ARYAMAN BHATNAGAR

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EDUCATION

Ph.D. in Economics 2018-2023 (Expected)
University of Kansas Lawrence, KS, USA
Advisor: Dr. William A. Barnett
Dissertation: Monetary Policy in New Keynesian DSGE Models
Passed oral comprehensive exam with honors
Secured the highest grades in the PhD qualifying exam

M.A. in Economics 2018-2020
University of Kansas Lawrence, KS, USA

M.A. in Economics 2014-2016
Jawaharlal Nehru University New Delhi, India

B.S. in Economics 2011-2014
Narsee Monjee Institute of Management Studies Mumbai, India

RESEARCH INTERESTS

Primary Interests: Macroeconomics, Monetary Economics

Secondary Interests: Financial Economics, International Economics, Inequality, Time Series Econometrics

JOB MARKET PAPER

Monetary Policy with Non-Ricardian Households

(Revise & Resubmit: Quarterly Review of Economics and Finance)

This paper analyzes how the presence of non-Ricardian households can alter the dynamics in a New-Keynesian Dynamic Stochastic General Equilibrium (NK-DSGE) model. The model is calibrated using data for the US economy. We focus on two key areas. The first is the link between monetary policy and consumption inequality in the presence of non-Ricardian households. We find that a contractionary monetary policy shock increases consumption inequality. Part of this increase is due to a novel government transfer channel. This channel becomes significantly stronger when steady state debt is positive. We also find that because of this link, the presence of non-Ricardian households amplifies the impact of monetary policy on output and inflation. The second area relates to the choice of monetary policy rule. We compare four monetary policy rules: the Taylor rule, inflation targeting, nominal GDP targeting and a new labor income targeting rule. We find that labor income targeting outperforms all other rules for most parameter values. Nominal GDP targeting is better than labor income targeting only when the share of non-Ricardian households is large or when the households exhibit low habit persistence.

WORKING PAPERS

- *Labor Income Targeting*
- *Do Money Rules Outperform the Taylor Rule?*

WORK IN PROGRESS

- *Divisia Aggregates and Monetary Policy in India*
- *Monetary Policy in the Presence of a Central Bank Digital Currency*

RESEARCH EXPERIENCE

Research Assistant for Dr. William A. Barnett (Summer 2019, Fall 2022, Spring 2023)

TEACHING EXPERIENCE

- Instructor for Econ 604: International Trade (Spring 2022)
- Instructor for Econ 605: International Finance (Fall 2021)
- Instructor for Econ 522: Intermediate Macroeconomics (Summer 2021) (Online)
- GTA for Econ 522: Intermediate Macroeconomics under Dr. Eungsik Kim (Spring 2021)
- Instructor for Econ 144: Principles of Macroeconomics (Fall 2020)
- Head GTA for Econ 144: Principles of Macroeconomics under Dr. Josephine Lugovskyy (Spring 2020)
- Head GTA for Econ 144: Principles of Macroeconomics under Dr. Josephine Lugovskyy (Fall 2019)
- GTA for Econ 142: Principles of Microeconomics under Dr. Dietrich Earnhart (Spring 2019)
- GTA for Econ 142: Principles of Microeconomics under Dr. Tsvetan Tsvetanov (Fall 2018)

PROFESSIONAL WORK EXPERIENCE

PricewaterhouseCoopers, Gurgaon (India) August 2016 – June 2018

Public Sector and Governance

- Worked in the areas of financial sector stability, stress testing of commercial banks, social security, debt modeling, and public finance management.
- Executed multiple projects with a diverse range of clients including various state and national governments and international organizations such as The International Monetary Fund, The World Bank, Department for International Development (UK), and Asian Development Bank among others.
- Major Project: Financial Sector Stability Program (FSSP) Kathmandu, Nepal

  Client: The Department for International Development (DFID), UK

  Activities Performed:
  - Contributed to the Financial Stability Report for the Nepal Rastra Bank (Central Bank of Nepal)
  - Developed and implemented a customized stress testing framework
  - Constructed macroeconomic and financial soundness indicators
  - Prepared a report highlighting the various risks faced by the savings and credit cooperatives in Nepal
  - Designed and implemented a preliminary structural equation model for Nepalese economy with specific emphasis on the financial sector
  - Simulated the impact of a decline in remittance inflows on various macroeconomic variables
  - Conducted a diagnostic study of Insurance companies to identify weak institutions and their role in systemic vulnerability
- Other Selected Projects:
  - Economic Policy and Prosperity Partnership (Ministry of Finance, India)
  - Financing Social Security in South Asia (Asian Development Bank)
  - Growth, Resources, Opportunities and Wealth Creation in Bihar (Government of Bihar/ DFID UK)
  - Odisha Modernising Economy, Government and Administration (Government of Odisha/ DFID UK)
  - Rapid Evidence Mapping (World Bank)

PROFESSIONAL INTERNSHIPS

PricewaterhouseCoopers, Gurgaon (India) May 2015 – July 2015
Summer trainee, Public Sector and Governance

