

The Distributional Effect of Stabilization Policy

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Workshop on Reducing Inequality to Promote Social Justice - ILO

Motivation - Facts

US income and wealth inequality

In the United States, the 10% earning the highest incomes take home nearly half of all income and the richest 10% of all households own more than 70% of all the wealth.



Wealth inequality is measured using the distribution of net household wealth among adults. Income inequality is measured using the distribution of pre-tax national income among adults.

Chart: The Conversation, CC-BY-ND • Source: [World Inequality Database](#) • [Get the data](#) • [Download image](#)

Motivation - Macro Literature

- Development of heterogeneous agent models has sparked interest in identifying the effects of policy on inequality
- Empirical analysis conducted in various models (VARs, LP, etc)
 - **Monetary policy** (lots, among them, Kaplan et al., 2018, Auclert, 2019, Amberg et al., 2022, and Samarina and Nguyen, 2024)
 - **Government spending** (Mertens and Ravn, 2012; Furceri et al., 2022)
 - **Tax levels** (Ferriere and Navarro, 2024)
 - **Tax Progressivity** (Jackson, Otrok, Owyang, 2020 and Ferriere and Navarro, 2024)
- Results broadly support hypothesis that expansionary policies increase income inequality in the U.S.

A Motivation Example - Monetary Policy

- Papers tend to emphasize monetary policy's role in lifting the bottom end of the income distribution
 - The action is on the extensive margin
- At the top end of the income distribution, policy works through capital gains
- Agents at the bottom of the income distribution may experience only labor income effects, while agents at the top of the income distribution may experience both labor and capital income effects [Amberg, Jansson, Klein, and Rogantini Picco (2022), among others]
- These studies tend to conclude that expansionary monetary policy increases income inequality

A Unifying Approach

- Policy's effects on inequality are often studied in a vacuum
- Evaluate one policy at a time
- We have reason to believe-generally speaking-that most stabilization policy functions similarly
- Suggests that expansionary policies could increase income (consumption) inequality if:
 - Capital gains effects outweigh labor market effects
- Wage inflation, real interest rate, investment rigidity might also be important

Our Contribution

- **Research question:** “How can we study the effects of various stabilization policies on macro variables (output) and inequality?”
- **What we do** We study **the impact of stabilization policies (monetary and fiscal) through different identification approaches by using constructed high-frequency inequality data**
- **How we do it:** We estimate VARs and a TANK model (in progress)
- **SPOILER! What we find:** generally that expansionary policies can increase inequality
- **Goal is to uncover a common channel**

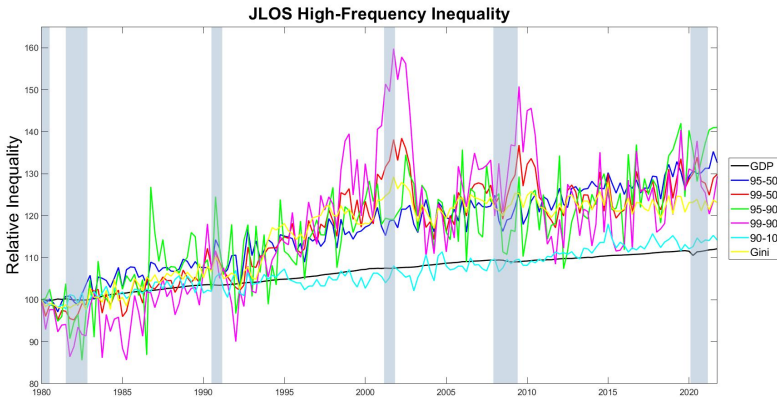
Timing of Policy Changes and Data Frequency

- GDP measures aggregate income but we need individual-level income to study inequality
- Challenges arise due to the timing of the implementation of policy relative to the frequency of the measure of inequality
- Many measures of (consumption and income) inequality are observed at low frequencies (e.g., annual)
- For example, suppose that the Fed increases the FED funds target in April but then lowers the target again in October
 - The net annual effect of these policy moves could be zero
 - If income inequality is observed only once during this period, we may not be able to identify the response of inequality to the monetary shock

Constructing High-Frequency Inequality Data

- Hogan, Jackson, Owyang (2024) use annual CPS (Current Population Survey) March Supplement as a true reference measure for income quantiles
- Create high-frequency (quarterly) interpolation using income quantiles of quarterly CEX (Consumer Expenditure Survey)
- We construct high-frequency measures of income (and consumption) inequality using a **Bayesian version of Chow-Lin** (1971) temporal disaggregation
- Chow-Lin matches the high-frequency relationship between CPS and CEX with the low frequency relationship

