UC **SANTA BARBARA**
Laboratory for Aggregate
Economics and Finance

Volume XVII, No. 3, Winter 2025

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From the Lab 2025

Director's Message

Finn Kydland

What a year it has been at LAEF, and what a year still to come! This past year, we funded seven academic conferences across three continents, and we expect to do the same again in 2025, supporting researchers in aggregate economics worldwide.

LAEF continues to expand its influence in the economic community, partnering with institutions to fund workshops and collaborative meetings that refine research and foster intellectual exchange. Our in-person seminars provide crucial pre-publication feedback, placing LAEF at the forefront of efforts to advance economic knowledge, on par with the most prestigious U.S. institutions. Research from our conferences has influenced policy debates on pensions, healthcare, housing, education, monetary policy, and industrial strategy. It is increasingly important to bring evidence-based policy to the forefront of not only academic endeavors, but real-world decision-making.

Globally, UCSB Economics has become synonymous with LAEF's generosity, making it a valuable part of UCSB's broader research portfolio. This year, LAEF will collaborate with academic organizers across the U.S., Europe, and Asia to host over eight workshops and conferences, bringing together more than 500 economists to showcase and debate cutting-edge research.

Additionally, we are pleased to announce that Nick Pretnar has been promoted to Assistant Director of LAEF. As a lead academic organizer, he has played a pivotal role in our recent initiatives and is now an important academic contact for economists in our network. We look forward to his continued contributions in strengthening LAEF's influence and cementing UCSB's standing as a leader in aggregate economics research.

From the Lab 2025

Asst. Director Message

Nick Pretnar

The year 2024 was a great year for LAEF, and I'm excited to now be a permanent part of the LAEF team! I want to thank Finn and Peter for appointing me to Assistant Director of LAEF back in August. I will continue to work diligently to nurture the many longstanding and recently added initiatives undertaken at LAEF.

Since the pandemic LAEF has embarked on a broader mission to ensure access to valuable collaborations and workshops for economists at all levels of seniority all around the globe. We continue to foster an inclusive environment for young researchers, as exemplified by our continuing sponsorship of the Vigo Workshop on Dynamic Macroeconomics, and the newer Annual Junior Workshop in Macroeconomics that takes place stateside. LAEF is the only economics laboratory of its kind anywhere in economics that is fully committed to fostering collaborative research environments that provide economists at all levels of seniority opportunities to showcase their research and receive valuable feedback from potential referees and editors at projects' pre-submission stages. As Assistant Director I will ensure that LAEF continues to build bridges across the profession that help connect researchers in order to push out the frontier of knowledge in economics.

In an effort to be more inclusive and provide better access to quality conferences for researchers across academia, we have moved some of our LAEF initiatives to an open-submission policy. By accepting open submissions rather than simply treating LAEF workshopsas invitation only, we provide a voice for researchers who may have otherwise had less opportunities to showcase their ideas. Switching more conferences to open submissions is part of my personal initiative to build workshop agendas

that feature a diverse array of economists with different levels of seniority, expertise, and experiences within the profession.

In recent years LAEF has also committed to broader collaborations with other prestigious research institutions, which include Washington University in St. Louis, the Federal Reserve Banks of St. Louis, Minneapolis, Cleveland, and Atlanta, the University of Minnesota, NYU Stern School of Business, SUNY Albany, Vanderbilt University, Stony Brook University, the University of Cagliari, and CEMFI (Madrid) among others. By committing to jointly organizing conferences and workshops in collaboration with other prestigious institutions, the LAEF stamp of approval has become a global symbol of quality at macroeconomic conferences and workshops in all corners of the world. We will continue to nurture longstanding commitments while also looking forward to planting new seeds.

In 2025 we have many exciting workshops coming up. In March we will be in St. Louis to sponsor the St. Louis Fed-Wash U-LAEF Macro Labor Conference. In April we are co-sponsoring two different initiatives at both Vanderbilt University and SUNY Albany. This summer we have teamed up with CEMFI in Madrid for a conference sponsorship, while we are also helping the nascent Georgian Economic Association with their annual meetings in Tbilisi, all before the longstanding Vigo Workshop on Dynamic Macroeconomics to be held this year in Pontevedra, Spain. This fall, we take the Annual Junior Workshop in Macroeconomics on the road to NYU Stern, before returning to Santa Barbara for the Tepper/LAEF Macro-Finance Conference to round out the 2025 year.

In addition to our regularly scheduled initiatives in Santa Barbara, LAEF is now able to assist institutions looking to organize macroeconomic workshops and larger conferences anywhere. In my role as Assistant Director of LAEF, I am one of LAEF's forward-facing ambassadors responsible for securing future collaborations. Please do not hesitate to reach out to me, Nick, with questions regarding teaming up with us for future collaborations.

13th Advances in Macro-Finance Tepper-LAEF Conference at CMU

October 4, 2024, Conference Participants

Boaz Abramson – *Columbia Business School*
Mark Bils - *University of Rochester*
Serdar Birinci – *Federal Reserve Bank of St. Louis &*
Washington University in St. Louis
Gorkem Bostanci – *University of British Columbia*
Eric French – *University of Cambridge*
Andrew Glover - *Federal Reserve Bank of Kansas City*
William Jungerman UNC, Chapel Hill
Kathleen McKiernan Vanderbilt University
Christian Moser Columbia University
Michael Sposi Southern Methodist University

Conference Organizers

Joe Boerma UW-Madison
Paolo Martellini UW-Madison
Nicholas Pretnar UC Santa Barbara

Organizers: *Lars Kuehn, Finn Kydland, Simon Mayer, Liyan Shi, and Ariel Zetlin-Jones*

