

54th Konstanz Seminar on Monetary Theory and Policy 2023

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The 54th Konstanz Seminar on Monetary Theory and Policy was held from 23 May to 25 May 2023. This year's conference took place with 45 participants. The Konstanz Seminar provides an independent platform for intense discussion of recent developments in monetary theory and policy. Each year it brings together leading senior academics, junior researchers, participants from the Federal Reserve System, European central banks, and international organisations, as well as practitioners from the private sector. Founded by renowned monetarist Karl Brunner in 1970 and currently organised by a team of researchers, with Keith Kuester as the local organiser, the seminar looks back on a unique tradition. The venue traditionally is Strandhotel Löchnerhaus on the island of Reichenau on Lake Constance. The papers for all presentations and the subsequent discussions are briefly presented below. Papers, presentations and discussions can be downloaded from <http://www.konstanzseminar.org/>.

The seminar's opening session featured *Lukas Nord* (European University Institute). His paper, titled "Distributive Effects of Banking Sector Losses", delves into an important issue, given the recent turbulences in the financial sector. Following the Great Financial Crisis, it has become widely acknowledged that disruptions in the banking sector have far-reaching consequences for financial intermediation, interest rates, asset prices, and, ultimately, economic activity. Nord, together with Caterina Mendicino and Marcel Peruffo (both European Central Bank), aims to shed light on the effects of such disruptions across the income distribution, in order to elicit which households are most adversely affected by financial distress. Their research uncovers that low-income households are particularly vulnerable to the repercussions of banking distress.

Using US consumption and bank equity data, the authors find that a decrease in bank equity returns has a disproportionate impact on the lowest income quintile, leading to a significant decline in their consumption compared to the

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average. Through an analysis of aggregates, they identify channels such as reduced investment, lower labour earnings, and asset prices, along with increased consumer credit spreads. Using a model with heterogeneity in households' income, wealth and portfolio compositions as well as a frictional banking sector, the authors rationalise the findings. A decline in banks' net worth leads to a decline in asset prices and lending, resulting in less aggregate investment. Thus, economic activity falls; and with this, households' labour earnings fall. The model matches the empirical heterogeneity in consumption responses. Poor households are particularly exposed to fluctuations in labour earnings and borrowing costs, while rich households are more exposed to financial income.

During the discussion, *Farzad Saidi* (University of Bonn) linked the paper to bank-based transmission of monetary policy, emphasising the potential implications of declining net worth due to factors such as monetary policy. The plenary discussion focused on the role of banks and household heterogeneity. Nord highlighted the importance of household heterogeneity for capturing the observed heterogeneous effects but also for the feedback effects through households' consumption-saving decisions. The audience also discussed controversial policy implications, specifically the idea that low-income households benefit from bank rescues, particularly when wealthy households contribute through the necessary taxes.

The second day of the conference opened with a presentation by *Guido Ascari* (University of Pavia and De Nederlandsche Bank) on the long-run Phillips curve. The topic targets one of the most fundamental questions of monetary economics, namely, the trade-off between inflation and output (or the unemployment rate). Following Phelps' (1967) and Friedman's (1968) natural rate hypothesis, the traditional view argues that unemployment rates can be lowered in the short run at the cost of higher inflation rates. However, in the long-run, money is neutral and inflation has no influence on output and employment levels. Challenging the long-run perspective, New Keynesian models, serving as a workhorse in contemporary monetary economics, suggest that inflation creates price dispersion, which depresses long-run output levels.

In the project "The Long-Run Phillips Curve is ... a Curve", Guido Ascari and his co-authors Paolo Bonomolo (De Nederlandsche Bank) and Qazi Haque (The University of Adelaide) aim to provide empirical evidence for the long-run Phillips curve. Their findings reveal support for the concept of monetary neutrality when inflation levels remain below four per cent. However, when inflation rates surpass this threshold, substantial output losses become evident. The quantitative analysis indicates that inflation rates around two per cent exhibit negligible output losses, whereas inflation rates that approach six per cent result in output losses that exceed two per cent per year. To rationalise these findings, the authors construct and estimate a generalised New Keynesian model, incor-

porating time-varying trend inflation. Remarkably, the model effectively replicates the observed slope of the long-run Phillips curve, validating the empirical conclusions.

