Bank Indonesia's approach to incorporating household and firm heterogeneity in monetary policy decision-making

Bank Indonesia

Introduction

Monetary policy decision-making in the modern era increasingly recognises the importance of household and firm heterogeneity. This note examines how Bank Indonesia incorporates these diverse economic agents into its policy analysis. We explore how heterogeneity impacts the various transmission channels of monetary policy and highlight the role of household heterogeneity in monetary policy transmission and the distributional effects of monetary policy. Bank Indonesia will continue to explore heterogeneity in monetary policy analysis to further strengthen the effectiveness of its monetary policy.

Monetary policy's key transmission channels: effects on households and non-financial firms

Bank Indonesia's monetary policy objective is to achieve the stability of the rupiah to support sustainable economic growth. This objective encompasses two key elements: price stability – reflected in the inflation rate – and exchange rate stability. To achieve this, Bank Indonesia utilises the BI-Rate as its main policy instrument to strategically influence economic activity, with the ultimate objective of maintaining price stability.

The transmission of monetary policy in Indonesia functions through several channels. These encompass the interest rate, bank lending (credit), balance sheet, asset price, exchange rate and expectations channels. The effectiveness of these transmission mechanisms has been bolstered by significant enhancements to the monetary policy framework following both the Asian financial crisis and the Great Financial Crisis. The adoption of an inflation targeting framework and the implementation of a comprehensive policy mix have reinforced the robustness and relevance of these transmission channels, ensuring their continued efficacy in addressing Indonesia's unique economic landscape.

In terms of the impact of monetary policy on households and firms, Bank Indonesia assesses that the main channels with the most significant effects are: (i) the interest rate (saving-investment) channel; (ii) the bank lending channel; (iii) the exchange rate channel; and (iv) the expectations channel. Additionally, Bank Indonesia assesses that transmission through the balance sheet and the cash flow channels also have strong, though relatively weaker, impacts compared with the other four channels.

The interest rate channel is the first channel that directly responds to changes in the monetary policy stance. Adjustments to the BI rate influence deposit and lending rates in the banking industry. Recent studies show that this channel is transmitted quite effectively, especially on deposit rates, lending rates and output (Bathaluddin et al (2019)). Adjustments to the BI rate impact **household consumption and savings** through the intertemporal substitution effect, the wealth effect and the income effect, as well as **household and non-financial firm investment**, by influencing deposit and lending rates in the banking industry.

The bank lending channel operates by affecting corporate and household demand for loans. When lending rates decrease, the cost of borrowing becomes more affordable, encouraging corporations to take on loans for investment purposes. This reduction in the cost of capital enables businesses to expand operations, purchase new equipment or undertake growth projects. For households, lower lending rates make it easier to obtain credit for large expenditures, such as housing or education, which further stimulates consumption**.**

The exchange rate channel operates by transmitting the effects of exchange rate fluctuations into domestic inflation, a phenomenon known as the "exchange rate pass-through." When the exchange rate depreciates, the cost of imported goods and services rises, which can lead to higher domestic inflation. For households, a depreciation in the exchange rate can erode purchasing power, particularly for those reliant on imported products. For corporations, exchange rate fluctuations can affect production costs, especially for businesses heavily dependent on imported raw materials, and influence competitiveness in international markets, impacting revenues and investment decisions.

The expectations channel has grown increasingly significant in Indonesia's forward-looking inflation targeting framework. This channel focuses on how economic agents, such as households, businesses and investors, form their expectations regarding inflation and monetary policy. Effective communication by the central bank is essential in shaping expectations and ensuring they remain anchored to the inflation target. By managing expectations, the central bank enhances the credibility of its policies, which helps guide economic behaviour in ways that support macroeconomic stability and policy effectiveness.

The balance sheet channel operates by influencing corporate debt costs and cash flows. When interest rates decrease, corporations experience lower debt servicing costs, which improve their financial position and allow for greater flexibility in operations and investments. Conversely, higher interest rates increase debt burdens, potentially constraining corporate spending and investment decisions. It also decreases corporate cash flow, reducing profitability and corporate value as reflected in declining asset and collateral values.

The role of household heterogeneity in monetary policy transmission

Bank Indonesia recognises the importance of household heterogeneity in the transmission of monetary policy. Several characteristics of heterogeneity that are considered as part of the background analysis for monetary policy formulation at Bank Indonesia are: (i) household-specific inflation experiences; (ii) heterogeneity in inflation expectations; (iii) the level and composition of debt and the debt burden;

and (iv) financial literacy. Based on our analysis, these characteristics matter for monetary policy transmission.