The Impact of Social Insurance on Household Debt

Presenter: *Sasha Indarte (University of Pennsylvania, Wharton)*

Coauthors: *Gideon Bornstein*

Discussant: *Carter Braxton (University of Wisconsin — Madison)*

This paper investigates how the expansion of social insurance affects households accumulation of debt. Insurance can reduce reliance on debt by lessening the financial impact of adverse events such as illness and job loss. But it can also weaken the motive to self-insure through savings, and households 'improved financial resilience can increase access to credit. Using data on 10 million people and a quasi-experimental research design, we estimate the causal effect of expanded insurance on household debt, exploiting ZIP-code level heterogeneity in exposure to the staggered expansions of one of the largest US social insurance programs: Medicaid. We find that a 1 percentage point increase in a ZIP code's Medicaid-eligible population increases credit card borrowing by 0.46%. Decomposing this effect in a model of household borrowing, we show that increased credit supply in response to households 'improved financial resilience drives the rise in borrowing and contributed 32% of the net welfare gains of expanding Medicaid

Credit Card Borrowing in Heterogneous-Agent Models: Reconciling Theory and Data

Presenter: *Peter Maxted (UC Berkeley)*

Coauthors: *Sean Chanwook Lee*

Discussant: *Kyle Dempsey (The Ohio State University)*

Constrained, "hand-to-mouth," households with zero liquid wealth are a central building block of modern heterogeneous-agent consumption models. We document empirically that many of these seemingly borrowing-constrained households actually revolve intermediate levels of high-interest credit card debt, meaning that they are not constrained at either the zero-liquid-wealth kink nor at their credit card borrowing limit. This finding presents a challenge: how can heterogeneous-agent models generate empirically realistic marginal propensities to consume without relying on borrowing-constrained households? We show that present bias induces households to revolve modest levels of credit card debt, but their indebted saving behavior still generates elevated MPCs. We then apply this insight to highlight key channels through which credit card borrowing reshapes households' responses to fiscal and monetary policy.

Organizers: *Lars Kuehn, Finn Kydland, Simon Mayer, Liyan Shi, and Ariel Zetlin-Jones*

Granular Treasury Demand with Arbitrageurs

Presenter: *Kristy A.E. Jansen (University of Southern California)*

Coauthors: *Wenhao Li and Kurt See*

We construct a novel dataset of sector-level U.S. Treasury holdings, covering the majority of the market. Using this dataset, we estimate maturity-specific demand functions and elasticities of different investors and the Fed, and integrate them into a dynamic equilibrium model of the Treasury market with risk-averse arbitrageurs. Quantifying the model reveals that (1) strong arbitrage leads to an elastic Treasury market and a steeply downward-sloping term structure of market elasticity; (2) monetary tightening raises term premia due to arbitrageurs interacting with investors exhibit-inghigh cross-elasticities; (3) QE has limited impact unless the Fed credibly commits to sustained balance sheet expansion.

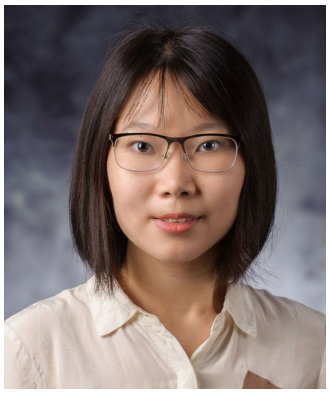
Nominal Rigidity and the Inflation Risk Premium: Identification from the Cross-Section of Equity Returns

Presenter: *Hengjie Ai (University of Wisconsin-Madison)*

Coauthors: *Xinxin Hu and Xuhui Pain*

Discussant: *Francois Gourio (FRB Chicago)*

Inflation risk premium is hard to identify in the data, because inflation induced by real shocks and that by nominal shocks carry risk premiums with opposite signs. We show that in the Calvo model of price rigidity, a firm's exposure to inflation risk-induced by monetary policy-is a monotonic function of its profit margin. Using profit margin sorted portfolios around pre-scheduled FOMC announce-ments, we identify an inflation risk premium from the cross-section of equity returns that supports the Calvo mechanism of price adjustment. We also develop a continuous-time Calvo model to guide our empirical analysis and provide an explanation for the inflation risk premium observed in the data.



Organizers: *Lars Kuehn, Finn Kydland, Simon Mayer, Liyan Shi, and Ariel Zetlin-Jones*

Technology Driven Market Concentration through Idea Allocation

Presenter: *Yueyuan Ma (UCSB)*

Coauthors: *Shaoshuang Yang*

Discussant: *Jeremy Pearce (FRB New York)*

Using a newly-created measure of technology novelty, this paper identifies periods with and without technology breakthroughs from the 1980s to the 2020s in the US. It is found that market concentration decreases at the advent of revolutionary technologies. We establish a theory addressing inventors 'decisions to establish new firms or join incumbents of selected sizes, yielding two key predictions: (1) A higher share of inventors opt for new firms during periods of heightened technology novelty. (2). There is positive assortative matching between idea quality and firm size if inventors join incumbents. Both predictions align with empirical findings and collectively contribute to a reduction in market concentration when groundbreaking technologies occur. Quantitative analysis shows the overall slowdown in technological breakthroughs can capture 47.4% of the rising trend in market concentration and the correlation between the model-generated and the actual detrended market concentration is 0.932.