Francesco Furlanetto (Norges Bank) praised the paper's methodology and emphasised the topic's importance. He suggested exploring non-linearities in the short run for future research. Regarding the estimated model, he wondered about an explanation for varying inflation trends and hypothesised about the potential to target policies towards long-run output. The discussion focused on the dataset's accuracy in identifying the long-run Phillips curve, with concerns raised about the dominance of the 1970s for the results. Suggestions were made to analyse countries like Germany or Switzerland that had lower inflation rates at the time.

During economic downturns, governments often increase deficit-financed spending to stimulate demand. This is particularly relevant when monetary policy is constrained by the zero lower bound on nominal interest rates. Therefore, it is crucial to understand how fiscal expansions can be financed. Traditionally, economists suggested that governments must at some point raise tax rates to repay the accumulated government debt. In his paper, *Christian Wolf* (MIT) challenges this view and asks the question: "Can Deficits Finance Themselves?". He argues for two channels. First, a fiscal stimulus generates an economic boom, expanding the tax base at given tax rates and generating additional government revenue. Secondly, it induces inflation, reducing the real value of debt. The extent to which the initial deficit is offset depends crucially on the timing of fiscal adjustment.

To assess these effects, Wolf, along with his co-authors George-Marios Angelos (Northwestern University) and Chen Lian (UC Berkeley), introduces a framework in which the so-called Ricardian equivalence fails. Under Ricardian equivalence, households anticipate higher future taxes upon observing a deficit-financed fiscal stimulus. They, thus, save more and reduce consumption. Hence, the stimulus is ineffective. With finite lifetimes, instead, households internalise that future generations bear a share of the deficit, reducing the need to save for higher future taxes. Debt-financed stimulus thereby boosts aggregate demand, which in turn raises inflation and tax revenue. The more distant the fiscal adjustment, the stronger this effect is. The authors demonstrate that if the fiscal adjustment is delayed sufficiently, the ensuing economic boom can fully compensate for the initial deficit, making the stimulus self-financing at constant tax rates: while the government promises to levy taxes in the future, it never needs to raise tax rates since the expansion in the tax base as well as inflation automatically repay the initial deficit. They calibrate the model to the US economy, considering realistic fiscal adjustments, and find that a significant part of deficits is indeed self-financed in this sense, with the tax base channel playing a dominant role.

In his discussion, *Ralph Lueticke* (University of Tübingen) asked for empirical support for the proposed mechanism and raised two potential caveats: first, higher deficits lead to higher real interest rates, which makes self-financing less likely, and second, potential negative effects of inflation on households' net income because of declining real wages. The plenary additionally argued that, for open economies, some of the demand might leak into foreign markets. Additionally, Wolf clarified that the model structure with mortality is only a device to limit households' planning horizon, meaning that also borrowing constraints lead to similar results.

Prof. Dr. Claudia Buch, vice president of the Deutsche Bundesbank, held the policy session under the title of "Financial stability and monetary policy – from low-for-long to the new normal."

After lunch, the conference moved towards discussing recent inflation surges and the potential causes driving the high inflation rates across the world. In her presentation on "COVID-19 Fiscal Measures and Inflation", *Fernanda Nechio* (Federal Reserve Bank of San Francisco) explored the impact of fiscal stimulus on inflation following the COVID-19 pandemic.

Using data from ten different countries during the COVID-19 pandemic, Nechio and her co-authors, Galina Hale (UC Santa Cruz) and John Leer (Federal Reserve Bank of San Francisco), have identified two crucial factors that influence the inflationary response to fiscal stimulus checks. First, it is decisive who receives the stimulus check. Fiscal support directed towards households tends to contribute to inflationary pressures, whereas fiscal support allocated to firms does not exert a significant impact on inflation. Second, the sentiment of households also proves influential. Notably, when households maintain a positive outlook regarding their current and future financial well-being, inflation rates demonstrate a more pronounced response. The overall magnitude of the effect is substantial, even early on.

