The Impacts of Monetary Policy on Households Income Inequality in a Developing Economy: Evidence from Thailand

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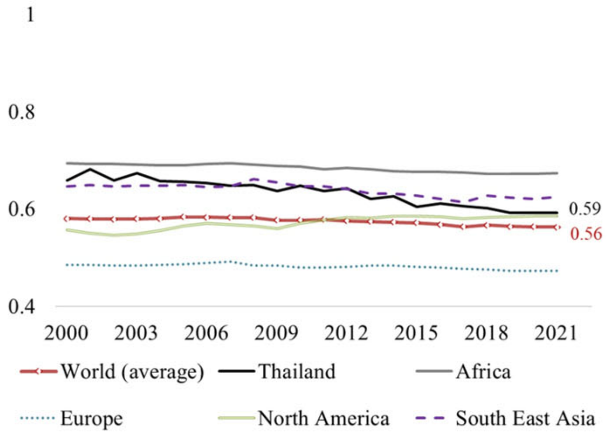
Background information

- During the COVID-19 pandemic, central banks worldwide have adopted various monetary policy tools both conventional and unconventional to ensure that their monetary policy objective is full-filled.
- The prolonged monetary policy easing, have sparked debate among the public, academicians, and policymakers if this loosening monetary policy exacerbated inequality.

Background information

- Previous studies on the impact of monetary policy on income inequality mainly focus on advanced economies (AE). Still, the study in developing economies (DE) is scarce.
- To fill this gap, we use Thailand as a case study of developing economies



Source: World Inequality Database (2021)

Literature reviews

- At this time, the literature is still developing, and there is no consensus on how the monetary policy affects income inequality.
- The effect can be unclear even in the same transmission channel.

Literature reviews found mixed evidence

- The expansionary monetary policy is found to be a cause of aggravating income inequality in some studies
  - For example, Albert et al., 2020, Andersen et al. (2020), Cloyne et al. (2016), Doepke and Schneider (2006), Lenza and Slacalek (2018), Meh et al. (2010), O'Farrell et al. (2016), and Saiki and Frost (2014).
- On the other hand, monetary policy easing is reported to decrease income inequality in advanced economies
  - Such as the evidence by Albrizio et al. (2021), Bivens, 2015, Bonifacio et al., 2021, Casiraghi et al., 2018, Coibion et al. (2017), Furceri et al. 2018, Guerello (2018), Mumtaz and Theophilopoulou (2017), and Samarina and Nguyen (2019).

Literature reviews

- Some previous studies also find that Conventional monetary policy becomes weaken during the time that interest rate is in a low level.
  - Laine (2020) and Borio and Hofmann (2017)

Research questions

1. Does the Bank of Thailand (BOT)'s expansionary monetary policy exacerbate income inequality?
2. What is the different impact between conventional and unconventional monetary policy on income inequality?

Contribution to the existing literature

1. Use Thailand as a case study for developing economies
2. Apply both aggregate data and micro-data to estimate the impacts of monetary policy on household members' income inequality
3. Examine both types of monetary policy tools – Conventional & Unconventional
4. Investigate the normal period and the period where policy rate is near the effective lower bound.

Monetary Policy in this study

- Conventional monetary policy (CMP)
  - policy interest rate (is similar for AE and DE)
- Unconventional monetary policy (UMP)
  - different balance sheet (asset) composition between AE and DE

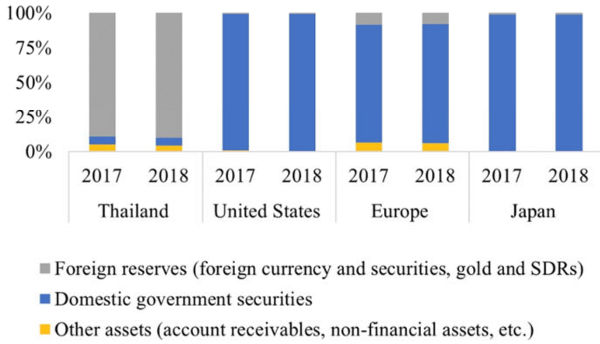


Figure: Central Banks' Balance Sheet Composition (As a Percent of Total Assets)

Methodology

1st Stage

Examine how expansionary monetary policy affect aggregate variables of interest.

- Estimate with Factor Augmented Vector Auto Regression (FAVAR) model
  - Transform large information that central bank may consider when conducting monetary policy into a few selected factors using PCA[1]
  - Estimate aggregate variables of interest with selected factors and monetary policy shock
- Aggregate variables of interest
  - output, business profit, employment, wage, CPI, deposit rates, lending rates and bond yields
- Modified from Bernanke et al. (2005) and Querk et al. (2020)

[1] A few selected factors represent more than 90% of the overall data

Methodology

2nd Stage

Micro-data analysis on household members' income

(I) **Non-financial income composition channel**

- labor income, business profit, and other transfers
  - Two margins that affect changes in labor income:
    1. Extensive margin: Employment status
       (via Probit Regression - Probability of being employed)
    2. Intensive margin: Labor income conditional on being employed
       (via Fixed effect regression)

Methodology

2nd Stage (cont.)

