

## Research Statement – Vasudeva Ramaswamy (Oct. 2024)

I am a quantitative macroeconomist working on the interaction of monetary policy, fiscal policy and household inequality. My research encompasses two broad themes. First, I examine how markups and market power rents interact with policy to influence economic outcomes, with a special focus on inequality. Markups are reflected in firm profits and equity values. Since only a subset of households own equity, the response of markups to policy can significantly impact the distribution of income and wealth in the economy. My research studies the conditions under which policy may lead to higher markups, thereby exacerbating inequality. I also study how policy—particularly corporate tax policy—can be designed to target profits derived from market power rents, thereby reducing inequality while minimally affecting investment.

The second theme of my research focuses on the role of economic slack in the transmission of monetary and fiscal policy. In the context of monetary policy, my research demonstrates how the dynamics of inflation and inequality are contingent on the level of capacity utilization in the economy when the central bank intervenes. On fiscal policy, my recent work evaluates the spending multiplier associated with a unique state-level fiscal episode during the Great Depression, and analyzes the determinants of multipliers in the presence of pronounced slack.

From a methodological perspective, my research focuses on the development of computational models that rigorously account for heterogeneity. In the context of inequality, I build and use general equilibrium models which feature households with heterogeneous features and uninsurable risk, taking advantage of recent advances in solving this class of models. Additionally, I am actively engaged in building and developing agent-based models that relax traditional assumptions of agent rationality and perfect information. I use these models to study the role of trading strategies in driving volatility clustering in financial markets.

Below, I provide a summary of my research to date.

**Academic Research** In my job market paper, “*Capacity Constraints, Markup Cyclicalities, and Inflation Dynamics*” (co-authored with Dr. Ignacio Gonzalez), we seek to explain the puzzles in the data relating to the joint responses of markups, the labor share and inflation over the business cycle. Standard workhorse models of the business cycle suggest that markups are countercyclical while the labor share is procyclical. However, growing empirical evidence shows that these variables in fact respond in the opposite way. Additionally, these models have long struggled to explain the slow, inertial “hump-shaped” response of inflation.

In this work, we attempt to resolve these empirical puzzles by integrating endogenous capacity utilization into a standard New Keynesian model. In our model, firms face demand uncertainty and respond by holding additional precautionary capacity. Following expansionary demand shocks, firms raise output by increasing their utilization rate, resulting in lower levels of excess capacity. As a result, they raise markups to “price in” this increased probability of being capacity constrained. While the higher desired markups apply upward pressure on inflation, the higher capacity utilization rate manifests as a positive productivity effect, which partially offsets the inflationary pressure. Meanwhile, capacity expansion occurs through increased investment and hiring, which mitigates both effects on prices over time. Our analysis uncovers additional trade-offs for central bankers to consider when formulating policy. Since markups can positively influence inflation, particularly during periods of heightened capacity utilization, raising interest rates could have counterproductive effects. While higher rates may dampen inflation by discouraging demand, it could also slow down capacity expansion, thereby prolonging higher markups and inflation.

In ongoing and future work, we plan to investigate the opposing effects of capacity utilization on inflation for optimal monetary policy. Additionally, since our model indicates that the responses of markups, wages, and labor share—variables associated with the cyclical behavior of inequality—are state-dependent, we plan to utilize this framework to design taxes and transfers over the economic cycle.

In my working paper, “*The Huey Long Spending Program in Louisiana: Estimating Fiscal Multipliers During the Great Depression*” (joint work with Dr. Gabriel Mathy), we estimate fiscal multipliers from Louisiana’s extensive spending program during the Great Depression. Governor Huey Long initiated an ambitious plan to build a paved road network in every Parish (county) in the state in 1928. We exploit the variation in spending across parishes and years—including the absence of national fiscal measures during the peak of the program—to estimate the fiscal multiplier. We arrive at an estimate of approximately 1.2 for the Long era (1929–1939), which aligns with other historical estimates but falls below modern estimates for periods at the zero lower bound. We attribute

the lower multipliers to factors such as high import shares, low human capital, and corruption. We propose the concept of a “corruption dimultiplier” which explains how corruption can skew multiplier estimates downward. Our findings offer relevant insights for modern economies with similar conditions, providing a template for future research in fiscal policy effectiveness under economic distress.

Finally, in “*Rule-Based Trading on an Order-Driven Exchange*”, published in *Quantitative Finance*, my co-author Dr. Alan Isaac and I revisit the classic Chiarella and Iori (CI) model, which suggested that trading strategies like noise, fundamentalist, and chartist behaviors contribute to market dynamics. Our findings reveal that some earlier conclusions about trading strategies’ effects were incorrect. We provide a more accurate replication of the CI model, showing that certain behaviors, particularly momentum trading, have minimal impact on price volatility, contrary to prior claims. This study underscores the need for more precise modeling of trading behavior to better understand market volatility.

We extend this work in our working paper “*Order Size Decisions and Volatility Clustering*” by incorporating “quantity shading” behavior, where traders adjust their order sizes based on volatility. Our results demonstrate that when liquidity-providing traders are more sensitive to volatility than liquidity-consuming traders, the market exhibits pronounced volatility clustering. This mechanism highlights the role of heterogeneous trading strategies in driving market behavior and offers insights into how market microstructure is a crucial determinant of overall market volatility.

**Policy Research** As a Postdoctoral Fellow at the Institute for Macroeconomic Policy and Analysis (IMPA), I have worked on understanding how fiscal policy can address the inequality driven by rising market power and markups. Our research emphasizes the role of corporate taxation. While higher corporate taxes are conventionally thought to discourage investment by raising the cost of capital, current tax code provisions like accelerated depreciation, investment deductions and the like, mitigate this effect. In such a context, higher corporate taxes can effectively target profits derived from market power rents, thereby reducing inequality while minimally affecting investment.

My key contribution to this project has been building a medium-scale general equilibrium model that allows us to investigate these questions. In particular, I have developed a computational model that incorporates overlapping generations of households who face uninsurable idiosyncratic shocks to their income, firms with market power, and a government sector that levies taxes and provides transfers and public goods. Solution methods for this class of models are computationally intensive, and I have incorporated the latest advances in this literature into the model. Specifically, the model is entirely solved in the sequence space, using advances in the automatic differentiation literature to obtain solutions quickly and at machine precision.

Along with my co-authors, I have used this model to study the distributional effects of fiscal policy, and to evaluate the impact of different tax and transfer policies on inequality and growth. We have co-authored three policy reports:

- “*Assessing the Effects of a Dividend and Capital Gains Tax Increase*”: This report concludes that raising taxes on dividends and capital gains could boost government revenue by 5% and GDP by 1%, mainly benefiting lower- and middle-income households while reducing income for the wealthiest.
- “*Repealing the Clean Energy Credits: A Macroeconomic Assessment*”: We find that repealing clean energy credits would reduce GDP by 2% and hurt employment. Retaining these credits, coupled with higher corporate taxes, can simultaneously promote growth and reduce inequality.
- “*Technical Note on Estimating the Overall Effect of Corporate Tax Reforms*”: This technical brief outlines the methodological differences in estimating tax reform impacts at micro- and macroeconomic levels, highlighting how assumptions about market power alter these estimates.