Relative Inequality



Policy Identification

- 1 **Monetary policy:** Jarocinski-Karadi (2020) high-frequency monetary policy shocks
- 2 **Government spending:** Ramey-Zubairy (2018) military news shocks
- 3 **Tax revenue:** Romer-Romer (2010) exogenous tax shocks
- 4 **Tax structure:** Instruments identified using the FAVAR from JOO

Identification 1: Monetary policy

- Consider a VAR with a vector of variables of interest, Y_t , and high-frequency instruments, m_t :

$$\begin{bmatrix} m_t \\ Y_t \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ \Phi_{Ym}(L) & \Phi_{YY}(L) \end{bmatrix} \begin{bmatrix} m_{t-1} \\ Y_{t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{m,t} \\ \varepsilon_{x,t} \end{bmatrix}$$

- Jarocinski-Karadi high-frequency monetary policy shocks: m_t consists of **true policy shocks and central bank information shocks**
- **True policy:** fed funds futures and S&P500 move in opposite directions
- **Information:** fed funds futures and S&P500 move in same direction
- Y_t consists of 1-year Treasury rate, log level S&P500, log level real GDP, log level GDP deflator, excess bond premium [Gilchrist and Zakrajšek (2012)], PLUS inequality
- Sample of policy shocks: 1991:Q3 - 2016:Q4

Identification 2: Government Spending

- Consider a VAR with a vector of variables of interest, Y_t :

$$Y_t = \Phi(L)Y_{t-1} + \varepsilon_t$$

- Ramey-Zubairy **military news shocks**, m_t , are an instrument for the true structural shock
- Estimate proxy VAR by decomposing the variance-covariance matrix of VAR residuals
- Y_t consists of log real gov spending per capita, log real GDP per capita, unemployment rate, PLUS inequality
- Sample of policy shocks: 1980:Q1 - 2015:Q4

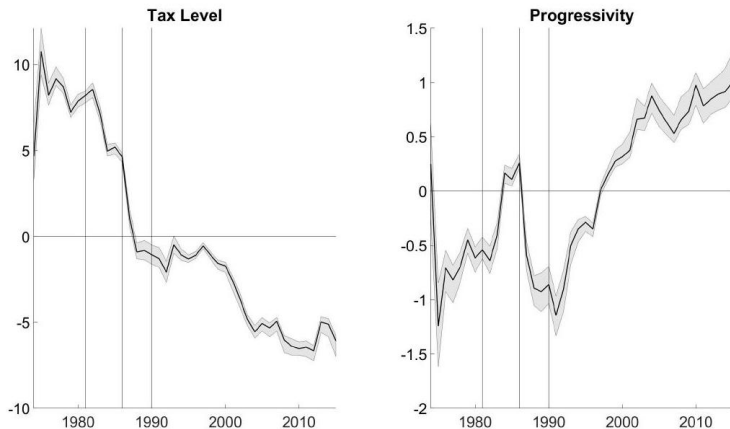
Identification 3: Tax Revenue

- Consider a VAR with a vector of variables of interest, Y_t :

$$Y_t = \Phi(L)Y_{t-1} + \varepsilon_t$$

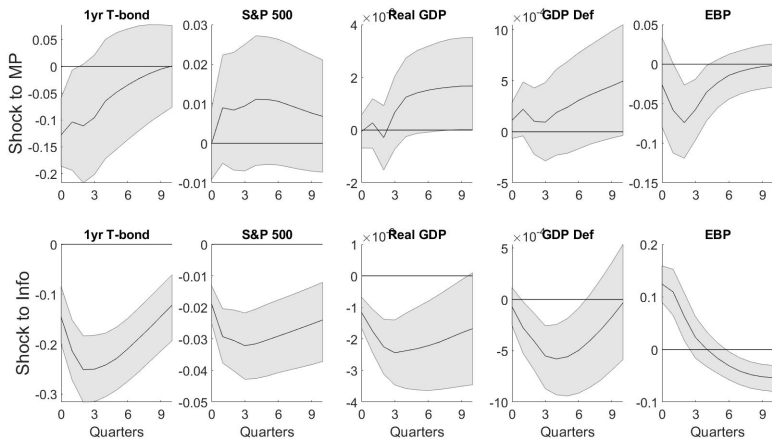
- Romer-Romer **exogenous tax shocks**, m_t , are an instrument for the true structural shock
- Estimate proxy VAR by decomposing the variance-covariance matrix of VAR residuals
- Y_t consists of gov revenue as share of GDP, growth of log real GDP, unemployment rate, PLUS inequality
- Sample of policy shocks: 1980:Q1 - 2007:Q4