Nominal Rigidity and the Inflation Risk Premium: Identification from the Cross-Section of Equity Returns

Presenter: *Fernando Martin (FRB St. Louis)*

Discussant: *Christopher Phelan (University of Minnesota)*

Who prevails when fiscal and monetary authorities disagree about the value of public expenditure and how much to discount the future? When the fiscal authority sets debt as its main policy instrument it achieves fiscal dominance, rendering the preferences of the central bank, and thus its independence, irrelevant. When the central bank sets the nominal interest rate it renders fiscal impatience (its debt bias) irrelevant, but still faces its expenditure bias. I find that the expenditure bias has a major impact on welfare through higher public spending, while the effect on other policies is relatively minor. In contrast, the debt bias affects debt, deficits and inflation, but has a minor impact on expenditure and welfare. I also find that the central bank can do little to overcome the negative impact of the fiscal authority's expenditure bias, though there are still gains from properly designing the central bank.

3rd Annual Junior Workshop in Macroeconomics

October 18 – 19, 2024, Conference Participants

Boaz Abramson – *Columbia Business School*
Corina Boar – *New York University*
Finn Kydland – *UC Santa Barbara*
Simone Lenzu – *NYU Stern*
Lukas Nord – *University of Pennsylvania*
Xincheng Qiu – *Peking University*
Karthik Sastry – *Princeton University*
Rowan Shi – *Toronto Metropolitan University*
Alessandro T. Villa – *Federal Reserve Bank of Chicago*

Conference Organizers

Job Boerma – *UW-Madison*
Paolo Martellini – UW-Madison
Nicholas Pretnar – UC Santa Barbara

Investment-Goods Market Power and Capital Accumulation

Fabio Bertolo, Andrea Lanteri, ***Alessandro T. Villa (FRB Chicago)***

In recent years, the global economy has highlighted the importance of concentrated markets, particularly in sectors critical to technological advancement and capital accumulation, such as semiconductors. Villa and his coauthors examine the effects of market power in investment-goods industries—particularly in sectors like semiconductors—on capital accumulation in an open economy. They develop a model in which large multinational corporations, holding significant market power, produce essential investment goods. By combining a neoclassical growth model with a dynamic oligopoly framework, the authors characterize a Markov Perfect Equilibrium that captures how capital, investment prices, and markups evolve over time. The study reveals that as capital stocks grow, investment-good markups decline due to increasing competition, which facilitates economic adjustments.

The model explores two cases: one in which firms make long-term commitments to production, resulting in stable prices, and another in which firms lack such commitments, adjusting production based on anticipated market conditions. In the latter case, firms dynamically adjust output to exploit short-term market power, especially during periods of high demand. This framework is applied to recent data on the semiconductor market, where firms responded to post-2020 demand surges by raising prices, thereby affecting the cost of capital for the broader economy. The model's calibration to these events shows that rising marginal production costs were the primary drivers of price increases, while market power also played a significant role in amplifying price pressures.

During his presentation, Villa discussed the implications of these dynamics through counterfactual policy scenarios, such as the potential impact of increased competition within the investment-goods market. Simulations reveal that additional competitors would help compress markups and enhance capital accumulation. Villa emphasized how concentrated markets for essential inputs, such as semiconductors, can slow recovery and growth, suggesting that competition-enhancing policies could mitigate price pressures and improve long-term capital development in these markets.

This study contributes to the macroeconomic literature on capital accumulation by focusing on market power in investment-goods production. By incorporating both rising marginal costs and strategic firm interactions, the model provides a nuanced understanding of how these elements interact to shape the pace of economic adjustment. The authors conclude that high market power in investment-goods sectors has direct policy implications, as reducing concentration in these markets could facilitate quicker recoveries and make the economy more resilient to demand shocks.

During the discussion, participants highlighted the model's unique approach in examining market power specifically within critical imported investment goods. Several participants questioned the model's assumption regarding the commitment of investment-good producers, suggesting that the oligopolistic setting might not fully capture the pricing behaviors seen in semiconductor markets. Producers often employ price discrimination to capture varying demand levels. Some participants also suggested that the model should account for technology investments, which could affect price elasticity as advancements impact product substitutability. The discussion underscored the relevance of this study in understanding how concentrated market structures influence capital accumulation, especially in key sectors with global supply dependencies.

Participants also debated the implications of increasing competition in investment-goods markets, emphasizing that enhanced competition could play a critical role in mitigating price hikes while supporting capital growth. They noted the model's applicability in informing policy discussions aimed at reducing industry concentration, particularly in light of recent legislation designed to expand semiconductor production. The discussion highlighted the importance of examining both capacity constraints and market power when crafting policies that could alleviate pressures on capital accumulation in concentrated markets.

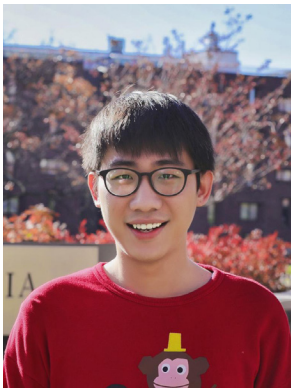
The Inflation Accelerator

Andrés Blanco, ***Corina Boar,*** *Callum J. Jones, Virgiliu Midrigan*

Amid rising inflation rates across global economies, understanding the mechanisms that amplify inflationary pressures has become increasingly crucial for policymakers. Boar and her coauthors introduce a tractable sticky-price model in which the fraction of price adjustments firms make increases with inflation, thereby amplifying inflationary dynamics. Unlike traditional models that assume a fixed rate of price changes, this model posits a dynamic adjustment process. Firms selling multiple products determine how many prices to update, resulting in a feedback loop they term the "inflation accelerator." This model effectively captures how inflation influences firms' pricing behavior, leading to a steeper Phillips curve during periods of high inflation. The model's predictions reveal substantial variability in the slope of the Phillips curve—ranging from 0.02 in the low-inflation 1990s to 0.12 in the high-inflation 1970s and 1980s. The inflation accelerator model offers a new perspective on the cost of controlling inflation. When inflation is high, firms adjust prices more frequently, making it less costly to reduce inflation compared to low-inflation environments. This finding contrasts with the conventional understanding that reducing inflation is consistently difficult across different inflation levels. By allowing firms to endogenously adjust the frequency of price changes, the model provides a more adaptive framework that captures inflationary dynamics more accurately, offering a robust tool for policy evaluation, particularly under varying inflationary pressures.

