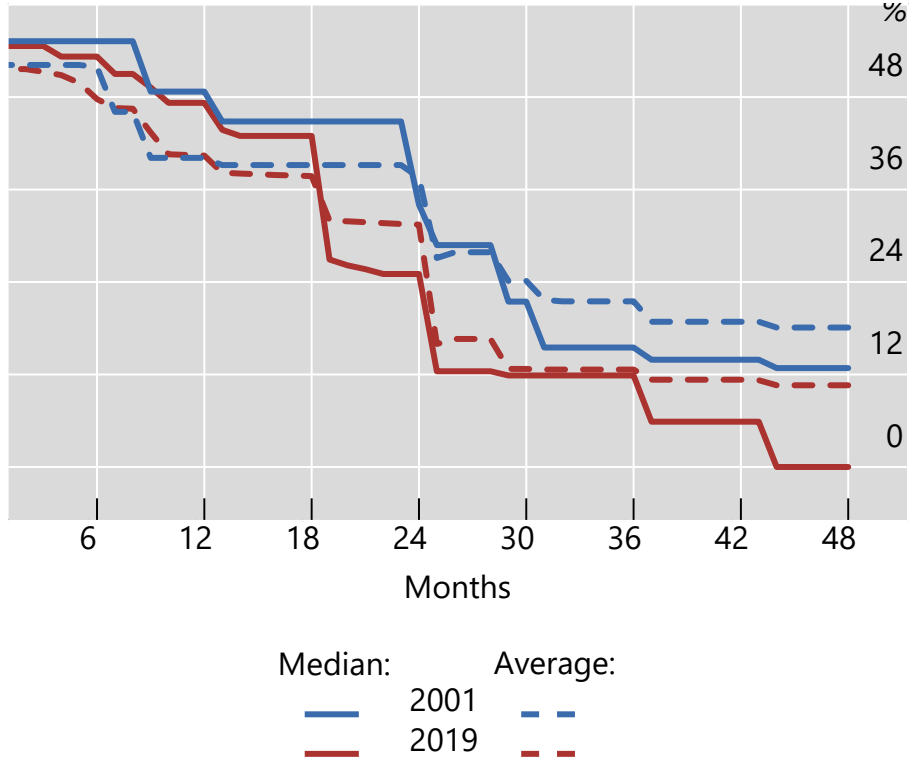
Panel of 22 AEs countries, from 2001 to 2019.

Less fiscal redistribution, weaker automatic stabilisers

Tax burden and tax progressivity have fallen



UI replacement rates have been cut, particularly at longer durations



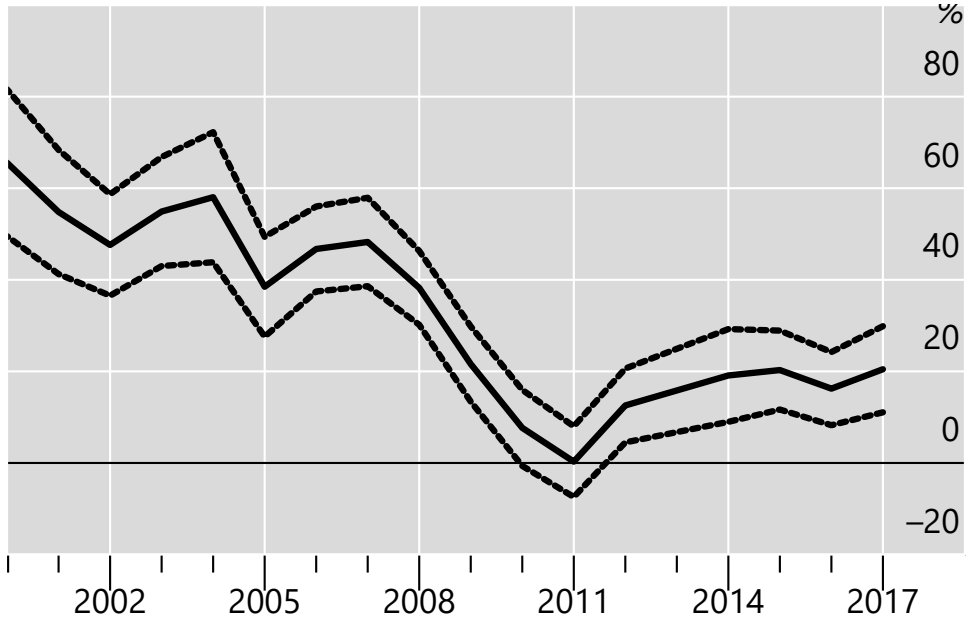
- Fiscal policy has become markedly less redistributive

