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MONETARY POLICY IN WARTIME UKRAINE THROUGH A HANK LENS: DISTRIBUTIONAL EFFECTS AND BOUNDED RATIONALITY

Russia's full-scale invasion of Ukraine in 2022 created an extreme macroeconomic shock, forcing policymakers to stabilize the economy amid conflict. In wartime conditions, I argue that economists must shift their lens toward the *Heterogeneous Agent New Keynesian* (HANK) framework, as traditional representative-agent models are ill-equipped to reflect the deep heterogeneity and heightened uncertainty that define such crises. HANK models allow us to analyze the distributional effects of monetary and fiscal policy and explore how bounded rationality (Level-k thinking) reshapes the transmission of policy.

HANK models feature incomplete markets and agents with varying marginal propensities to consume (MPC). Their key strength lies in capturing how aggregate demand is shaped by the behavior of heterogeneous households—some of whom are savers, others debtors, and many liquidity-constrained. This enables policymakers to model more accurately the impact of interest rate changes, inflation shocks, and fiscal transfers. Empirical work by Kaplan, Moll, and Violante (2018) demonstrates that the indirect effects on labor income dominate the transmission of monetary policy in these settings [7]. Inflation may harm low-income households more due to expenditure concentration on essentials. Moreover, the redistribution channel emerges: when high-MPC households gain, aggregate demand responds more strongly. Inflation may harm low-income households more due to expenditure concentration on essentials.

HANK models also emphasize that central bank policies have redistributive consequences [7; 9]. Inflation, for instance, erodes purchasing power more severely for low-income households that spend disproportionately on essentials. Rate hikes favor savers but burden borrowers. In this framework, aggregate consumption depends not only on the size of policy shocks but also on who gains or loses and their MPC. This has profound implications in wartime when inequality surges and social vulnerabilities intensify.

Level-k thinking is a behavioral framework that models boundedly rational agents who form expectations using simplified rules rather than rational forecasting. Level-k thinking offers a tractable behavioral framework for modeling boundedly rational agents who form expectations through simplified heuristics rather than full-information rational forecasts. In macroeconomic applications, it helps explain why policy signals (like forward guidance) may not work as intended. A level-0 agent assumes future variables stay at current levels; a level-1 agent best-responds to that belief, and so on. In wartime Ukraine, households faced severe uncertainty and may have reacted mainly to actual price changes or observed behavior, not to policy announcements. In our view, this approach is particularly well-suited to analyzing heterogeneous agents in wartime, where uncertainty is pervasive and expectations are often myopic. Incorporating such reasoning into the NBU's macroeconomic models would enrich their realism and enhance policy design under stress. Farhi and Werning (2019) show that incorporating level-k thinking into an incomplete-markets *representative agent New Keynesian* (RANK) model significantly reduces the effectiveness of forward-looking policies like interest rate guidance [5].

In wartime Ukraine, policy must account for mass displacement, fiscal dominance, and impaired transmission. Over 10 million people were displaced by 2024. Many became 'hand-to-mouth' consumers with high MPCs, requiring direct support. The National Bank of Ukraine (NBU) initially fixed the exchange rate and purchased government bonds, prioritizing fiscal stability. This drove inflation to over 26 % in 2022, illustrating the painful trade-offs of fiscal dominance. However, the NBU regained credibility by halting monetization and hiking the policy rate to 25 % mid-2022 [3; 10].

Fiscal transfers also had heterogeneous impacts. Defense spending and humanitarian aid increased, but only aid to high-MPC households (e.g., IDPs, soldiers' families) provided large multipliers [6]. Coordination between fiscal and monetary policy was essential to avoid regressive outcomes. Meanwhile, bounded rationality meant that households responded to realized inflation rather than distant guidance. This weakened forward guidance, echoing findings from Farhi and Werning (2019). Level-k frameworks explain the muted consumption responses to future rate promises [2-4; 5].