The model also presents advantages over traditional models by adjusting price rigidity based on current economic conditions. Unlike the Calvo model, which assumes a constant fraction of price adjustments, this model adapts to the current rate of inflation, providing a more realistic depiction of inflation dynamics. It simplifies the more complex menu cost models, which are less adaptable for policy analysis. The model is computationally tractable yet comprehensive, offering valuable insights for informing policy decisions. The authors suggest that during periods of high inflation, policymakers could achieve substantial reductions in inflation with minimal output loss, as firms are already adjusting their prices. This insight has practical implications for monetary authorities considering interventions to stabilize inflation in dynamic economic environments.

During the seminar, participants noted the model's innovation in capturing dynamic pricing behavior, with many acknowledging its ability to represent inflationary pressures across different inflation environments. However, some participants raised concerns about the absence of a selection effect, suggesting that this could limit the model's applicability in settings where firm-specific factors play a larger role in price adjustments. They noted that while the model provides valuable insights into aggregate inflation dynamics, extending it to include selection effects could enhance its applicability across various industries. Despite these considerations, the discussion emphasized the model's effectiveness in understanding the interaction between inflation and pricing flexibility, as well as its potential to guide policies aimed at balancing inflation control and output stability.



Female Employment and Structural Transformation

Moritz Kuhn, Lourii Manovskii, ***Xincheng Qiu***

With structural shifts transforming labor markets globally, understanding the role of gender in driving economic changes has become increasingly important. Qiu and his coauthors investigate the impact of rising female labor participation on the structural shift from manufacturing to service sectors in advanced economies. The authors document that across the U.S. and other industrialized countries, the gender distribution within sectors has remained stable over recent decades, with women comprising 30% of manufacturing and 62% of service employment. This stability implies that as more women enter the labor force, the service sector, where female employment is higher, must expand proportionally, while the male-dominated manufacturing sector contracts. The paper challenges the traditional view that structuralchanges increase female employment, proposing instead that female labor supply itself drives economic restructuring.

The authors empirically support their theory using instrumental variable regressions on U.S. and international data. Thus, establishing a causal link between female labor supply increases and shifts from manufacturing to services. They demonstrate that an exogenous increase in female labor supply correlates with a proportional decline in manufacturing and growth in services. The paper uses a quantitative model that includes factors such as sector-specific productivity growth, gender complementarity, and consumer preferences to illustrate that rising female employment accounts for approximately two-thirds of the structural change observed in recent decades.

During his presentation, Qiu explained that increased female labor supply has been fundamental in expanding service sectors relative to manufacturing, underscoring female employment as a primary driver of structural transformation. Qiu concluded that policies promoting female labor participation could play a significant role in further reshaping economic structures, supporting sustainable sectoral shifts in line with labor force changes. This research provides a new perspective on the role of gender dynamics in structural transformation, showing that female labor supply is not merely a consequence of economic change but a central factor influencing it. The model developed in this study offers a framework for evaluating how shifts in labor demographics can impact sectoral composition, underscoring the importance of female labor policies in shaping economic growth and adaptability in evolving industries.

Participants noted the study's innovative view on gender-driven structural change, particularly its argument that female labor supply actively drives sectoral shifts. However, some participants questioned the use of a Leontief production function. This function assumes fixed gender employment ratios across sectors, suggesting that a CES function allowing for more flexible relationships between male and female labor could provide additional insights. Participants also expressed concerns regarding the elasticity of substitution between male and female labor, noting that a flexible production function might better capture labor dynamics.

The discussion further delved into the empirical approach, with participants questioning the robustness of the instrumental variables used for female labor supply. They suggested that Qiuexplore alternative instruments to strengthen the causal claims. The discussion underscored the study's contribution to understanding female labor as a transformative force, with participants highlighting its potential to inform policies aimed at supporting gender-inclusive growth and facilitating structural economic shifts

Macroeconomics of Mental Health

Boaz Abramson, *Job Boerma, Aleh Tsyvinsk*

Mental illness, particularly depression and anxiety, has significant economic consequences affecting individual behavior and overall welfare. Its high societal costs call for growing attention from policymakers while a large portion of the American people do not have access to treatments. In response, Abramson, Borrma, and Tsyvinski developed an economic framework that integrates psychiatric insights with an economic model. This model focuses on three major features of mental illness emphasized in modern psychiatric theories: negative thinking, rumination, and reinforcement through behavior. They seek to provide a clearer understanding of how mental illness affects key economic variables and to evaluate the effectiveness of policy interventions aimed at improving mental health.

The presentation begins by proposing a method to quantify the degree of negative thinking and its dependence on mental health. Based on micro-level data from RAND's American Life Panel, they find that, first, individuals experiencing mental illness put a higher subjective probability on the worst-case outcome under uncertainty. Second, those suffering from mild mental health issues display moderately negative expectations. Those with more severe conditions exhibit much stronger displays intensifying with the severity of the illness. Finally, utilizing a lifecycle model with heterogeneous agents and treating mental health as a stochastic state variable that affects negative thinking, rumination, and the efficacy of treatment, they establish a theory about individuals' choices. This focuses on consumption, labor supply, savings, and asset holdings in that the individuals with mental illness tend to have pessimistic expectations, reduce their expectations of productivity, investment returns, and future mental health improvements.