- **Households may have specific experiences of different inflation rates based on their consumption patterns, geographic locations and income levels.** This heterogeneity can arise from consumption preferences for goods and services, especially between upper-middle class and lower-income households, leading to varied inflation experiences. Households that spend a greater proportion of their income on basic needs, like food, may feel the impact of food price inflation more acutely than those that spend more on tertiary goods and services. Moreover, regional differences may impact inflation rates. These may vary significantly across regions in Indonesia due to the availability of local goods, transportation costs, affordability and regional economic characteristics. Regarding income levels, lower-income households may be more sensitive to price changes in essential goods than upper-middle class ones, which may have greater access to goods and services that are less affected by inflation.
- **Heterogeneity in inflation expectations can differ widely among households, influenced by information asymmetry and anchoring effects from past experiences.** Different levels of access to information can lead to varying perceptions of future inflation. Indeed, households that are more well informed about economic development may have more accurate expectations than those that rely on anecdotal evidence. On the other hand, households that have experienced high inflation in the past may have different expectations about future inflation compared with those that have not. Examples of such experiences include those related to the adjustment of fuel prices by the government, constrained food supply that drives food inflation, and rising transportation costs.
- **The level, composition and burden of household debt significantly affect monetary policy transmission by shaping household responses to interest rate changes.** High levels of debt, particularly variable rate loans, amplify sensitivity to interest rate changes, with higher rates increasing debt servicing costs and reducing consumption, while lower rates ease the burden and encourage spending. The composition of debt, such as mortgages versus consumer loans, influences wealth effects, as higher interest rates can depress housing prices and reduce household wealth, curbing consumption. A heavy debt burden may also lead to greater risk aversion, limiting the effectiveness of monetary easing as households prioritise debt repayment over spending. Additionally, the distribution of debt across income groups can create varying responses, with low-income households often reacting more strongly. Lastly, excessive household debt can prompt tighter lending standards, weakening the bank lending channel and reducing credit availability, further impacting monetary policy effectiveness.
- **Financial inclusivity also plays a role in monetary policy transmission**. Many households, especially those in rural areas or lower-income brackets, have limited access to formal financial services, weakening the credit channel of monetary policy. Households without access to credit are less responsive to interest rate changes. Indonesia's geographical vastness and economic diversity result in significant differences in economic activity, income levels and financial access across regions. These regional differences can affect how monetary policy

is transmitted. For example, households in more developed urban areas may have greater access to financial services and thus be more responsive to policy rate changes than those in remote rural regions.

Bank Indonesia primarily collects data on heterogeneity from market data sources and surveys. These insights are essential for analysing the short-term impact of monetary policy on household spending and inflation expectations.

Link between heterogeneity and monetary policy decisions

Bank Indonesia incorporates data on household and firm heterogeneity into its quantitative analysis and projection models as part of the monetary policy decision-making process. The central bank uses a variety of tools and models to assess the impact of heterogeneity on policy transmission. In addition to traditional econometric models, Bank Indonesia integrates machine learning techniques into its monetary policy analysis, leveraging their ability to process large data sets, identify complex patterns and improve the accuracy of forecasts related to economic growth, inflation and the transmission mechanisms of monetary policy.

Distributional effects of monetary policy

Bank Indonesia acknowledges that monetary policy can have substantial distributional effects on both households and firms, as outlined in the previous section of this note. These effects are considered in the policymaking process, although they are not the main consideration. This is in line with the objectives of monetary policy according to the mandate, namely achieving rupiah stability to support sustainable economic growth.

Bank Indonesia communicates the relevance of distributional effects to the public through various channels. Bank Indonesia publications, such as economic reports, monetary policy reviews and press releases often discuss how inflationary pressures vary between different income groups and how different sectors of the economy respond to credit conditions. In press conferences following major monetary policy decisions, Bank Indonesia officials explain how the central bank's actions are designed to protect the purchasing power of vulnerable groups, particularly by stabilising food and energy prices. Further, Bank Indonesia's financial stability reviews include detailed discussions on how different sectors, regions and firm sizes are performing under current economic conditions, particularly in terms of financial risks and vulnerabilities.

Measures to address heterogeneity

Bank Indonesia employs various measures to address heterogeneity in the economy, recognising that different segments of households and firms may require targeted approaches. These measures are part of the Bank Indonesia policy mix strategy, which focuses on growth and stability aspects, supported by inclusion. The Bank Indonesia policy mix involves the seamless and dynamic integration of mutually complementary and reinforcing main policies, underpinned by supporting policies. This serves to safeguard comprehensive, credible, accountable and consistent policies to undertake the central bank's tasks and achieve its goals. In pursuit of its goals, Bank Indonesia leverages its monetary and macroprudential policy mix, supported by the payment system policy and supporting policies.