Procter & Gamble, Mumbai (India) May 2013 – July 2013
Research intern

Edelweiss Capital, Mumbai (India) May 2012 - July 2012
Research intern

ACHIEVEMENTS & AWARDS

- Passed Oral Comprehensive Exam With Honors, University of Kansas, 2022
- John Ise Memorial Award, University of Kansas, Summer 2022
- Graduate Student Conference Travel Fund, Department of Economics, University of Kansas 2022 - 2023
- Graduate Student Conference Travel Fund, Department of Economics, University of Kansas 2021 - 2022
- Richard. S. Howey award: For securing the highest grades in the qualifying examination, University of Kansas, 2020
- Charles Oswald Summer Research Scholarship, University of Kansas, 2019
- Graduate Teaching Assistant Scholarship, University of Kansas, 2018-2022

CONFERENCE AND SEMINAR PRESENTATIONS

- American Economic Association Annual Meeting, Poster Session, January 2023 (Scheduled)
- Southern Economic Association 92nd Annual Meeting, November 2022 (Scheduled)
- Seminar at Kansas State University, October 2022 (Scheduled)
- Western Economic Association International 97th Annual Conference, June 2022
- Midwest Economic Association 86th Annual Meeting, March 2022

PROFESSIONAL MEMBERSHIPS

- American Economic Association
- Midwest Economic Association
- Western Economic Association
- Southern Economic Association
- The Indian Econometric Society (Life membership No: L /2752/ 17-18)

TECHNICAL SKILLS

- Proficient in Matlab, Dynare, R, SPSS, Microsoft Office
- Worked with Oracle and SQL

POSITIONS OF RESPONSIBILITY

- Research Mentor and Honors Thesis Committee Member for Caleb Jennings — Spring 2022
  (The Paycheck Protection Program and its Impact on Unemployment)
- Research Mentor and Honors Thesis Committee Member for Geovanni Alvarado — Spring 2021
  (Monetary Policy and Asset Price Bubbles)
- Assistant editor for the *PwC Macro-View* — 2017-2018
  (Monthly report providing insights on the macro-economic fundamentals of the Indian economy)

REFERENCES

William A. Barnett (Chair)
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Department of Economics
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Josephine Lugovskyy (Teaching Reference)
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ABSTRACTS OF OTHER PAPERS

Labor Income Targeting

In this paper, we examine a new monetary policy rule: Labor Income Targeting (LIT). First, we evaluate the performance of this rule in a small New Keynesian model by comparing it with the Taylor Rule (TR), Inflation Targeting (IT), Nominal GDP Targeting (NGDPT), and Output Gap Targeting (GT). We find that LIT is the second best rule after output gap targeting. In contrast to gap targeting however, LIT does not suffer from determinacy issues and does not rely upon unobservable variables, thus making it a desirable policy rule. These results are robust to changes in parameter values. Next, we estimate a medium scale model using Bayesian techniques for the US economy and compare the performance of labor income targeting with the estimated Taylor rule. We find that LIT works better in the full sample as well in all the sub samples by generating lower variance for output gap, price inflation and wage inflation. Our findings suggest that labor income targeting possesses desirable properties and could be a viable monetary policy alternative.

Do Money Rules Outperform the Taylor rule?

This paper answers two questions: 1) Do money rules increase welfare as opposed to using the conventional Taylor rule? and 2) If so, when do these rules increase welfare? In an economy calibrated to match US data, we find that money rules do outperform the Taylor rule in terms of welfare. Among money rules, we see that a flexible money growth rule generates the highest welfare. This is followed by the Taylor rule with money and then the constant money growth rule. These results are robust to changes in model parameters. Next, we look at the impact of key monetary parameters on the welfare gains. We find that a low currency to deposit ratio, elasticity of substitution, reserves to money supply ratio, ratio of banking activities, and money supply to nominal consumption ratio are associated with higher welfare gains. Furthermore, the gains of using money rules are higher under monetary shocks as opposed to real shocks.

Divisia Aggregates and Monetary Policy in India

In this paper, we construct theoretically superior Divisia monetary aggregates for the Indian economy and evaluate three different hypotheses, namely: 1) Money has more information content as opposed to interest rates, 2) Divisia monetary aggregates are superior to Simple sum, and 3) Broad money is better than narrow money. Using a Vector Error Correction Model (VECM) and Forecast Error Variance Decomposition (FEVD), we find that money does indeed have more information content as compared to interest rates and that Divisia aggregates are superior to their simple sum counterparts. Furthermore, in the case of the Indian economy, narrow money (M2, DM2) explains economic activity better as compared to broad money (M3, DM3).

Monetary Policy in the Presence of a Central Bank Digital Currency

The rise of private money such as cryptocurrencies and the decline in cash usage has prompted central banks around the world to consider the viability of issuing their own digital currency: A Central Bank Digital Currency (CBDC). Theoretically, such a form of money should benefit the economy by increasing financial inclusion, decreasing transaction costs, and potentially increasing economic activity. However, a CBDC could also threaten the financial stability of the economy, especially by the process of disintermediation of commercial banks. In this context, the present study aims to shed light on some of these pressing issues. We introduce a CBDC in a New-Keynesian model and analyze the how monetary policy would work in the presence of this new monetary asset. Specifically, we aim to evaluate the welfare and financial stability consequences of introducing a CBDC in an open economy DSGE model with sticky prices and financial frictions.