The presentation of this framework promoted a lively discussion during the conference. While the model assumes that parameters expressing the extent of negative thinking are the same between the job choice problem and the other decision problems, participants pointed out a possibility that the parameters are identical even though they should come from different distributions. With parameters based on preceding research and calibration from data of the Panel Study for Income Dynamics (PSID) and the National Institute of Mental Health (NIMH), the well-fitted model demonstrates that individuals with mental illness tend to work and consume less. The individuals are less likely to invest in riskier assets, which means negative thinking strongly affects conditional correlations between consumption, asset choice, and mental health.

The model implies that the consumption equivalent cost of mental illness increases as the severity of the illness escalates. It is revealed that younger individuals and the middle class bear a larger burden. Abramson, Borrma, and Tsyvinski evaluate several mental health policies, including expanding access to treatment and reducing out-of-pocket costs. They conclude that increasing treatment availability, particularly for younger populations, offers significant welfare benefits, while lowering treatment costs has little impact. During the presentation, Abramson emphasized the necessity to discuss mental health issues in macroeconomics more, as many people suffer from this illness on varying levels and the welfare cost from that is significant for society.

Quick Fixing: Theory and Evidence on Household Near-Rational Consumption and Savings Behavior

Peter Andre, Joel Flynn, Georgios Nikolakoudis, ***Kathrik Sastry***

Akerlof and Yellen (1985) introduced the hypothesis of near-rationality in household consumption and savings. This hypothesis suggests that small optimization costs can lead to significant behavioral and macroeconomic effects. Specifically, if perfect optimization is costly, households may avoid reoptimization and instead rely on simple rules or "quick fixes" in response to small shocks. This contrasts with the traditional assumption of fully rational behavior in economic models. While this hypothesis holds significance for macroeconomics, earlier research was limited due to a lack of empirical data. Sastry, Andre, Flynn, and Nikolakoudis aim to investigate whether small deviations from perfect optimization, caused by frictions, can have large-scale implications for both behavioral and macroeconomic contexts.

The study seeks to test the near-rationality hypothesis in household decision-making. The authors structure their analysis using a canonical consumption-saving model and a survey designed for empirical testing, featuring various shock sizes. This includes examining the effects of both large and small shocks on a representative sample approximating the U.S. population, alongside estimating a quantitative model to assess broader macroeconomic implications.

Key findings from the survey reveal that many households employ quick-fixing strategies, such as adjusting consumption or savings to address small shocks, while responding to large shocks in more conventional ways. The results demonstrate that households tend to exhibit extreme marginal propensities to consume (MPCs) in response to small shocks but react more moderately to larger ones. Consumers displaying these behaviors are categorized into four groups: Consumption Fixers, Saving Fixers, Consumption Prioritizers, and Saving Prioritizers. These quick-fixing behaviors are not easily predicted by demographic or economic factors, but near-rational behavior explains a significant portion of the variation in MPCs. However, the patterns of quick-fixing adjustments do not align with existing consumption-savings models.

During the discussion, a participant raised a concern regarding the reliability of self-reported survey data, noting that respondents might behave differently from their stated preferences. Sastry acknowledged this limitation but argued that the reported propensities are reliable indicators of the overall characteristics of the MPC distribution.

The quantitative model analysis suggests that optimization costs, calibrated to match the fractions of reoptimization observed in the data, are low. These small costs in decision-making can result in substantial macroeconomic consequences. Additionally, the model predicts that wealth distribution is nearly identical across the various quick-fixing categories, a result consistent with survey findings.

In concluding the presentation, Sastry emphasized the importance of understanding the nature of quick-fixing behaviors and their aggregate implications for macroeconomic models. Since survey results indicate that quick-fixing behaviors cannot be predicted by standard variables, direct testing is needed to measure these adjustments accurately. The analysis also suggests that small policy transfers may be more effective than larger ones. Sastry highlighted future research prospects, including exploring the persistence of quick-fixing behaviors over time and identifying the factors influencing the cost of optimization.

Shopping, Demand Composition, and Equilibrium Prices

Lukas Nord

To fully quantify the effects of income and wealth inequality, it is crucial to understand how these factors influence consumption inequality. Data reveals significant price dispersion for the same product and variability in households' purchase timing, indicating that households have incentives to search for bargains. Consequently, consumption inequality cannot be inferred directly from differences in household expenditures, as two households could consume identical baskets while one invests more effort in searching for lower prices.

Nord constructs a model to explain the observed price dispersion and purchase timing by incorporating varying search intensity among households, with a specific focus on grocery consumption. In the model, households inelastically supply labor and jointly decide on future assets, which grocery varieties to purchase, when to purchase, and how intensively to search. Consumers have non-homothetic preferences for grocery varieties, and grocery and non-grocery consumption are aggregated using a Cobb-Douglas aggregator. Search intensity determines the probability of receiving one or two price quotes for a grocery variety, and households experience disutility from search. The timing of purchases also depends on the durability of the goods.

During the presentation, some participants asked whether search reflects spending more time in the same store or visiting multiple stores. They also inquired about the frequency of store-switching within a week. Nord clarified that search intensity represents a combination of spending more time in a particular store and visiting additional stores. They noted that households visiting multiple stores spend less overall than those who do not. Participants further asked whether search within the same product category or across different products has greater importance and whether this could be tested empirically. Additionally, attendees questioned the feasibility of adding intertemporal elasticity of substitution to the model. Nord explained that doing so would remove the durability aspect, leading households to always choose to buy.