Fiscal redistribution and automatic stabilisers

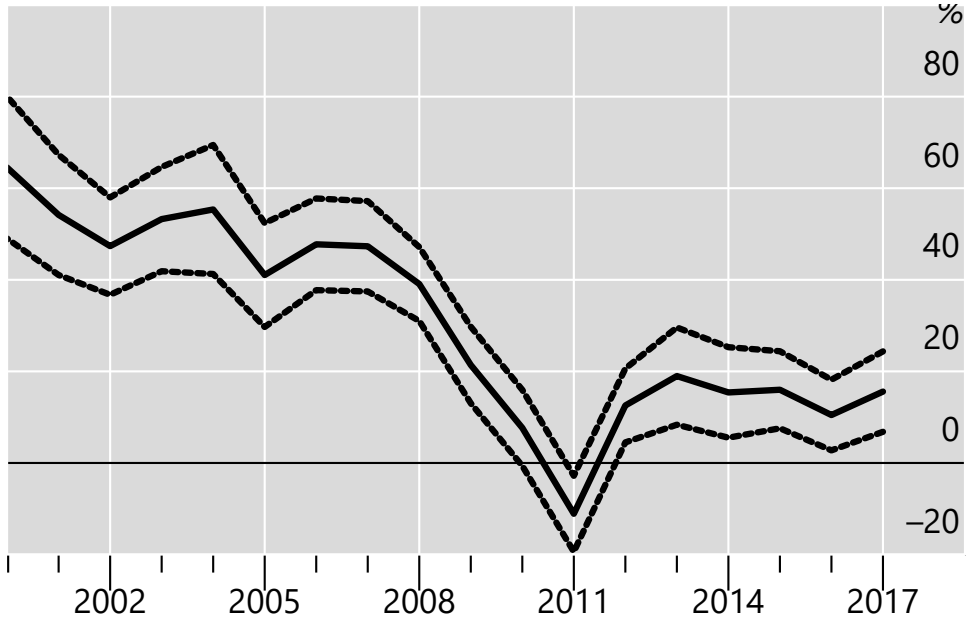
- In addition to their cross-section impact, UI and tax progressivity affect the stabilization properties of fiscal policy.
  - Strong UI, i.e. high replacement ratios, imply large deficits during high unemployment periods but also large surpluses during low unemployment periods
  - In expansions, incomes are high. So with progressive taxes, tax rates are higher and so are fiscal revenues. Conversely in recessions, incomes are lower and so are tax rates and fiscal revenues.
- Questions: How did redistribution and stabilization change over the last 20 years? Is there any link between the two?

Fiscal policy has become less countercyclical

Total fiscal balance sensitivity to output gap in AEs



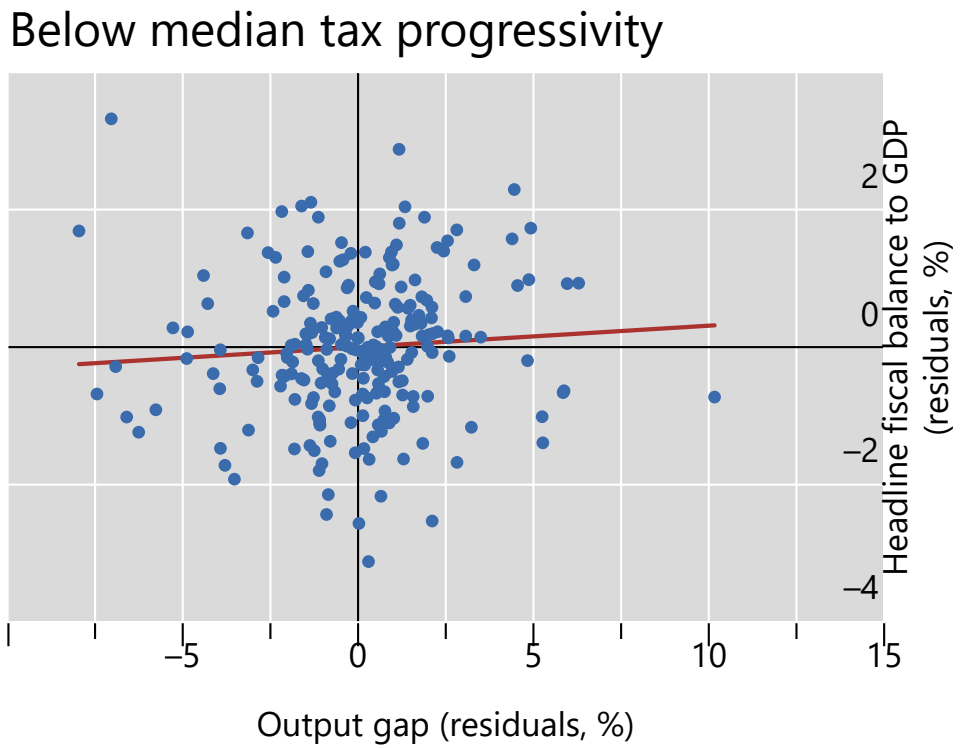
Primary fiscal balance sensitivity to output gap in AEs