The discussant, *Ana Figueiredo* (Erasmus School of Economics), highlighted the relevance of the proposed question and suggested further potential factors for the high inflation rates. First, in the aftermath of the COVID-19 crisis, low labour market participation has persisted, leading to increased market tightness and subsequently driving up wages, thereby contributing to inflation. Second, fiscal stimulus in other countries could have heightened demand for tradable goods in the US, resulting in increased inflation rates. Third, the disruption of supply chains has raised production costs, reduced aggregate supply, and consequently pushed prices higher. During the plenary discussion, participants discussed the causal interpretation of the results, in particular, potential announcement effects.

The third day of the conference commenced with a presentation by *Sergio de Ferra* (University of Oxford). In their paper titled “Inequality, Demand Composition, and the Transmission of Monetary Policy”, de Ferra and his co-authors Lukas Boehnert (University of Oxford), Kurt Mitman (Stockholm University) and Federica Romei (University of Oxford) aim to understand the impact of heterogeneous consumption baskets on the transmission of monetary policy in the euro area. The authors argue that the composition between tradable and non-tradable goods and services affects the transmission. Countries that have a higher share of non-tradables are less affected.

The authors observe that, within countries, households with higher incomes have a larger share of non-tradable expenditures. Furthermore, countries with higher average income and higher levels of inequality exhibit higher shares of non-tradables. They attribute this pattern to preferences, where the average expenditure share on non-tradables increases as total expenditures rise. Interestingly, they find that countries with high non-tradable shares exhibit weaker output responses to monetary policy changes, contrary to the intuition of New Keynesian economics where countries with higher non-tradable shares are believed to be more susceptible to monetary policy because nominal rigidities are more prevalent in the non-tradable sector. The authors present a model of an open economy with heterogeneous households to rationalise the empirical findings. In response to expansionary monetary policy, rich households, who have a preference for non-tradable goods, increase their consumption, particularly of non-tradables. Due to the induced expansion in labour incomes, poorer households increase their consumption, however, mostly of tradable goods where prices are (more) flexible. This weakens the Keynesian amplification of the initial interest rate change such that an economy with a higher proportion of rich households and non-tradable consumption exhibits a weaker response to monetary policy shocks.

The discussant, *Katja Mann* (Copenhagen Business School), highlighted the significance of debt among poor households for the channel above and asked for empirical support for this. She also suggested exploring the surprising empirical findings in greater detail. The plenary discussion focused on alternative explanations to account for the empirical results and recommended further exploration. Additionally, the audience expressed curiosity about the long-term implications of the findings, considering the global trend towards the expansion of services and its potential impact on the effectiveness of monetary policy over time.

Currently, central banks are raising interest rates to counter high inflation. To reduce liquidity, they might shrink their balance sheets, even at a loss. This could force central banks to operate with negative equity, raising concerns about their credibility and risk of bankruptcy. *Wilko Bolt's* (De Nederlandsche Bank)

presentation, “Limits of Fiat Money: Lessons from the Bank of Amsterdam”, examines historical evidence and presents a model to address these concerns. Unlike private banks, central banks cannot go bankrupt in the traditional sense. As long as their liabilities are denoted in their own currency, they can repay them by printing fiat money. However, Bolt argues that trust in a central bank’s money can be lost, such that people use alternatives. This means that the central bank can no longer stabilise the value of its fiat money. While it does not go bankrupt, the central bank loses its value to society.

