Vasudeva Ramaswamy

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Washington, DC - 20002, USA

OBJECTIVE

Seeking a position to leverage my expertise in macro-financial modeling, econometric methods, and financial market analysis. Aiming to contribute to innovative projects at the intersection of the quantitative modeling and research.

EXPERIENCE

• **Institute for Macroeconomic & Policy Analysis [⊕]** *Sep. 2023 - present*
Postdoctoral Fellow Washington, DC
  ◦ Developed large-scale quantitative macroeconomic model in Julia to evaluate heterogeneous economic effects of fiscal and tax policy.
  ◦ Implemented latest advances in macroeconomics literature such as the Sequence Space Jacobian method featuring 19 industries, 72 overlapping generations of households, and cutting-edge machine learning methods.
  ◦ Authored policy reports evaluating macroeconomic effects of the *Tax Cuts & Jobs Act*, the *Inflation Reduction Act*, and other legislation.

• **World Bank Group [⊕]** *Jun. 2020 - Aug. 2020*
Consultant, Social Protection & Jobs Washington, DC
  ◦ Supported impact evaluation of employment-related pilot project for smallholders in Mozambique, generating estimates of household income, expenditure, wealth, and other outcomes, based on survey of 4,000 households.
  ◦ Performed data analysis by constructing detailed panel dataset from baseline and midline household surveys, conducting extensive data quality checks, and used econometric techniques to address bias arising from issues like attrition.

• **Starbucks India [⊕]** *Jun. 2014 - Aug. 2017*
Senior Manager, Strategy & Network Planning Mumbai, India
  ◦ Developed GIS and catchment-based model to identify new store opportunities, expanding India market from 14 stores in 3 cities to 110 stores in 7 cities.
  ◦ Led key strategic projects: Project-managed the design, development, and launch of a strategic new format of store; led strategic partnership with Vistara Airlines.
  ◦ Supported CEO and senior leadership: Helped develop operational plans, reports to the board, planned and coordinated operations as Chief-of-Staff to the CEO.

• **Boston Analytics [⊕]** *May. 2013 - Jun. 2014*
Consultant, Strategy & Technology Mumbai, India
  Aligned with the Technology and Government sectors. Clients included:
  ◦ Department of Economic Development, Middle Eastern country: Designed organizational structure of a new National Industrial Development Bureau
  ◦ Leading US networking equipment manufacturer: Developed go-to-market strategy to pursue "transformational opportunities" worth $1.5 billion in Indonesia.

• **Deloitte Consulting [⊕]** *Sep. 2009 - Dec. 2011*
Consultant, Strategy & Operations Boston, MA
  Aligned with the Government, Finance and Health sectors. Clients included:
  ◦ Department of Public Welfare - Commonwealth of Pennsylvania: Designed and executed roll-out of new provider monitoring process, managing 60 coordination organizations, 8,000 healthcare providers, and 25,000 service recipients.
  ◦ Department of Revenue - Commonwealth of Massachusetts: Helped develop Request for Responses to acquire a new state-of-the-art integrated transaction processing system for the Child Support Enforcement Division.

EDUCATION

• **American University** *Aug. 2023*
Ph.D. in Economics Washington, DC
  ◦ Dissertation: Monetary Policy, Market Behavior & Fiscal Interventions: Theoretical & Empirical Work in Heterogeneity

• **Carnegie Mellon University** *May 2009*
Master of Science in Public Policy & Management Pittsburgh, PA
  ◦ Specialization: Public Finance

• **University of Missouri–Kansas City** *Dec. 2006*
Bachelors in Business Administration Kansas City, MO
  ◦ Minor: Economics

Computational Modeling Projects

- **Macroeconomic Policy: Heterogeneous Agent Macroeconomic Model** *Sep. 2023 - Present*
  Dynamic stochastic general equilibrium (DSGE) model with rich heterogeneity to analyze tax policy changes. [🌐]
  - **Multi-sector & multi-agent modeling**: Built a 19-sector economy (aligned with NAICS) featuring 72 overlapping generations, distinguishing between corporate and pass-through entities, and incorporating a fully detailed U.S. tax code.
  - **Advanced computational methods**: Extended the Sequence Space Jacobian method (Auclert et al.) to solve high-dimensional heterogeneous agent models, integrating machine learning techniques to improve computational efficiency.
  - **Policy simulation & calibration**: Modeled corporate tax reforms, estate taxes, IRS deductions/credits (e.g., QBI deduction, bonus depreciation) and calibrated the model using extensive microdata (CES, SCF, IRS SOI).
  - **End-to-end model development in Julia**: Led the full development cycle—from code implementation to documentation—producing a robust, scalable research tool for fiscal policy analysis.