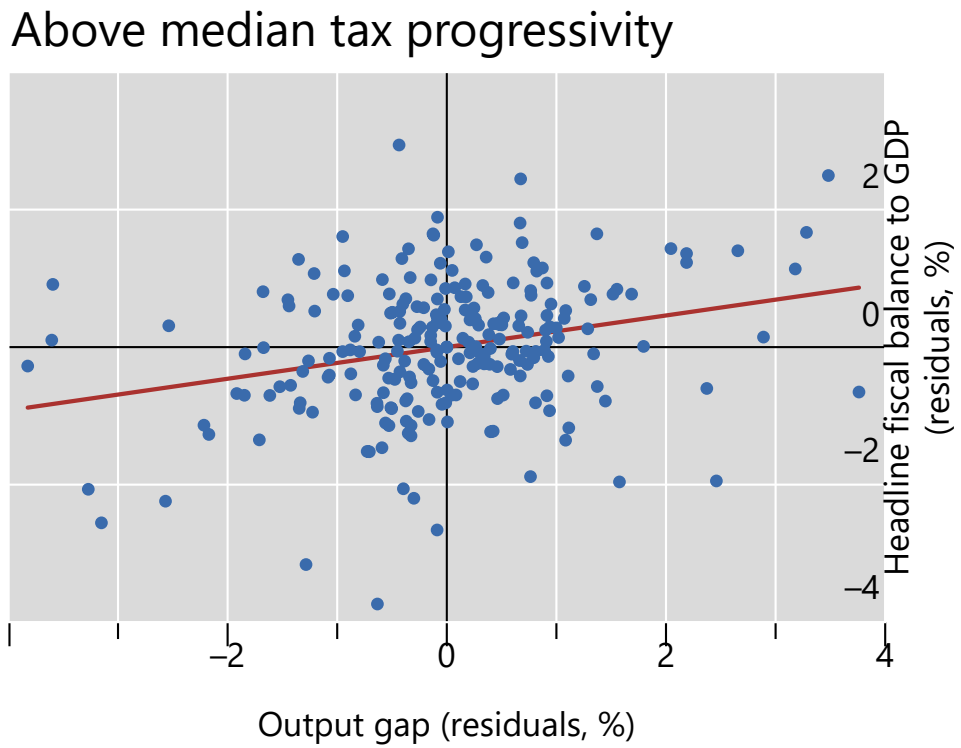


Sensitivity 90% confidence interval

- Fiscal policy has become less stabilising, less counter-cyclical over the last 20 years

Similarly, progressive taxes also associated with countercyclical fiscal policy





- Tax progressivity, i.e. elasticity of tax rates to incomes, raises fiscal policy's countercyclical response to the business cycle

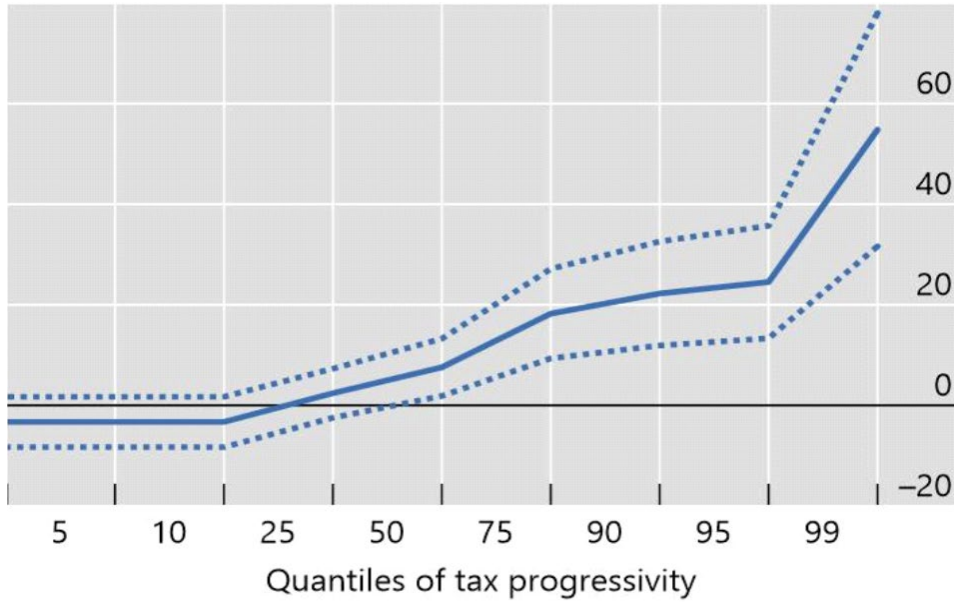
Similarly, progressive taxes also associated with countercyclical fiscal policy

Progressivity turns fiscal policy counter-cyclical through its impact on revenues[1]

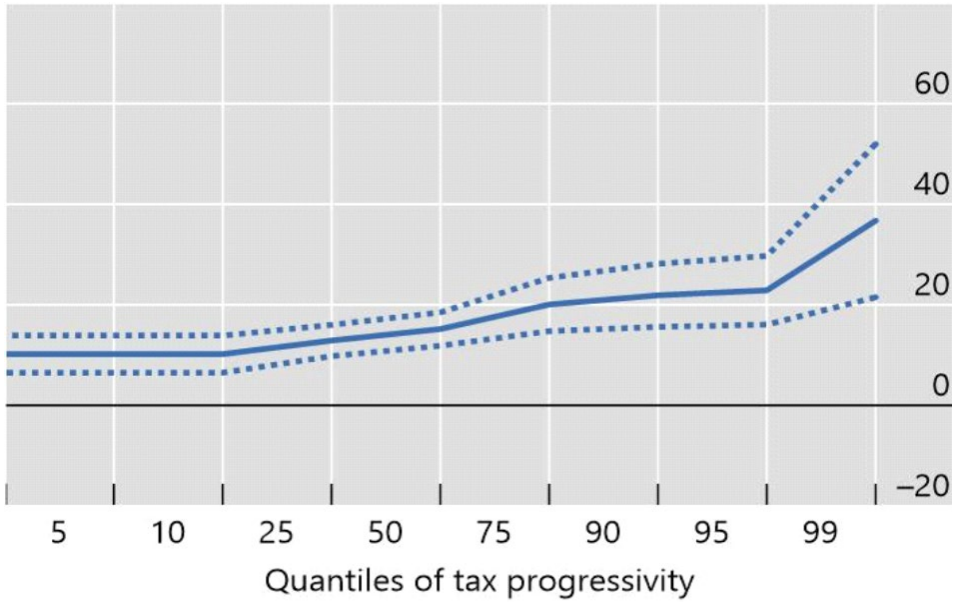
In per cent

Graph III.7

Primary fiscal balance is more sensitive to output gap when taxes are more progressive