Micro-data analysis on household members' income

(II) **Net financial income composition channel**

- Financial revenue
  (income flows from deposit, bond and other rents)
- Financial payment
  (interest rate payment of loan)

- Modified from Casiraghi et al. (2018)

Methodology

3rd Stage

Simulations for evaluating the potential policy effect on income inequality by combining the first two steps

- Examine the impact of expansionary monetary policy on income distribution (by deciles) through main income channels
  - combine the pass-through from macro impact (1st stage) with micro-estimation (2nd stage)
- Construct inequality measures from the simulations
  - Gini coefficient
  - Decile ratio (D10/D1 and D10/D5)
- Modified from Casiraghi et al. (2018)

Data & Estimation

1st Stage: Examine how expansionary monetary policy affect aggregate variables of interest

- Monthly time-series of Thai macroeconomic and financial data (130 variables) ranging from 2010 – 2019
- Periods of study
  - Whole sample period (2010-2019)
  - Normal period (2010-2014)
  - During persistently low policy rate period (2015-2019)

- We expect that during the low policy rate period, conventional monetary policy will become less effective unlike the unconventional one

Data & Estimation

2nd Stage: Micro-data analysis on household members' income

- Examine Thai Household Members' Income Composition using Household Socio-Economic Surveys (SES) data in 2019
- Micro-estimation of individuals' labor income using Thai labor force survey (LFS) ranged from 2013 - 2019

Data & Estimation

3rd Stage: Simulations for evaluating the potential policy effect on income inequality by combining the first two steps

- Use SES data in 2019 as a baseline to calculate the medium forecast and simulations

Main Finding 1: The effect is not uniform & increases by income decile

- Higher income group gain more benefit from monetary policy easing
- Still, the average effect are relatively similar for both tools

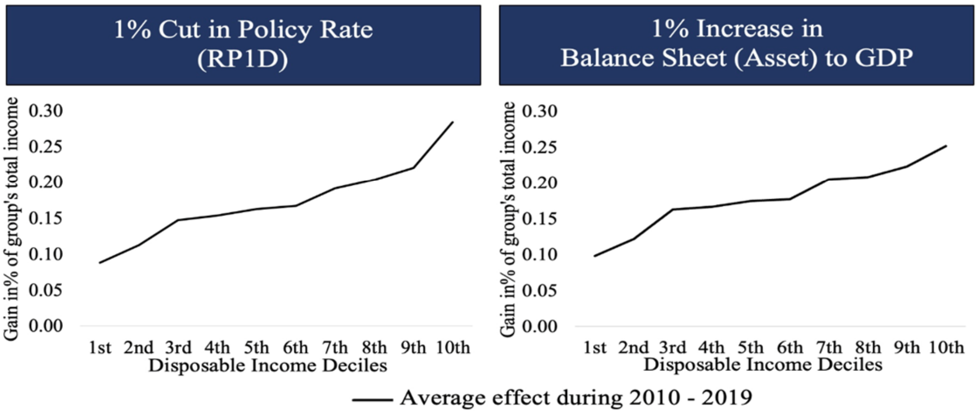
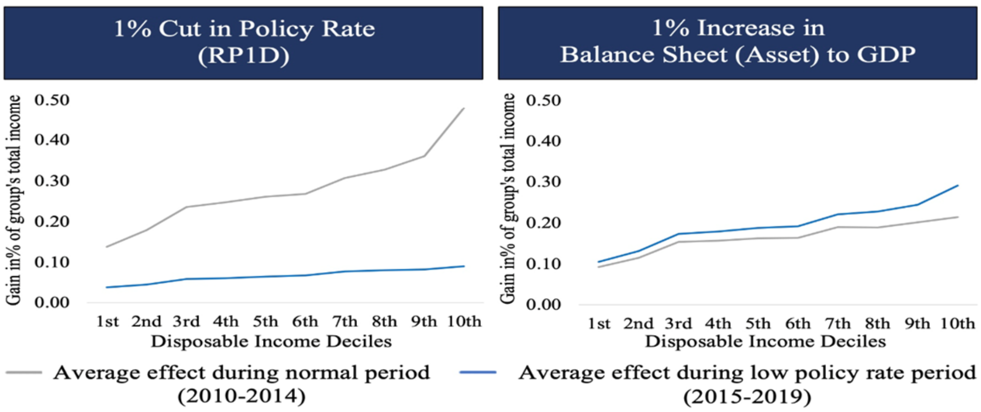


Figure: Overall Impact on Total Income across Disposable Income Decile

Main Finding 2: Period matters for policy effectiveness

- Thailand's policy rate has become low for long since 2015
- The estimated results are in line with our expectations
  - The effect from CMP becomes weaker while that of UMP gains more strengthen during low policy rate period (2015-2019)



Main Finding 3: Expansionary monetary policy slightly increases income inequality

- Income inequality increases in all majors but the extent is not large
- The effect from CMP become lower in low policy rate period unlike UMP

	Deviation from baseline	
Income inequality measure	1% cut in policy rate	1% increase in balance sheet (asset) expansion
	Whole sample period (2010-2019)	
Gini	0.0003	0.0007
D10/D1	0.0088	0.0069
D10/D5	0.0032	0.0020
	Normal period (2010-2014)	
Gini	0.0005	0.0008
D10/D1	0.0153	0.0055
D10/D5	0.0057	0.0013
	Low policy interest rate period (2015-2019)	
Gini	0.0001	0.0006
D10/D1	0.0023	0.0083
D10/D5	0.0007	0.0027

Conclusion & Policy Implication

- Overall, the expansionary monetary policy slightly increases income inequality in Thailand.
  - Top income group benefits more than the others.
  - Conventional monetary policy becomes less effective in a low policy rate period unlike unconventional one (in line with the previous studies in advanced economies, e.g., Laine (2020) and Borio and Hofmann (2017))
- Central banks do not have to be worried too much (at least in the medium-term)

Thank you so much :)