Retailers in the model are ex-ante identical, facing constant marginal costs. Before meeting consumers, they select which grocery varieties to produce and set markups to maximize single-period profits. Search heterogeneity among households affects the observed price distribution if all consumers observe two prices, the market resembles Bertrand competition. If all observe only one price, it resembles monopolistic competition. The skewness of the price distribution increases with demand-weighted search effort, while average posted prices decline.

To validate the theory, Nord uses data from the Nielsen Consumer Panel (2007–2019), which tracks grocery purchases for 60,000 U.S. households annually. The data shows that for households at the top of the expenditure distribution, price differences increase total spending by 4.3%, with 3.5 percentage points attributed to differences across product categories. Overall, Nord finds that 10% of expenditure inequality arises from price differences rather than differences in consumption bundles.

Finally, Nord calibrates the model to simulate the impact of a shutdown event, such as the COVID-19 pandemic on markups. The model predicts a surge in purchasing activity when the economy reopens, accompanied by intense consumer search. This leads to a temporary decline in prices, which eventually stabilize. Some participants questioned the focus on markups, noting that they are challenging to measure empirically.

Combinatorial Discrete Choice: A Quantitative Model of Multinational Location Decisions

Costas Arkolakis, Fabian Eckert, ***Rowan Shi***

Models of multinational enterprise (MNE) location choice often involve setting up production at a site, which incurs fixed costs and introduces complementarities between locations. This interplay creates a combinatorial problem that becomes computationally infeasible even for a moderate number of potential locations. To address this issue, most models either assume supermodularity, limit the analysis to a small number of locations, or use a greedy algorithm that risks missing the optimal solution. Participants were asked whether increasing the number of locations has led to any changes or overturned previous results.

To address this problem, Shi introduces a method that is less restrictive than requiring supermodularity. To illustrate, Shi constructs a model of MNE location choice in which firms are headquartered in one country and can establish production in others. All firms produce a single, differentiated final product and are endowed with a location-specific productivity vector at inception. Setting up production in a location incurs a fixed cost, while the marginal cost of production decreases with the number of locations. Consumers are assumed to have identical preferences over products. Within this framework, Shi demonstrates that if a firm's profit function satisfies single-crossing differences in choices (SDC-C). This condition stipulates that if the marginal value of adding a location to a smaller subset of locations is positive, it must also be positive for a larger subset. Some participants questioned whether this condition essentially imposes symmetry on the cost function. Another participant suggested that the core issue in this problem lies in partitioning sets.

If this condition holds, the problem can be solved using an iterative squeeze algorithm.The process begins by establishing bounding sets: the lower bound includes all locations known to be part of the optimal set, while the upper bound excludes locations known to not belong to it. The next step involves adding an element to the set and evaluating the marginal value of including a location in the optimal set. The SDC-C condition guarantees that if adding a location decreases the value in one subset, it will do so for all subsequent subsets. The algorithm continues iteratively until a determination is reached.

Participants raised questions about the convergence of the procedure to a unique solution. The speaker explained that the procedure may occasionally produce two potential sets as the solution, requiring the problem to be resolved through brute force. However, the speaker also noted that even in cases where convergence is not achieved, the uncertainty can be bounded. Additionally, a participant pointed out that this procedure terminates in polynomial time. Shi also presents a sufficient condition for solving policy functions: single-crossing differences in type (SCD-T). This condition ensures that optimal sets change only at discrete points as the productivity vector evolves. SCD-T simplifies the aggregation of heterogeneous firms, as it ensures that firms with similar productivity levels choose the same optimal set of locations.

Using this method, Shi conducts a counterfactual analysis simulating the effects of sanctions on Russia and the corresponding countersanctions. The findings indicate that an increase in marginal production (MP) costs leads 70% of foreign firms to cease operations in Russia.Meanwhile, Russian-owned firms shift their production locations from sanctioning countries to non-sanctioning nations.

Financial Shocks, Productivity, and Price

Simone Lenzu, *David A. River, Joris Tielens, Shi Hu*

Slowdowns in aggregate productivity following financial crises are an observed empirical fact. Unfortunately, revenue-based measures of productivity, such as TFPR, can conflate declines in physical productivity with declines in output prices. Simone Lenzu, the author, investigates the relationship between productivity and financial crises using a dataset that enables the computation of firm-level physical productivity.

The dataset focuses on manufacturing firms in Belgium and includes product-level prices and quantities, firm balance sheets, investment data, credit information, and the balance sheets of the banks lending to these firms. A question from the participants was about what percentage of Belgium's GDP these firms represent. Lenzu clarified that the dataset covers 90% of Belgium's manufacturing sector but must be extrapolated to the service sector. Participants also asked how often firms exit in the dataset, to which Lenzu responded that they checked this effect and found it to be close to zero. They speculated this might be due to the survey data covering primarily larger firms.

To examine how financial shocks affect productivity, Lenzu used data on individual banks' heterogeneous exposure to distressed securities during the European Sovereign Debt Crisis. Belgian firms rely heavily on bank credit, with only 1.35% of firms being publicly listed and an even smaller proportion issuing publicly traded bonds. Thus, shocks to bank lending are essentially shocks to the majority of a firm's available financing. Participants expressed concern about how bank profits might influence their exposure to the crisis. Lenzu responded that this factor is controlled for in their analysis. Another question arose regarding whether there is any sorting of banks and firms prior to the crisis. Lenzu found that a one standard deviation increase in exposure to the EU debt crisis corresponds to an 18% decrease in a firm's total bank credit three years later, alongside an increase in the cost of credit. These results suggest that firms have less credit available to them following the crisis.