Identification 4: Tax level and progressivity

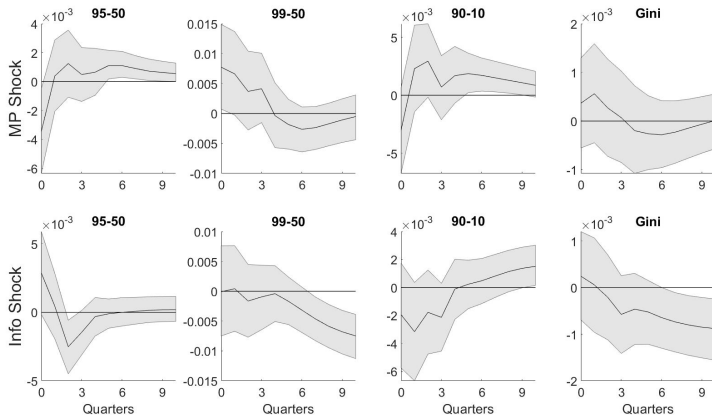


Annual VAR with tax factors, real GDP, tax revenue, PLUS inequality
[1980-2014]

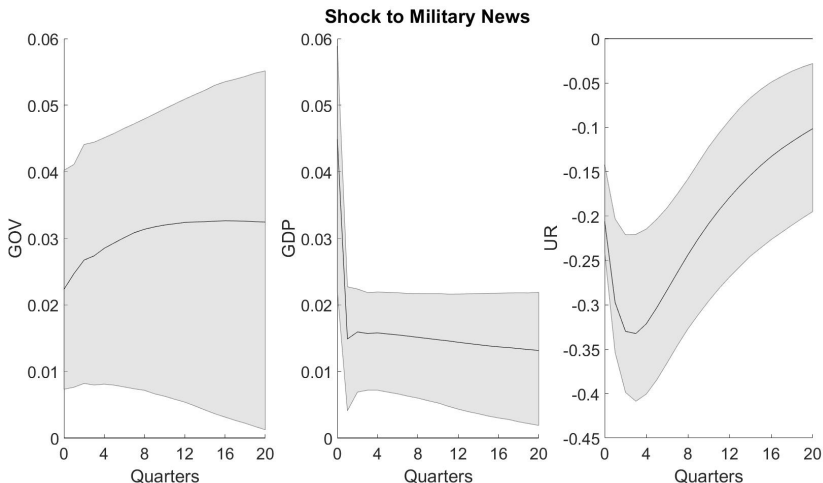
Expansionary Monetary Policy: Macro Effects



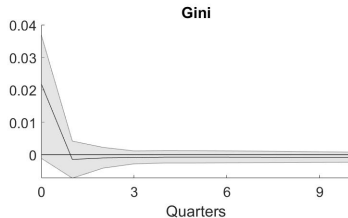
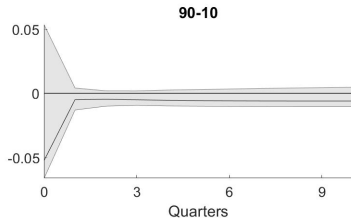
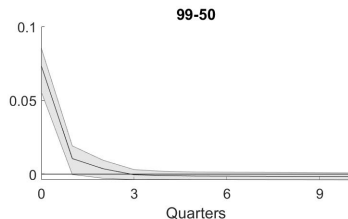
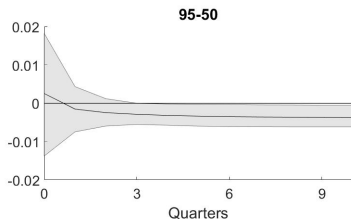
Expansionary Monetary Policy: Inequality Effects



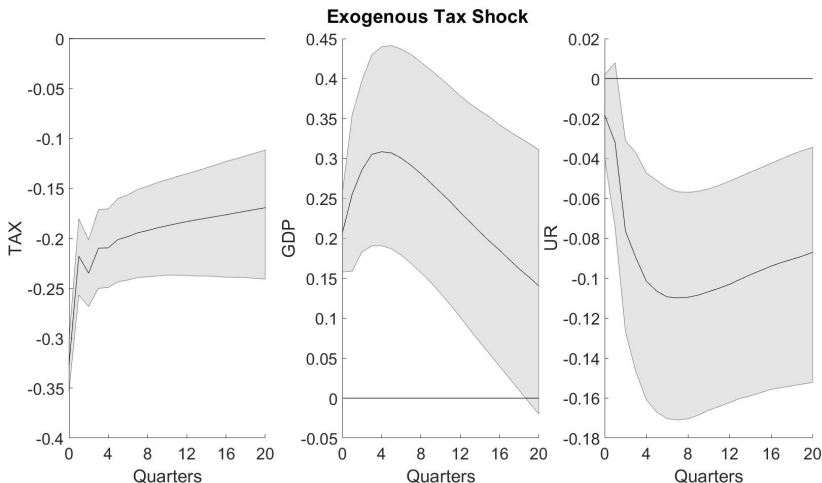
Expansionary Fiscal Policy (G): Macro Effects