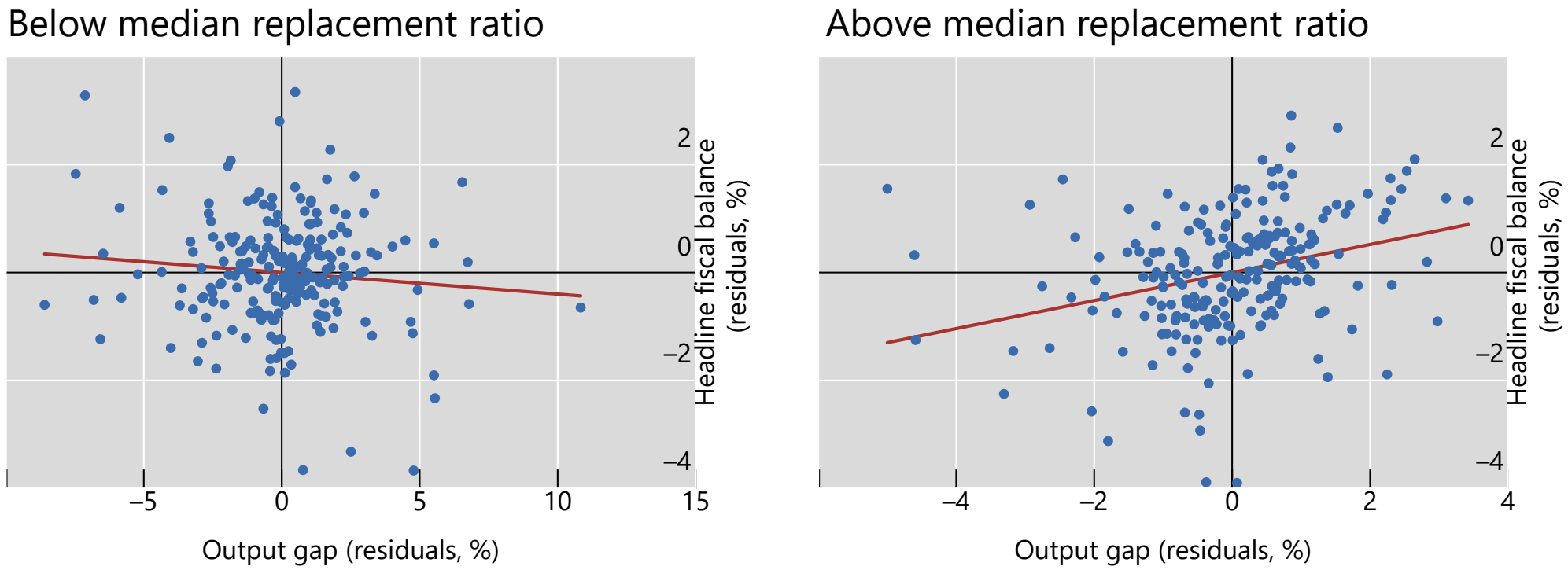
...essentially because government revenues co-move more tightly with the cycle



Sensitivity

90% confidence interval

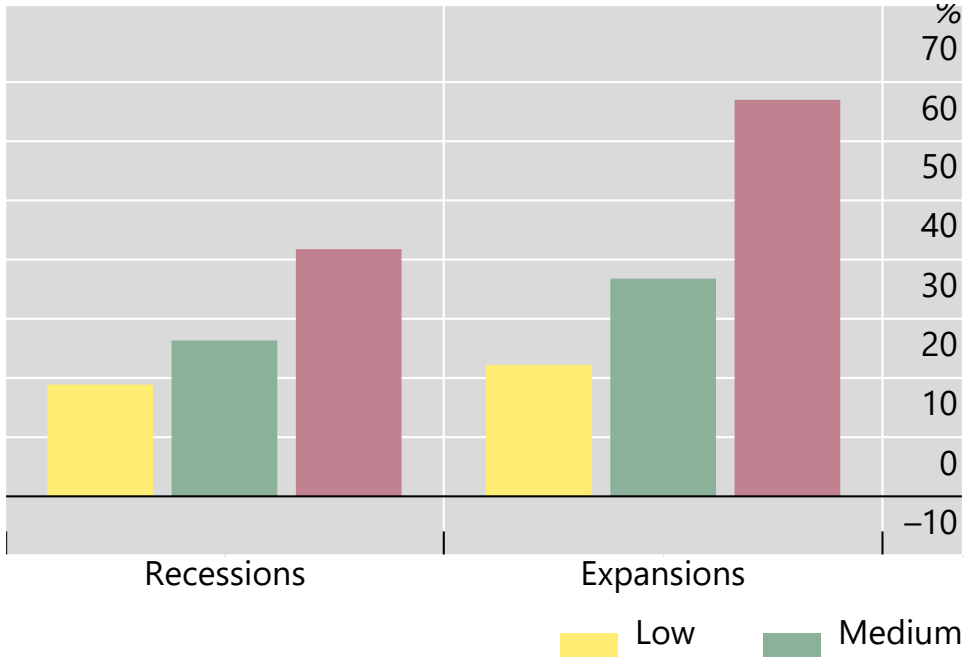
Does weaker UI account for the drop in fiscal policy stabilisation?