Next, Lenzu explores the link between financial shocks between productivity and prices. He finds that TFPR overstates the short-term slowdown in productivity growth while underestimating it in the medium to long term. This is because prices fall in the short term before rising in the medium term. Taken together, these findings imply that the elasticity between credit and productivity is twice as large as estimates derived from TFPR measures. Participants asked how much TFPR and TFPQ measures of productivity overlap. Others wondered why firms choose to liquidate their inventories rather than raise prices, potentially sacrificing their customer base. One participant also inquired whether cutting operating costs reduces product quality, and if this is why prices fall at the beginning of the shock.

The financial shock affects productivity because firms reduce their R&D expenditures to lower operating costs. A one standard deviation increase in exposure to the crisis leads to a 4% reduction in a firm's R&D spending in the first year, with a cumulative decrease of up to 59% over four years. Lenzu also finds that firms cut investments in human capital, although these effects are shorter-lived.

Lenzu then develops a partial equilibrium model to account for these empirical observations. The model has a financial friction in the form of borrowing constraints. Firms maintain inventories to manage idiosyncratic demand shocks, rent capital, hire labor for production, and employ researchers to develop new technologies that improve technical efficiency. Participants suggested including retained earnings in the entrepreneur's budget constraint. Financial frictions raise the shadow cost of finance, reducing the number of researchers hired and, consequently, the firm's productivity growth. Unexpected financial shocks increase the value of liquidity, leading firms to draw down

their inventories in response. When the model is embedded in a general equilibrium framework, Lenzu finds that a financial shock has long-lasting effects on the economy, primarily due to reductions in innovation.

UConn Leafy LAEF Conference

October 25 – 26, 2024, Conference Participants

Boaz Abramson – *Columbia Business School*
Mark Bils – *University of Rochester*
Serdar Birinc – *Federal Reserve Bank of St. Louis & Washington University in St. Louis*
Gorkem Bostanci - University of British Columbia
Eric French - University of Cambridge
Andrew Glover - Federal Reserve Bank of Kansas City
William Jungerman - UNC, Chapel Hill
Kathleen McKiernan - Vanderbilt University
Christian Moser - Columbia University
Michael Sposi - Southern Methodist University

Conference Organizers

Nicholas Pretnar - UC Santa Barbara
Kanda Naknoi - University of Connecticut
Daniela Vidart - University of Connecticut
Kai Zhao - University of Connecticut

Robinson meets Roy: Monopsony and Comparative Advantage

Presenter: *Mark Bils (University of Rochester)*

Coauthors: *Baris Kaymak and Kai-Jie Wu*

We provide a number of novel insights into the nature and consequences of monopsony power in labor markets through the lens of comparative advantage. Integrating non- competitive wage setting (Robinson, 1932) in Roy (1951), we show that equilibrium pay-to-productivity ratio is lower among workers with greater comparative advantage in their firm. By taxing comparative advantage, monopsony wages distort worker-firm assignments and reduce aggregate productivity. Implications for wage inequality and employment generally depend on the distribution of absolute and comparative advantage in the economy. Our analysis of Brazilian labor market data (2006-2018) reveals that monopsony power disproportionately affects high-wage workers within firms and workers at high-paying firms, therefore reducing wage inequality relative to a competitive economy. We also explore how informal labor markets and minimum wage policies interact with monopsony dynamics. Because monopsony power is skewed against high-wage workers, we find that minimum wage policies are unlikely panaceas for labor market power.

Business, Liquidity and Information Cycles

Presenter: *Gorkem Bostanci (University of British Columbia)*

Coauthors: *Guillermo Ordonez*

Constrained, "hand-to-mouth," households with zero liquid wealth are a central building block of modern heterogeneous-agent consumption models. We document empirically that many of these seemingly borrowing-constrained households actually revolve intermediate levels of high-interest credit card debt, meaning that they are not constrained at either the zero-liquid-wealth kink nor at their credit card borrowing limit. This finding presents a challenge: how can heterogeneous-agent models generate empirically realistic marginal propensities to consume without relying on borrowing-constrained households? We show that present bias induces households to revolve modest levels of credit card debt, but their indebted saving behavior still generates elevated MPCs. We then apply this insight to highlight key channels through which credit card borrowing reshapes households' responses to fiscal and monetary policy.

Labor Market Shocks and Monetary Policy

Presenter: *Serdar Birinci (FRB Saint Louis)*

Coauthors: *Fatih Karahan, Yusuf Mercan, and Kurt See*

We develop a heterogeneous agent New Keynesian model featuring a frictional labor market with on-the-job search to quantitatively study the positive and normative implications of employer-to-employer (EE) transitions for inflation. We find that EE dynamics played an important role in shaping the differential inflation dynamics observed during the Great Recession and COVID-19 recoveries, with the former exhibiting subdued EE transitions and inflation despite both episodes sharing similar unemployment dynamics. The optimal monetary policy prescribes a strong positive response to EE fluctuations, implying that central banks should distinguish between recovery episodes with similar unemployment but different EE dynamics.

Equilibrium Evictions

Presenter: *Andrew Glover (FRB Kansas City)*

Coauthors: *Dean Corbae and Michael Nattinger*

We develop a simple equilibrium model of rental markets for housing in which eviction occurs endogenously. Both landlords and renters lack commitment; a landlord evicts a delinquent tenant if they do not expect total future rent payments to cover costs, while tenants cannot commit to paying more rent than they would be able or willing to pay given their outside option of searching for a new rental. Renters who are persistently delinquent are more likely to be evicted and pay more per quality-adjusted unit of housing than renters who are less likely to be delinquent. Evictions are never socially optimal, and lead to lower quality investment in housing and too few vacancies relative to the socially optimal allocation. In our calibrated model, housing externalities widen the gap in housing access and quality between relatively high- and low-earning renters. Finally, government policies that restrict landlords 'ability to evict can improve welfare, though a full moratorium on evictions should be reserved for crises; rent support is generally a better policy than restricting evictions.

