Belgian Financial Forum

Main Findings on Household Heterogeneity and Policy Relevance

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ABSTRACT

This report summarizes the key messages of the keynote speeches, invited papers and working papers presented and discussed during the biennial conference on "Household Heterogeneity and Policy Relevance", organized by the National Bank of Belgium on 20 and 21 October 2022.

The first session started with the keynote speech, followed by two working papers focusing on "**Distribution effects of shocks on policy**".

Keynote speaker Giovanni L. Violante (Princeton Univ.) presented the paper "**Some Like it Hot: A Distributional Analysis of Inclusive Monetary Policy**", written together with Felipe Alves (Bank of Canada). A high-pressure economy has the potential to persistently improve the economic circumstances of less advantaged workers, allowing them to find steady employment, build their skills, and climb the job ladder. The sacrifice of upward mobility must be carefully reckoned as one high cost of accepting slack as an insurance policy against inflation. The new monetary policy framework of the Fed is built on maximum employment as a broad-based and inclusive goal, on the fact that hot economy brings benefits to low-income communities and on the statement that policy is informed by shortfalls of employment from maximum level. Motivated by this policy shift which has embraced Okun's conjecture, the authors built a quantitative HANK model which features three-state model of a frictional labor market and Okun's hypothesis at work through several mechanisms. They calibrated it to the US economy, simulated counterfactuals under more inclusive monetary policy rules and assessed distributional and macro implications of alternative rules. The key findings are:

- AIT does not look like an inclusive policy rule;
- a more inclusive policy rule that runs the economy hot for longer has a cost of 2 ppts of additional inflation permanently. It increases on average labour force participation by 1 ppt and it decreases unemployment with 1 ppt;

- it has larger effects at the bottom of the distribution: participation increases by nearly 2 ppts, labour income and consumption increase by 12% and consumption inequality reduces by 15%.

Kris Boudt, Koen Schoors, Milan van den Heuvel, Johannes Weytens (Univ. of Ghent) are the authors of the working paper "**The consumption response to labour income changes**". They developed an income shock classification taxonomy that classifies income changes into 9 categories based on the magnitude, direction, and permanency of the income change. Bank transactions data of Belgian employees and workers for the period 01/2017-06/2022 were used. They apply this classification on labour income changes to find that the elasticity to positive recurrent labour income shocks is almost double that of a regular labour income change and a transient positive labour income shock. The effect significantly varies among different consumption durability types and is amplified in case of lower levels of liquid wealth. Accounting for the heterogeneity in types of income changes is therefore important to understanding the multiplier effect of fiscal policy aimed at increasing available income.

Gert Peersman (Univ. of Ghent) and Joris Wauters (NBB) presented their working paper on "**Heterogeneous household responses to energy price shocks**". They used survey evidence on reported spending in hypothetical energy price shock scenarios to study novel features of the price elasticity of energy demand and the marginal propensity to consume (MPC) after paying the energy bill. They document several nonlinearities depending on the sign and magnitude of the energy price shock that are economically relevant, including at the extensive and intensive margins. There is also considerable heterogeneity across households. For price increases, the elasticity of energy demand appears to be significantly larger for households that will likely undertake major home renovations over the next months, and smaller for families with more appetite to consume. In contrast, MPCs demand on households' income, saving buffer, financial uncertainty, appetite to consume, and gender of household head. Yet households characteristics hardly matter when energy price decline: the authors only find smaller MPCs for households with a greater saving buffer and younger families. Finally, the show that targeted price subsidies on energy for Belgian low-income households have been more effective in supporting non-energy consumption than the general VAT reduction on energy prices.

The second session "**Various aspects of household heterogeneity and implications**" was composed of an invited paper and three working papers.

Vincent Sterk, Alan Olivi and Dajana Xhani (University college of London) presented the paper "**Monetary Policy during a Cost-of-Living Crisis**". The paper studies the effects of monetary policy during times when sectoral supply shocks raise the cost of living, in particular for low-income

households. They present a multi-sector Heterogeneous-Agents New-Keynesian model with a generalized, non-homothetic preferences, giving rise to heterogeneous consumption basket and demand elasticities across the income and wealth distribution. In this setting, household inequality directly affects the New Keynesian Phillips Curve, in which an endogenous markup wedge emerges. The presence of this wedge creates a trade-off in managing the aggregate output gap versus inflation, which can be particularly strong following sector-specific shocks. In addition, such shocks create strong distributional effects, which monetary policy may help to address.