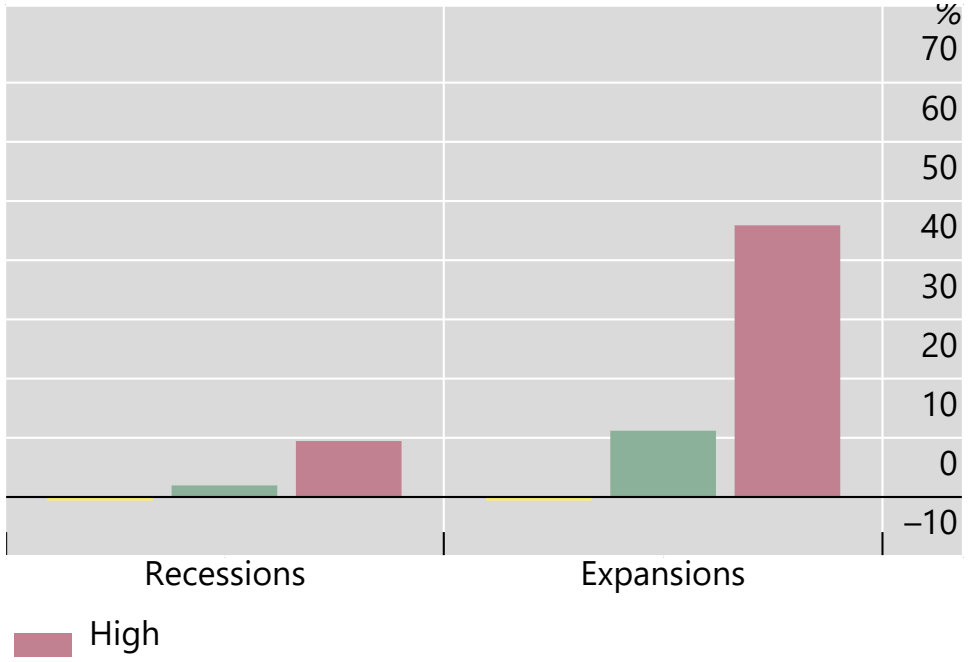
- Stronger unemployment insurance associated with significantly stronger sensitivity of fiscal policy to the business cycle

Fiscal policy, redistribution, and stabilisation: larger in expansions

Progressive taxes raise fiscal balance sensitivity to the business cycle, particularly in expansions



High UI replacement ratio also raises fiscal balance sensitivity to the output gap, driven by expansions



- High progressivity and/or high unemployment replacement ratios make fiscal policy react more strongly to the business cycle, particularly in expansions

Fiscal policy, redistribution, and stabilisation

- Take-aways: redistributive policies deliver three benefits
  - Inequality reduction (containment)
  - Fiscal stabilisation
  - Avoids discretionary expansions and improves fiscal sustainability

- Macro rationale for redistributive policies beyond inequality reduction
  - Taming business cycle volatility
  - Ensuring fiscal buffers are replenished in expansions

- Policy implications/stakes, need to revisit:
  - whether strong automatic stabilisers have negative supply-side effects on investment and innovation
  - and whether these outweigh the benefits described above

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Monetary policy and inequality – a cross-country perspective

Data for 21 advanced economies (1999Q1 to 2019Q4)

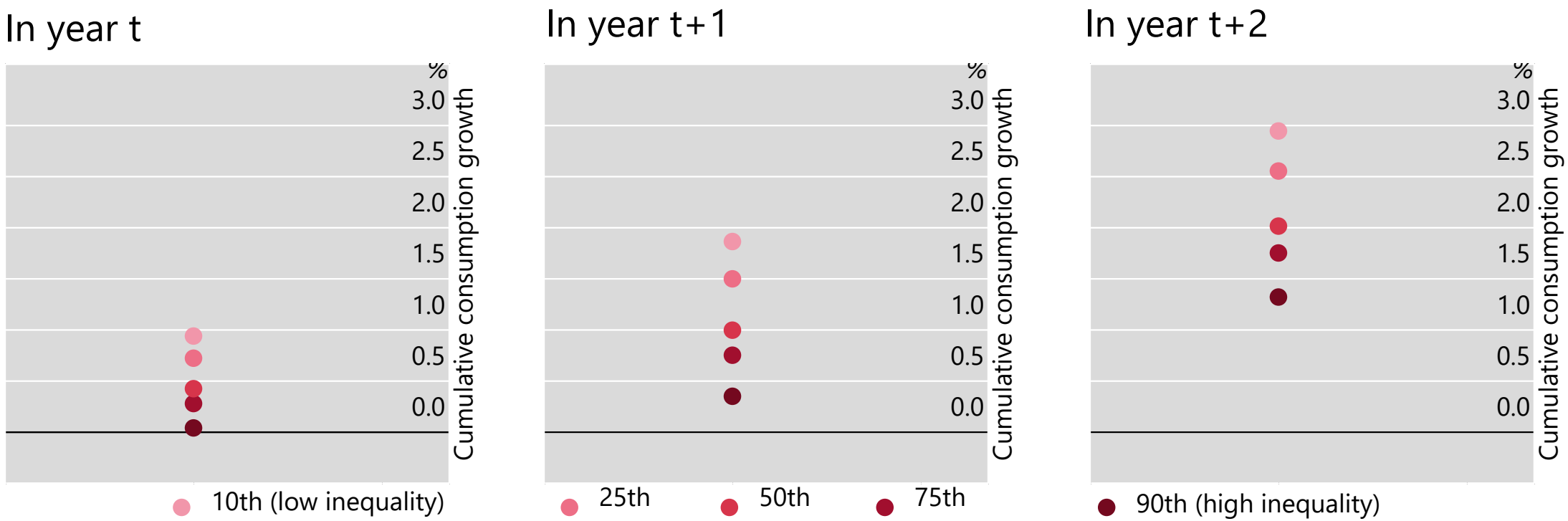
Two-step procedure:

- Identification of monetary policy shocks:
  - Three-equation panel VAR, with data at quarterly frequency
  - [GDP (log diff) CPI (log diff) policy rate]
- Estimation of effects of monetary shocks on consumption growth through a local projection regression:

$$\Delta_h c_{i,t+h-1} = \rho^h \Delta c_{i,t-1} + \alpha^h m_{i,t} + \beta^h m_{i,t} \times I_{i,t-1} + \gamma^h I_{i,t-1} + \lambda_i^h + \epsilon_{i,t+h-1},$$

  - $I_{i,t}$ is the share of income accruing to the top 10% of earners

Inequality dampens the effects of monetary stimulus on consumption



- Cumulative consumption growth following a monetary stimulus is weaker in high-inequality countries

A more specific US-centric exercise confirms the finding

State-level data on inequality and income (1969 to 2008)

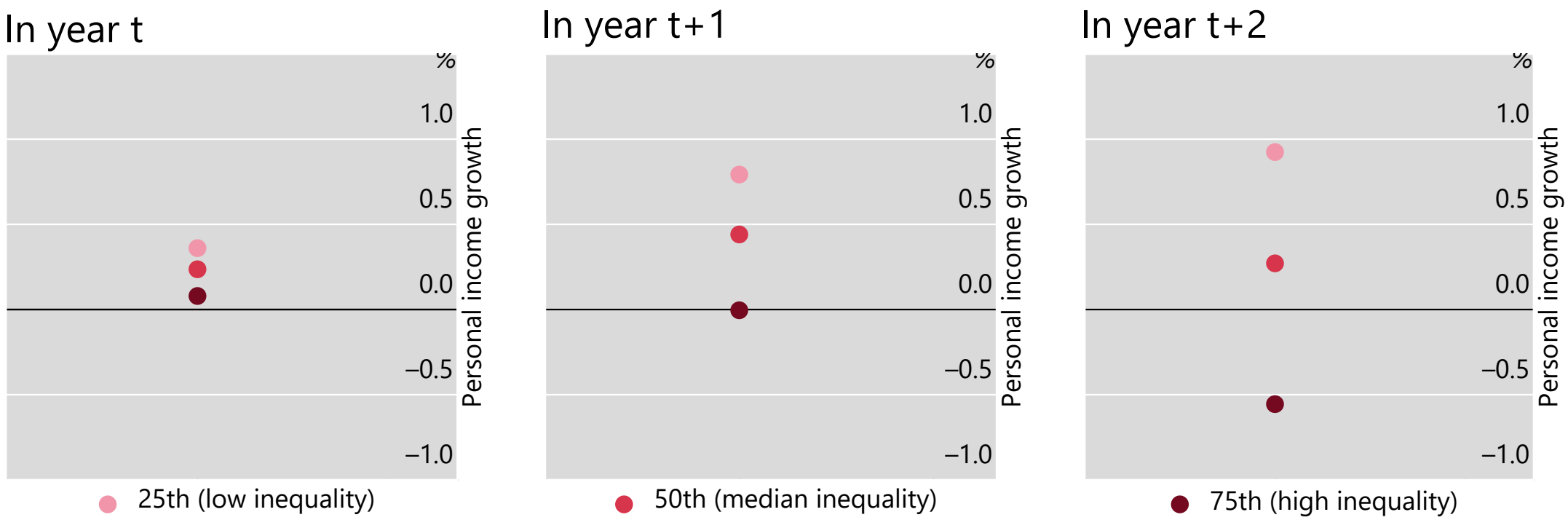
- From 1990 also data on unemployment and social spending

- Romer and Romer (2004) monetary policy shocks
- Controls at the national level: unemployment, inflation, SP500 returns, change in the BA-treasury 10-year spread

- Estimation of effects of monetary shocks on income growth through a local projection regression:

$$\Delta_h y_{s,t+h-1} = \lambda_s^h + \rho^h \Delta y_{s,t-1} + \alpha^h m_t + \beta^h m_t \times I_{s,t-1} + \gamma^h I_{s,t-1} + \delta^h X_t + \epsilon_{s,t+h-1},$$

Inequality dampens the effects of monetary stimulus on personal income



- Cumulative personal income growth following a monetary stimulus is weaker in high-inequality states

Wrap up

- **Inequality hysteresis**: recessions imply steep increases in income inequality**, that are only partly reverted in subsequent expansions**
- Inequality **matters for** the business cycle
  - Countries with higher inequality have deeper recessions
  - Countries with less redistribution through "fiscal" policy have:
    - less countercyclical fiscal policy, **raising the stabilization burden for central banks**
    - less effective monetary policy
- Policies that **reduce the incidence of recessions** a first line of defense against inequality
- **Keeping inequality in check also key to assure that stabilization policies (fiscal and monetary) are more effective**

- "Holistic" policy approach to address the inequality challenges involve better cooperation between fiscal and monetary authorities
- Enhancement and planning of coordinated countercyclical policies