Inspired by the downfall of the Bank of Amsterdam (1609–1820), Bolt and his co-authors Jon Frost, Hyun Song Shin (both Bank for International Settlements) and Peter Wierts (De Nederlandsche Bank) develop a model in which households choose between fiat money (issued by the Bank of Amsterdam) and another means of payment (think gold coins). Compared to the latter, fiat money has the advantage of reducing trading costs. The central bank aims to stabilise the value of fiat money. The authors identify two factors that contribute to a loss of trust in fiat money. First, illiquid loans by the central bank cannot be easily sold to stabilise the value of fiat money after a fall in money demand. Second, negative central bank equity can become problematic as it indicates that the central bank lacks sufficient assets to withdraw money from circulation. The model seeks to explain the downfall of the Bank of Amsterdam. During the fourth Anglo-Dutch war, the bank had increased the money supply by issuing loans, yet, these loans were defaulted on, resulting in highly negative equity of the bank. The economic downturn after the war reduced transaction needs, leading to a decline in money demand. The scarcity of assets on the central bank balance sheet prevented the stabilisation of the bank’s fiat money. Based on the historical evidence and the model, the authors emphasise the importance of recapitalising central banks to ensure the survival of their fiat currencies.

The discussant, *Wei Cui* (University College London), highlighted the paper’s elegant framework for analysing central bank failures and money demand. Cui suggested to examine extensions to the model, such as the disclosure of central bank information on the state of the economy or the recapitalisation of central banks with taxpayers’ assets. Participants raised questions about the model’s applicability to modern central banks.

Just before lunch, *Silvia Miranda-Agrippino* (Bank of England) presented her paper “Global Footprints of Monetary Policies”, addressing a key topic in current debates: the influence of the US and China on the global economy. Miranda-Agrippino, along with her co-authors H el ene Rey and Tsvetelina Nenova (both London Business School), investigates the international transmission of monetary policy. The paper proposes three transmission channels: the classical channel through trade in final goods, where flexible exchange rates insulate economies from each other’s shocks, the Global Financial Cycle, where the

dominant role of the US dollar leads to global co-movement in financial variables beyond bilateral trade relationships, and a novel channel through Global Value Chains, which the authors find explains the international spillovers from Chinese monetary policy.

The authors empirically analyse the transmission of US and Chinese monetary policy across countries. They decompose global cycles into two factors: a financial factor associated with the well-known Global Financial Cycle, and a real factor capturing Global Value Chains as proposed by the authors. The paper finds that US monetary policy primarily transmits through financial channels, aligning with previous evidence, while real variables such as trade and production are less affected. On the other hand, Chinese monetary policy mainly propagates through real channels like commodity prices and world trade. The authors provide evidence of the significant impact of Chinese monetary policy on global economic conditions beyond bilateral trade relationships. This particularly affects countries with large manufacturing sectors, such as Germany, emphasising the role of integrated value chains in transmission.

During the discussion, *Ben Schumann* (DIW Berlin) commended Miranda-Agrippino and her co-authors for sharing their identified global factors, enabling the profession to work with them. Schumann proposed an alternative identification scheme for Chinese monetary policy, suggesting a structural approach using the official policy targets of the Chinese central bank. The plenary discussion focused on the evolution of China's role in the global trade network over the past 25 years, with audience members suggesting further analysis of this trend. The discussion also touched upon the significant role of the euro area in both the financial and real international networks. Miranda-Agrippino pointed towards accompanying work analysing the role of Europe.

After lunch, *Christina Manea* (Bank for International Settlements) addressed the long-standing and controversial issue of the interaction between monetary policy and financial stability. In the project "Monetary Policy and Endogenous Financial Crises", Manea and her co-authors, Frédéric Boissay (Bank for International Settlements), Fabrice Collard (Toulouse School of Economics) and Jordi Galí (Universitat Pompeu Fabra), aim to understand the channels through which monetary policy can impact financial stability, whether monetary policy should consider financial stability, and whether monetary policy itself can contribute to financial vulnerabilities.