- **Computational Behavioral Finance: Agent-Based Model of Financial Markets** *Jun. 2019–Aug. 2020*
  Agent-based model to study emergent price dynamics in financial markets within a limit order book framework.
  - **High-fidelity limit order book simulation**: Implemented real-world microstructure, supporting diverse order types (market, limit, fill-or-kill), varying tick sizes, order sizes, and trading rules.
  - **Heterogeneous agent interactions**: Modeled rule-based trading strategies to analyze market dynamics, price formation, and the impact of algorithmic vs. human traders.
  - **Policy & strategy evaluation**: Assessed the effectiveness of different trading strategies and regulatory changes in market structure, with applications in financial market regulation and trading policy.
  - **Python-based scalable implementation**: Built and optimized the model in Python (esp. NumPy and SciPy packages), ensuring efficient execution for large-scale simulations of trading behavior and price evolution.

Selected Publications
J=Journal, W=Working Paper, R=Policy Report

[J.1]   Alan Isaac, Vasudeva Ramaswamy (2023). **Rule-based Trading on an Order-driven Exchange: A Reassessment**. *Quantitative Finance*, Vol. 23, Issue 12, pp. 1871-1886. DOI: 10.1080/14697688.2023.2270711

[W.1]   Ignacio González, Vasudeva Ramaswamy (2023). **Capacity Utilization, Markup Cyclicality, and Inflation Dynamics**. *Working Paper*.

[W.2]   Gabriel Mathy, Vasudeva Ramaswamy (2023). **The Huey Long Spending Program in Louisiana: Estimating Fiscal Multipliers during the Great Depression**. *Working Paper*.

[R.1]   Ignacio González, Juan Montecino, and Vasudeva Ramaswamy (2024). **Repealing the Clean Energy Credits: A Macroeconomic Assessment of the GOP Proposal**. *Institute for Macroeconomic & Policy Analysis*. Washington, DC.

[R.2]   Ignacio González, Juan Montecino, and Vasudeva Ramaswamy (2024). **Assessing the Effects of a Dividend and Capital Gains Tax Increase**. *Institute for Macroeconomic & Policy Analysis*. Washington, DC.

[R.3]   Ignacio González, Juan Montecino, and Vasudeva Ramaswamy (2024). **Technical Note on Estimating the Overall Effect of Corporate Tax Reforms**. *Institute for Macroeconomic & Policy Analysis*. Washington, DC.

Skills

- **Programming Languages:** Python, Julia, MATLAB, Stata, Mathematica
- **Languages:** English (native), Hindi, Tamil (working proficiency)

Honors and Awards

- **Frank M. Tamagna Education Endowment Fellowship** *Aug. 2021–May. 2022*
  American University
- **Graduate Assistantship** *Aug. 2017–May. 2021*
  American University
- **Wigmore Fund Fellowship** *Aug. 2007–May. 2009*
  Carnegie Mellon University
- **MSPPM Scholarship** *Aug. 2007–May. 2009*
  Carnegie Mellon University
- **Chancellor's Non-Resident Award** *Aug. 2002–Dec. 2006*
  University of Missouri–Kansas City

REFERENCES

1. **Dr. Alan Isaac**
   Professor, Economics Department
   American University
   Email: aisaac@american.edu
   Phone: +1 202-885-3785
   Relationship: Dissertation Committee Chair

2. **Dr. Gabriel Mathy**
   Associate Professor, Economics Department
   American University
   Email: mathy@american.edu
   Phone: +1 202-885-3708
   Relationship: Dissertation Committee Member

3. **Dr. Ignacio González**
   Assistant Professor, Economics Department
   American University
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   Phone: +1-202-885-3725
   Relationship: Dissertation Committee Member