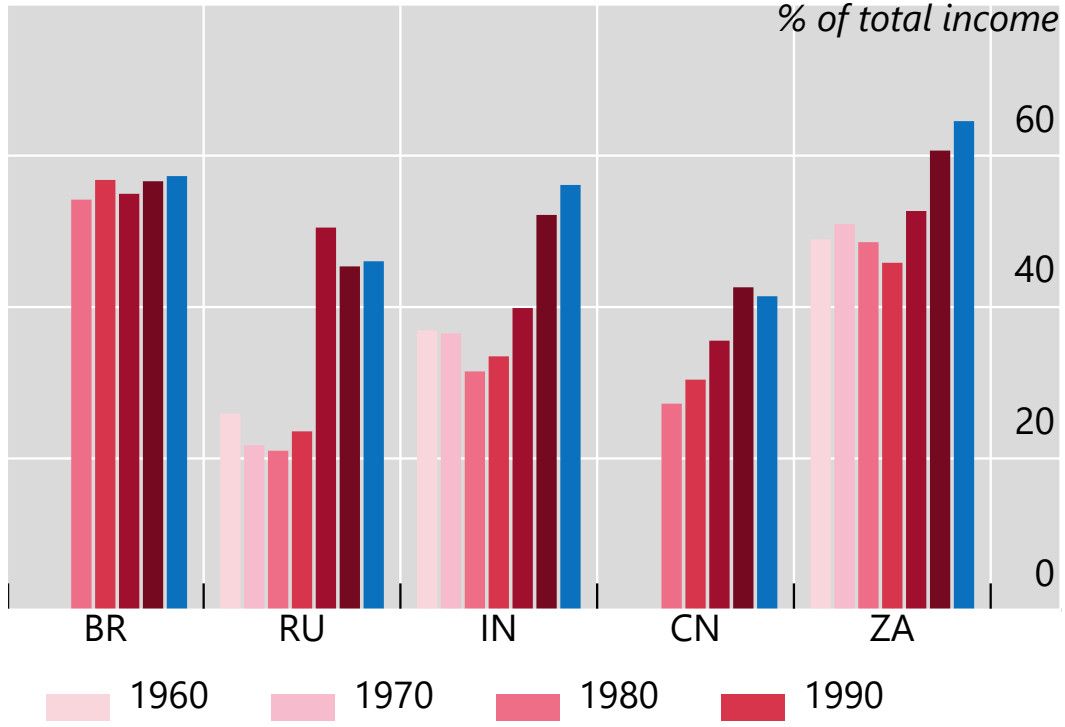
Implication for monetary policy frameworks?

- This suggests inequality and heterogeneity have to be taken into account in the formulation of monetary policy
- Focusing on the employment of more disadvantaged categories would lead to shorter recessions
  - Monetary policy strategies that provide more accommodation (e.g. average inflation targeting in its variants) yield comparatively better results when households' heterogeneity is taken into account
  - This does not mean adopting inequality as a policy objective, which could add to political economy pressures
- Fiscal measures aimed at leaning against the inequality trends would have the side benefit of lowering the macroeconomic stabilisation burden of central banks