Recent empirical studies show that during crises like war, monetary policy effectiveness hinges on coordination with fiscal support. In

Ukraine's case, aid inflows and social transfers amplified the transmission of tighter monetary conditions by softening the burden on the most vulnerable households. IMF data indicates that one-third of Ukraine's external aid in 2024 was in the form of grants, with a majority targeted at income support, pensions, and basic public services [1; 10]. This suggests that external fiscal buffers are not only humanitarian instruments but also monetary stabilizers when traditional tools are constrained.

Moreover, military financing mechanisms such as war bonds held by domestic banks can introduce distortions. These instruments often replace market-based government borrowing with administratively guided channels. A HANK-informed model would consider how such bond holdings concentrate income gains among institutional investors, reducing the multiplier effect unless redistributed through taxes or transfers. The National Bank of Ukraine's shift away from direct bond purchases in 2023, backed by IMF oversight, marked a return to standard transmission channels and inflation-targeting credibility [3].

Finally, expectation management becomes even more critical under bounded rationality. Level-k frameworks imply that credibility is earned not by promises alone but by tangible policy signals. In this light, the NBU's gradual return to a flexible exchange rate and the phased easing of capital controls serve both macro and behavioral purposes: they restore instrument autonomy while rebuilding public trust in the policy regime. Designing simple, transparent communication strategies becomes essential when agents form expectations based on past inflation rather than model-consistent forecasts [5].

The HANK framework, enhanced with bounded rationality, enables a more accurate evaluation of stabilization trade-offs under conflict. Policy in Ukraine during 2022–2024 offers practical validation of HANK principles: the role of distribution, the weakening of representative-agent assumptions, and the need for realism in expectation formation. Looking ahead, resilient macro frameworks must internalize both heterogeneity and behavioral frictions to support recovery and prevent further inequality [8; 9].

REFERENCES

1. Bonifacio, V., Brandao-Marques, L., Budina, N., Csonto, B., Fratto, C., & others. (2021). Distributional effects of monetary policy (IMF Working Paper No. 21/201). *International Monetary Fund.*
2. Brunnermeier, M. (2021). The resilient society. *Endeavor Press*.

3. Burban, V., Diev, P., Grieco, F., & Iberrakene, T. (2024). Monetary policy in times of war: The case of Ukraine (Eco Notepad No. 372). https://www.banque-france.fr/en/publications-and-statistics/publications/monetary-policy-times-war-case-ukraine.

4. Deb, P., Estefania-Flores, J., Firat, M., Furceri, D., & Kothari, S. (2023). Monetary policy transmission heterogeneity: Cross-country evidence (IMF Working Paper No. 2023/206). https://www.imf.org/en/Publications/WP/Issues/2023/09/28/Monetary-Policy-Transmission-Heterogeneity-Cross-Country-Evidence-539662.

5. Farhi, E., & Werning, I. (2019). Monetary policy, bounded rationality, and incomplete markets. *American Economic Review*, 109(11), 3887–3928.

6. International Rescue Committee. (2025). https://www.rescue.org/eu/article/ukraine-families-mark-two-years-full-scale-war-decade-conflict-and-displacement.

7. Kaplan, G., Moll, B., & Violante, G. L. (2018). Monetary policy according to HANK. *American Economic Review*, 108(3), 697–743.

8. Kase, H., & Rigato, R. D. (2023). Beyond averages: Heterogeneous effects of monetary policy in a HANK model for the euro area (ECB Working Paper No. 3086). https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp3086~5c2ee96b1e.en.pdf.

9. Moll, B. (2023). Heterogeneous-agent macro as a gateway to behavioral macro (LSE Lecture Notes). https://benjaminmoll.com/lectures/.

10. Pyshnyy, A. (2024). Central banking in wartime: Lessons from Ukraine. https://www.hhs.se/en/houseoffinance/outreach/news--press/news/2024/central-banking-in-wartime-lessons-from-ukraine/.