Research Statement
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I am a macroeconomist specializing in Public Finance, Heterogeneous Agent Models, and Computational Economics. My primary research analyzes the welfare and macroeconomic effects of government debt management policies in developed and developing economies. I use quantitative macroeconomic models with heterogeneous agents to conduct this analysis. My secondary research interest is labor economics, focusing on firms' strategic labor demands to suppress wages or deter competitor entry.

Topics in Public Finance

Government's Foreign Investment in Aging Economies (JMP) In "Public Debt and Foreign Investment in Aging Developed Economies," I study the impact of a sovereign wealth fund's foreign high-return investment strategy on welfare and macroeconomic dynamics. Using a quantitative heterogeneous agent model calibrated to Japan, I find the policy involves stark inter-generational trade-offs. The short run requires increased government borrowing to finance the investment, suppressing capital accumulation and growth. However, higher long-run returns expand fiscal space and increase welfare for future generations. The policy is overall welfare-improving under the utilitarian social welfare function, suggesting the Japanese government could have pursued a more aggressive strategy.

The high-return investment introduces risk, requiring the government to either raise taxes or issue more bonds following investment failure, straining fiscal space and household consumption. For risk-averse households, this fiscal distress risk can significantly harm welfare. I further explore the role of stochastic returns on debt sustainability and welfare. I find the foreign investment policy remains welfare-improving and expands the fiscal outlook even with increased risk. This outcome is attributed to the fundamental convexity of compounding interests, as discussed in Kocherlakota (2023). Stochastic short-term bond yields, introduced by the investment risk, result in a lower long-term yield (the relevant metric for infinite debt rollover), thereby improving debt sustainability and the fiscal outlook.

These results suggest aging, highly-indebted economies benefit from sovereign wealth funds investing in foreign high-return assets, balancing risk and return to improve long-term fiscal sustainability and welfare. This research contributes to the literature on public debt management and fiscal issues in countries facing demographic challenges.

Sovereign Partial Default in Continuous Time In "Sovereign Partial Default in Continuous Time," co-authored with Prof. Gabriel Mihalache, we formulate a tractable, continuous-time

model of sovereign partial default, extending the framework of Arellano, Mateos-Planas, and Ríos-Rull (2023). The model is solved using an implicit upwind finite difference scheme, providing a tight characterization of debt and default dynamics, and the severity and duration of crisis events. Unlike traditional models, our framework features a single value function and unique policy functions, simplifying theoretical and numerical analysis.

Key findings include the replication of a hump-shaped pattern in partial default and debt under negative income shocks. Simulations show sovereigns frequently regain market access with higher debt than before the default episode, as the rapid accumulation of arrears from partial default becomes the primary financing source over new debt issuance. This mechanism contributes to protracted default episodes. The model also suggests the possibility of voluntary debt restructuring when bond prices decline sharply, creating mutually beneficial outcomes for debtors and creditors.

Topics in Labor Economics

I am also interested in labor economics, specifically firms' incentives for strategic labor demand to suppress wages or deter competitor innovation/entry.

Firm's Strategic Behavior For Innovation Deterence "Strategic Demand for Inventors" develops a simple Schumpeterian growth model to analyze firm-level strategic demand for inventors, the sole input for innovation. Innovating firms, holding temporary output market monopolies, strategically set inventor demand to deter competitor innovation and maintain market power. Using a tractable model with Stackelberg competition in the inventor market, I show these strategic hiring decisions reduce aggregate growth and exacerbate top income inequality compared to the non-strategic benchmark. This mechanism is amplified by high R&D fixed costs.

Firm's Strategic Behavior For Wage Suppression "Granular Search in Monopsonistic Labor Market," co-authored with Prof. Sean McCrary, develops a model of monopsonistic labor markets featuring the granular search protocol introduced by Jarosch, Nimczik and Sorkin (2024), where the firm size distribution is endogenous. We show a monopsonist's effective Nash bargaining power is endogenously determined by its relative size in the labor market. Monopsonistic firms optimally overpost vacancies to suppress wages, considering the wage determination process. We extend this to a dynamic model and solve for the stationary equilibrium, providing a rich set of policy implications for minimum wage and competition policy. Specifically, the model demonstrates that wage increases following new firm entry are amplified because entry reduces the incumbent firm's employment size and decreases its effective bargaining power through the granular search mechanism.

Future Research

My future research agenda focuses on extending the quantitative public finance models developed in my current work.

Fiscal-Monetary Interactions and Inflation Dynamics The current aging economy model, which analyzes high-risk foreign investment, is purely fiscal and excludes monetary policy and inflation. I will develop this framework to incorporate these elements, creating a model capable of capturing fiscal-monetary policy interactions. The objective is to analyze the implications of public debt management for price stability: Does the long-term improved debt sustainability resulting from high-return investment stabilize inflation? Conversely, does the necessary short-term increase in public borrowing to finance the investment potentially raise short-term inflation expectations and actual inflation?

General Sovereign Wealth Fund Model I plan to generalize the current model of high-risk, high-return government foreign investment. The new framework will model a sovereign wealth fund investing in both foreign assets and domestic equity markets. As numerous nations consider or implement such strategies, a model-based theory is required to analyze the domestic and international macroeconomic consequences of general sovereign investment policies.

Risk and Debt Sustainability I will further investigate the mechanism linking government policy-induced risk and debt sustainability. Building on my findings regarding the convexity of compounding interests, the research will explore how government actions that alter the risk profile of its liabilities or assets affect the fiscal outlook and the long-term solvency of the state. This includes a more rigorous analysis of how risk affects the pricing of long-term government debt.