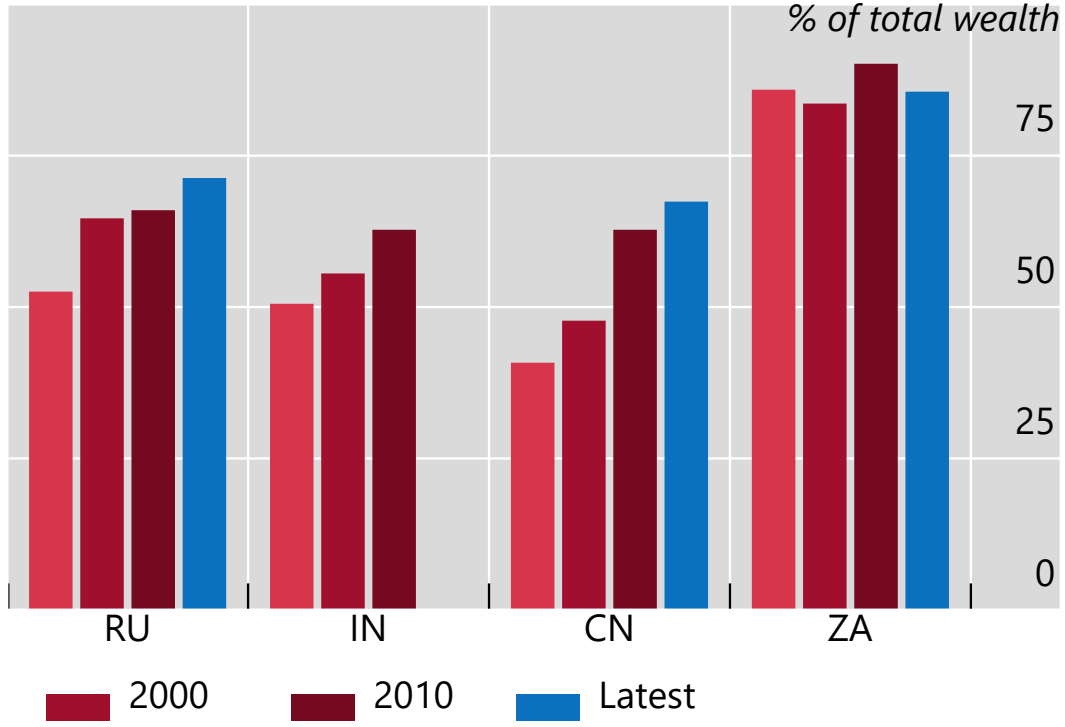
Complementary slides

Inequality has been rising in most advanced economies

Pre-tax income, share of top 10%

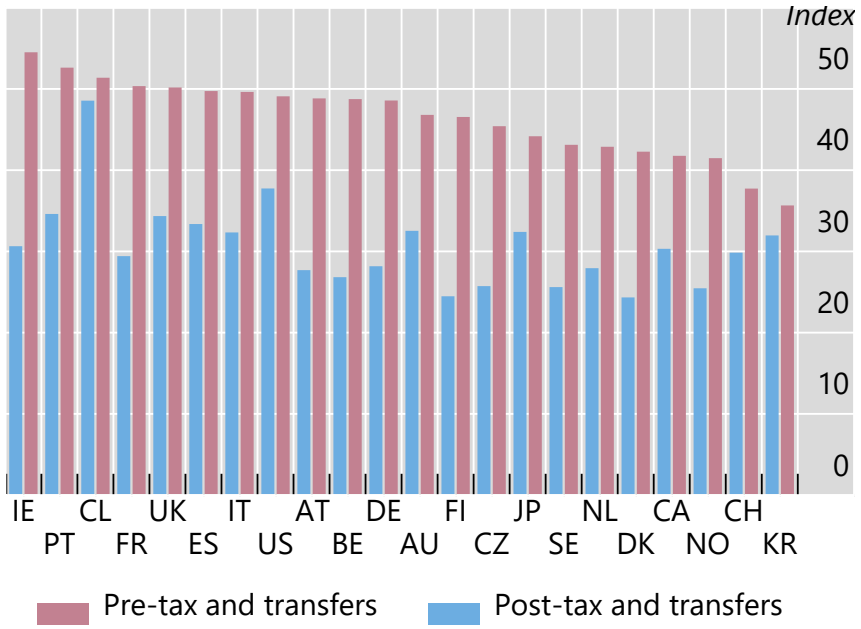


Wealth, share of top 10%

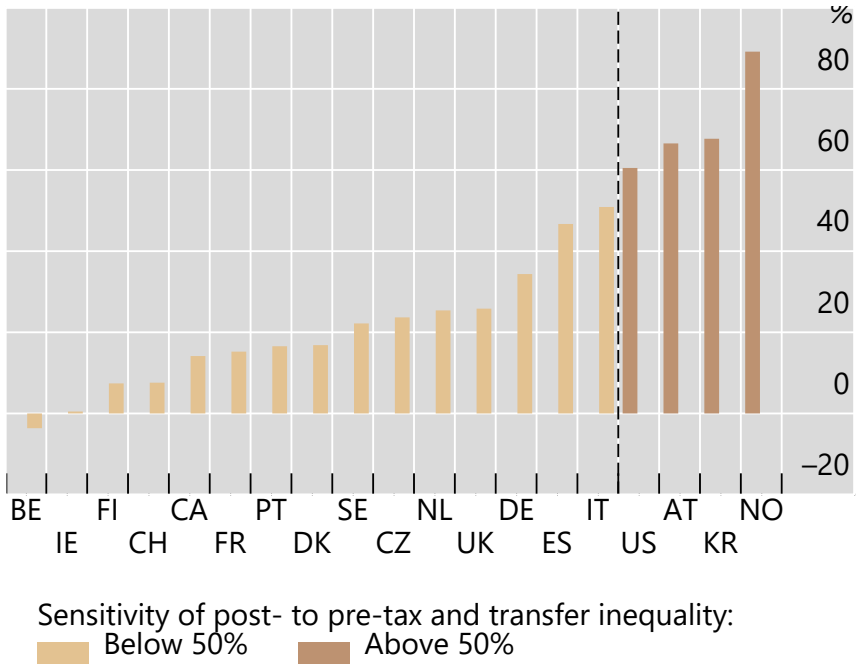


Fiscal policy, redistribution, and stabilisation

Taxes and transfers reduce Gini levels



In many countries, taxes and transfers dampen fluctuations in Gini inequality



- Fiscal policy has a large impact on inequality.
  - Significant wedge between before and after-T&T inequality.
  - After-T&T inequality shows little sensitivity to before-T&T inequality

Estimating fiscal policy stabilisation

- Estimate a fiscal policy rule using a series of panel regressions :

$$FB_{c,t} = \alpha_t + \alpha_c + \beta_0 FB_{c,t-1} + \beta_1 [D/Y]_{c,t-1} + \beta_2 GAP_{c,t} + \varepsilon_{c,t}$$

  - FB: Total or primary fiscal balance to potential GDP
  - D/Y: Public debt to GDP ratio
  - GAP: Output Gap
  - Sample: US, JP, DE, GB, FR, CA, IT, SE, NL, FI, DK, NO, IE, ES, PT, BE, CH, AT, KR, AU, NZ, IS, 2000-2019, data is annual.
  - To obtain time-varying estimates for the β's, we use a version of rolling window regression

- Estimate of the impact of tax progressivity/Unemployment insurance "Red"

$$FB_{c,t} = \alpha_c + \alpha_t + \beta_0 FB_{c,t-1} + \beta_1 D_{c,t-1} + \left(\beta_2 + \beta_3 Red_{c,t-1}\right) GAP_{c,t} + \beta_4 Red_{c,t-1} + \varepsilon_{c,t}$$