Bank Indonesia's monetary policy is currently not the main policy instrument used to address heterogeneity. As discussed earlier, monetary policy applies to all economic agents and it is directed to manage the economy in aggregate, to achieve its objectives according to the mandate, rather than for specific economic agents.

Macroprudential policies play a key role in addressing heterogeneity. Bank Indonesia implements an accommodative macroprudential policy stance to increase bank lending/financing to priority sectors and create job opportunities, including in the Micro, Small and Medium Enterprises (MSME) sector and green economy, while maintaining prudential principles. There are many macroprudential policy instruments that Bank Indonesia uses in addressing heterogeneity such as the macroprudential liquidity incentive (KLM), the macroprudential inclusive financing ratio (RPIM) and loan-to-value (LTV)/financing-to-value (FTV) ratios. The KLM offers a reduction of rupiah reserve requirements for banks that meet certain lending criteria for certain sectors. As of January 2025, the KLM policy focuses on revitalising bank lending/financing to sectors that can drive economic growth and create jobs, namely: (i) agriculture, trade and the manufacturing industry; (ii) transportation, storage, tourism and the creative economy; (iii) construction, real estate and public housing; (iv) MSMEs; (v) ultra-micro enterprises; and (vi) the green economy. RPIM mandates banks to allocate a portion of their credit to MSMEs, underbanked segments and low-income households. It accommodates the heterogeneity in banks' lending strategies by providing flexibility in meeting these targets, including through indirect lending channels such as fintech lending or investments in securities issued for inclusive financing purposes. LTV/FTV ratios enhance financing access for households, particularly benefiting first-time homebuyers and middle-to-lower income groups. Bank Indonesia retains the option to change the ratio for first, second and third facilities to accommodate heterogeneity in debtors' profiles.

Payment system policy is directed towards bolstering growth, particularly in the trade and MSME sectors, strengthening reliable infrastructure and reinforcing the structure of the payment system industry, while expanding acceptance of payment system digitalisation.

Meanwhile, supporting policies are oriented towards helping to achieve the Bank Indonesia policy mix targets. **Supporting policies that address heterogeneity include the following**:

1. **Regional economic and financial policies**. Regional economic and financial policies are oriented towards achieving the inflation target and fostering regional economic growth, increasing access to finance and MSME development, and maintaining a secure and seamless payment system, accompanied by a healthy payment ecosystem through the achievement of various indicators and optimising the full panoply of regional economic and financial policy instruments. The approach is tailored to reflect the characteristics and potentials of each region.
2. **Inclusive and green policies.** Inclusive and green policies are oriented towards achieving the target of supporting MSMEs for food security and exports, inclusive

finance, access to finance and green MSMEs, as well as MSME digitalisation through the various indicators and optimising the range of green and inclusive policy instruments available.

3. **Sharia economy and finance policies**. Sharia economy and finance policies are aimed at achieving the goals of increasing the contribution of halal products, enhancing the role of Islamic finance, deepening the sharia financial market and improving sharia economic literacy.

These measures demonstrate that Bank Indonesia's policy mix is a comprehensive approach to addressing economic heterogeneity. By tailoring policies to different segments of households and firms, the central bank aims to ensure that monetary policy transmission is effective across all sectors of the economy while promoting sustainable growth.

Conclusion

Bank Indonesia recognises the importance of incorporating the heterogeneity of households and firms into models for monetary policy analysis. Data on heterogeneity complements traditional aggregate inputs, enhancing our understanding of the economic outlook, the distributional impacts of policy changes and the transmission mechanisms of monetary policy. Over the next decade, we anticipate that the use of heterogeneity data on households and firms will continue to evolve, driven by advances in data availability, improved methods and algorithms, and greater computational power. However, analysis of household and firm heterogeneity has not yet become a major consideration in the formulation of Bank Indonesia's monetary policy. This is in line with the nature of monetary policy, which applies to all economic agents, to achieve the objectives in accordance with the mandate. Moving forward, Bank Indonesia will continue to explore heterogeneity in monetary policy analysis to further strengthen the effectiveness of monetary policy.

References

Bathaluddin, M. Barik, Dalawati, M., & Mochtar, F. 2019. "Revisiting the Transmission of Monetary Policy in Indonesia Through the Interest Rate Channel," Research Report in Department of Economic and Monetary Policy, Bank Indonesia.