To study this, they expand the standard framework of monetary policy to incorporate financial crises. They introduce a frictional credit market where productive firms seek to borrow, while unproductive firms aim to lend. Under normal conditions, capital is efficiently allocated to productive firms. However, the capital market might freeze, leading to capital misallocation and low aggregate productivity. This market freeze can be represented by a threshold: if the return

on capital falls below it, the capital market freezes. Monetary policy affects this measure through three channels: short-term via aggregate demand and firms' mark-ups, and long-term via the level of capital. Higher aggregate demand reduces the likelihood of a financial crisis because the return on capital is high, while higher mark-ups and capital levels increase the likelihood because they depress the return on capital. While inflation targeting can stabilise prices, it fails to stabilise output. Targeting output or measures of financial stability alongside inflation can improve outcomes but leads to inflation volatility. Rules that stabilise inflation but allow exceptional expansionary policies during financial crises can reconcile price and financial stability.

While acknowledging the finding that inflation targeting can be improved, the discussant, *Galo Nuño* (Bank of Spain), highlighted its surprising effectiveness, even in the presence of financial crises. He noted the model's relatively high welfare costs of inflation compared to the costs of crises, pointing out that other non-modelled factors, such as unemployment and persistent productivity effects, could impact this trade-off. During the discussion, the audience explored limitations to the feasibility of specific rules due to the zero lower bound on nominal interest rates. Additionally, deviating from inflation targeting was discussed as a potential threat to the credibility of the inflation target. The participants also debated the relevance of monetary policy in the presence of macro-prudential tools, leaving this as an open question for future research.

The conference concluded with a presentation by *Diego Känzig* (Northwestern University), offering a fresh perspective on carbon pricing in his paper "The Unequal Consequences of Carbon Pricing". The climate crisis has brought climate change to the forefront of global policy discussions. Economists have long advocated for carbon pricing as an efficient tool to combat climate change. Känzig examines the effects of carbon pricing in the European Union, with a particular focus on its distributional impacts. While carbon pricing effectively reduces emissions, Känzig's research reveals significant costs: economic activity declines, and consumer prices rise. Moreover, the burden of these effects falls disproportionately on poorer households.

To empirically study the effects of carbon pricing, Känzig leverages the European Emissions Trading Scheme (ETS), where emissions are subject to a cap, and allowances are traded in liquid markets. The carbon price in the market is endogenous to the demand for emission allowances. By exploiting regulatory events related to the supply of allowances, Känzig identifies exogenous variation in the carbon price. He finds that higher carbon prices successfully decrease emissions and encourage patenting of low-carbon technology. However, this comes at the expense of increased prices of energy and higher consumer prices more generally, decreased economic activity, and persistently rising unemployment. The decline in economic activity is largely driven by reduced consump-

tion, which is not solely a direct result of higher energy prices. Persistent declines in wages contribute to lower disposable income, exacerbating the recessionary impact of carbon pricing. Using micro-level data for several European countries, Känzig shows that the adverse effects of carbon taxes disproportionately affect poor households due to higher energy bills and, more importantly, larger income declines. In conclusion, Känzig highlights the regressive nature of carbon tax policy. He confirms his findings in a climate-economy model with nominal rigidities and heterogeneity in households' energy expenditure shares, income incidences and marginal propensities to consume. The findings imply that an appropriate rebate system for carbon revenues can limit the adverse aggregate economic effects, and dampen the distributional implications, without compromising much of the emission reduction.

The discussant, *Lena Boneva* (Swiss National Bank), praised Känzig's significant contribution, particularly the methodological aspect of identifying exogenous variation in carbon prices. She commended the paper's ample robustness checks. For future research, she recommended exploring the carbon market in greater detail, considering additional dimensions of household heterogeneity (such as age or gender), and delving deeper into the relationship between carbon pricing and green innovation. During the plenary discussion, there was interest in studying heterogeneity across countries and understanding the role of monetary policy in responding to higher carbon prices and their impact on economic activity. The optimal approach for central banks in combating inflationary pressure remains an open question.

The conference was concluded with the traditional conference dinner. Next year's 55th Konstanz Seminar on Monetary Theory and Policy is scheduled to be held from 14 to 16 May 2024.