Macroeconomics of Mental Health

Presenter: *Boaz Abramson (Columbia Business School)*

Coauthors: *Job Boerma and Aleh Tsyvinski*

We develop an economic theory of mental health. The theory is grounded in classic and modern psychiatric literature, is disciplined with micro data, and is formalized in a life-cycle heterogeneous agent framework. In our model, individuals experiencing mental illness have pessimistic expectations and lose time due to rumination. As a result, they work less, consume less, invest less in risky assets, and forego treatment which in turn reinforces mental illness. We quantify the societal burden of mental illness and evaluate the efficacy of prominent policy proposals. We show that expanding the availability of treatment services and improving treatment of mental illness in late adolescence substantially improve mental health and welfare.

Deindustrialization and Industry Polarization

Presenter: *Michael Sposi (Southern Methodist University)*

Coauthors: *Kei-Mu Yi and Jing Zhang*

We add to recent evidence on deindustrialization and document a new pattern: increasing industry polarization over time. We assess whether these new features of structural change can be explained by a dynamic open economy model with two primary driving forces, sector-biased productivity growth and sectoral trade integration. We calibrate the model to the same countries used to document our patterns. We find that sector-biased productivity growth is important for deindustrialization by reducing the relative price of manufacturing to services, and sectoral trade integration is important for industry polarization through increased specialization. The interaction of these two driving forces is also essential as increased trade openness transmits global technological change to each country's relative prices, sectoral specialization, and sectoral trade imbalances.

Meritocracy Across Countries

Presenter: *Christian Moser (Columbia University)*

Coauthors: *Oriana Bandiera, Ananya Kotia, Ilse Lindenlaub, and Andrea Prat*

Are labor markets more meritocratic in richer countries? If so, why? And what are the implications of cross-country differences in meritocracy for aggregate outcomes? We provide answers to these questions by measuring the extent to which workers with different skills are matched with jobs that require those skills, using individual-level data on a sample of over 120 thousand working-age people across 28 countries. We find a positive correlation between measures of meritocracy and national income. To interpret these facts, we develop a structural model of equilibrium matching with multiple skill dimensions, which we use to quantify the importance of three factors underpinning meritocracy — i.e., the extent to which the worker-job allocation is output-maximizing— across countries: (i) technology, which determines the productivity of matches; (ii) endowments of worker skills and job skill requirements, which determine the feasibility of matches; (iii) idiosyncratic matching frictions, which capture the importance of nonproductive worker and job traits for the matching process. The estimated model suggests that idiosyncratic matching frictions lead to greater output losses in poorer countries. However, differences in technology and endowments explain most cross country income differences. Therefore, policies aimed at reducing idiosyncratic matching frictions to improve labor market efficiency will not be effective unless they are combined with interventions that enhance match productivity.

Dynamic Monopsony and Human Capital

Presenter: *William Jungerman (UNC, Chapel Hill)*

A number of influential papers study monopsony power in static models. Among the papers that model dynamics with a finite number of firms, none model the process of human capital accumulation by workers. In this paper, I show that this has important implications for the measurement and welfare consequences of monopsony power. How large are properly measured markdowns? And what are the welfare gains of implementing competitive allocations once we have accounted for human capital accumulation? To answer these questions, I introduce a novel model of dynamic monopsony in which a large non-atomistic firm competes with a finite number of homogeneous firms for workers who learn on-the-job. The markdown has an additional dynamic term reflecting expected future changes in worker human capital. I estimate the model using rich matched employee-employer administrative data from France and find that the welfare gains from forcing firms to offer workers their marginal product are large. Moreover, the welfare losses are underestimated by 81% when ignoring human capital accumulation.

Labor Market Sorting and Social Security in Developing Countries

Presenter: *Kathleen McKiernan (Vanderbilt University)*

Coauthors: *Han Goo*

We build an equilibrium life cycle labor search model in which firms post contracts specifying job formality and wages. We calibrate the model to match key aspects of Brazilian labor market — worker transitions across the formal and informal sectors over the life cycle and sorting between firm size, formality, and worker skills in the cross section. Policy counterfactual shows that reforms weakening the linkage between formality and Social Security contributions lead to an increase in aggregate vacancies and formality share, which stimulate the fluidity of labor market and benefit low-skilled workers more.

Intergenerational Altruism and Transfers of Time and Money: A Life Cycle Perspective

Presenter: *Eric French (University of Cambridge)*

Coauthors: *Uta Bolt, Jamie Hentall MacCuish, and Cormac O'Dea*

Parental investments significantly impact children's outcomes. Exploiting panel data covering individuals from birth to retirement, we estimate child skill production functions and embed them into an estimated dynastic model in which altruistic mothers and fathers make investments in their children. We find that time investments, educational investments, and assortative matching have a greater impact on generating inequality and intergenerational persistence than cash transfers. While education subsidies can reduce inequality, due to an estimated dynamic complementarity between time investments and education, it is crucial to announce them in advance to allow parents to adjust their investments when their children are young.

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LAEF

Laboratory for Aggregate Economics and Finance
2112 North Hall
University of California, Santa Barbara
Santa Barbara, CA 93106–9215
U.S.A.
econ-laef@ucsb.edu
www.laef.ucsb.edu