Bastien Bernon (ULB), Joep Konings (KU Leuven) and Glenn Magerman (ULB) are the authors of the working paper "**Income inequality in general equilibrium**". They developed a quantitative framework in which income inequality arises endogenously in response to productivity shocks. The framework accommodates sectoral input-output linkages, arbitrary elasticities of factors and intermediates, and heterogenous workers that endogenously choose to supply their labour across sectors. Workers are imperfectly mobile across sectors, parameterized by a Roy-Frechet setup. They characterize the impact of Harrod-neutral shocks and changes in labour mobility on income inequality and welfare up to first- and second order. Inequality arises in equilibrium due to a combination of changes in income share and labour use across all sectors due to their dependencies in the input-output network. They calibrate the model using Belgian data and provide quantitative results, conforming strong non-linearities. These results suggest that labour market-improving policies can have strong effects on both welfare and inequality, but the impact on both quantitatively and qualitatively depend on the structure of the economy and its initial equilibrium.

Jochen Mankart (Deutsche Bundesbank), Rigas Oikonomu (UC Louvain) and Romanos Priftis (ECB) focused on "**The long and short of financing government debt**". This working paper shows that debt-financed fiscal multipliers vary depending on the maturity of debt issued to finance spending. Utilizing state-dependent SVAR models and local projections for post-war US date, they show that a fiscal expansion financed with short term debt increases output more than one financed with long term debt. The reason for this result is that only the former may lead to a significant increase in private consumption. They then construct an incomplete markets model in which households invest in long and short assets. Short assets have a lower return (in equilibrium) since they provide liquidity services, households can use them to cover sudden spending shocks. An increase in the supply of these assets through a short-term debt financed government spending shock makes it easier for constrained households to meet their spending needs and therefore crowds in private consumption. They first prove this analytically in a simplified model and then show it in a calibrated standard New Keynesian model. They finally study the optimal policy under a Ramsey planner. The optimizing government faces a trade-off between the hedging value of long-term debt, as its price decreases in response to adverse shocks, and the larger multiplier when it issues short term debt. They find that

the latter effect dominates and that the optimal policy for the government is to finance spending predominantly with short term debt.

Wouter Gelade, Maud Nautet and Céline Piton (NBB) presented the working paper "**Labour supply of households facing a risk of job loss**". The impact of a job loss on partner's labour supply – often called the added worker effect – is a well-studied phenomenon. However, people might already adjust their labour supply when their partner is at risk of losing his/her job. Using Labour Force Survey (LFS) microdata, they quantify this effect for 16 European countries over the period 2005-2020. When a household member is at risk of losing his/her job, the partner is 30% more likely to enter the labour market (extensive margin) and 52% more likely to (want to) increase working hours (intensive margin). These effects are almost as big as those of an actual job loss for the intensive margin. Fear of job loss is thus an important additional factor influencing households' labour supply. This is particularly true in periods of crisis, in which the effects of fear of job loss and actual job loss are equally big. Heterogeneity analysis shows that different households adjust their labour supply at different moments, with low-educated people already adjusting when fearing job loss, while the high-educated wait for this risk to materialise.

The third session was completely dedicated to "**Household finance**" in which 1 invited paper and 3 working papers were presented.

Marieke Bos (Swedish House of Finance at the Stockholm School of Economics), Andrew Hertzberg (Federal Reserve Bank of Philadelphia) and Andres Liberman (Betterfly) presented the paper "**The Long-run Impact of a Marginal Mental Health Diagnosis on Income, Wealth, and Health. Evidence from Randomly Assigned Doctors**". Almost two to 10 adults in the US and Europe are, at any moment in time, diagnosed with a mental illness. The authors try to discover whether mental illness is over- (or under-) diagnosed, by looking at its causal effect on individuals at the margin of diagnosis; they follow all Swedish men born between 1971 and 1983 matched to administrative panel data on health, labour market, wealth, and family outcomes to estimate the impact of a mental illness diagnosis on subsequent outcomes. Exploiting the random assignment of 18-year-old men to doctors during military conscription, they find that a mental illness diagnosis for people at the margin increases the future likelihood of death, hospital admittance, being sick from work, and unemployment, while lowering the probability of being married. Using a separate identification strategy, they measure the effect of military service on the same set of outcomes to rule out that the effect of diagnosis in their setting is primarily mediated by altering the probability of serving. Their findings are consistent with the potential over-diagnosis of mental illness.
Sarah Kuypers and Gerlinde Verbist (Univ Antwerp) are the authors of the working paper "**Over-indebtedness and poverty: Patterns across household types and policy effects**". The starting point is that household debt has increased significantly since the second half of the 20th century, making it

one of the cornerstones of household financial behaviour. It is, however, necessary to monitor that indebtedness does not spiral out of control, as it can have negative consequences both at the micro and macro level. They measure over-indebtedness in the poverty framework, while also considering the (potential) leverage by assets. They focus on a case study of Belgium, using data from four waves of the European Household Finance and Consumption Survey (HFCS). Their results are relevant both in terms of the levels of over-indebtedness measured as well as from the point of household heterogeneity and policy relevance. While the classical indicators mainly identify those who initially borrow large amounts as over-indebted, their analyses point towards the importance of low disposable income and the ownership of non-mortgage debt in explaining over-indebtedness, poverty, and financial vulnerability. They also simulate two potential policy reforms which address these two main risk factors.