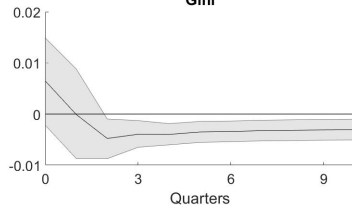
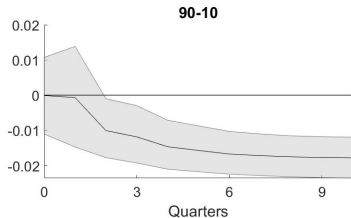
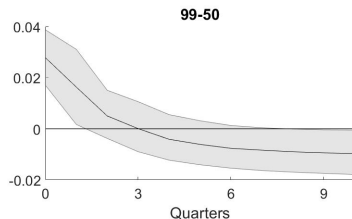
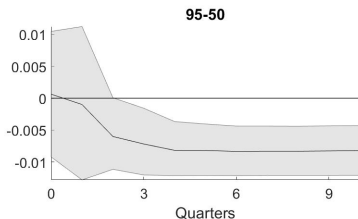
Expansionary Fiscal Policy (G): Inequality Effects



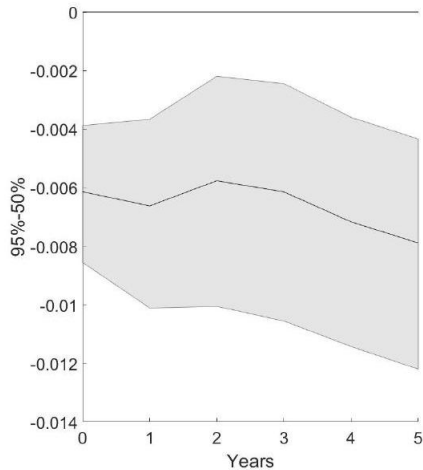
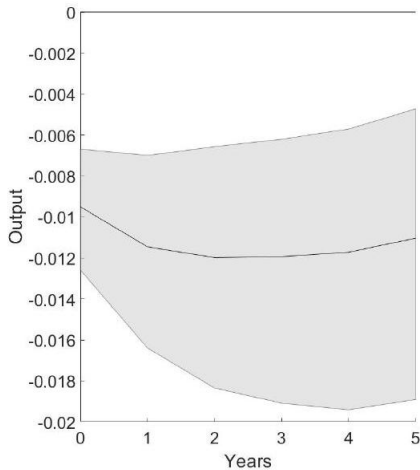
Expansionary Fiscal Policy (T): Macro Effects



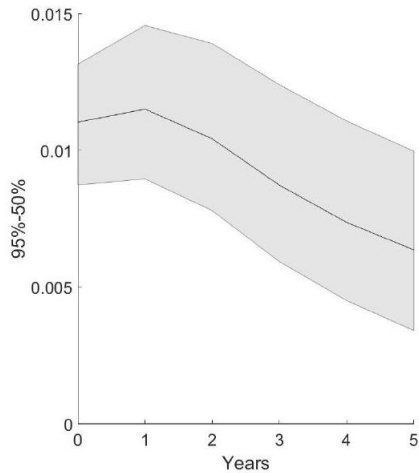
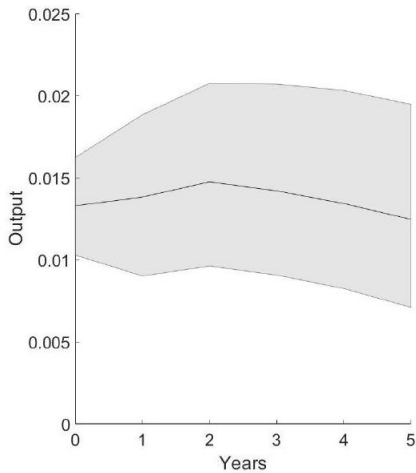
Expansionary Fiscal Policy (T): Inequality Effects



Tax Level



Tax Progressivity



Work in Progress

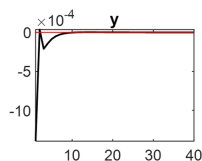
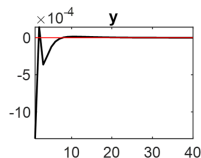
- **Savers vs No Savers** in a calibrated DSGE model inspired by Smets and Wouters (2007)
- We show how both monetary and fiscal policies produce a lower negative impact when we increase the percentage of no savers

MONETARY POLICY

No savers = 0.5

vs

No savers = 0.35



Wrapping Up

- We construct high-frequency measures of income inequality using a Bayesian Chow-Lin technique for temporal disaggregation using annual CPS and quarterly CEX
- We consider various channels of stabilization policy and find generally that **expansionary policies can increase inequality**

What's Next?

- Isolate the channel between output growth and inequality
- Robustness
- Cross-country variation (initial conditions matter)
- TANK model

Question Time

