Unconventional Monetary Policy (UMP) and Inequality: Evidence from Japan

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Inequality is rising across advanced economies

Gini coefficient of income* inequality

Source: OECD
*Disposable income (after tax)
The impact of UMP on income inequality is on the radar of central banks

- **Bank of England** (2011): concedes that quantitative easing (QE) benefited richest 5% of British households, who hold 40% of overall wealth outside pension funds.

- **ECB’s Benoît Cœuré** (2012): inequality is relevant for central banks, “as monetary policy may have an impact on inequalities, and ... stability is conducive to equity”

- **FRB Dallas President Richard Fisher** (2014): argued that QE “enabled the rich and the quick; it was a massive gift”
Monetary Policy and Inequality

• Largely ignored in the literature, but gaining some attention since the crisis
  – Romer and Romer (1998): stable inflation and financial stability is good for the poor
  – Coibion et. al (2013): contractionary monetary policy widens income inequality (holds only pre-1990)

• But do results hold with unconventional policies?
  – Objective of central banks may shift from pure inflation targeting to financial stability and restoring monetary transmission mechanism → attention to asset prices

*No study on the impact of unconventional monetary policy (UMP) on income inequality*
Key Questions

• Why should central banks care about income inequality?
  – Potential link to financial instability (Rajan, 2010; van Treeck, 2012; Prasad, 2013)

• How does monetary policy affect income inequality?
  – During “normal” times – by containing inflation, it can shield consumers from deterioration of their wages, purchasing power and real value of assets
  – During “abnormal” times (e.g. zero-lower bound), inflation is low but central banks seek to maintain financial stability and restore monetary transmission → asset prices (portfolio channel)
Japan as a Unique Testing Ground

• Since 2008, inflation, unemployment and wages have not moved dramatically
• Exogenous monetary policy changes – asset purchases, “comprehensive monetary easing” (CME), and “quantitative and qualitative easing” (QQE) since April 2013 – with large impact on asset prices
• During the sample period, no major change in fiscal policy (yet to be implemented through Q4 2013, and mainly focused on business sector)
Two phases of UMP in Japan

Monetary base and overnight interest rate

Source: Bank of Japan
Japanese household survey data ("kakei chousa")

- Conducted by the Cabinet Office; sample size is about 7,000 households; 1/6 of households replaced every 6 months; data from 2002 is available on the internet
- Two subsets: Income and expenditure survey, Savings and liabilities survey
- Micro-data is only available to Japanese government (sponsored) researchers, so we rely on aggregate data
- Gini coefficient of inequality constructed with data on annual income (including capital gains) by decile, quarterly
- Analysis based on income inequality, but strong correlation with wealth inequality
Composition of savings by savings amount quintile, all households

Source: Statistics Bureau of Japan, based on 2012 data, all households
VAR analysis (I)

Vector of endogenous variables:
[Δ log(GDPₜ), Δπₜ, Δ log(MBₜ), Δ log(Sₜ), Giniₜ]

• Δ log(GDPₜ): annual GDP growth
• Δπₜ: Year-on-year headline CPI inflation (target of the BoJ), seasonally adjusted
• MBₜ: monetary base to GDP, seasonally adjusted
• Sₜ: Stock prices (Nikkei 225 index)
• Giniₜ: Gini coefficient of income inequality, based on household survey

Cholesky ordering of the variables is as above (alternative ordering as a robustness check)
VAR analysis (II)

- Sample period: 2008Q4 – 2013Q4 (most recent data available), quarterly basis
- The period of earthquake (2011 Q2-Q3, dummy variable), and reaction afterwards (2011 Q4-2012Q1) is included as an *exogenous* variable
- Inflation \((\Delta \pi_t)\) is taken as a first difference due to unit root
- Monetary base and stock prices have unit roots; we take natural logs and the first difference
- Optimal lag = 2 (determined by SIC & LR test statistics)
- Instead of annual GDP growth, we also tried cycles extracted from HP filter and BK filters and obtained similar results
Gini coefficient and top and bottom 20% income ratio

Note: Income = pre-tax income.
Impulse response functions (accumulated)

Monetary base $\rightarrow$ Nikkei

Accumulated Response of DLNIKKEI to DLMB_GDP

- Strong impact on stock prices and Gini (portfolio channel)
Impulse response functions (accumulated)

<table>
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<tr>
<th>Monetary base → Inflation</th>
<th>Inflation → Gini</th>
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Accumulated Response of DYOY_INFL to DLMB_GDP

Accumulated Response of GINI to DYOY_INFL

→ Weaker impact on inflation (savings redistribution channel)
Outcome of VAR analysis

• A shock in monetary base seems to amplify income inequality via higher equity prices

• **Robustness checks:**
  – Top 20/Bottom 20 ratio
  – Theil statistics
  – Alternative Cholesky ordering

• Our results are robust to these robustness checks
Conclusions and policy implications

• First evidence that UMP shocks have an *upward* impact on income inequality through asset prices (portfolio channel)
• Complementary fiscal measures (e.g. transfers) may be desirable from an equity perspective when UMP is in place
• Japan’s long experience with UMP may hold lessons for other countries – including the US, where UMP is being phased out, and the euro area, where UMP may continue
Potential extensions

- Now that inflation has been positive for a year, how will it interact with UMP’s impact on inequality via portfolio channel?

- Introducing more structure and variables into the VAR model, e.g. wages, unemployment rate, etc.

- Comparison with other countries with UMP
  – Perhaps effects are stronger in US and UK, where higher proportion of household wealth is in the form of securities?

- Access to micro-level data
Different types of inequality

• Income
• Wealth
• Opportunities $\rightarrow$ Japan’s structural issue (esp. in labour market)
Thank you!