Lara Coulier and Selien De Schryder (Univ. Ghent) focussed on "**Evaluating heterogeneous effects of housing-sector-specific macro prudential policy tools on Belgian house prices growth**". Their working paper analyses whether housing-related macro prudential policy has heterogeneous effects on house price growth in local housing markets. They employ an extensive dataset of Belgian municipalities containing a multitude of drivers of local house price dynamics and examine the potential heterogeneity of housing-related macro prudential policy changes driven by local characteristics related to financial constrained and high-risk borrowers, the degree of local housing market activity, and changes in local household indebtedness. They find more dampening effects of the common macro prudential policy tightening on local house price growth for municipalities characterized by low-income and young citizens, which furthermore increase in hot housing markets. Their findings shed more light on the geographical heterogeneity of national macro prudential policy changes, which indicate the possibility to stabilize local housing market booms.

Marina Emiris (NBB), François Koulisher (Univ. of Luxembourg) and Christophe Spaenjers (Univ. of Colorado Boulder) presented their working paper "**Bank competition and bargaining over refinancing**". They model mortgage refinancing as a bargaining game involving the borrowing household, the incumbent lender, and an outside bank. In equilibrium, the borrower's ability to refinance depends both on the competitiveness of local banking market and on the cost of switching banks. They find empirical support for the key predictions of their model using unique data set containing the population of mortgages in Belgium. In particular, households' refinancing propensities are positively correlated with the number of local branches and negatively correlated with local mortgage market concentration. Moreover, households are more likely to refinance externally if they already have a relation with more than one bank, but the effect is mitigated if their current lender has a branch locally.

In the fourth session "**Inequality: drivers and implications**" two working papers were presented.

Gerard Domènech-Arumi (ULB), Paula Gobbi (ULB), David Kaminski (Element 61) and Glenn Magerman (ULB) are the authors of the working paper "**Housing inequality and how fiscal policy shapes it: Evidence from Belgian real estate**". They used detailed information on all real estate stock and transactions since 2006 to study housing inequality in Belgium and how a recent policy shaped it. They use the transactions to predict the market value of all dwellings in the country, to then estimate inequality in value or space at different levels of aggregations – from the federal to the local neighbourhood level. Overall inequality is relatively low (Gini of 0,25), but significantly heterogeneity exists across and within municipalities. Using a differences-in-differences framework, they study how Flanders's recent 3% reduction in registration fees affected house price and inequality. They estimate that the policy increased prices by 3% on average and reduced inequality in Flanders by 0,8% by compressing the price distribution from below. They argue that the primary winners of the policy are low-value homeowners, who see their estate's value increase. The main losers are low-value renters, who might see rent increases in the short term. Both parts of the working paper reveal significant geographical heterogeneities, thus highlighting the importance of granularity in the data for studying inequality.

Ansgar Rannenberg (NBB) and Thomas Theobald (Institut für Makroökonomie and Kunjunkturforschung Düsseldorf) presented the working paper "**Home inequality and the German export surplus**". They investigate the contribution of the increase of German income inequality to the German export surplus increase and the decline of the natural rate of interest in the Euro Area in an open economy model with rich and non-rich households. Rich households have Capitalist Spirit type Preferences (CSP) over their wealth and thus save out of an increase in their permanent income. Simulating the increase of German income inequality over the 1992-2016 period generates a decline of the Euro Area natural rate of interest rate of about 1 p.p. and an increase of the German net-export-to-GDP ratio of about 3 p.p.

The concluding keynote speech was given by Amir Sufi (Univ. of Chicago) on "**Role of inequality in finance and macroeconomics**". His intervention was based on three papers "Indebted Demand", "The Saving Glut of the rich" and "What Explains the Decline of Rising income inequality versus Demographic Shifts?" with Atif Main (Univ. of Princeton) and Ludwig Straub (Univ. of Harvard) as co-authors. In most macroeconomic models, shifts in the distribution of permanent income are neutral for key macroeconomic aggregates. This ignores the fact that saving rates out for permanent income are higher for the rich. These papers explore empirically and theoretically the implications of rising permanent income inequality for the economy. The key insight is that inequality is more than an issue of fairness. Inequality matters for key macroeconomic aggregates, financial system, and policy. It is clear that saving rates increase in current income. Consumption has an elasticity < 1 compared to average income. Within birth cohort there is big difference in saving rate across income distribution. Saving comes from top of the income distribution. The rich lend to the non-rich. Rising inequality will

result in excess savings and a decline in the return on wealth. The takeaways: inequality matters for debt levels, interest rates, and output. This implies that macroeconomic models and models of the financial system should recognize and incorporate importance of inequality. Looking forward it is not clear if we will be back in a secular stagnation type equilibrium in the medium to long run? But it is important to focus on evolution of inequality in permanent income.